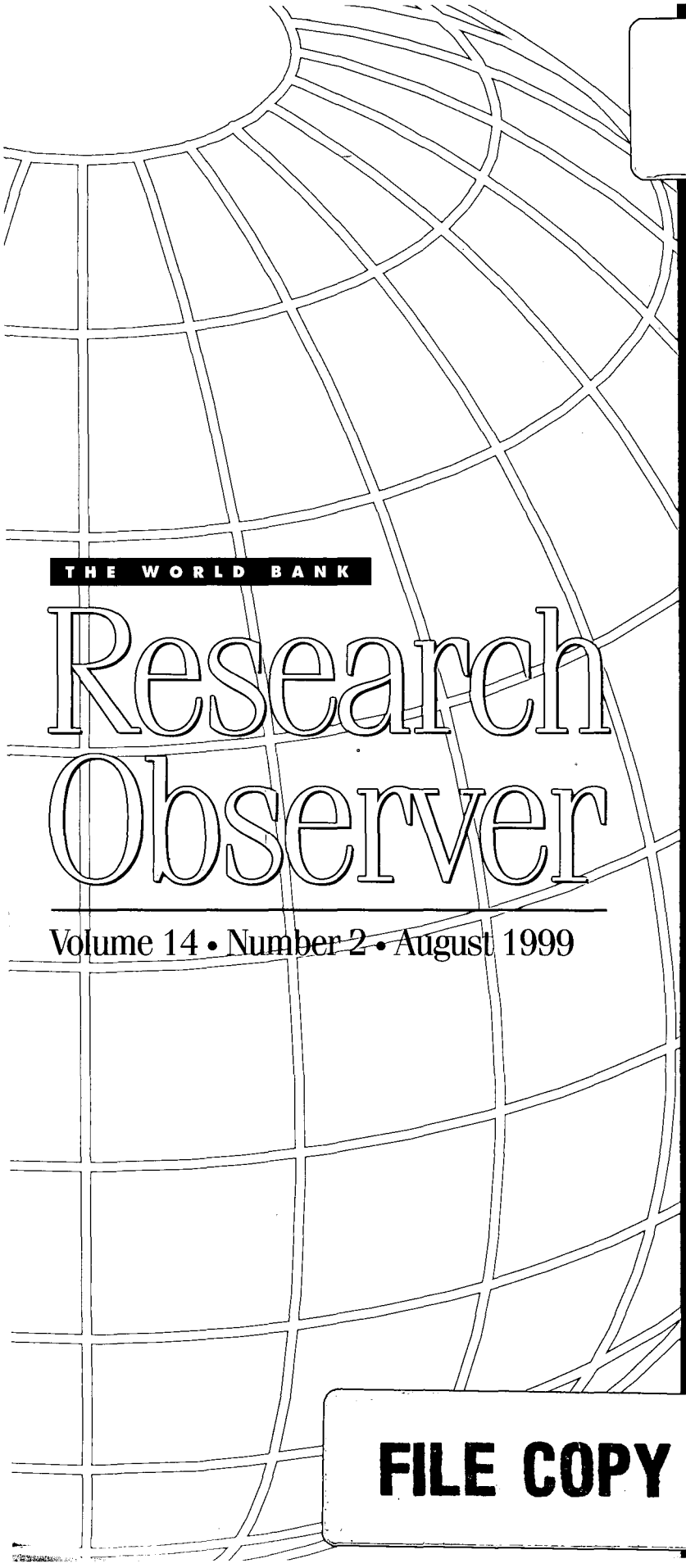

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Between the State and the Market: Can Informal Insurance Patch the Safety Net?

Jonathan Morduch

Most households in low-income countries deal with economic hardships through informal insurance arrangements between individuals and communities rather than through publicly managed programs or market-provided insurance schemes. Households may, for example, draw on savings, sell physical assets, rely on reciprocal gift exchanges, or diversify into alternative income-generating activities. These mechanisms can be highly effective in the right circumstances, but most recent studies show that informal insurance arrangements are often weak. Poor households, in particular, have substantial difficulties coping with even local, idiosyncratic risks. Public policy can help reduce vulnerability by encouraging private, flexible coping mechanisms while discouraging those that are fragile or that hinder economic and social mobility. Promising policies include creating self-regulating workfare programs and providing a supportive setting for institutions working to improve access to credit, crop and health insurance, and safe and convenient saving opportunities.

Many low-income countries, from Sub-Saharan Africa to Southeast Asia, have suffered major natural disasters and political upheavals in the 1990s. These events remind observers of a reality hidden in official poverty statistics: that the condition of poverty is linked closely to vulnerability. Many poor households are exposed regularly to risks from illness, harsh weather, political instability, and economic mismanagement. Concern with vulnerability may be both intrinsic and tied to implications for income generation as well as to the longer-term consequences for the health and education of children (Jacoby and Skoufias 1997; Hoddinott and Kinsey 1998; Rose 1999).[1] Fear of risk can lead poor households to forgo potentially valuable new technologies and profitable production choices. Rosenzweig and Binswanger (1993), for example, use data from rural South India to show that an increase in risk (as measured by an increase of one standard deviation in the coefficient of variation of the

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date of the onset of the monsoon) leads to a 35 percent reduction in farm profits for the poorest quarter of households but has no effect on the wealthiest farmers. Vulnerable households may also spiral downward into poverty following adverse economic or climatic shocks as productive assets are depleted to protect consumption levels. Addressing risk can thus be an important complement to redistributive efforts and antipoverty strategies focused on increasing economic growth and employment.

