PART II

Risk Management and Market Access

This part of the book features three case studies: two on the way that poor households use local institutions to cope with shocks (Ethiopia–*iddir* and the Philippines) and one on smallholder market institutions (Kenya). All three studies focus on collective action and its role in enabling smallholders to deal with certain constraints that they face in accessing insurance schemes and markets. These case studies are important because they spotlight the institutions of collective action in areas of poverty-related research other than natural resource management (NRM) in poverty areas and provide additional insights on various determinants of the effectiveness and sustainability of groups and networks that have been discussed in the NRM literature. For example, all three studies touch on the issue of group heterogeneity, showing that certain types, such as spatial and age diversification, may lead to more successful cooperation, whereas similarity in other characteristics between group members, such as wealth endowments, may ensure groups' financial viability.

The findings of the Ethiopia–*iddir* and Philippines case studies show that local forms of collective action have an important function in the livelihoods of the poor, including the role that groups and networks can play in reducing vulnerability to the negative effects of certain shocks, especially those related to health. The Kenya study highlights the role of producer groups in enabling smallholders to overcome market imperfections in selling their staples and achieving a higher price than they would by selling individually.

Both sets of findings are important because they show that collective action among the poor can be a useful vehicle for improving their well-being by increasing their resilience and enhancing their livelihood options, but it is not a panacea for poverty reduction. People cooperate when motivated by specific incentives, and not all poor people are able to participate in all forms of collective action. Although most of the poor belong to various groups and networks, the groups with higher economic returns may be available only to those with a certain level of asset endowments, precluding the participation of those below these thresholds.

The policy implications outlined by these chapters call for recognition of the importance of collective action in the lives of the poor and recommend policies and programs that would build on the established forms of cooperation to strengthen them to serve the poor even more effectively. At the same time, they advise those with decisionmaking power to proceed with caution. On the one hand, the trust and relationships built among group members can be easily broken by the heavy involvement of outsiders. On the other hand, policies and programs targeting the very poor may need to be realistic about the potential of collective action to bring people out of severe poverty.

3 Burial Societies in Rural Ethiopia

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Collective action has both intrinsic and instrumental value. Being part of a group and participating toward meeting a common objective provides direct benefits to individuals. In the Ethiopian survey data used in this study, individuals who reported having larger networks also reported higher levels of happiness. Such correlations are not unique to Ethiopia. Using data from the World Values Survey, Helliwell and Putnam (2004) found that individuals who reported higher levels of individual and collective civic engagement also reported higher scores on measures of subjective well-being. Collective action is also a means to an end. For example, the joint management of irrigation canals, rangelands, and fisheries involves actions by groups that allow individuals to generate higher and more sustainable incomes. This chapter focuses on a specific, instrumental dimension of collective action: the role of groups and networks in helping households in poor communities manage their exposure to risks and cope with shocks to their livelihoods, which are identified as an important determinant of poverty and well-being by Di Gregorio et al. (this volume, Chapter 2).

In doing so, the chapter builds on research addressing how poor households respond to shocks; see Morduch (2005) and references therein, the review paper by Skoufias and Quisumbing (2005), and the recent collection edited by Dercon (2005). These show that in the face of shocks households can partially smooth consumption, but not perfectly; as might be expected, idiosyncratic shocks (for instance, low or late rainfall on household plots) are more likely to be insured collectively than are generalized shocks (such as low rainfall on most plots in the village). In most empirical studies of risk smoothing—for example, that of Townsend (1994)—the insurance unit has been assumed to be the village. Studies using Townsend's approach have often found that households are able to cope with idiosyncratic shocks but not covariate shocks, implying that local insurance mechanisms are inadequate to cope with aggregate shocks. More recent studies (for example, that of Munshi and Rosenzweig 2005) have begun to question the assumption that the appropriate unit of risk smoothing is the village. They suggest that consumption is smoothed within subcaste networks

that extend beyond the village. Indeed, the literature on migration and remittances suggests that networks can cross geographic boundaries, with the formation of migrant networks at destination sites affected by shocks in the original locality (Munshi 2003).

There is also a subset of studies that has attempted to isolate the role of gift giving and informal loans in helping households to cope with shocks. The results indicate that households are not perfectly "altruistic"; the problems of asymmetric information and limited commitment mean that households are not likely to be fully insured (Foster and Rosenzweig 2000; Ligon, Thomas, and Worral 2000).[1] However, such analyses do not assess whether responses differ depending on the nature of the shock, and indicators for collective action and participation in different types of networks are generally either absent or rudimentary. There are some exceptions. Fafchamps and Lund (2003) differentiated among different types of risk, specifically addressing how different sorts of networks are used. They showed that risk sharing appears to occur mostly in very small networks of close friends and families—networks that may not have the heterogeneity required to efficiently share risk. In the case of Ethiopia, Dercon and Krishnan (2000) specifically addressed potential gender differences in terms of risk coping and found that poor women, particularly in one region, are less able to smooth consumption in the face of risks.

