

Strengthening Public Safety Nets from the Bottom Up

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Helping to reduce vulnerability poses a new set of challenges for public policy. A starting point is understanding the ways in which 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 to more structured institutions that enable an entire community to provide protection to its neediest members. This article describes ways of building public safety nets to complement and extend informal and private institutions. The most effective policies will combine transfer systems that are sensitive to existing mechanisms with new institutions for providing insurance and credit and for generating savings.

Public safety nets are created with many objectives. While most efforts focused originally on raising the consumption of the poor through publicly-provided transfers, policy-makers are increasingly turning to ways of helping 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 minimise the distance fallen when misfortune strikes. 'Safety nets', on the other hand, are characterised 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 maximise their effectiveness and minimise the risk of displacing existing mechanisms.

The importance placed on public action to address risk stems from three main concerns. First, a great deal of risk can, in itself, be a heavy 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), thus creating a case for

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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. 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 the top of the development policy agenda, forming a central building block of both the recent *Social Protection Strategy Paper* (World Bank, 2001) and the *World Development Report 2000/01* (World Bank, 2000).

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 which the village chief allocates fields to be worked collectively by the community, and then distributes the proceeds to the needy).¹ 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 programmes to test the 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 non-formal 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 non-governmental organisations play larger roles?
- Will building public safety nets end up largely displacing existing mechanisms – and thus offering limited net gains 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 article draws on recent experience to suggest ways to answer these questions. We describe important roles for public action, as well as its limits. More generally – and perhaps more importantly – the article aims to systematise trade-offs that need to be faced 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 also 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, particularly during the learning period. If poor households shy away from engaging in these new

1. A brief discussion of the *zunde ramambo* concept can be found in Chinowaita (2000).

activities because they lack insurance cover and cannot afford to fail, they are likely to become trapped in low-paying activities that further reinforce their poverty. Even the 'safest' income strategies are not completely immune to shocks, especially when these involve reliance on rain-dependent agriculture. When eventually hit by negative income shocks, these poor households, which have only the thinnest asset base and lack access to external *ex post* coping mechanisms, are those most vulnerable to both harsh welfare losses in the short term and slipping into a downward spiral into poverty in the longer term.

The prevalence of risk therefore has negative effects even before the risk event occurs, in that it deters vulnerable households from riskier but more rewarding activities. The second set of consequences arising from the prevalence of risk has to do with *ex post* actions forced upon households once a negative income shock has occurred. Lacking insurance mechanisms, this shock has to be absorbed through reductions in household expenditures. The degree to which the household lives in 'normal' hardship and the nature of the shock, including its effect on individual family members, determine how these reductions are made. When downturns are small, reductions may be in terms of quality downgrades that preserve essential inputs related to basic nutrition and health. These downgrades are feasible options, even for poor families who may, for example, switch from a relatively expensive cereal, such as rice, to cheaper maize or tuber crops that provide a similar nutritional value. However, when shocks are larger, not only are the immediate welfare losses associated with reduced consumption larger, but there is also an increasing likelihood that households may have to undertake more drastic action to maintain irreducible consumption at the expense of future income and consumption.

This may include:

- pulling school-age children out of school, either to save on schooling costs or, more commonly, to put them in the labour market to earn additional income (e.g., Jacoby and Skoufias, 1997; Jensen, 2000);
- reducing or even cancelling planned investments in the maintenance of business assets, which may result in reduced income in the future. Farmers, for example, may defer land-related investments required to maintain soil fertility, while small entrepreneurs may postpone essential machine repairs or maintenance;
- increasing utilisation of free-access community resources (such as forests) in order to obtain products to be consumed or sold to finance current consumption, with the danger that this increased level of extraction is unsustainable and results in erosion of the natural resource base;
- reducing consumption of nutritious foods, which is likely to have more serious long-term consequences for the health status of children in particular;
- choosing not to honour social obligations such as payment of taxes or other contributions to community-level activities, leading to erosion of social cohesion, social instability, and an erosion of the 'social capital' that might allow the household to call on others for help in the future;
- engaging in distress sales of productive assets such as land, which permanently damages future earning potential;

- entering into patron-client relationships on grossly disadvantageous terms of trade (for example, bonded labour); and
- resorting to distress-induced migration, often to urban centres where there are not only additional risks in employment but also even more limited informal insurance than previously.