Yet even with holes in both public safety nets and private insurance markets, poor households are not completely exposed to risk. Most have developed coping strategies to deal with the harshest blows. Most of these mechanisms are provided neither by the market nor by the state but instead are private "informal insurance" arrangements. They include individual and community actions, such as drawing down savings, selling of physical assets, reciprocal exchanges of gifts and loans, diversifying crops, and expanding income-generating activities. (For recent surveys, see Alderman and Paxson 1994; Besley 1995; Morduch 1995; and Haddad and Zeller 1996.) Some, like ritualized gift giving, have roots going back generations or even centuries, while others are newer responses to difficult situations (Mauss 1967).

Recent studies warn that some public policies may do little more than crowd out these informal mechanisms, but most evidence shows that crowding out is unlikely to be a substantial problem. Most informal insurance mechanisms are typically weak and often provide only inadequate protection to poor households. Studies from regions as diverse as rural India, China, and Sub-Saharan Africa suggest that despite informal insurance arrangements, households are exposed to considerable risk from adverse shocks—even idiosyncratic shocks that do not simultaneously affect their neighbors. Moreover, private informal mechanisms that are effective in reducing vulnerability can retard economic growth and social mobility. Thus, even where informal insurance is well developed, public actions that displace informal mechanisms can yield net benefits.

The emerging evidence suggests that policymakers need to be concerned about more than providing disaster relief in the wake of large, aggregate shocks such as floods, earthquakes, droughts, and other natural disasters. It is equally important to consider the needs of households that are facing losses due to adverse personal, economic, or other crises such as illness, poor (local) harvests, and temporary unemployment. Policy options include creating a supportive environment for institutions that offer safe and reliable means for poor households to borrow and, in particular, to save. Recent experience shows that it is also possible to offer limited life insurance and protection against other basic exigencies in a simple, low-cost manner. Much more speculatively, it may be possible to improve on existing insurance arrangements for poor households by drawing lessons from the emerging microfinance movement and by relying on nongovernmental organizations and profit-making commercial enterprises to take key roles. Public workfare programs that offer temporary employment at wages that are too low to attract those who already have work,

such as India's Employment Guarantee Scheme, can also provide households with a flexible means for self-insurance in times of particular need.

Evidence on Risk Sharing

New tests of informal insurance mechanisms relate the variability of total household consumption to income variability. If households can use coping mechanisms to "smooth" consumption somewhat, income should be more variable than consumption. Sharper testable implications can be drawn with respect to perfect consumption-smoothing arrangements. If communities perfectly pool their incomes to share risks (and any given household's income is a small part of the total), the consumption level of a given household relative to its neighbors should be a function only of total community income and the household's assigned share of the total. The household's own income realization should then not affect consumption patterns, and all idiosyncratic risk (relative to village shocks) should be eliminated.[2]

Townsend (1994) first tested the idea using data from the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) studies of villages in rural South India. He finds that the evidence does not fully support the proposition with respect to perfect risk pooling but that it comes surprisingly close: having controlled for community resources, Townsend finds that the marginal propensity to consume out of a household's own income is nowhere greater than 0.14, while the theory of perfect risk sharing predicts it should be zero. Morduch (1991), Ligon, Thomas, and Worall (1997), and Ravallion and Chaudhuri (1997) find weaker evidence using the same data, however, with Ravallion and Chaudhuri's estimates of the marginal propensity to consume falling between 0.12 and 0.46. These results suggest that informal insurance exists but that it is not nearly perfect. More critically, the studies do not reveal the specific mechanisms that drive the results: they are consistent with both gift exchange within communities (but not with perfect risk sharing) and with self-insurance activities such as borrowing and saving (but not with the perfect ability to smooth consumption). In practice, borrowing and saving are typically far more important coping mechanisms than the exchange of transfers (see, for example, Lim and Townsend 1998).

Similar studies from other countries also find evidence of highly imperfect informal insurance. Deaton (1997), for example, finds little evidence of strong risk sharing in samples from Côte d'Ivoire, and Townsend (1995a, b) reports a mixed record of risk sharing in a sample of Thai villages. Jalan and Ravallion (1997) note that the poorest 10 percent of households in rural China can protect themselves from just 60 percent of an adverse income shock—although the richest 10 percent can cope with 90 percent on average. This measure echoes my evidence from rural South India that households with large landholdings have little difficulty coping with idiosyncratic

income shocks but that the consumption levels of landless households and smallholders decline sharply as income falls (Morduch 1993).

Gertler and Gruber (1997) take a different cut on tests of risk sharing. In evaluating the ability to cope with the costs of illness in Indonesia, they find that households insure adequately against about 70 percent of common health shocks but can protect their consumption levels against only about 30 percent of the illnesses that seriously impair long-term performance. Their findings mirror Cochrane's (1991) evidence using data from the United States and Lund and Fafchamps's (1997) data from the rural Philippines. Lund and Fafchamps, in particular, find that informal insurance arrangements are effective only in the case of young adults who are acutely ill; older adults who fall ill are far less likely to be helped. Lund and Fafchamps's data show that informal insurance also helps with funerals but not with crop failures, mild illnesses, or unemployment (other than that of the head of the family and his spouse). The household's social network also matters: households with more friends (especially richer friends) have a greater ability to use informal insurance. Households that are not so well connected fare much worse.

