



## Social Protection Discussion Paper Series

### **Strengthening Public Safety Nets from the Bottom Up**

**Jonathan Morduch and Manohar Sharma**

**September 2002**

Social Protection Unit  
Human Development Network  
The World Bank

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**Social Safety Net Primer Series**

# **Strengthening Public Safety Nets from the Bottom Up**

*Jonathan Morduch and Manohar Sharma*

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**WORLD BANK INSTITUTE**  
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# Social Safety Net Primer Series

The World Bank Social Safety Nets Primer is intended to provide a practical resource for those engaged in the design and implementation of safety net programs around the world. Readers will find information on good practices for a variety of types of interventions, country contexts, themes and target groups, as well as current thinking of specialists and practitioners on the role of social safety nets in the broader development agenda. Primer papers are designed to reflect a high standard of quality as well as a degree of consensus among the World Bank safety nets team and general practitioners on good practice and policy. Primer topics are initially reviewed by a steering committee composed of both World Bank and outside specialists, and draft papers are subject to peer review for quality control. Yet the format of the series is flexible enough to reflect important developments in the field in a timely fashion.

The primer series contributes to the teaching materials covered in the annual Social Safety Nets course offered in Washington DC as well as various other Bank-sponsored courses. The Social Safety Nets Primer and the annual course are jointly supported by the Social Protection unit of the Human Development Network and by the World Bank Institute. The World Bank Institute also offers customized regional courses through Distance Learning on a regular basis.

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# Abstract

Helping to reduce vulnerability poses a new set of challenges for public policy. A starting point is understanding the ways that communities and extended families try to cope with difficulties in the absence of public interventions. Coping mechanisms range from the informal exchange of transfers and loans within families and communities to more structured institutions that enable an entire community to provide protections to their neediest members. This paper describes ways to build public safety nets to complement and extend informal and private institutions. The most effective policies will combine both transfer systems that are sensitive to existing mechanisms and new institutions for providing insurance and credit and for generating savings.



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# Strengthening Public Safety Nets from the Bottom Up

*Jonathan Morduch, Associate Professor, NYU Wagner Graduate School of Public Service and at the Department of Economics, New York University, New York*

*Manohar Sharma, Research Fellow, International Food Policy Research Institute (IFPRI), Washington, D.C.<sup>1</sup>*

## Introduction

Public safety nets are created with many objectives. Most efforts focused originally on raising the consumption of the poor through publicly-provided transfers. But policymakers are increasingly turning to ways to help low-income households cope with income fluctuations as well. Some describe these latter interventions as “safety ropes,” which, just like a mountain climber’s rope, tether the individual in order to minimize the distance fallen when misfortune strikes. “Safety nets,” on the other hand, are characterized as cushions that keep individuals from falling to rock bottom. In what follows, we consider both strategies but use the term “safety net” as an all-encompassing category.

Where does public action fit in? The answer depends on how (and how well) households currently navigate and use the web of available institutions to address risk (Morduch 1999a). Only by building up from an understanding of actions already taken by households and communities can public safety nets maximize their effectiveness and minimize displacing existing mechanisms.

The importance placed on addressing risk stems from three main concerns. First, a great deal of risk can, in itself, be a great burden to carry. Looming uncertainty can weigh down individuals spiritually and emotionally and can shape social and economic relationships to the detriment of the poor. Second, the steps available to households to address risks can be costly and limited in effectiveness (such as selling assets at a discount in times of wide-scale misfortune), creating a demand for more efficient, reliable mechanisms. Short-term benefits from existing mechanisms can carry high long-term costs, and it is natural to ask whether public action can help support a better balance. And, third, severe misfortune can sometimes trigger downward spirals in conditions that make recovery even more difficult than it would have been at the outset. Because of these concerns, reducing vulnerability has risen to near

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<sup>1</sup> This paper has benefited from comments provided by Samantha de Silva, Margaret Grosh, Azerdine Ouerghi, and William B. Steele, all from the World Bank. Jonathan Morduch can be reached via email at [jonathan.morduch@nyu.edu](mailto:jonathan.morduch@nyu.edu) and Manohar Sharma at [m.sharma@cgiar.org](mailto:m.sharma@cgiar.org).

the top of the agenda for safety-net strategies, forming a central building block of both the recent *Social Protection Strategy Paper* (World Bank 2001a) and the *World Development Report 2000/2001* (World Bank 2001b).

But helping to reduce vulnerability poses a new set of challenges for public policy. The most immediate challenge is to determine the appropriate role for public action. A starting point is understanding the ways that communities and extended families cope with difficulties in the absence of government interventions. Coping mechanisms range from the informal exchange of transfers and loans within families and communities to more structured institutions like the *Zunde ramambo* found in parts of rural Zimbabwe. (In the *Zunde ramambo*, the village chief allocates fields to be collectively worked by the community and then distributes the proceeds to the needy.)<sup>2</sup> Access to savings and credit provides other buffers, while publicly-owned insurance companies often provide additional means to reduce vulnerability, particularly through health and crop insurance. Looking ahead, some private insurance companies and microfinance institutions are starting pilot programs to test possibilities for providing life, health, and property-related insurance to low-income clients, and this sector may soon grow dramatically.

The existence of this web of private and nonformal mechanisms prompts a series of questions:

- Would it be more effective to try to strengthen existing mechanisms rather than to create wholly new institutions?
- Can the private sector and nongovernmental organizations (NGOs) play larger roles?
- Will building public safety nets wind up largely displacing existing mechanisms and thus offering limited net gain to households?
- Can we systematically predict when informal insurance and the private sector will be most problematic and when they will be most effective?