In each of the above cases, current consumption is maintained through actions that seriously, sometimes irreversibly, compromise future livelihood, but which 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 household-level arrangements can generally be characterised along two dimensions: (i) *ex ante* versus *ex post* coping mechanisms and (ii) 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 the potential distress to some levels. Two distinct – though related – strategies are available. First, households make arrangements in advance to mitigate distress once events resulting in income losses have already occurred, such as in the aftermath of a bad harvest or reduced labour earning due to illness. These kinds of arrangements are used to enhance the effectiveness of responsive, *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 neighbours, use of accumulated precautionary savings, and credit lines maintained with different types of lenders, are used to finance expenditures to maintain 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 within acceptable levels, effectively choosing to smooth income in order to smooth consumption. They can do this by, for example, making conservative production choices in agriculture, adopting less risky crop varieties, or engaging in wage labour rather than riskier entrepreneurial activities. But these choices are not without a price, since they may mean forgoing higher levels of *average* income in order to secure steady income. For example, a study suggests that farmers could substantially raise average profits by increasing the application of fertiliser; by using less fertiliser, however, investment losses are reduced during bad times (Biswanger and Rosenzweig, 1993).

Because of the potential losses involved, decisions by households to engage in safer but relatively less profitable earning activities depend importantly on the availability of

ex post coping strategies. This introduces a difficulty in disentangling actions related to *ex ante* management of risks (risk reduction and mitigation) 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 risks will understate inherent variability.

Risk sharing: spatial versus intertemporal smoothing

Risks may be shared across individuals or households at a given point in time (as when a household experiencing a negative income shock receives a transfer from a risk-pooling partner household which has not shared the same fate) or spread 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 latter case, individuals share risks over time. In reality, however, the two are not entirely separable: there is an inherent time-dimension in the case of inter-household 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 that are best suited to cope with income variability depends upon 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 compared with 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 the incomes of other households that are partners in the risk-sharing arrangement. This makes it possible – or easier – for participating households to support the consumption-smoothing efforts of the affected households through compensatory transfers or lending. By contrast, when income risks are similar, resulting in incomes across households moving in the same direction at the same time, all households will need to make demands for compensatory finance simultaneously, and risk sharing is not possible. In areas which rely upon weather-dependent agriculture, 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 deep and widespread, it is likely that the resulting village-wide decline in income, demand, wages, and prices may reduce the effectiveness of actions which might normally be taken to maintain consumption (for example, through the sale of precautionary assets or by increasing participation in labour markets).

However, except in cases of widespread weather-related crises or 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 tropical zones in south India, as much as 75% to 96% 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 the 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 compared with anticipated income variability

When the nature of income variability can be anticipated with a high degree of certainty, the household is clearly in a better position to plan for it. With regard to the agricultural production cycle, for example, knowing that production activities (and attendant costs) follow a seasonal pattern, while consumption demands are relatively constant, simplifies the business of tailoring employment plans and saving and credit decisions. Seasonal migration for employment coinciding with the lean agricultural season, for instance, can be planned and timed with considerable foresight and a high level of certainty. In a similar manner, individuals can enter into labour contracts that explicitly take account of the agricultural season; and 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 it is possible to make (relatively) low-risk transactions.

Another example of variability that can be quite reasonably anticipated is that of variation in an individual's economic activity and income earnings over the course of their life. Most people can expect their capacity to engage in own-account production of income-generating activities, or to earn income from employment, to decrease sharply with old age and retirement. It is also known that old age increases susceptibility to illness or the probability of experiencing various types of physical disabilities – and, ultimately, the risk of death. 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 and provision for surviving household members. In many developing countries, these considerations have given rise to institutional arrangements – extended and intergenerationally-linked families whose daughters and sons are expected to assist and care for old-age parents – designed to provide livelihood security to the elderly, together with funeral societies (one of the most basic and ubiquitous forms of informal collective action in the developing world).