These results, based on disaggregations by class and type of shock, reveal weaknesses in informal insurance that would not otherwise be evident. And they imply that there is ample scope for potentially beneficial interventions that go beyond disaster relief.

Informal Insurance Mechanisms

Reciprocal gift giving is a common way to solidify social and economic relationships —and one potentially important form of informal insurance. In North China, for example, gifts are given to mark births, deaths, and weddings, as well as to help the elderly, the ill, and women who have just given birth (Kipnis 1997). Anthropologists have tended to downplay gift giving as a product of a rational calculus associated with informal insurance systems, instead highlighting its role in securing social status and signaling commitment to the community (Malinowski 1922). But, given the sense of obligation engendered by gift exchange and the great potential for gift exchange to address risk, it is only natural that economists have taken the gift-insurance relationship seriously. Economists have thus tended to view gifts as they do other transfers such as public aid (Cox and Jimenez 1991).

Private transfers of cash, food, and clothing are large and frequent in some countries. For example, 40 percent of black South Africans reported either receiving or giving cash transfers (Cox and Jimenez 1997). Cash transfers reach large numbers of urban residents in Colombia (Cox and Jimenez 1998), Thailand (Paulson 1995), and the Philippines, where 82 percent of urban and 89 percent of rural households report receiving transfers (Cox and Jimenez 1995).

Remittances from migrants—whether migrants to another country or to the city from the country—can also be substantial (see Lucas and Stark 1985 on Botswana and Paulson 1995 on Thailand). Roughly two-thirds of all transfer inflows in Pakistan between 1985 and 1988 came from migrants who sent money home to their families (Foster and Rosenzweig 1999). In the Philippines, 26 percent of urban and 13 percent of rural households received remittances from migrant parents or children (Cox and Jimenez 1995).

But elsewhere, especially where migration is limited, reported transfers are of minor consequence. In a data set from India fewer than 400 of 4,000 households reported receiving net transfers in 1968–71 (Foster and Rosenzweig 1999). The lack of transfers is especially notable in contexts in which they are expected to be most valuable. In the smaller ICRISAT survey of poor villages in rural South India, Rosenzweig (1988) finds that transfers respond to risk but that they cover less than 10 percent of the typical shortfalls in income. Studies of exchange in Sub-Saharan Africa by Reardon, Matlon, and Delgado (1988) and Czukas, Fafchamps, and Udry (1998) reinforce this picture. Data from rural China are only slightly more optimistic. In a four-year study of 16 villages in the north of the country, Morduch and Sicular (1999) find that no more than a quarter of households report receipts of transfers from their neighbors; 10 percent report receiving gifts from outside their village. The transfers were modest, moreover, averaging about 10–20 percent of average household income.

Lim and Townsend (1998), who have examined ICRISAT files, conclude that households bridge the gap between income and desired consumption levels through saving, borrowing, and the use of buffer stocks of grain. The importance of these mechanisms is evident in most low-income economies (Deaton 1992; Alderman 1996). Households might also take actions to smooth income after an economic shock by working longer hours, for example, or taking an extra job (Kochar 1999). And they may take precautions beforehand to reduce the probability or extent of loss (Morduch 1995). These mechanisms can be relatively effective in the right circumstances, leading to concerns that publicly provided resources would simply replace—or crowd out—these informal activities.

Reexamining the Costs of "Crowding Out"

To the extent that informal mechanisms are limited, the concern about crowding out should be small. Still, some evidence is disturbing. Cox and Jimenez (1995) use household-level data from the urban Philippines to give a particularly striking example. They estimate that the receipt of net transfers from other households is particularly sensitive to whether the recipient is unemployed. The magnitude of the sensitivity is such that they conclude that if the government were to institute a simple

unemployment insurance scheme, net private transfers to the unemployed would fall by 92 pesos for every 100 pesos offered by the public program. In the end, the average unemployed worker would be better off by only 8 pesos.

Exercises based on extrapolations like this yield provocative—but not definitive—results. First, the research is not based on the effects of an actual program. Second, researchers typically have data from just one side of any given transfer: who makes it or who gets it—but not both. Without complete information, it is difficult to tease out the exact reasons for the transfers. A transfer that looks like informal insurance against a bout of illness, for example, might instead reflect a correlation arising for other reasons, such as a gift from a child to provide a parent with old age support. In the evidence from the Philippines, Cox and Jiminez (1995) concluded that the critical retirement income variables reflected the desire of givers to help retirees. Is that in fact the case? Or do the variables instead signal a type of household (one with little or no retirement income) that is more likely to include migrants—and thus to receive remittances—rather than one without migrants? In the latter case, the receipt of net transfers could look like informal social insurance but instead could simply reflect steps taken to maximize household income. Disentangling the explanations requires richer data.

Some of the sharpest evidence on crowding out is from South Africa. When the apartheid system was falling apart, the government extended basic pension benefits to black South Africans on terms similar to those that had been available to whites who had no private pensions. The program, which was fully implemented by early 1993, provided a state pension equal to about $3 a day to all women over age 60 and to all men over age 65, subject to a means test (Case and Deaton 1998). The means test excluded nearly all whites and only the richest blacks. In the past, blacks had had to rely mainly on their own means to cope with aging and with economic downturns, and for the most part the new benefits were not expected. How were traditional private mechanisms affected by the postapartheid public pension reform? Jensen (1998) estimates that for those households receiving private transfers, every publicly provided rand led to a reduction of 0.2–0.4 rand in private transfers to the elderly. Migration by children was also reduced slightly.