The essay draws on recent experience to suggest ways to answer these questions. We describe important places for public action, as well as its limits. More generally—and perhaps more importantly—the essay aims to systematize trade-offs that arise when evaluating policy options.

## **How Insurance Matters**

Without adequate insurance coverage, households are often forced to take costly steps to shield themselves from risks. This frequently means opting for activities with lower means but lower variances. Economic change more often than not involves using new technologies, entering into new types of businesses and partnerships, or exploring or creating new markets. Many of these actions will be inherently risky and will usually involve learning periods that may be even more risky. If poor households lacking insurance coverage are those that shy away from these, entrapment in low-paying activities that reinforce poverty may result. Further, even the “safest” income strategies are not completely immune to shocks, especially in rain-dependent agriculture. When eventually hit by negative income shocks, these

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<sup>2</sup> A brief discussion of the *zunde ramambo* concept can be found in Chinowaita (2000).

households, which have only the thinnest asset base and lack access to external *ex post* coping mechanisms, are most vulnerable to both harsh welfare losses and slipping into a poverty spiral.

The second set of consequences has to do with *ex post* actions. Lacking insurance mechanisms, the negative income shock has to be absorbed through reductions in household expenditures. The nature of hardship, including its effect on individual family members, determines how these reductions are made. When downturns are small, the reductions may be in terms of quality downgrades. Quality downgrades that preserve essential inputs related to basic nutrition and health are feasible options, even for poor families. A household may, for example, switch from a relatively expensive cereal, such as rice, to cheaper maize or tuber crops that provide a similar nutrient level. However, when shocks are larger, not only are the immediate welfare losses associated with reduced consumption larger, but there is an increasing possibility that households may undertake more drastic action to uphold irreducible consumption at the expense of future income and consumption. Examples of such actions are:

- Pulling school-age children out of school either to save on schooling costs or, more commonly, to place them in the labor market to earn additional income (e.g., Jacoby and Skoufias 1997; Jensen 2000);
- Reducing or even canceling planned investments in maintenance of business assets that may result in reduced income in future periods. Farmers, for example, may defer land-related investments required to maintain soil fertility or small entrepreneurs may postpone essential machine repairs or maintenance;
- Depleting free-access community resources such as forest products in order to finance current consumption;
- Reducing consumption of nutritious foods that are likely to have more serious longer-term consequences on the health status of children;
- Choosing not to honor social obligations such as payment of taxes or other contributions to community-level activities, leading to erosion of social cohesion and social instability;
- Engaging in distress sales of productive assets such as land or other household assets that permanently damage future earning potential;
- Participating in patron-client relationships with grossly disadvantageous terms of trade, e.g., bonded laboring; and
- Resorting to distress-induced migration, often to urban centers where there are not only additional risks in employment but also even more limited informal insurance than previously.

In each of the cases above, current consumption is maintained through actions that seriously, sometimes irreversibly, compromise future livelihood, actions that could have been avoided if households were able to use financial services (or public institutions) to maintain consumption levels in the face of income shortfalls.

## **Taxonomy of “Informal” Coping Mechanisms**

The potential distress caused by downward fluctuations in income provides powerful incentives for poor households to make arrangements for mitigating the effects of income

variability, especially given that formal financial institutions that offer insurance services tend to be poorly developed.

These arrangements can be generally characterized along two dimensions: (1) *ex ante* versus *ex post* coping mechanisms and (2) spatial versus intertemporal responses.

### ***Ex ante Management of Risks versus ex post Risk Coping***

When confronted with a risky income profile, risk-averse households have strong incentives to take steps to contain potential distress to some levels. Two distinct—though related—strategies are available. First, households can be expected to make prearrangements to mitigate distress once events resulting in income losses have already occurred, such as in the aftermath of a bad harvest or reduced labor earning due to illness. These kinds of arrangements are generally known as *ex post* risk coping arrangements. Even in the absence of formal institutions of insurance, various informal mechanisms such as risk pooling arrangements among kin, friends, and neighbors, use of accumulated precautionary savings, and credit lines maintained with different types of lenders are used to finance expenditures to uphold average consumption levels during income downturns. These mechanisms, therefore, are also referred to as *consumption-smoothing* strategies.

A second strategy would be for risk-averse households to choose from among employment or production possibilities those activities that contain income variability to some acceptable level, effectively choosing to smooth income in order to smooth consumption. They can do so, for example, by making conservative production choices in agriculture, adopting less risky crop varieties, or engaging in wage labor rather than riskier entrepreneurial activities. But these choices are not without cost, since they may mean forgoing higher levels of *average* profits in order to secure steady income. For example, a study suggests that farmers could substantially raise average profits by increasing the application of fertilizer; however, by using less fertilizer, investment losses are reduced during bad times.

Because of the potential losses involved, decisions of households to engage in safer but relatively less profitable earning activities depend importantly on available *ex post* coping strategies. This introduces a difficulty in disentangling actions related to *ex ante* management of risks from actions related to *ex post* risk coping. If lack of consumption-smoothing mechanisms forces households to smooth income, there will appear to be less riskiness than is actually present, and common indicators of risk will understate inherent variability.

### ***Risk-Sharing: Spatial versus Intertemporal Smoothing***

Risks may be shared across individuals or households at a given point of time, as when a household experiencing a negative income shock receives a transfer from his risk-pooling partner who has not shared the same fate. Or risk may be pooled across time, as when a household borrows money during a “bad” time and repays it in the future when times are “good.” In the first case, risk is shared among individuals across space; in the later case, individuals share risks over time. There is, however, an inherent time-dimension in the case of interhousehold transfers, as the principle of reciprocity forms the core of such transfers: current recipients of the transfers are expected to reciprocate in the future by providing transfers to other risk-pooling partners experiencing negative income shocks. We discuss this further below.