The collective action literature shows that the density of networks in general, and participation in more formal groups in particular, can lead to either more effective participation in community-based activities (White and Runge 1994; Isham and Kahkonen 2002) or higher household incomes (Narayan and Pritchett 1999; Pender and Scherr 2002; Haddad and Maluccio 2003). However, there is a lack of consensus on the impact of heterogeneity on collective action. In most empirical studies in which researchers have used various measures of heterogeneity to examine its impact on collective action or on household incomes directly, the impact of any type of heterogeneity has tended to be negative or not significant (Ahuja 1998; Alesina and La Ferrara 2000; Bardhan 2000; McCarthy and Vanderlinden 2004; Place et al. 2004), with the interesting exception of results reported by Grootaert (2001). It is often hypothesized that heterogeneity of any sort makes finding agreements mutually beneficial and acceptable to all more costly and that sociocultural heterogeneity in particular is likely to reduce trust among group members and also to reduce the efficacy of social sanctioning (Easterly and Levine 1997). On the other hand, much of the literature on group formation and networks highlights the added benefits to diversity (or heterogeneity) among members along any number of dimensions. Risk pooling is certainly more efficient when one's income is less correlated with that of other members of the groups, which implies that having members

1. However, Genicot and Ray (2003) show that with imperfect enforceability of contracts, stable insurance groups can exist above or below the village level.

with different agricultural activities and occupational structures is better for the insurance mechanism. Many networks exist to share information; clearly if everyone has the same background and the same current sociocultural and economic profile, there is little need to rely on networks to share information. Finally, there may be economies of scope in terms of information gathering—or accumulation of other assets, for that matter. In this case, economic heterogeneity also favors the pooling of resources to the benefit of all. Because there may be competing impacts of different types of heterogeneity on the functioning of groups, it becomes critical to examine which groups are able to harness the positive effects of heterogeneity and mitigate its negative effects.

Finally, if groups differ in terms of degree of heterogeneity and geographic dispersion, what kinds of enforcement mechanisms can be used to ensure compliance with network objectives and norms of behavior? Members of local networks are easier to monitor, but local networks are less able to insure against covariate shocks. Spatially diversified networks offer some protection against covariate shocks, but network members will be more difficult to monitor. If information and communications technologies are poor, more distant network members may not even be aware of a shock that occurred in their original communities.

Interest in these issues is more than just a matter of academic curiosity. Understanding these networks is as crucial to understanding the determinants of poverty and the policies necessary to move people out of poverty as understanding land tenure or access to financial capital. A misunderstanding of the roles of these networks can lead to policy changes that have unintended consequences on the functioning of the networks, with potentially damaging effects on the capacity of the poor to mitigate, and cope with, the effects of shocks. At the same time, a better understanding of such networks can lead to the identification of policies that complement networks that already serve the poor well and also to policies that can substitute for networks that simply are not reaching the poor.

In terms of the conceptual framework presented in Chapter 2, this chapter focuses on the impact of risks and shocks (especially natural shocks in the form of drought, death, and illness) on household well-being and the role of local collective action institutions in dealing with these risks. We show the impact of asset endowments (human and natural capitals, in particular) on the severity of these shocks, as well as on the composition of the groups and networks. We also discuss the size of collective action institutions and their scope to effectively contribute to poverty and vulnerability reduction. Using the language of the conceptual framework, the discussion focuses almost exclusively on the internal actors (*iddir* members) in the action arena, which is represented by the *iddir* (burial societies or funeral association). The patterns of interaction that emerge here are the innovative forms of cooperation (through cash transfers and loans given to *iddir* members to cope with a shock) and rules (governing

that composition and operation of *iddir*) that allow poor households to achieve certain poverty-related outcomes, such as maintaining necessary levels of income and fulfilling basic needs, as well as sustaining these groups.

More generally, this chapter highlights the potential of local forms of collective action beyond economic groups (such as credit and savings associations) to enable poor households to cope with local shocks by overcoming the problems of moral hazard and adverse selection that the typical insurance schemes face. It provides an interesting bridge from the natural resource management (NRM) literature to the non-NRM poverty studies by showing how the same principles that apply to collective action for resource management (effective rules on membership, sanctions for noncompliance, and so on) can translate into non-NRM arenas and create conditions and incentives for effective group operation—in this case, for managing risks. It adds new insights to the discussion of the impact of heterogeneity on the effectiveness and sustainability of local groups and networks, which is of great interest and has long been debated in the NRM literature. By focusing on risks and their effect on household well-being, we contribute to an understanding of the complex and dynamic nature of poverty, which is of central interest to this volume.

In the material that follows, we address these issues by drawing on rich longitudinal and qualitative household and community data from Ethiopia. After describing these data in some detail, we examine the shocks these households face and their impact on living standards. We then look at the correlates of participation in groups and networks—both formal and informal—and the relationship between networks and access to other forms of capital. In the final substantive section, we pull this information together to assess how one form of collective action, represented by *iddir,* allows households to attenuate the impact of illness.