On the other hand, many contingencies can only be poorly forecast. In agriculture, the profit-maximising level of fertiliser depends on the availability of other inputs such as water: but under semi-arid conditions, water availability depends on rainfall which is an uncertain, and therefore stochastic, outcome. If fertiliser is applied on the assumption of optimum water availability, profits are maximised if rainfall is good, but losses will be large if rainfall turns out to be poor. On the other hand, if application of fertiliser is

reduced on the assumption that water availability will be sub-optimal, 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', with his/her decision depending on risk-taking ability and preference and on assessment of the likely rainfall pattern. Given that waiting for the onset of rains increases the accuracy with which weather conditions can be forecast, farmers will frequently choose to postpone decisions on the intensity of fertiliser application until rainfall patterns become clearer. This is indicative of the value of more accurate information as a tool for risk management.

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 only temporary. As shortfalls persist, households are often forced to take increasingly costly measures to protect themselves (see Kabeer in this collection); and, in anticipation of persistent shocks, households are forced to accumulate far larger pools of assets than might otherwise be considered necessary, with attendant opportunity costs. From the standpoint of risk-sharing in communities and within extended families, persistence plays a particularly difficult role by both extending demands on the part of recipients of transfers and reducing their ability to reciprocate quickly. Both phenomena undermine the ability to sustain effective informal insurance mechanisms.

Community responses to risk

Inter-household transfers

One of the first ways that households cope with misfortune is by drawing on the resources of extended families and communities. Communities and families value their roles as support networks, with support often coming 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 repaid once the household is back on its feet (but often without an interest charge).

How important are transfers? The answer varies a great deal from one context to the next. While 65% of poor households in Jamaica report receiving transfers, less than a third do so 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% of the income of the poorest quintile of the population (Cox et al., 2000 cited in World Bank, 2001).

To what extent does non-formal 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 household member were reasonably able to protect overall consumption levels, while in Indonesia households (averaging across both young and old) were able to protect consumption

levels against 70% 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. In Indonesia, consumption levels of households were, on average, reduced by about 70% of shortfalls associated with long-term acute illness (Cox et al., 2000).

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:

Firstly, 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 non-formal intergenerational 'social security' systems in the face of increased migration and the splintering of households.

Secondly, large *catastrophic losses are more difficult to handle through private means*, relative to smaller more common losses.

Thirdly, *idiosyncratic events are easier to address through non-formal insurance*. Shocks that tend to affect individuals one at a time (like non-epidemic illness) are more easily absorbed by non-formal risk-spreading mechanisms than events that affect entire communities (like poor harvests) or broad regions (like inflation or earthquakes) at the same time. After the drought in the Sahel in the early 1980s, for example, private transfers made up just 3% of average losses faced by poor households.

Fourthly, *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% of households, 40% of a bad shock translated into declines in consumption. For the richest 10%, by contrast, only 10% of the shock translated into a consumption decline (Jalan and Ravallion, 1999).

Finally, *socially excluded groups among the poor fare worst under systems of non-formal insurance*, while poor households with extensive community networks may be able to cope quite well with moderate idiosyncratic shocks.

Motivations for remittances

For those households that do receive transfers, it cannot be simply assumed that 'insurance' is being provided. Providing help to neighbours 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, in a large survey from Pakistan (1985-8), roughly two-thirds of all transfer inflows were found to have originated from abroad (Foster and Rosenzweig, 1999). In the Philippines, 26% of urban households (and 13% 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, for example, Paulson, 1995, 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 their labour or skills possessed are higher. Their subsequent decision to remit may simply reflect altruistic motives, seeking to maximise family rather than individual welfare. In many remote communities with seasonal agriculture, it is widespread practice for individual members to migrate temporarily to areas with better seasonal employment and subsequently return home and pool all the income earned.

However, there may also be a conscious risk-mitigating – i.e., insurance – aspect to decisions regarding migration and remittance. Families often recognise that income earnings across geographical locations are only weakly correlated. For this reason, they may use migration strategically as a way of diversifying family income and reducing its variability. For instance, placing some family members in town and pooling village and town income offers insurance to both urban migrants and those who stay in the village. As Lucas (1997) notes, risk-averse families may gain from such a strategy, even if it means 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, as may a sense of debt: migrants are typically those family members who have benefited most from investments in education, and remittances may simply be a means of reimbursing investment expenses to the household. More generically, insofar as it is the younger family members who migrate, remittances may actually constitute paying back to the older generations for services rendered in the past. However, remittances may be propelled by motives of self-interest, too: it may be that remittances are important means by which to lay claims to the inheritance of family assets.