## **Taxonomy of Risks**

In general, the nature of the informal arrangements best suited to cope with income variability varies with the type of risk. Understanding the role and implications of the different types of risk is a first step in designing more effective safety nets (and safety ropes).

### ***Covariant Risk versus Idiosyncratic Risk***

*Ex post* coping mechanisms that rely on risk-sharing carry the greatest potential benefit when income risks faced by risk-sharing partners (individuals or households) are unrelated to one another. When income risk is idiosyncratic to the household, a downturn in income faced by one household is less likely to coincide with a downturn in incomes of other households that are partners in the risk-sharing arrangement. This makes it possible—or easier—for participating households to support consumption-smoothing efforts of the affected households through compensatory transfers or lending. On the contrary, when income risks are similar, resulting in the co-movement in incomes across households, all households place demands for compensatory finance simultaneously, and risk-sharing is not possible. Within weather-dependent agriculture areas in developing countries, it is likely that communities of households engaging in similar agricultural practices on near-adjacent fields face covariant weather-induced risks. In such cases, consumption smoothing via *ex post* risk-sharing is likely to be ineffective, especially in the aftermath of extensive rain failure. When the negative shock is large and widespread, it is also likely that the resulting village-wide decline in income, demand, wages, and prices may reduce the effectiveness of actions to uphold consumption through the sale of precautionary assets or by increasing participation in labor markets.

However, except in cases of widespread weather-related crises or the occurrence of similar large-scale calamities (war, earthquakes, etc.), the greatest risks are often idiosyncratic to particular households. For example, Morduch (1991) shows that even in highly risk-prone semi-arid tropics in south India, as much as 75 to 96 percent of the variance in the logarithm of household income is attributable to idiosyncratic shocks (some is attributable, however, to measurement error). Household-specific idiosyncratic risks typically arise not only out of field- or plot-specific weather and pest risks, but also out of incidences of human and animal illness; unemployment spells faced by household members; births, deaths, migration, and division of extended families; and failure of household-specific businesses. The generally wide prevalence of idiosyncratic risks suggests that there is considerable scope for risk-averse households to enter into mutually advantageous insurance contracts.

### ***Unanticipated Risk versus Anticipated Income Variability***

When the nature of income variability can be anticipated with a high degree of certainty, the household is in a better position to plan for it. Take the well-known agricultural production cycle. Knowing that production takes place (and attendant costs are incurred) with the seasons, while consumption demands are constant, simplifies the business of tailoring employment plans and saving and credit decisions to match consumption demand. Seasonal migration for employment coinciding with the lean agricultural season, for example, can be planned and timed with considerable foresight and a high level of certainty. Labor contracts, likewise, can be entered into that explicitly take into account the agricultural season. Agricultural inputs may be purchased on credit from merchants with clear arrangements to repay after harvest. In each of these examples, advance knowledge of future events and their effects means that low-risk transactions can be easily made.

Another example of variability that can be quite reasonably anticipated is that of income earning through the life cycle. Generally, most people can expect that earnings from employment will decrease sharply at retirement. It is also known that susceptibility to illness or the probability of experiencing various types of physical disabilities increases considerably at old age and that death eventually occurs. Because of the high level of certainty with which these events will occur, there is a basis for making clear plans related to saving for retirement. In many developing countries, consideration of these factors has given rise to institutional extended and intergenerationally-linked families whose daughters and sons are expected to assist and care for old-age parents. It also explains why funeral societies are so widespread in many parts of the world.

On the other hand, many contingencies can only be forecast poorly. That farmers are often willing to postpone decisions on the intensity of fertilizer application until rainfall patterns become clearer is indicative of the value of gaining more accurate information. In agriculture, the profit-maximizing level of fertilizer depends on the availability of other inputs such as water. Under semi-arid conditions, water availability depends on rainfall, an uncertain, and therefore stochastic, outcome. If fertilizer is applied to optimum water availability, profits are maximized if rainfall is good, but losses will be large if rainfall turns out to be poor. On the other hand, if application of fertilizer is reduced to sub-optimal levels of water availability, profit will be lower if rainfall is good but losses will be lower if rainfall is poor. Because of this uncertainty, the farmer is literally forced to “gamble,” and his decision will depend on his risk-taking ability/preference and his assessment of the likely rainfall pattern. Given that waiting for the onset of rains increases the accuracy of the farmer’s assessment of weather conditions, he will frequently choose to do so.

### ***Persistent Risks***

It hardly needs to be said that shocks that extend across seasons or years create much greater difficulties for households than those that are just temporary. As shortfalls persist, households are often forced to take increasingly costly measures to protect themselves, and in anticipation of persistent shocks, households are forced to accumulate far larger pools of assets than otherwise. From the standpoint of risk-sharing in communities and within extended families, persistence plays a particularly difficult role by both extending demands by recipients of transfers and reducing their ability to reciprocate soon. Both phenomena undermine the ability to sustain effective informal insurance mechanisms.

## **Community Responses to Risk**

One of the first ways that households cope with misfortune is through access to the resources of extended families and communities. Some important arrangements are described below.

### ***Interhousehold Transfers***

Communities and families value their roles as support networks, and that support often comes in the form of transfers, either in-kind or in cash. Sometimes there is an explicit understanding that the transfers will have to be reciprocated when the donor is next in need; at other times the sense of reciprocity is looser (perhaps to be reciprocated by helping a member of a younger generation, perhaps by performing other kinds of services); and at still other times, transfers take the form of loans, to be paid back once the household is back on its feet (but often without an interest charge).