A similar degree of crowding out is predicted on the basis of studies of transfers to urban residents in Peru and the Philippines: a displacement of 17 percent and 37 percent, respectively, for each unit transferred as a retirement benefit (Cox and Jimenez 1995, 1998). Without the chance to evaluate the introduction of an actual new program (as in Jensen 1998), the predictions derive from estimates of the sensitivity of net transfer receipts to existing social security or private pension arrangements. Cox and Jimenez then use coefficients from this exercise to predict the consequences of the introduction of a broad state pension system.

Even with displacement rates as high as 20–40 percent, are the social losses proportionately high? Not necessarily, because leakage does not imply pure wastage.

The degree to which displacement undercuts policy objectives depends on the specific objectives of the program in question: Is it poverty reduction? Old-age support? Enhancing economic efficiency? Reducing vulnerability?

In the case of South Africa, older citizens received less in total than supposed, but others gained—and those gains were socially valuable. In richer contexts, private transfers tend to be from the old to the young. In a sample of white South Africans, for example, the net recipients were five-and-a-half years younger than the net givers (Cox and Jimenez 1997). But in poorer contexts, the reverse is most often true, largely because parents invest in children with the expectation that the children will support them in their old age. In line with that hypothesis, net recipients among black South Africans are on average eight years older than net givers. The displaced transfers thus tended to return to young households, many of which are as poor as older households, yielding little leakage as far as poverty reduction is concerned. In addition, keeping the funds in the hands of younger households is more likely to encourage investment in human capital accumulation and other productive activities. Second, public transfer systems may be more efficiently delivered than private transfers, yielding a net gain to society through displacement. For example, public transfer schemes may be able to pool resources more efficiently than local private arrangements (Cox and Jimenez 1997). Third, some displacement, even if it constitutes an unwanted leakage, may be a required cost of strengthening and widening the safety net to include particularly vulnerable households. In South Africa, for example, just under half of pension recipients do not receive private transfers at all (Jensen 1998). Putting the other arguments aside, tolerating some crowding out of the transfers received by half of the elderly black population can be seen as a cost of extending the safety net to the other half.

Tensions in Informal Insurance

Why is evidence of risk sharing so weak in places where it is expected to be strong? For example, consider the highly risk-prone semiarid tropics of South India, where two out of every ten years on average bring drought. Despite the importance of bad weather, most of the variation in measured household incomes over time is idiosyncratic to particular households. Morduch (1991) shows that 75–96 percent of the variance of the logarithm of household income remains after removing variation due to changes in average village income and average household income over the study period (1976–82). Some of this idiosyncratic, residual variation is surely measurement error, but even if half of it is error, substantial idiosyncratic variation still remains. As a result, within-village gift exchanges, designed so that no net redistribution takes place over the period, could in principle reduce the variability of household after-gift income by as much as 90 percent in one of the villages

under study. In practice, reported transfers are not nearly big enough to do so (Rosenzweig 1988).

Tensions in Systems of Reciprocal Transfers

To explain why systems of reciprocal transfers are weak, researchers point first to problems in enforcing understandings. Household A will help household B today, with the expectation that B will eventually reciprocate. But what will keep B from reneging? If A and B are related by blood or marriage, altruism may hold them together. But without altruism or enforceable contracts, self-interest is needed to keep incentives in line. The repeated nature of the interaction over time allows for self-interested reciprocity. If A can credibly commit to end all future insurance relationships with B in the event that B reneges, B may well see fit to fulfill obligations. B's decision will depend on whether the gain from reneging today is smaller than the flow of future benefits from continued participation.

As Coate and Ravallion (1993) suggest, however, the degree of effective insurance that is provided will adjust so as not to tip the balance toward reneging. In practice, tensions are heightened when both parties are down on their luck (during a drought, say) or when a partner's luck is particularly bad. When an individual is pushed close to the subsistence constraint, holding onto whatever one has may be especially tempting, despite the agreement to share with others. As a result, reciprocal exchange tends to fall apart (or to offer less of a return) when insurance is most needed. In general, it works best when participants have a cushion against poverty. Consistent with the evidence from China, the Philippines, and South India, theory suggests that systems of reciprocal transfers will be more effective for slightly richer households and those in less dire contexts (Coate and Ravallion 1993; Ligon, Thomas, and Worall 1997; Kletzer and Wright 1998).

Moral hazard is also likely to limit group-based informal insurance, just as it undermines standard insurance markets. When insurers cannot adequately observe and enforce that insurees are taking all due precautions, incentives can be enhanced by providing only partial insurance coverage. This is one reason that informal insurance is most prevalent among relatives or neighbors in similar professions, that is, those with good flows of information.