Data and Context

Ethiopia is a federal country divided into 11 regions. Each region is subdivided into zones and the zones into *woredas,* which are roughly equivalent to counties in the United States or the United Kingdom. *Woredas,* in turn, are divided into peasant associations (PAs), or *kebeles,* administrative units consisting of a number of villages. PAs were set up in the aftermath of the 1974 revolution. Our data are taken from the Ethiopia Rural Household Survey (ERHS), a unique longitudinal household dataset covering households in 15 areas of rural Ethiopia. Data collection started in 1989, when a survey team visited 6 PAs in central and southern Ethiopia. The survey was expanded in 1994 to encompass 15 PAs across the country, yielding a sample of 1,477 households. As part of the survey redesign and extension that took place in 1994, the sample was re-randomized by including the exact proportion of newly formed or arrived households in the sample, as well as by replacing households lost to follow-up with others con-

sidered broadly similar to them in terms of demographics and wealth by village elders and officials. The nine additional PAs were selected to better account for the diversity of the farming systems found in Ethiopia. The sampling of the PAs newly included in 1994 was based on a list of all households that was made with the help of local PA officials.[2]

The sample was stratified within each village to ensure that a representative number of landless households were also included. Similarly, an exact proportion of female-headed households was included via stratification. Consequently, as Dercon, Hoddinott, and Woldehanna (2005) show, the population shares within the sample were broadly consistent with the population shares in the three main sedentary farming systems—the plough-based cereal-farming system of the northern and central Highlands, the mixed plough-hoe cereal-farming system, and the farming system based around *enset* (a root crop also called false banana), which is grown in southern parts of the country. It should be noted that in 1994 the Central Statistical Office collected a dataset as part of the Welfare Monitoring System. Many of the average outcomes, in terms of health and nutrition, were similar to the results of the ERHS, suggesting that living conditions in our sample did not differ greatly from those found more generally throughout rural Ethiopia (see Collier, Dercon, and Mackinnon 1997).

For these reasons, the sampling frame for selecting the villages can be seen as one that was stratified by agroecological zones and subzones, with one to three villages selected per stratum. Further, sample sizes in each village were chosen so as to approximate a self-weighting sample, when considered in terms of a farming system: each person (approximately) represents the same number of persons found in the main farming systems as of 1994. However, we use this feature of the sample cautiously. It does not include pastoral households or urban areas. Also, the practical aspects associated with running a longitudinal household survey, when the sampled localities are as much as 1,000 kilometers apart in a country where top speeds on the best roads rarely exceed 50 kilometers per hour, constrained sampling to only 15 communities in a country of thousands of villages. So although these data can be considered broadly representative of households in nonpastoralist farming systems as of 1994, extrapolation from these results should be done with care.

Additional survey rounds were subsequently conducted in late 1994, 1995, 1997, 1999, and 2004. These surveys were conducted, either individually or collectively, by the Economics Department of Addis Ababa University, the Centre for the Study of African Economies, the University of Oxford, or the

2. The PA was responsible for the implementation of land reform following 1974 and held wide-ranging powers as a local authority. All land is owned by the government. To obtain land, households have to register with the PA, and thus lists are maintained of the households that have been allocated land. These household lists were a good source of information for the construction of a sampling frame.

International Food Policy Research Institute. Sample attrition between 1994 and 2004 was low, with a loss of only 12.4 percent (or 1.3 percent per year) of the sample over this 10-year period, in part because of the institutional continuity. This continuity also helped ensure that the questions asked in each round were identical, or very similar, to those asked in previous rounds and that the data were processed in comparable ways.[3] In addition, detailed qualitative studies were undertaken in the mid-1990s, the results of which were reported by Bevan and Pankhurst (1996). Smaller-scale qualitative studies have been carried out at selected survey sites on specific topics, including some on collective action; see "Networks, Groups, and Collective Action."

Table 3.1 provides descriptive statistics based on the 2004 survey round. Two features are immediately apparent. First, these households were very poor. Mean monthly consumption per capita was 106 birr, or about US$13 per person, and about 36 percent were below the poverty line. Second, agriculture was the dominant source of income for these households, accounting for two-thirds of household income.

Shocks in Rural Ethiopia

We define *shocks* as adverse events that lead to a loss of household income, a reduction in consumption, a loss of productive assets, or serious concern or anxiety about household welfare. The data used in this section are based on a household-level "shocks" module developed by Hoddinott and Quisumbing (2003). The module asked households to consider a list of adverse events and indicate whether the household was adversely affected by them. Ethiopian respondents were asked, "Has this household been affected by a serious shock—an event that led to a serious reduction in your asset holdings, caused your household income to fall substantially, or resulted in a significant reduction in consumption?"

Shocks were divided into a number of broad categories: climatic; economic; political, social, and legal; crime; and health. Climatic shocks included obvious examples such as drought and flooding but also erosion, frosts, and pestilence affecting crops or livestock. Economic shocks included problems in terms of access to inputs (both physical access and large increases in price),

3. We examined whether this sample attrition was nonrandom. Over the period 1994–2004, there were no significant differences between households that left the study and those that did not in terms of initial levels of characteristics of the household head (age, sex), assets (fertile land, all landholdings, cattle), or consumption. However, households that left the study were, at baseline, smaller than households that did not leave. Between 1999 and 2004, there were some significant differences by village; one village, Shumsha, had a higher attrition rate than others in the sample. Our survey supervisors recorded the reason why individual households could not be traced. Using these data, we examined attrition in Shumsha on a case-by-case basis, but could not find any dominant reason for households' attrition.

TABLE 3.1 Descriptive characteristics of the Ethiopian sample, 2004

Characteristic	Measure
Demographic	
Mean household size (persons)	5.7
Percentage of households that are female headed	30.3
Percentage of household heads with *any* education	23.1
Living standards	
Monthly consumption per capita, mean (birr)	106.2
Monthly consumption per capita, median (birr)	75.1
Percentage of households below poverty line	36
Income sources (percent)	
Crop income	67
Wage income	5
Self-employment	19
Transfers	8

SOURCE: IFPRI (2009).