Whatever the motivation behind the decision to remit, family members placed in weakly correlated earning activities are in a better position to pool risks. 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, while 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. Both of these would imply that migration may indeed be motivated, at least in part, by a deliberate strategy to pool risk. De la Brière et al. (1997) studied factors that motivate Dominican migrants to send remittances to their rural parents, and found that individual decisions may be motivated by different considerations. They found that investment towards inheritance is the main motivation to remit for men, younger migrants, and migrants intending to return. By contrast, insurance is the main motivation to remit for women migrants, particularly among those with no intention of returning to their birthplace.

Explaining breakdowns

When non-formal insurance systems do not work well, it is generally 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 is often difficult to enforce ‘contracts’; the most feasible arrangements are therefore those that make participants *want* to stay in. A participant who has pledged – but is not legally bound – to help a neighbour 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 his obligations if he sees that renegeing on the pledge today will deny him the opportunity to receive the benefit at some future date. 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 neighbour) is smaller than the long-term benefits of the expected future help. If so, the non-formal insurance programme will be sustainable, even without legal enforcement sanctions. In practice, this means that non-formal 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 co-operation.

Moral hazard The second tension involves moral hazard.² The problem arises only when information about the recipient’s behaviour 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 neighbours with greater-than-expected obligations to help out in times of loss.

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 backwards; 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, it may become increasingly less attractive to richer households. It is common to see those richer households then pulling away from intensive community-based insurance obligations, either insuring on their own or forming new insurance groups only 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, greater diversity of occupations and of probabilities of gains and losses is better for the health of insurance arrangements, since it creates greater scope for avoiding covariant risk. However, this same diversity tends to undermine the cohesion necessary to make informal arrangements survive over time.

Indigenous insurance mechanisms and community institutions

The *zunde ramambo* described at the beginning of this article is one example of how communities come together to protect their neediest members. Another institution

2. 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 the actions to be taken by the insured.

common in many communities is the burial society.³ The following example of how a burial society operates is drawn from research in fishing communities in Cochin, India, and illustrates many of the key features of this form of non-formal insurance.⁴

Organisers of the society, who are often associated with a church, temple, mosque, or social club, solicit membership from at least 300 people. With this number of members, 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.

We consider a fund that operates for just one year, during which each member contributes at least 2 rupees (about 4 cents) per week. 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 will receive 500 rupees from the fund. Members can increase the coverage by increasing the weekly contributions, and the fund is typically left with a positive balance at the end of the year (which is then distributed back to the members). Should a deficit occur, it is 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 time-bound, but operates within an annual cycle: under this arrangement, regular payments are made and the family receives a payout at the time of death, tied to the contributions made up to that point. The death benefit might, for example, be a doubling of the contributions made to date. How, then, 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 the rate is 4% 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. These insurers lack the neighbourhood ties at the heart of the burial societies, but they have much greater ability to diversify risk. As discussed below, this realisation has prompted NGOs and microfinance organisations to move towards providing cheaper, community-based insurance products with greater scope for risk diversification.

Self-insurance by individuals and households

Household savings

Typically, the most important way that households can improve their ability to cope with crises is to accumulate assets in times of relative surplus and then draw on them in times of need. This might involve building up a savings account, hiding cash, or purchasing durable goods that can be sold later.

In many parts of the world, poor households tend not to have formal savings accounts (although some microfinance programmes are beginning to develop successful

3. See Norton, Conway and Foster in this collection on the historical place of burial societies in the development of British social insurance arrangements.

4. The example is from Rutherford (2000).

savings products). Instead, most households rely on assets which can be sold to raise money with which to meet consumption needs during a crisis. Unfortunately, most of the assets on which households rely carry risks of their own: for example, draft animals or other livestock 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 that when income falls, the assets also lose some of their value (and, correspondingly, assets are also worth more when income is relatively high). When incomes have a strong common component in a region, this can make it difficult to build up assets in the first place, as they will be most expensive when households want to buy them, and least valuable when they need to be sold. Nonetheless, selling assets and drawing down savings is a common first line of defence when misfortune strikes.