How important are transfers? The answer varies a great deal by location. While 65 percent of poor households in Jamaica report receiving transfers, less than a third do in Bulgaria and Russia. For those that receive transfers in Russia, however, the average amount is large: private transfers make up, on average, nearly 70 percent of the income of the poorest quintile of the population (Cox, Galasso, and Jimenez 2000). To what extent does nonformal insurance (of which private transfers are one kind) protect consumption levels in the face of income shortfalls? In the Philippines, a recent study shows that young households faced with the acute illness of a member were reasonably able to protect overall consumption levels. And in Indonesia, households (averaging across both young and old) were able to protect consumption levels against 70 percent of the income loss associated with moderate illness. The consumption levels of older households in the Philippines, however, were found to be very vulnerable in the face of acute illness. And in Indonesia, consumption levels of households were, on average, reduced by about 70 percent of shortfalls associated with long-term acute illness.

Clearly, the distribution of transfers is very unevenly distributed across poor households. Even in the same country, there are large regional differences, as some poor households have broad access while others receive little or none. This evidence points to several tendencies that reinforce the taxonomies or risks and mechanisms described above:

- Despite the much-discussed role of intergenerational transfers, *elderly populations tend to be much more vulnerable* than younger populations, in part due to the weakening of nonformal intergenerational “social security” systems in the face of increased migration and the splintering of households.
- Large, catastrophic losses are more difficult to handle through private means, relative to smaller, more common losses.
- Idiosyncratic events (like non-epidemic illness) that tend to affect individuals one at a time are easier to address through nonformal insurance, compared with events that affect entire communities (like poor harvests) or broad regions (like inflation or earthquakes). After the drought in the Sahel in the early 1980s, for example, private transfers made up just 3 percent of average losses faced by poor households.
- *Poor households tend to be much more vulnerable than households with more assets.* A recent longitudinal study from China, for example, shows that for the bottom 10 percent of households, 40 percent of a bad shock translated into consumption declines. But for the richest 10 percent, only 10 percent of the shock translated into a consumption decline.
- *Socially excluded groups among the poor fare worst under systems of nonformal insurance*, while households with extensive community networks may be able to cope with moderate idiosyncratic shocks quite well.

### ***Motivations for Remittances***

For those households that do receive transfers, it cannot be simply assumed that “insurance” is being provided. Providing help to neighbors and relatives in need is only one of many motivations, which we discuss below.

Remittances form an important source of transfers, especially intra-family transfers. For example, roughly two-thirds of all transfer inflows originated abroad in a large survey from

Pakistan (1985–88) (Foster and Rosenzweig 1999). And in the Philippines, 26 percent of urban households (and 13 percent of rural households) received remittances from abroad (Cox and Jimenez 1995). These flows pertain both to spouses remitting to their families and to migrant children in urban areas remitting to their parents in the countryside (see, e.g., Paulson 2000, on Thailand, and Lucas and Stark 1985, on Botswana).

Family members migrate and remit for a number of reasons. In many cases, the decision is made primarily to increase total household income and has little to do with seeking insurance cover. With limited local income-earning opportunities, members may decide to migrate to other locations where returns to labor or to other skills possessed by them are higher. Their subsequent decision to remit may simply reflect altruistic motives seeking to maximize family rather than individual welfare. In many remote communities with seasonal agriculture, it is widespread practice that individual members temporarily migrate to areas with better seasonal employment and subsequently return home and pool all earned incomes.

However, families also recognize that, frequently, income earnings across geographical locations are only weakly correlated. For this reason, they may strategically use migration as a way to diversify and reduce variability in family income. For instance, placing some family members in town and pooling village and town income offer insurance to both urban migrants and to those who stay in the village. As Lucas (1997) notes, risk-averse families may gain from such a strategy, even if mean incomes and variance are the same across locations—as long as incomes do not co-vary. Since the remittance arrangement between the migrant and the family is voluntary, it must be self-enforcing. Altruism, as explained above, is one of the most obvious forces propelling such enforcement. However, remittances are propelled by motives of self-interest, too. First, it may be that remittances are important means by which to lay claim to inheritance on family assets. Second, migrants typically are those family members who have benefited the most from investments in education, and remittances may simply be a means of reimbursing investment expenses to the household. Third, and quite related, insofar as it is the younger family members that migrate, remittance may actually constitute paying back to the older generations for services rendered in the past.

Whatever the motivation behind the decision to remit, family members placed in weakly correlated earning activities are in a better position to pool risks than others. What is less clear is the extent to which families strategically diversify income through migration. Lucas and Stark (1985) find that in Botswana, the receipt of remittances depends on an interaction between the severity of droughts and the ownership of drought-sensitive assets such as cattle. In rural India, Rosenzweig and Stark (1989) show evidence that households establish marital ties with those living in distant locations that are less likely to have covariant incomes. De la Brière et al. (1997) studied factors that motivate Dominican migrants to send remittances to their rural parents. They found that investment toward inheritance is the main motivation to remit for men, younger migrants, and migrants intending to return. In contrast, insurance is the main motivation to remit for women migrants, particularly among those with no intention to return to their birthplace.

### ***Explaining Breakdowns***

Nonformal insurance systems do not work well for many of the same reasons that private, commercial insurance tends to fail—and other reasons as well.