Transfer-based systems can also run into trouble when households have opportunities to accumulate savings because they then have a degree of insurance free of obligation to neighbors and kin. Similarly, when incomes of participants grow at different rates, richer households tend to opt out rather than face the possibility of systematically redistributing to others. Richer participants find themselves giving relatively more than they get back on average, and at a point they will leave, either to form a new group with other richer households or to fend for themselves individually. Evidence of these sorts of bifurcations is given by Platteau and Abraham's (1987)

study of reciprocity in fishing villages in Kerala, India, and by Lund and Fafchamps's (1997) study of risk-coping mechanisms in the rural Philippines. In a reverse example, Platteau (forthcoming) argues that one reason for low saving rates in Sub-Saharan Africa is that rural communities and families discourage saving in order to avoid eventual cleavages.

These tensions explain how common mechanisms can solidify economic and social barriers along ethnic, gender, generational, and class lines (Fafchamps 1992; La Ferrara 1997) and contribute to "poverty traps" (Hoff 1997; Platteau forthcoming). Fafchamps (1992) draws on African experiences to suggest that instead of leading to cleavages, reciprocal exchange may instead lead to voluntary patron-client relationships. Rather than being asked to give more than poorer households, relatively rich households may find themselves in a position to extract surpluses from poorer households. Rich households, with their stocks of wealth, can offer a great deal to poor, vulnerable households. But the poor may have to offer labor at concessional rates to obtain protection from their patrons in hard times. The terms of reciprocal exchange may thus greatly favor the rich, although the terms are to everyone's absolute advantage. This seemingly feudal scenario may play out in subtle forms throughout poor economies.

Fafchamps's model shows how informal insurance may adapt to particular economic conditions, but observers suggest that despite the ability to adapt, these reciprocal mechanisms have started falling apart in recent years in Africa. The blame is put on economic and political upheavals, reinforced by increasing mobility and urbanization. In principle, urbanization and the increasing ease of mobility can both help and hinder the functioning of informal insurance. The negative is straightforward: by moving away, households are able to "default" on their obligations to relatives and neighbors. This may explain why until recently migrants from Kenya and elsewhere often moved as a family. Now, prohibitive costs and risks make that less prevalent, and workers often move on their own, adding to the likelihood of defaulting on obligations to their ex-neighbors.

The positive aspects rely on continued links. Migration allows geographic diversification of incomes, increasing the value of reciprocal relationships. Paulson (1995) shows evidence from Thailand that some family members migrate partly to diversify the family's "portfolio" of earnings sources; Lucas and Stark (1985) and Rosenzweig and Stark (1989) make similar claims based on data from Botswana and rural South India, respectively. Because links must remain unsevered for informal insurance to work, only insurance among family-based groups can typically survive mobility.

In a recent theoretical contribution, Banerjee and Newman (1998) embed these ideas in a more general model of structural change. They suggest that the lack of insurance mechanisms in urban areas can inhibit mobility from villages. In the village, a worker can count on some security through group-based insurance mechanisms but will have relatively low earning opportunities. The city offers greater earning opportunities but weaker insurance mechanisms. The result is that only the

relatively rich (who can cope better without group-based insurance) and the relatively poor (who never had much group-based insurance to start with) will migrate. People in the large middle segment of the population will stay put, even though it may be economically beneficial for them to break their ties with the village and join the modern sector. The presence of informal insurance in villages can then be a drag on economic development. Drawing on data from Indian villages, Das Gupta (1987) provides evidence along these lines. In parts of Sub-Saharan Africa the greatest problems tend to be caused by excessive rural-urban migration rather than by insufficient mobility, but even here the Banerjee-Newman model can still provide useful insights. The basic ideas can be applied to explain inefficient mobility between economic sectors, for example, rather than just inefficient geographic mobility.

The final set of tensions centers on the role of the family. The family has been hovering in the background in this discussion because people generally turn to their relatives first—and often again as a last resort—in times of need. On the one hand, the institution of the family, stretching over generations and bearing well-understood protocols, greatly facilitates informal insurance. Most important, information and enforcement problems are mitigated. On the other hand, the family tends to have a much more limited pool of resources on which to draw relative to the broader community.

The most important tensions arise when the demographic structure of households is shaped to meet the purposes of informal insurance. For example, the old age security theory suggests that children are produced partly to provide informal social security. In situations with overcrowding and in cases in which parents do not take into account the negative externalities imposed by their children (through congestion and environmental degradation, for instance), social welfare may be enhanced by shifting to alternative social security mechanisms (Dasgupta 1993; Anand and Morduch 1999). For example, establishing secure, convenient savings programs may allow households to reduce the number of children they have without undermining their ability to cope with less income in old age and can provide a second round of benefits to the community through reductions in negative population-related externalities.

A number of other insurance-demographic links lead to similar tensions, including social pressure to migrate and to select marriage partners in order to provide the family with insurance (Rosenzweig and Stark 1989; Paulson 1995); family "churning" (that is, the turnover of responsibility) as a response to the death of a head of household; and the practice of taking in a foster child. Child fostering is common in Côte d'Ivoire, Ghana, and Sierra Leone, although explanations differ. Bledsoe and Isiugo-Abanihe (1989) discuss insurance-related motives for fostering; Ainsworth (1996), however, in a survey from Côte d'Ivoire, finds that the need for labor is a more important factor.