NOTES: Monetary figures are in 2004 birr. At the time of the survey, the birr–U.S. dollar exchange rate was approximately 8 birr to the dollar. Self-employment income includes income from processing agricultural products (livestock, beer) and nonagricultural activities such as trading or selling firewood and charcoal. Transfers include both public and private transfers. For details on the construction of consumption and income aggregates and poverty lines, see Dercon, Hoddinott, and Woldehanna (2007).

decreases in output prices, and difficulties in selling agricultural and nonagricultural products. Political, social, and legal shocks included the confiscation of assets or arbitrary taxation by government authorities, social or political discrimination or exclusion, and contract disputes. Crime shocks included the theft or destruction of crops, livestock, housing, tools, or household durables as well as crimes against persons. Health shocks included both death and illness. We also considered miscellaneous shocks, such as conflicts and disputes with other family members, neighbors, or other village residents regarding access to land or other assets. Finally, in addition to these questions about specific shocks, households were also asked to enumerate the three most important adverse shocks that they had experienced over the previous five years.

As Table 3.2 shows, virtually all households in the Ethiopian sample (95 percent) reported a most important shock, 85 percent reported a second-most-important shock, and 62 percent reported a third-most-important shock. The most commonly reported "worst shocks" were drought (47 percent), death (43 percent), and illness (28 percent). When we disaggregated the responses by degree of importance of these worst shocks (not reported here), we see that these same three shocks were always listed as the most important adverse shocks experienced by these households. Input and output shocks, pests affecting crops, and crime were all reported by between 11 and 14 percent of households. Other

shocks were less frequently reported. Strikingly, policy shocks (land redistribution, state confiscation of assets, resettlement, villagization or forced migration, bans on migration, forced contributions, or arbitrary taxation), which had featured so prominently in earlier rounds of the ERHS, substantially diminished in importance. Only 7 percent of households reported being adversely affected by such policy shocks, compared to 42 percent who reported being affected by these prior to 1994 (Dercon 2002, Table 1).

TABLE 3.2 Ethiopian household self-reports of the worst shocks experienced between 1999 and 2004

Worst shock	Percentage of households reporting each shock
Most commonly reported	
Drought	46.8
Death of household head, spouse, or another person	42.7
Illness of head, spouse, or another person	28.1
Inability to sell outputs or decrease in output prices	14.5
Pests or diseases that affected crops	13.8
Crime	12.7
Difficulty in obtaining inputs or increases in input prices	11.3
Policy or political shock (land redistribution, state confiscation of assets, resettlement, villagization, forced migration, bans on migration, forced contributions, arbitrary taxation)	7.4
Pests or diseases that affected livestock	7.0
Most commonly reported, by household-rated degree of importance	
Most important shock	
Drought	32.6
Death of household head, spouse, or another person	26.1
Illness of head, spouse, or another person	8.0
Second-most-important shock	
Death of head, spouse, or another person	14.8
Drought	13.6
Illness of head, spouse, or another person	12.3
Third-most-important shock	
Illness of head, spouse, or another person	12.2
Death of head, spouse, or another person	8.1
Drought	8.0

SOURCE: IFPRI (2009).

NOTES: Some 1,371 households reported information; in response to the question "What were the three most important shocks to affect this household?" 95 percent of households reported a most important shock, 85 percent reported a second-most-important shock, and 62 percent reported a third-most-important shock.

Although these data provide a detailed overview of the types of shocks experienced by households, it does not give us a quantitative sense of their consequences. Also, there are limits to cross-sectional analysis; it is difficult to tell whether, for example, conditional on location, wealth, and other observable characteristics, female-headed households in Ethiopia are more adversely affected by droughts than male-headed households. For these reasons, we summarize the results of Dercon, Hoddinott, and Woldehanna (2005), who reported an econometric assessment of the impact of these shocks on one measure of welfare, log per capita consumption.[4]

Log per capita consumption (*lnpcexp*) of household *i* in village *v* in time *t* is a function of two broad sets of household characteristics—household characteristics observed in the past (time $t - 1$) ($H_{iv,t-1}$) and shocks to households experienced between time $t - 1$ and time t ($S_{iv,t}$)—and community-level variables observed at time t ($X_{iv,t}$), such as the month or season of interview.[5] Vectors of parameters to be estimated are γ, β, and κ. In Ethiopia, log per capita consumption is measured from 2004, while past household characteristics from 1999 are used as regressors. Denoting $\varepsilon_{iv,t}$ as the white noise disturbance term, we write this relationship as

$$lnpcexp_{iv,t} = \gamma \cdot H_{iv,t-1} + \beta \cdot S_{iv,t} + \kappa \cdot X_{iv,t} + \varepsilon_{iv,t}. \quad (1)$$

Observable household characteristics are characteristics of the household head (age, gender, and schooling), demographic household characteristics (log size and dependency ratio), and household wealth (landholdings and livestock ownership, the latter expressed in livestock units). Also included are measures of households' networks and connections within the village that may also affect consumption levels: whether the household belonged to an ethnic or religious minority, whether it was related to anyone holding an official position in the locality, and whether a parent of the household head was an important person in the social life of the village. Because some shocks are relatively more com-