*Contract enforcement.* The first problem is that it's often difficult to enforce "contracts," so the most feasible arrangements are those that make participants *want* to stay in. A participant who has pledged—but is not legally bound—to help a neighbor may have mixed feelings about making good on his obligations, especially if he himself is struggling to get by. But he is more likely to fulfill obligations if he sees that breaking the pledge today will deny him the opportunity to receive the benefit at some future time. The question then is whether the short-term gain from breaking the pledge (and thus keeping the money that would have been used to help the neighbor) is smaller than the long-term benefits of expected future help. If so, the nonformal insurance program will be sustainable, even without legal enforcement sanctions. In practice, this means that nonformal insurance will tend to limit the size of benefits in order to ensure that the short-term gains from breaking the pledge to help others are smaller than the expected long-term benefits of cooperation.

*Moral hazard.* The second tension involves moral hazard.<sup>3</sup> The problem arises only when information about the recipient's behavior is costly to obtain—which may not be a problem in a village setting. But where obtaining information *is* a problem, the possibility arises that participants in insurance arrangements will not take adequate precautions against risks, saddling family and neighbors with greater expected obligations to help out in times of loss than had been bargained for.

*Diversity of resources and trajectories.* A third source of tension is that household incomes do not grow at uniform rates within communities. Some households stay in place or slip backward; others move ahead. Those that get ahead are generally in a better position to insure the rest of the community, but they will tend to make sure that they are getting value for their help. As an "insurance" scheme slips into becoming a process for systematic redistribution from richer to poorer, the scheme may become increasingly less appealing to richer households. It is common to see those richer households then pulling away from intensive community-based insurance obligations and either insuring on their own or forming new insurance groups just with richer households—to the detriment of the poorer households. Diverse patterns of resources and trajectories of income growth thus make it hard to achieve broad, community-based informal insurance arrangements. The problem poses a conundrum. On the one hand, more diversity of occupations and of probabilities of gains and losses is better for the health of insurance arrangements since it creates greater scope for diversification. But unfortunately, on the other hand, the diversity tends to undermine the cohesion necessary to make informal arrangements survive over time.

### ***Indigenous Insurance Mechanisms and Community Institutions***

The *Zunde Ramambo* described in the introduction is one example of how communities come together to protect their neediest members. Another institution common in many communities is the burial society. We provide an example from fishing communities in Cochin, India.<sup>4</sup> Organizers of the society, who are often associated with a church, temple, mosque, or social club, solicit membership from at least 300 people. With this size, the fund can be reasonably well diversified and will not fall apart if a cluster of claims comes unexpectedly soon after the fund is started.

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<sup>3</sup> Once an insurance contract is entered into, there is generally less incentive to take actions to avoid risks pertaining to the insured event, creating "moral hazard." Some of these actions cannot be observed or are excessively costly to observe, so the insurance contract cannot stipulate actions to be taken by the insured.

<sup>4</sup> The example is from Rutherford (2000).

We consider a fund that operates for just one year. During the year, each member contributes at least 2 rupees per week (about 4 cents). For each rupee per week contributed, the society guarantees that if a member of the contributor's family dies within the year (with exclusions for infants and partial exclusions for young children), the family gets 500 rupees from the fund. Members can increase coverage by increasing weekly contributions, and the fund typically is left with a positive balance at the end of the year—which is then distributed back to the members, while deficits are made up through extra collections. The burial society thus provides insurance against the high costs of funerals and the loss of future earnings. With a low minimum contribution, most poor households are able to participate.

Another form of burial society is not restricted to lasting for just a year. Instead, regular payments are made and the family receives a payout at the time of death, tied to the contributions made up until that point. The death benefit might, for example, be a doubling of the contributions made to date. How does the fund break even? The fund would lose if the money were only disbursed when members die. The money, however, is instead lent out to members of the community at competitive interest rates (in Cochin at 4 percent per month), guaranteeing that the fund grows steadily and dividends can be paid. As long as there are enough long-lived participants, the fund will be financially healthy.

The cost for participants is another matter. While the funds are popular, they are much more expensive than comparable policies sold by state insurers in India. Those insurers lack the neighborhood ties at the heart of the burial societies, but they have much greater ability to diversify risk. As discussed below, this realization has prompted NGOs and microfinance organizations to move toward providing cheaper, community-based insurance products with greater scope for risk diversification.

## **Self-Insurance by Individuals and Households**

Households self-insure themselves by accumulating savings and by diversifying their asset and labor portfolios. These are discussed below.

### ***Household Savings***

Typically, the most important coping mechanism that households have is to accumulate assets in times of relative surplus and then draw them down in times of need. This might involve building up a savings account, hiding cash, or purchasing durable goods that can be sold later.

Poor households tend not to have formal savings accounts in many parts of the world, however (although some microfinance programs are beginning to develop successful savings products). Instead, most of the assets on which households rely carry risks of their own—like owning a draft animal or other livestock that are vulnerable to illness or adverse price shocks. In fact, as Dercon (1999) argues, the returns to the assets used by households for “saving” are often positively correlated with incomes. So when income falls, the assets also lose some of their value. And, when income is relatively high, the assets are also worth more. When incomes have a strong common component in a region, this can make it hard to build up assets in the first place—as they will be most expensive when households want to buy them, and least valuable when sold. Still, selling assets and drawing down savings is a common first line of defense when misfortune strikes.

In the absence of savings accounts and good possibilities for buying and selling assets, rotating savings and credit associations (ROSCAs) can play a key role in saving. ROSCAs are seen worldwide under many different names. Within Africa, ROSCAs are known as *susu* in Ghana, *esusu* in Nigeria, *upatu* or *mchezo* in Tanzania, *chilemba* or *chiperegani* in Malawi, and *tontines* throughout francophone Africa (Steel et al. 1997), and tend to function in the same basic way. First, they have a fixed life span. Within that span, members contribute funds weekly or at other regular intervals. With each round of contributions to the common pot, one member of the group is given the whole amount. The pot is typically used to buy goods that are too costly (and not divisible) to purchase with the typical weekly cash flow of households.