Tensions in Other Forms of Informal Insurance

Other insurance mechanisms also tend to be least effective just when they are most needed. In principle, buying and selling assets provides a good hedge against idiosyncratic risks (at a minimum). Rosenzweig and Wolpin (1993), for example, find that buying and selling bullocks is an important consumption-smoothing device in semiarid India. But even there, the correlation between poor harvests and the price of bullocks (the covariation of risk) can raise problems. In fact, Lim and Townsend (1998) suggest that covariant shocks and the nature of bullock transactions instead *add* volatility to cash holdings rather than protecting them, and after carefully sifting through the same data, they uncover little evidence that is consistent with the Rosenzweig-Wolpin findings. The Lim-Townsend finding is consistent with the tensions that are introduced when risks covary. Thus, asset prices may fluctuate widely when every household wants to buy goods—or dump goods—at the same time. As a result, it may not be surprising that Czukas, Fafchamps, and Udry (1998) find that in Burkina Faso, selling livestock protected households against only 20–30 percent of the income shortfalls suffered as a result of a drought. (It is possible, however, that effective insurance would have been stronger had the drought been less widespread.)

In addition, informal mechanisms are typically weak against repeated shocks. Simulations by Deaton (1992) show that the efficacy of using buffer stocks or savings accounts to smooth consumption is conditioned largely on the degree to which bad shocks follow one another over time. When harsh conditions are likely to persist for several years in a row, households would have to have very large stores of assets to achieve adequate protection. This is one reason that the consequences of droughts and floods may be especially bad: because they frequently entail adverse environmental changes (runoff; desertification; poor soil conditioning), they play out even after the climate has returned to normal.

Even where mechanisms work well in a narrow sense, they may do so only at large long-run social costs. First, many mechanisms are inherently costly. In risk-prone areas of India, for example, households may sacrifice as much as 25 percent of average income to reduce exposure to shocks (Walker and Ryan 1990). In principle, then, improving safety nets can increase average incomes by reducing reliance on these costly measures (Platteau 1991; Morduch 1993, 1994). Perhaps more important, the desire to stay with tried and true technologies limits experimentation and innovation, creating ongoing problems for households.

Improving insurance may also mitigate social inequalities. Many informal insurance mechanisms have a gender dimension as well. Women often bear the brunt of arranged marriages, migration, and child fostering. Women may also lose out more than men during downturns. In India, for example, Rose (1999) finds that child mortality rates increase during periods of very low rainfall and are significantly higher

for girls than for boys. Reducing households' vulnerability and instituting more flexible insurance instruments may thus have broader social implications.

Policy Implications

A first set of policy priorities includes actions to reduce risk itself. For example, improving governance can sharply reduce the vulnerability of households to downturns resulting from economic mismanagement. Increasing macroeconomic stability, reining in inflation, securing property rights, improving transport and communications, and creating a stable political environment can go a long way toward reducing the frequency and size of downturns and creating a supportive environment to facilitate private risk-reducing activities. Similarly, risk can be reduced through public health campaigns for immunization and sanitation, civil works projects (dams, retaining walls, irrigation), and, in some cases, price stabilization. Higher incomes and stable employment opportunities further enhance the ability to cope with risk. But these are all policy areas that are on the table for other reasons and are best judged by other criteria.

In richer countries, households typically prepare for income declines by acquiring savings accounts, lines of credit, pensions, insurance, and annuities. Where these actions run into limits, governments typically provide means-tested poverty alleviation programs, unemployment benefits, health insurance, and social security (Subbarao and others 1997, ch. 3). But neither the administrative capacity nor the funding exists in most low-income countries to build similar public safety nets. Public action can, however, help to address smaller, local hardships by providing regulatory and institutional frameworks that expand households' access to insurance, credit, employment opportunities, and convenient ways to save. Limiting the government's role conserves scarce administrative resources and avoids potential conflicts of interest between short-term political exigencies and requirements for longer-term institutional sustainability. These policies provide ways to strengthen informal coping mechanisms and broaden their accessibility rather than displace private actions.

Promoting Savings

It had long been thought that most poor households had little desire to save in banks, but the experience of Indonesia's Bank Rakyat Indonesia (BRI) and similar microfinance programs are turning that view around. After BRI established a safe, convenient savings vehicle, consumers responded enthusiastically. BRI now has more than 16 million low-income depositors (compared with 2 million borrowers), greatly aiding the bank's profitability. Although there is no systematic evidence on the in-

come levels of depositors, bank staff note that they tend to be poorer on average than borrowers and from diverse socioeconomic backgrounds. Partly as a result, savings mobilization efforts are now being renewed in microfinance programs in Africa, Asia, and Latin America. Public policy can aid by ensuring an appropriate regulatory environment and helping to keep inflation in check.

One promising program has shown the surprising demand for savings deposits among poor households in the slums of Dhaka, Bangladesh. SafeSave, a nongovernmental organization, patterned its savings program on that of the local rotating saving and credit associations, which operate by taking in small sums from participants (Rutherford 1999). The response to SafeSave has been much greater than expected, and depositors have been able to slowly build up usefully large sums of money. As a consequence, the program is being replicated by other nongovernmental organizations in South Asia.

Without easy saving opportunities, households are tempted to squander surpluses or are susceptible to calls for short-term help from family members or neighbors—often at the expense of long-term progress (Platteau forthcoming). In this way, savings instruments may well be much more important than the provision of credit in raising incomes and reducing risk—and easier to accomplish.