4. Consumption is the sum of food and nonfood consumption. For each food item, households were asked about the amounts they had consumed out of purchases, consumption out of their own stock, and consumption from gifts and in-kind wages in the previous week. In general, these consumption levels are valued using prices obtained from local market surveys fielded at the same time as the household survey. Nonfood items were limited to noninvestment goods, so we included consumables such as matches, batteries, soap, kerosene, and the like, as well as clothing and transport, but excluded investments in durable goods such as housing. Different recall periods were used for different items; for comparability, all results were changed into monthly (30-day) consumption rates and expressed in per capita terms. Dercon and Krishnan (2003) showed that earlier survey rounds, using various permutations of adult equivalency, did not fundamentally affect the analysis of the determinants of living standards.

5. In very loose terms, the specification of Equation 1 can be thought of as one in which, à la Friedman, consumption reflects the underlying asset base (which generates "permanent income") as well as transitory events that cause consumption to deviate from this level. We also include a vector that captures such potentially confounding factors such as the month in which the interview took place to capture seasonality.

mon than others, we aggregate the data we have on shocks into several categories indicating whether the household had experienced the following events that had led to a loss of household income, a reduction in consumption, or a loss of productive assets: a drought; too much rain; pests or diseases that affected field crops or crops in storage; pests or diseases that affected livestock; difficulty in obtaining inputs or increases in input prices; inability to sell or decreases in output prices; lack of demand for nonagricultural products; theft or destruction of tools, inputs, cash, crops, livestock, housing, or consumer goods; death of the household head, a spouse, or another person; and illness of the household head, a spouse, or another person. Finally, dummy variables are included for each village in Ethiopia. The implication is that shocks are identified by within-village (municipality) variation, which may make identification of covariate shocks difficult. However, even though covariate shocks were found in virtually all villages, even in the case of drought, there was no village in Ethiopia where all households indicated that they had been affected in the previous five years. This allows us to identify the impact of these relatively covariate events in our data.

The basic results from Dercon, Hoddinott, and Woldehanna (2005) are reported in Table 3.3. The striking feature of the results of the questions on shocks is how unimportant many of them seem to have been to those reporting them. Experiencing a drought at least once in the previous five years that lowered per capita consumption by approximately 20 percent and experiencing an illness that reduced per capita consumption by approximately 9 percent were the only shock variables that had a statistically significant effect on consumption. Other past shocks, controlling for a wide range of household characteristics, had no statistically significant impact on levels of consumption at the time of the survey (2004). Table 3.3, however, examines only the average effects of these shocks across all households in the sample. In Table 3.4 we extend this earlier work by disaggregating along three dimensions of preshock (1999) household characteristics —gender of household head, landholdings, and location—and explore the extent to which the impact of shocks differs across different household types. When we do so, some interesting differences emerge: drought shocks have a more severe effect on female-headed households and on poorer households as measured by landholdings, and illness shocks matter much more in survey areas south of Addis Ababa, where malaria is much more common. We return to this latter point later.

Networks, Groups, and Collective Action

Having described the broader environments in which our respondents lived and the effects of shocks on them, our next step was to consider the role of collective action in mitigating these.

Types of Networks and Groups

In the 2004 survey round, households were asked to provide details "about the five most important people you can rely on in time of need for support, both

TABLE 3.3 Impact of shocks and other covariates on (log) consumption per capita in Ethiopia, 2004

Covariate	Estimated coefficient	(1) *t*-statistic (absolute value)	(2) *t*-statistic (absolute value)
Shocks in prior five years			
Drought	–0.182	3.03*	2.49
Flood	0.025	0.59	0.28
Pests or diseases that affected field crops or crops in storage	–0.001	0.05	0.01
Pests or diseases that affected livestock	0.003	0.05	0.05
Difficulty in obtaining inputs or increases in input prices	0.058	1.00	1.11
Inability to sell outputs or decreases in output prices	–0.076	1.16	1.06
Lack of demand for nonagricultural products	–0.108	0.93	0.83
Theft or destruction of tools, inputs, cash, crops, livestock, housing, or consumer goods (crime)	0.051	0.96	0.71
Death of household head, spouse, or another person	0.025	0.59	0.63
Illness of head, spouse, or another person	–0.096	1.91*	1.68
Other controls			
Female-headed household, 1999	–0.024	0.45	0.39
Log age of household head, 1999	0.092	1.25	1.30
Some schooling for household head, 1999	0.082	1.39	2.19**
Log household size, 1999	–0.284	6.36**	8.43**
Dependency ratio, 1999	–0.033	1.92*	2.39**
Household in second land quintile, 1999	0.062	0.98	1.10
Household in third land quintile, 1999	0.140	2.29**	1.63
Household in fourth land quintile, 1999	0.143	2.27**	2.21**
Household in top land quintile, 1999	–0.036	0.49	0.42
Livestock units, 1999	0.035	4.05**	3.64**
Membership in ethnic minority	0.192	2.89**	2.94**
Membership in religious minority	0.064	1.11	0.79
Relative holds official position in a peasant association (PA)	0.124	2.99**	3.39**
Mother or father important in village social life	0.170	3.93**	3.18**
R^2	0.31		
Sample size	1,281		

SOURCE: Dercon, Hoddinott, and Woldehanna (2005).