In one version, the pot is allocated to members (by predetermined order) until everyone gets a turn, but the insurance aspects may be limited here, since households cannot guarantee that they will get the pot exactly when they most need it. “Bidding ROSCAs” aim to address this problem. Here, members are allowed to bid on the opportunity to get the pot—for example, to address a short-term income shortfall. While it might thus be costly, it will typically be much cheaper than having to turn to moneylenders. Savers (those who do not need the pot) benefit, too, by acting implicitly as moneylenders.

A big advantage of ROSCAs is that they are simple. Since funds circulate at all times, there is no need for deposit facilities. Accounting requirements are thus minimal, and the arrangements have a clear beginning and end—after which they tend to start up again for another cycle.

A disadvantage is that they are inflexible and, for savers, they tie up money that could be needed to address a temporary crisis. This same aspect can, of course, also be an advantage for those who lack the discipline to save. In discussing policy responses below, we describe one new NGO that is trying to learn from ROSCAs to create better banks for the poor and vulnerable.

### ***Self-Insurance: Diversifying Asset Portfolios and Reallocating Labor***

As discussed above, households lacking the means to uphold consumption during income downturns often take steps to employ production techniques or engage in occupations that have smaller income variability, even if it means ending up with a lower average income. Examples from real life abound. Poorer farmers avoid newer crop varieties that yield higher revenues but involve a learning period where misjudgments at critical stages of crop management can result in precipitous declines in yield. A wage earner, not wanting to expose her children to shortfall in essential consumption, may deliberately shun the higher-paying daily wage labor market for a lower-paying but longer-term labor contract with a local landlord. An urban resident may opt for a secured but low-paying government job rather than confront the insecurity of private-sector employment.

Two factors have a bearing on such decisions. First, poor households are risk averse and are willing to forgo a certain amount of earnings to protect consumption. Second, risk avoidance will be a more serious concern for those lacking *ex post* coping mechanisms. Or to put it differently, a highly risk-averse individual with very good consumption insurance may in his production decision act “as if” he were risk neutral (Morduch 1995).

If access to insurance increases with income, it follows that richer households will appear to act riskier than poor households. In semi-arid conditions of India, Binswanger and Rosenzweig (1993) observe how, as the environment gets riskier, vulnerable households shift production into more conservative, but less profitable, modes. They find, for example, that increasing the coefficient of variation of rainfall timing by one percent would result in income smoothing action of the bottom wealth quartile that reduces their profits 35 percent. In contrast, a household at the median income level would reduce income only by 15 percent, while it would have negligible impact on profitability of the richest farmers. An implication of this finding is that differential access to consumption insurance between the poor and nonpoor may exacerbate income inequality.

A study by Bliss and Stern (1982), again in India, found that farmers were not using profit-maximizing levels of fertilizer, attributing this to attempts to cut investment losses in case of poor harvest. Morduch (1990) finds that in south India, households whose consumption levels were most vulnerable to income shocks devote a greater share of land to safer, traditional varieties of rice and castor than to riskier high-yielding varieties. He also finds that the most vulnerable households are more likely to diversify plots, a common means of reducing the impact of weather shocks. Further, Rosenzweig and Stark (1989), using the same dataset, find that households facing greater volatility in farm profits are also more likely to have a household member employed in steady wage employment. Bardhan (1984) explains why tied labor contracts at low wages may be mutually beneficial to the poor laborer and his employer: while the employer secures uninterrupted labor supply, the laborer secures a steady flow of income to finance consumption.

As described above, a certain degree of poverty entrapment may therefore be inevitable when poor and risk-averse households deliberately shun new or profitable activities in order to contain income risks to some minimum level.

## **Policy Response: Building On and Around Existing Mechanisms**

We have described above some of the main mechanisms available to households in times of need. We turn now to public action. As with all safety net policies, the costs of public action need to be weighed against expected benefits—and the net benefits of public action may be limited if it mainly serves to crowd out private efforts.

The first policy implication from the discussion is that public action should build on and around existing efforts. This has been interpreted by some to imply that the best policies minimize crowding out. We argue that, on the contrary, some crowding out can be beneficial.

The uneven distribution of access to informal insurance mechanisms makes consideration of crowding out difficult. Providing public safety nets may lead to the substantial displacement of private transfers *for those who receive private transfers*, so that the net benefits they get are less than the full size of the public transfer. But, even in the same region, many households receive little or no private transfers—and thus their net benefits can be large. In a study of the extension of South Africa's pension system in 1998, for example, Jensen finds that introducing public transfers to the elderly population led to a reduction in private transfers to the old by 20 to 40 rand for each 100 rand of public transfers. But this holds only for the half of the elderly population that received private transfers beforehand. The other half did not report receiving transfers, so the issue of crowding out was moot.

The example raises a series of questions:

- *What are the costs (direct and indirect, explicit and implicit) associated with the private efforts?* Can private insurance schemes themselves create inefficient rigidities or poverty traps as discussed earlier? If so, displacing indigenous mechanisms may be welfare-enhancing on net.
- *Who gains from the crowding out?* That is, who is it that reduces the transfers they had given now that governments are providing resources? Are these households poor, too? In the South African case, the donors were mainly young households, and the money that was kept went in part to increasing the human capital of the youngest generation. This has obvious social benefits, and clearly “crowding out” should not imply the simple wasting of resources. It may even mean that resources are used more effectively than before.
- How is the incidence of crowding out distributed by age, region, ethnicity, and household structure?
- *Are public efforts more efficient (and thus less costly overall) than private efforts?* Even with full crowding out, if the government can provide the same services more cheaply than alternatives, there is an argument for continued public provision.