Such financial deposits can be particularly effective in helping households weather the difficult scenarios that undermine gift exchanges. Consider the various forms of shocks that households encounter. Events that occur infrequently—old age, death in the family, and chronic disability—can hit households hard and may require a continuing flow of transfers. Given that such transfers are not guaranteed, savings deposits can be critical in ensuring that people have enough income to satisfy basic needs. (Note, however, that if interest rates fall below inflation rates, the purchasing power of these deposits can erode quickly.) Savings also allow households to avoid borrowing from moneylenders at interest rates as high as 5–10 percent a month when emergency funds are needed and can be especially valuable in a crisis (Von Pischke 1991). A regional drought, for example, will lead to a decline in the price of assets as affected individuals simultaneously try to sell their holdings. Financial savings, however, will generally hold greater value (and could increase in value as prices fall).

Public policy that leads to better integrated savings programs can help to contain risk, allowing the financial system to handle shocks more easily. The theoretical relationship of deposit mobilization, efficiency enhancement, and the generation of economic growth is described by Bencivenga and Smith (1991). The keys to a successful savings program are providing long-term security and convenience, finding a way to hedge against inflation, minimizing costs, and exploiting opportunities to relend deposits safely but profitably.[3] Existing banks and nongovernmental organizations may not be up to all of these tasks, and designing effective (but not overly intrusive) prudential regulations is a critical first step.

Microcredit

Microcredit programs have succeeded by creating hybrid institutions that channel formal-sector funds to poor households. The programs are not perfect. In Africa, for example, the challenge is to create mechanisms that work well in semiarid and arid rural regions where households tend to have less diversified income bases and where low population densities mean higher transactions costs for financial institutions. More generally, most poverty-focused programs face high costs that undermine attempts at profitability. A recent survey shows that such programs are able to cover an average of only 70 percent of their total costs (*MicroBanking Bulletin* 1998).

The benefits, though, may be considerable. Using a recent survey of 1,800 households in Bangladesh, I find that access to microcredit programs yields no appreciable increase in average consumption levels in the short term (Morduch 1998). For those with access, however, the volatility of consumption over the three main cropping seasons is roughly half that of control groups (after controlling for unobservable variables at the village level). This reduction in consumption variability turns out to be mainly a product of reduced income variability across seasons, which is made possible by the employment diversification that credit affords. Helping rural households to reduce risk further by diversifying into nonfarm labor is an overlooked, but important, return to microcredit, and more research needs to be done along these lines to inform discussions of the costs and benefits of supporting credit-based approaches (Khandker 1998; Morduch forthcoming).[4]

Insurance

Crop insurance programs have been a disaster nearly everywhere—not unlike targeted credit programs in the 1970s (Yaron, Benjamin, and Piprek 1997). Imperfect information and high transactions costs have proven to be destabilizing, and there are no easy solutions. Although reform currently looks unpromising, in principle the problems of insurance markets are not much more intractable than those of credit markets—and microfinance programs have shown effective ways around some of the largest hurdles there. Some microfinance programs have introduced insurance successfully on a limited scale, offering term life insurance at very low rates (with benefits large enough to clear debts and provide for a burial but not much more). In addition, the Grameen Bank of Bangladesh, for example, appears to have had success with its "emergency fund" for borrowers. The fund aids with loan repayment and provides general help in the event of illness and other emergencies. Information and transactions costs are reduced by coupling these mechanisms with credit provision. Experimentation will be necessary to determine whether these types of insurance mechanisms can be provided separately from other microfinance services.

As Morduch and Sicular (1999) suggest, there may be ways to insure poor households by drawing broader lessons from microfinance. In a study of northern China, we describe an insurance company that has found some success in selling crop insurance to groups (a whole village, say), rather than to individuals. At the moment, this group insurance is used just to lower transactions costs for insurers and is a poor analogue to the group-lending practices used by microfinance institutions. But if future premiums were tied to the history of losses, a group-based contract could provide incentives for peer monitoring along the lines that microcredit programs have found successful in addressing moral hazard. This is an area open to speculation, and many roadblocks remain—for example, how should a program discourage collusion by the entire group?

One important lesson from microfinance is that programs operated directly by governments tend to have inherent difficulties in generating compliance by participants; borrowers are far more likely to default on loans from government sources, and governments are more likely to tolerate defaults in the name of political expediency. This has proved disastrous for the long-term sustainability of public credit programs. There is a parallel in the case of insurance; insurees appear less likely to take due precautions when governments are the insurers. Facilitating insurance provision by nonprofits, nongovernmental organizations, and for-profit companies may thus be an important step forward.

Employment Guarantee Schemes

Direct public interventions can also help to reduce vulnerability, especially for the poorest households. Among the most promising are rural public works programs such as India's Employment Guarantee Scheme in Maharashtra State, mentioned earlier, and the Food for Work program in Bangladesh, both of which are described by Ravallion (1991). These programs provide wage employment in return for work on constructing and maintaining public infrastructure. Ravallion (1991) reports that India's scheme provided about 100 million person-years of employment between 1975 and 1989. On average, 500,000 people participated per month (of a total of 20 million rural workers). Walker, Singh, and Asokan (1986) find that the coefficient of variation of income among landless laborers in two villages in Maharashtra with access to the employment scheme was half that of a similar village without access.

The work requirement and low wage rates provide a way to target the aid to truly needy households, allowing the programs to avoid instituting costly means tests. Participants take advantage of the program only when needed, often in lean seasons before harvests. During peak seasons, alternative employment opportunities are generally more attractive. Thus the programs avoid long-term dependency and ever-growing lists of participants. It also means that the programs are set up to

help households cope with temporary hardships, not mainly as an answer to chronic poverty.