NOTES: Standard errors are calculated using the Huber–White method (column 1) and clustered at the village level (column 2). * means significant at the 10 percent level; ** means significant at the 5 percent level. PA dummies are also included but not reported.

TABLE 3.4 Impact of shocks on (log) consumption per capita in Ethiopia, by household characteristics, 2004

Shock	Male-headed household	Female-headed household	Household in bottom three land quintiles	Household in top two land quintiles	Village located north of Addis Ababa	Village located south of Addis Ababa
Drought	–0.086	–0.433	–0.189	–0.152	–0.238	–0.295
	(1.21)	(3.77)**	(2.50)**	(1.55)	(3.63)**	(3.07)**
Flood	0.061	–0.097	–0.002	0.092	–0.094	0.086
	(0.89)	(0.77)	(0.03)	(0.95)	(0.88)	(1.17)
Pests or diseases that affected crops	–0.001	0.011	0.003	0.011	0.027	–0.037
	(0.02)	(0.10)	(0.04)	(0.12)	(0.29)	(0.58)
Pests or diseases that affected livestock	0.035	–0.037	–0.067	0.048	0.003	–0.021
	(0.56)	(0.22)	(0.85)	(0.53)	(0.03)	(0.30)
Difficulty in obtaining inputs or increases in input prices	0.084	–0.050	0.041	0.114	–0.062	0.099
	(1.37)	(0.32)	(0.56)	(1.20)	(0.53)	(1.34)
Inability to sell outputs or decreases in output prices	–0.063	0.068	0.042	–0.164	0.122	–0.098
	(0.93)	(0.36)	(0.56)	(1.56)	(0.58)	(1.47)
Lack of demand for nonagricultural products	–0.111	–0.270	–0.072	–0.358	*0.026	–0.317
	(0.91)	(0.97)	(0.50)	(1.75)	(0.11)	(2.09)**
Crime	0.010	0.204	0.010	0.118	–0.057	0.094
	(0.17)	(1.68)	(0.15)	(1.28)	(0.61)	(1.46)
Death of household head, spouse, or another person	0.057	–0.178	0.027	0.049	0.107	–0.027
	(1.20)	(1.92)*	(0.50)	(0.70)	(1.70)*	(0.46)
Illness of head, spouse, or another person	–0.076	–0.146	–0.058	–0.168	–0.003	–0.143
	(1.43)	(0.96)	(0.89)	(2.05)**	(0.04)	(2.17)**

SOURCE: Authors' calculations.

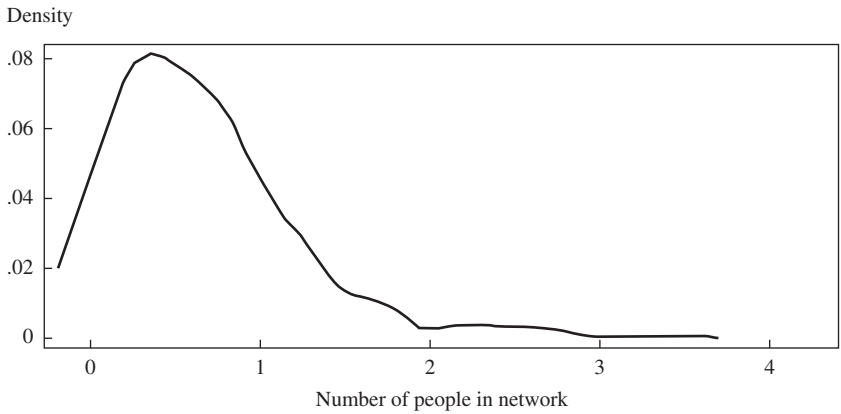
NOTES: Model specification, including covariates, as per Table 3.3. Standard errors are calculated using the Huber–White method. * means significant at the 10 percent level; ** means significant at the 5 percent level.

within the village and elsewhere." In addition, they were asked whether there were other people, beyond these five, on whom they could rely for help in time of need. We call such individuals a "network," and in this section we provide descriptive statistics on three dimensions of these networks: correlations between network size and observable household characteristics, characteristics of individuals within a household's network, and the degree of network heterogeneity.

Virtually all households—91 percent—reported that there was at least 1 person on whom they could rely for assistance. Figure 3.1 plots a density function for the size of networks reported by these households. The median number of people in a household's network was 5, with about a quarter of the households reporting that they had 2 or fewer people in their network and a smaller percentage (16 percent) reporting 10 or more people in their network. Further, there is some evidence that households do indeed call on these networks. Respondents indicated that they had received help from 86 percent of the individuals they listed as part of their network. There is also some evidence of reciprocity in these relationships: 75 percent of the individuals listed as being in a household's network had both given and received assistance in the past. Fewer than 10 percent of the individuals listed as part of a network had neither given nor received assistance.

Table 3.5 provides descriptive statistics on some of the characteristics of individuals found in these networks. Most individuals in the networks were neighbors (60 percent) or, although not neighbors, lived in the same village (27 percent). However, just over a quarter had at least one plot of land adjacent to a plot held by the surveyed household. Only 13 percent of individuals in households' networks resided outside the village. The most common relationship was

FIGURE 3.1 Network size, Ethiopia, 2004



SOURCE: Authors' calculations.