The bottom lines are (1) crowding out existing mechanisms can diminish net impacts of public programs, but (2) not all crowding out is undesirable. Judgments must be made about the social objectives that guide the policy, and public action should build from an understanding of traditional institutions and the behaviors, constraints, and preferences from which they are derived.

## **Policy Response: Creating New Local and Global Pro-Poor Financial Institutions**

In the last decade or so, there have been several innovative policy responses that aim to assist poor households in managing risks. Some of these are described below.

### ***Microfinance***

Among the financial institutions serving poor households, microfinance programs have emerged as important players in many parts of the world (Morduch 1999b). The most famous programs are the Grameen Bank of Bangladesh, BancoSol of Bolivia, and the Bank Rakyat Indonesia, all of which have very different models and clients. All of the programs, though, are typically set up to make small loans (sometimes as small as \$50 or \$100, and sometimes as large as several thousand dollars) to households lacking access to formal-sector banks. The loans are typically earmarked for the expansion or development of small businesses. Can these programs help households reduce their vulnerability? What role can they play in safety nets?

The most obvious role that the programs can play is by helping households to increase their incomes and, in turn, increase savings. This is a key to self-insurance. Second, while most programs focus on loans for business development, those funds are typically sufficiently fungible that they can often help provide extra cash to help households cope with consumption shocks as well. Third, the loans can help households start new businesses that

provide income diversification, so “all eggs are not in the same basket”; diversification may help smooth consumption over seasons and from year to year.

On the other hand, by tying households to rigid payment schedules, microfinance can *add* to vulnerability. In the face of a crisis, paying off debt is that much harder, so the credit-orientation of the programs may often make households less secure, not more so. Microfinance programs would be well-served by considering vulnerability reduction alongside poverty reduction in designing new products and protocols.

### *New Savings Banks*

An interesting new program in Bangladesh has attempted to build on the strengths of ROSCAs while incorporating greater flexibility. SafeSave was started by Stuart Rutherford (a microfinance expert who brought experience replicating the Grameen Bank) and by Rubeya Islam, a former manager of ROSCAs. Unlike most microfinance programs, SafeSave focuses on helping its 5,000 clients build up savings; this is facilitated by staff, who visit clients in their homes or places of business daily. Each day, clients decide how much to save—perhaps just a few cents or the equivalent of a dollar or two—and, over time, they can build up bank accounts with a “usefully large” lump of money. If clients need to borrow (for whatever purpose—loans are not restricted to business needs), the program allows borrowing against savings. The existence of ROSCAs and the success of SafeSave challenges the notion that most poor households are simply too poor to save. Instead, the SafeSave experience suggests that, when safe, convenient ways to make savings deposits are established, the poor can and do save. The program appears to be valued highly by clients, a lesson also suggested by the experience of *susu* collectors in West Africa, who also go from household to household taking small deposits on a regular basis—and charge a substantial fee for doing so.

Can programs like SafeSave be replicated? There are at least two constraints. First, SafeSave is able to cut costs dramatically by working in the densely populated slums of Dhaka. The costs of visiting clients daily are thus much lower than if clients lived in scattered villages. It might, however, be possible to visit clients somewhat less regularly—as do the *susu* collectors—and still provide many of the benefits of daily collection. It may also be possible to set up temporary “bank posts,” in weekly or biweekly markets, in order to provide deposit facilities where and when clients need them most. This variation was implemented successfully by the Bank Kredit Kecamatan in Indonesia.

The second constraint is regulatory: programs that take deposits should be regulated for the protection of clients. SafeSave is set up as a cooperative; thus, the full weight of Bangladesh’s banking laws do not apply, but were SafeSave to expand and provide additional financial services, it would face a new set of accounting and management hurdles. One of the reasons that most microfinance programs have focused on lending so far is that the legal environment for providing flexible deposit-taking services is often forbidding.

Thus, one step in helping households to better prepare themselves for risk is to revisit banking regulations with an eye to whether regulations written for large, commercial banks can be adapted to better accommodate microfinance organizations serving the poor.

## *Microinsurance*

Recognizing the links between poverty and vulnerability, many microfinance programs are now turning to the possibility of providing “microinsurance” to their clients as well. These programs aim to partly fill the role played by the burial societies described above. Most of the new microinsurance programs are just in pilot stages, but those that provide life insurance already look promising institutionally. Those that provide health insurance have further to go.

One policy that has been very successful is “credit-life insurance.” For a small fee, this insurance pays off the client’s remaining debt should the client die with an outstanding balance, sparing neighbors and relatives from having to assume the burden. This is clearly a benefit for the lender as well as the borrower. For example, the microfinance organization FINCA in Kampala, Uganda, charges clients an extra 1 percent interest per month on loans (raising interest rates from 3 to 4 percent per month) to pay for this (mandatory) coverage—in addition to providing supplemental benefits in case of death due to “accidents” (for example, if a member dies through an accident, the member’s family receives 1.2 million Ugandan shillings—roughly \$630). Since the risk of death (and accidental death in particular) is low, the plan turns out to be quite profitable for FINCA and its partner, the American Insurance Group, while at the same time reducing a source of risk perceived to be large by clients.

In order to better ensure profitability (and address adverse selection<sup>5</sup>), most microinsurance programs eliminate or limit coverage for older clients (those over age 55, 65, or 70, depending on the plan). This keeps costs in check, but it undermines the ability to most fully strengthen the safety net.