The success of such programs will depend on government budgets, eligibility criteria, and wage rates. According to Ravallion (1991:171–72), there should be "as few restrictions on eligibility as feasible, and wage schedules and the rights of participants should be well defined, well known, and nondiscriminatory. Ideally, all who want work at the going wage rate should be able to get it." The principle of inclusiveness is a key to reducing vulnerability because households (or at least those with available workers) are reassured by knowing that they will have a place to turn when they fall on hard times.

Conclusion

Poor households throughout the world face twin disadvantages. The first is difficulty in generating income. The second is vulnerability to economic, political, and physical downturns. Inflation, recession, drought, flood, illness, and civil war hit hardest those households that are least well equipped to handle the shocks. Harder still, the two disadvantages reinforce each other. Poverty is a source of vulnerability, and repeated exposure to downturns reinforces poverty.

The circular nature of poverty and vulnerability does not, however, preclude effective responses. The evidence to date suggests several broad directions to pursue. In addition to helping households cope with large natural disasters, governments need to encourage flexible private interventions. Concern has arisen about whether public action will crowd out private informal insurance mechanisms. To the contrary, well-designed public action can strengthen and broaden the capacity of households to act independently through informal mechanisms.

Making saving safer and more convenient, helping to expand credit access, and fostering basic insurance programs are all promising ways to help households help themselves in the face of adversity. The possibility of crowding out existing informal arrangements should not be ignored, but in most low-income countries, it is unlikely to substantially undermine steps to help poor households. First, informal insurance is often very limited, and second, the crowding out of some private actions can have valuable social benefits.

Notes

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1. Economists' calculations of the welfare costs of vulnerability typically lead to relatively small numbers for the benefits of risk reduction (see, for example, Newbery and Stiglitz 1981). But consumer riots in the face of price swings, evidence on the lengths to which households and governments go to avoid volatility, and participatory assessments of poverty (such as World Bank 1994) suggest that approaches grounded in simple microeconomic theory have been too narrow to capture the full extent of concern.

2. The specific tests of consumption insurance are rooted in the theory of optimal social allocations, and they begin with the assumption that each household has a fixed social weight, θ, in a social planner's problem. If household A's utility from consumption is $u(C_A)$ and household B's utility is $u(C_B)$, then marginal utilities are simply $u'(C_A)$ and $u'(C_B)$. In the benchmark theory without enforcement or information problems, transfers should be made in every period so that $\theta_A u'(C_A) = \theta_B u'(C_B)$. That is, redistribution from household A to B or from B to A should occur until there is no possible way to increase the weighted sum of their utilities. The burden of idiosyncratic shocks should thus be shared by the participants. And, in principle, the relationship should also hold for households A and C, A and D, A and E, B and C, and so forth. With data in two periods, the relationships continue to hold, so that $\theta_A u'(C_{A1}) = \theta_B u'(C_{B1})$ and $\theta_A u'(C_{A2}) = \theta_B u'(C_{B2})$. Putting the two relationships together shows that marginal utilities must grow over time at the same rate for all households: $u'(C_{A2})/u'(C_{A1}) = u'(C_{B2})/u'(C_{B1})$. Under assumptions commonly made about the shape of utility functions—for example, $u(c) = c^{1-p}/(1-p)$, where $p > 0$ is the coefficient of relative risk aversion—the relationship also holds for the growth of consumption itself (or its logarithm). This relationship has provided the basis for a test of the basic theory on risk sharing. If the proposition and the assumptions about the form of preferences are correct, once the consumption growth of any single household (or of a region in aggregate) is known, the consumption growth of everyone should be known. Moreover, no other variables (such as income or income growth) should have influence. Given the assumptions, the test boils down to whether or not coefficients on income and income growth are statistically significant in explaining patterns of household-level consumption once regional consumption aggregates are controlled for. If the proposition holds exactly, the marginal propensity to consume out of idiosyncratic income changes should be zero. Townsend (1994) and Cochrane (1991) give a more explicit presentation. The presentation here implicitly assumes that households have identical preferences for consumption over time, that consumption and leisure are separable in utility, that utility is additively separable over time, and that utility is a function only of consumption levels. If instead utility also depends on household characteristics (a reasonable view), the testable implication is that consumption growth depends only on preference parameters, not on budget parameters—but this is a harder proposition to test.

3. How and where deposits are invested appears to be far less important than that deposits are mobilized from poor households. In principle, there is no reason not to invest the money abroad, for example, if domestic options prove difficult and returns are unattractive. Where it is costly to set up savings bank branches, simple mechanisms such as post office savings plans (or innovations based on the African *susu* collector) may offer appealing options.

4. Reardon, Matlon, and Delgado (1988), for example, show that nonfarm income accounted for 30–40 percent of total income in drought-affected Burkina Faso and that it was only imperfectly correlated with crop income, providing protection against the drought. Some of the nonfarm income, though, may come as an ex post response to downturns in farm income, leading to negative correlations. Czukas, Fafchamps, and Udry (1998), however, find that nonfarm income was *positively* correlated with farm income during a similar circumstance in Burkina Faso, so that nonfarm income was not an important offset to crop income.

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