TABLE 3.5 Characteristics of individuals in an Ethiopian household's network, 2004

Individuals who:	Percent
Are neighbors	60
Are not neighbors but are from the same village	27
Are not neighbors and live outside the village	13
Have plot(s) of land next to plots belonging to this household	28
Are members of the same *mehabir* (social group)	21
Are relatives	66
Belong to the same *iddir* (burial society)	57
Are neither relatives nor members of the same *iddir*	12
Are members of the same labor-sharing group	43
Are partners in a sharecropping or land-renting arrangement	6
Are partners in an oxen-sharing arrangement	23
Are members of the same *iqqub* (lending group)	7
Borrow or lend money	49
Do wage work	7
Buy or sell crops	4

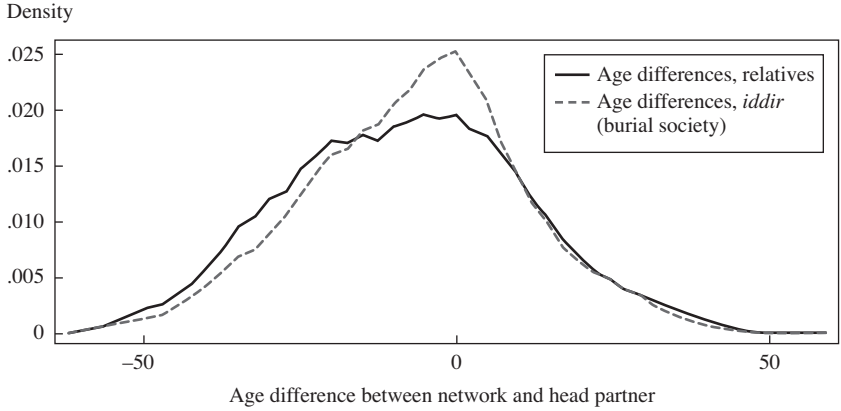
SOURCE: Authors' calculations.

that of a relative or a member of the same *iddir;* indeed, only 12 percent of network members were neither relatives nor members of the same *iddir.* Many network members (49 percent) were individuals from whom the household had previously borrowed or to whom it had lent. They were unlikely to be individuals with whom the household sharecropped or from whom or two whom the household had hired in or hired out labor or bought or sold crops.

Were other network members similar or dissimilar to our respondents? We consider two dimensions: comparative measures of wealth and age. If we stratify the sample by landownership, we find that poorer households have relatively better-off households in their network, while richer households tend to have relatively poorer households in their network. However, when we compare them by oxen ownership, a different pattern emerges. Households with no oxen or only one animal tend to have similar households as network partners. Households with two or more oxen typically have other households with two or more oxen as network partners. Figure 3.2 graphs the distribution of the difference in age between the household head and other individuals in the network who are either relatives or members of the same *iddir.* The modal age difference for both is close to zero. However, although the distribution of age differences among *iddir* members is more peaked than that of relatives, both are characterized by a considerable spread around this mode.

Table 3.6 examines the associations between household characteristics and the likelihood that a household had a network as well as the size of that network. The first column reports the results of estimating a probit in which the

FIGURE 3.2 Age differences within networks, Ethiopia, 2004



SOURCE: Authors' calculations.

dependent variable equals one if the household has at least one person in its network, zero otherwise. To make the coefficients readily interpretable, we report the marginal effects of the regressors in column 1. In columns 2 and 3 we report the determinants of the size of the household's network. Because our estimates need to take account of the fact that the dependent variable is censored at zero, we use a tobit estimator, and the result is reported in column 2.[6]

There are few household characteristics that are associated with an increased or decreased likelihood that a household has at least one person in its network. The only statistically significant characteristics are whether the household's landholdings were within the second to fifth quintiles within the village and whether the father of the household head belonged to an *iddir,* which marginally increases (by 4.8 percent) the likelihood that the household had at least one person in its network. However, being wealthier, as defined in terms of landholdings, is associated with having a larger network. Households in the fourth and top land quintiles had one to two more people in their network than did the households in the bottom quintile of landholdings. Larger households and households in which the household head had some formal schooling had larger networks. Family background also plays some role in influencing network size. Having a parent who was an important person in the social life of the village, having a relative who held an official position within the village,

6. Because estimates derived from a tobit are suspect if the underlying disturbance terms are non-normally distributed, we also report the results of estimating Powell's (1984) censored least absolute deviations model. We report *t*-statistics based on bootstrapped standard errors; following Davidson and Mackinnon (2000), these are based on 1,000 replications.