Even with such exclusions, however, programs that offer health insurance have not, so far, been able to cover their costs. Programs like the Self-Employed Women’s Association (SEWA) of Ahmedabad, India, have shown the possibility of providing low-cost healthcare insurance to poor clients, but their costs are high. Here, moral hazard and adverse selection play larger roles. While market surveys suggest that health insurance is a higher priority than life insurance, a fully successful model has yet to emerge. The microinsurance movement is very young, though, and experiments around the world may yield new ideas. At the same time, it must be remembered that while most microfinance institutions serve poor clients, few work with the “poorest”—the elderly, the socially isolated, and the physically disabled. Microinsurance is thus not likely to be a good substitute for broader public measures, but it can provide important help for some vulnerable households to cope with the risks of daily life.

Regulatory issues also come to the foreground when developing even fairly simple saving and insurance products. Informal institutions such as those facilitating interhousehold transfers thrive on unwritten but well understood principles of conduct and contract enforcement. In fact, the success of many microfinance institutions has hinged on their ability to piggyback on such arrangements. But as microfinance institutions consider more complex insurance contracts, proportionately more complex systems of regulation and supervision will be required. Substantial work remains to be done in this area. While the absence of appropriate regulation is likely to undermine future development, care must also

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<sup>5</sup> The insured know their risk profiles better than the insurance agent, and those with riskier profiles are more likely to buy insurance. “Adverse selection” results when the pool of people seeking insurance skews toward riskier people, and the insurance company has only limited information to set prices in response.

be taken to ensure that excessive regulation does not choke off innovation and experimentation.

### ***Weather Insurance***

Most poor households are rural, and the incomes of most rural residents are tied closely to the state of agriculture. Weak harvests can create widespread setbacks if prices do not rise to compensate. Surpluses, on the other hand, allow households to better prepare for the future. State insurance companies around the world have tried to provide crop insurance to poor farmers, and, as Yaron, McDonald, and Piprek (1997) describe, are seldom successful. The largest problems have been high costs due to the inability to control moral hazard and adverse selection, coupled with the administrative burdens of verifying and processing claims. Because farmers have limited resources, willingness to pay is limited.

Given these problems, it is natural to ask whether there is a simpler approach. Weather insurance is one such idea, and it is currently being tested in Africa and Latin America with support from the World Bank and the International Food Policy Research Institute. The idea is to insure with regard to the *source* of losses (in this case, low rainfall) rather than the losses themselves (i.e., the poor harvests). A farmer who buys rainfall insurance, for example, pays an annual premium and gets a payout whenever rainfall as measured by a local weather station is low. If the farmer insures against rainfall being so low that such a state only typically occurs once every decade, every \$1 of insurance purchased by the farmer annually would deliver a \$10 payout in the case of extreme dryness (assuming for illustration that the insurer just breaks even and has negligible operating costs).

The beauty of the arrangement is that the extent of the payout is independent of the farmer's actual harvest. In principle, the farmer could have a good crop, but could still get a payout if measured rainfall is low enough. Or the farmer could have a bad crop but not get a payout if rainfall at the local station is adequate. So the value of the insurance depends on how highly correlated a farmer's income is with measured rainfall. If it is highly correlated, buying rainfall insurance can be a good bet.

Since the purchasers of insurance have no control over measured rainfall, the direct effects of moral hazard are eliminated as a concern for the insurer. And since the characteristics of the purchasers make no difference to the insurer (unlike health insurance, where the probability of illness among insurees is important), adverse selection ceases to be an issue as well. This last point also means that demand for the insurance may well come from many people apart from farmers; for example, traders that rely on farm production may also be interested, as may shopkeepers who depend on demand from farmers.

From the insurer's perspective, the biggest constraint is to find a way to ease the burden of taking on such large amounts of risk. A year of very bad weather throughout Nicaragua, for example, could wipe out an insurer. Thus, a global market for reinsuring weather risks is required; with such a market, insurers in Nicaragua could form contracts with intermediaries to share the burden of losses—as could insurers against poor weather in Morocco, in China, and other countries. Forming an active reinsurance market for weather risks will thus be an important determinant of whether weather insurance can be a widespread—and commercially viable—reality.

## Conclusions

For poor households, downturns in income, even if temporary, can cause severe hardship. In the absence of any insurance mechanisms, all income losses would have to be absorbed by equivalent expenditure reductions. When normal income levels themselves suffice to finance only very basic consumption expenditures, any further cut in expenditures can have serious, and in some cases catastrophic, effects on household welfare. Illness of family members may be left unattended, children may be pulled out of school, or food consumption may be cut to levels that hamper normal activities or retard physical or mental growth of children. When income downturns are very severe, households may be forced to sell productive assets to finance current consumption, lowering expected future income levels.

In response, development practitioners and policymakers have increasingly turned to vulnerability as both a symptom of poverty and as a source of poverty. In assessing policy options, it should first be noted that households have many informal mechanisms to address risks, but many carry large (but not always immediate or easy to see) costs. As a result, policy needs to take potential crowding out of these informal mechanisms into consideration, but it cannot be assumed that crowding out will seriously undermine the policy—and crowding out can even be desirable when the public program is more efficient and equitable than the informal alternatives.

The private commercial sector and market-driven NGOs have potentially valuable roles to play in helping low-income households to insure, particularly with regard to building up savings and obtaining life and weather insurance. At present, though, most programs remain small—constrained in large part by inappropriate regulations and the lack of global institutions to efficiently diversify regional risk. With both in place, local pro-poor financial institutions can thrive. To build from the bottom up, having the right top-down institutions in place is clearly a big help.

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