In the absence of savings accounts and good possibilities for buying and selling assets, rotating saving and credit associations (ROSCAs) can play a key role in saving. ROSCAs are found worldwide under many different names. Within Africa, they 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). All of these arrangements tend to function in the same basic way. First, they have a fixed life span. Within that span, members contribute funds at regular (often weekly) intervals. With each round of contributions made 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 normal weekly cash flow available to individual 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 precisely when they most need it. 'Bidding ROSCAs' aim to address this problem. Under these arrangements, 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 to gain access to the pot of money, 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 in order to create better banks for the poor and vulnerable.

Self-insurance: diversifying asset portfolios and reallocating labour

As discussed above, households lacking the means to sustain 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, during which 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 labour market for a lower-paying but longer-term labour contract with a local landlord. An urban resident may opt for a secure but low-paid government job rather than confront the insecurity of employment in the private sector.

Two factors have a bearing on such decisions. First, poor households are often 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 risk-averse individual with 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 in a riskier manner than poor households. In semi-arid conditions in India, Binswanger and Rosenzweig (1993) observe how, as the environment becomes 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 1% would result in income-smoothing action by the bottom income quartile that reduces their profits by 35%. In contrast, a household at the median income level would reduce income only by 15%, while there would be negligible impact on the profitability of the richest farmers. An implication of this finding is that differential access to consumption insurance between the poor and non-poor may exacerbate income inequality.

A study by Bliss and Stern (1982), again in India, finds that farmers are not using profit-maximising levels of fertiliser, and attributes this to attempts to cut investment losses in the event of a 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. Using the same dataset, Rosenzweig and Stark (1989) 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 low-wage tied labour contracts may be mutually beneficial to the poor labourer and his employer: while the employer secures an uninterrupted labour supply, the labourer 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 that are available to households when making decisions under conditions of risk or 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 such action mainly serves to crowd out private efforts.

The first policy implication from the above discussion is that public action should build on and around existing efforts. This has been interpreted by some to imply that the best policies minimise 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 within the same region, many households receive little or no private transfers. For them, the net benefits from public action can thus be large. In a study of the extension of South Africa's pension system in 1993, for example, Jensen (1998) 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 already 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? If private insurance schemes themselves create inefficient rigidities or poverty traps as discussed earlier, displacing indigenous mechanisms may have a net welfare-enhancing impact.
- Who gains from the crowding out? In other words, who is it that reduces the transfers once the government starts providing resources? If these households too are poor, the substitution of public for private flows may relieve the poverty of both transfer-giving and transfer-receiving households. In the South African case, those making transfers to the elderly poor were mainly young households, and the extra money they retained once the government pension was introduced was in part redirected towards children's education and healthcare, thus 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 benefits more cheaply than alternative providers, there is an argument for continued public provision.

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

Policy response: creating new local and global pro-poor financial institutions

Microfinance

Among the financial institutions serving poor households, microfinance programmes have emerged as important players in many parts of the world (Morduch, 1999b). The most famous programmes include those of the Grameen Bank of Bangladesh, BancoSol of Bolivia, and the Bank Rakyat Indonesia, all of which have very different business models and clients. All of them, however, 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. The questions for the purposes of this article are: Can these programmes help households reduce their vulnerability? What role can they play in the overall pattern of safety-net provision?

The most obvious role that the programmes 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 programmes focus on loans for business development, these funds are typically sufficiently fungible for them often to 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 the 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 programmes may often make households less, not more, secure. Microfinance programmes would be well-served by considering vulnerability reduction alongside poverty reduction in designing new products and protocols (see the article by Kabeer in this collection).

New savings banks

An interesting new programme 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 Rubeya Islam, a former manager of ROSCAs. Unlike most microfinance programmes, 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 sum of money. If clients need to borrow (for whatever purpose – loans are not restricted to business needs), the programme permits borrowing against savings. The existence of ROSCAs and the success of SafeSave challenge the notion that poor households, as a group, 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 programme appears to be valued highly by clients, a lesson also implied 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 programmes 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 on a daily basis are thus much lower than if they 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 bi-weekly 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. Programmes that take deposits should be regulated for the protection of clients: but this regulation should not impose upon would-be providers of pro-poor financial services administrative costs which make operations financially unsustainable. SafeSave is set up as a co-operative, and as such the full weight of Bangladesh’s banking laws do not apply. Were it to expand and provide additional financial services, however, it would face a new set of accounting and management hurdles. One of the reasons that most microfinance programmes have focused on lending so far is because of the often forbidding nature of the legal environment for providing flexible deposit-taking services.

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

Microinsurance

Recognising the links between poverty and vulnerability, many microfinance programmes are now turning to the possibility of providing ‘microinsurance’ to their clients as well. These programmes aim to partly fill the role played by the burial societies described above. Most of the new microinsurance programmes are only in the 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 neighbours 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 organisation FINCA in Kampala, Uganda, charges clients an extra 1% interest per month on loans (raising interest rates from 3% to 4% per month) to pay for this (mandatory) coverage. This is in addition to providing supplemental benefits in case of death due to ‘accidents’ (for example, if a member dies through an accident, their family receives Ush.1.2 million – 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 by clients to be large.

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

Even with such exclusions, however, programmes that offer health insurance have not, so far, been able to cover their costs. Programmes like that of the Self-Employed Women's Association (SEWA) of Ahmedabad, India, have demonstrated 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 young, however, 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' such as 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 play an important role in helping some vulnerable households to cope with the risks of daily life.

Regulatory issues also come to the fore 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. Indeed, 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 be taken to ensure that excessive regulation does not choke off innovation and experimentation.

Weather insurance

Most poor households are rural, and the well-being of most rural residents is tied closely to the state of agriculture. Poor harvests can create widespread setbacks for farming households – both those which produce primarily for consumption (and which may be forced to buy food, at increased prices, if their harvest does not meet consumption needs), and those which depend for their livelihoods on selling their products in the market (if prices do not rise to compensate for reduced volume). Surpluses, on the other hand, allow households to prepare better for the future. State insurance companies around the world have tried to provide crop insurance to poor farmers, and, as Yaron et al. (1997) describe, they 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 also limited.

5. 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 towards riskier people, and the insurance company has only limited information with which to set prices in response.

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 this situation typically only occurs once every decade, every \$1 of insurance purchased by the farmer annually would deliver a \$10 pay-out in the case of extreme drought (assuming, for illustration, that the insurer only 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 the measured rainfall is low enough. Or the farmer could have a poor crop but fail to receive a payout if the rainfall at the local station is adequate. So the value of the insurance depends on how highly correlated a farmer's income is with the rainfall measured. If it is highly correlated, buying rainfall insurance can be a good bet.

Since the purchasers of insurance have no control over the 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, for which the probability of illness among the insured 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 who 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 of easing 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 or an unexpected increase in expenditures, even if temporary, can cause severe hardship. In the absence of any insurance mechanisms, all income losses would have to be absorbed by drawing down savings or selling assets, or by equivalent reductions in expenditure. When normal income levels themselves suffice to finance only very basic consumption expenditures, any further cut in expenditure 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 the physical or mental growth of children. When income downturns are very severe, households may be forced to sell productive assets to finance current consumption, thus lowering expected future income levels.

In response, development practitioners and policy-makers have increasingly turned to vulnerability as both a symptom and a source of poverty. In assessing policy options, it should first be noted that most households, including poor ones, have recourse to many informal mechanisms with which to address risks; but that many of these mechanisms carry large (but not always immediate or easily visible) costs, and that these costs are generally higher (certainly in proportional terms) for poorer households. As a result, policy-making needs to take into consideration the possibility that public actions will crowd out these informal mechanism. But it must also bear in mind that crowding out need not necessarily fatally flaw the policy in question – and, indeed, can even be desirable when the public programme is more efficient and equitable than the informal alternatives.

The private sector and market-oriented 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, however, most programmes remain small, constrained in large part by inappropriate regulations and the lack of global institutions to diversify regional risk efficiently. 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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