TABLE 3.6 Correlates of the presence of networks in Ethiopia and their size, by household characteristics, 2004

Household characteristic	(1) Probit (dependent variable: household has at least one person in network)	(2) Tobit (dependent variable: number of people in household's network)	(3) Censored least absolute deviation (dependent variable: number of people in household's network)
Household in second landowning quintile[a]	0.032	0.039	0.607
	(2.28)**	(0.04)	(1.21)
Household in third landowning quintile[a]	0.040	0.527	0.685
	(3.15)**	(0.60)	(1.32)
Household in fourth landowning quintile[a]	0.050	1.904	1.856
	(3.67)**	(2.18)**	(3.97)**
Household in highest landowning quintile[a]	0.031	3.037	1.726
	(2.18)**	(3.07)**	(2.52)**
Log age of household head	–0.039	0.357	–0.114
	(1.81)*	(0.34)	(0.17)
Female-headed household[a]	–0.004	–0.938	–0.212
	(0.28)	(1.29)	(0.51)
Some schooling for household head[a]	0.024	2.081	0.951
	(1.55)	(2.57)**	(1.78)*

Log household size	–0.008	1.302	0.443
	(0.64)	(2.15)**	(1.27)
Household head born in this village[a]	–0.003	–1.164	–0.682
	(0.20)	(1.59)	(1.57)
Mother or father important in village social life[a]	–0.007	0.814	0.977
	(0.60)	(1.24)	(2.52)**
Related to peasant association (PA) officials	0.020	1.378	1.111
	(1.62)	(2.22)**	(2.72)**
Father in an *iddir* (burial society)[a]	0.048	2.395	0.878
	(3.25)**	(3.38)**	(2.13)**
Household part of an ethnic minority in a PA[a]	–0.018	–0.582	0.309
	(0.73)	(0.60)	(0.52)
Household part of a religious minority in a PA[a]	0.002	0.988	0.100
	(0.11)	(1.22)	(0.20)

SOURCE: Authors' calculations.

NOTES: Results of the probit are presented in terms of the marginal effects of the regressors; dummy variables measure the marginal impact of switching from zero to one. In column 1, the absolute values of *z*-statistics are in parentheses; in columns 2 and 3, the absolute values of *t*-statistics are in parentheses. The standard errors in column 1 are heteroscedastic robust. The standard errors calculated in column 3 use a bootstrap with 1,000 replications. * means significant at the 10 percent level; ** means significant at the 5 percent level. PA dummies are included but not reported. The sample size is 1,124.

[a]Covariate is a dummy variable.

and having a father who belonged to an *iddir* all correlated with a larger mean number of persons in a household's network. Finally, households belonging to ethnic or religious minorities are not disadvantaged in terms of network size.

Iddir *and Their Role in Mitigating Shocks*

In this section we consider the role of one form of collective action—that provided by *iddir* (burial societies or funeral associations)—and their role in mitigating shocks in Ethiopia. Members of *iddir* typically meet once or twice a month, making a small payment into a group fund (1–2 birr per month). A striking feature of these organizations is their degree of formality; often there are written rules and records of contributions and payouts (Dercon et al. 2006). When a member dies, the *iddir* makes a payment to surviving family members in cash or in kind; the median amount paid out by the *iddir* to which the households we studied belong is 100 birr, although there is some heterogeneity in these payments.[7]

Outside of Tigray, *iddir* membership is widespread, with nearly 90 percent of households reporting that they belong to at least one *iddir.* Among households that report belonging to *iddir* (and again excluding Tigray, where *iddir* do not exist), just under 60 percent report belonging to one *iddir,* 21 percent belong to two, and another 20 percent belong to three or more. Very few households, around 4 percent of the sample, claim that they do not belong to an *iddir* because they cannot afford the monthly dues. Virtually all *iddir* (93 percent) are situated within the PA. Two-thirds of *iddir* appear to have had no restrictions on membership beyond paying the necessary dues and fees, 14 percent were restricted to members of the same church or mosque, 6 percent were restricted to women, and 14 percent had some other restriction. All villages had at least one *iddir* that was open to anyone.

Why are *iddir* of interest? In addition providing what is in effect a form of life insurance, a third of the *iddir* to which the households we studied belong provide cash payouts to their members when they have experienced other types of adverse shocks, and a quarter offer loans. As Table 3.7 shows, the most common form of assistance apart from paying for funerals is cash payouts in case of fire. In addition, 10 percent of *iddir* provide cash in case of illness, and 15 percent provide loans. However, the provision of some types of assistance is not found everywhere; for example, assistance in the case of illness is concentrated in four survey localities, all south of Addis Ababa. Noting this, we juxtapose the following observations: (1) after drought, households report that the two next-most-important types of shocks are illness and death (Table 3.2); (2) illness shocks have an especially large effect on consumption in villages located south of Addis Ababa (Table 3.4); (3) membership in *iddir* is widespread, and other *iddir* members are seen as individuals who can be called on in times of

7. One birr is equal to approximately US$0.12, so 100 birr is about US$12.

TABLE 3.7 Events for which Ethiopian *iddir* (burial societies) make payouts or offer loans, 2004

Event	*Iddir* will give a cash transfer (percent)	*Iddir* will give a loan (percent)
Funeral	100	9
Fire	20	9
Loss of oxen or other livestock	7	3
Destruction of house	6	4
Wedding	5	5
Illness	10	15
Harvest loss	3	2
Other event	6	1
Any event	34	25

SOURCE: Authors' calculations.

need (Table 3.5); and (4) in selected localities, some *iddir* provide assistance when illness shocks occur (Table 3.7).

Two questions arise: (1) does this provision of assistance when illness shocks occur—in effect a form of health insurance—reduce the impact of these shocks on consumption, and (2) if the answer to question 1 is affirmative, how do these *iddir* overcome problems of moral hazard and adverse selection that typically bedevil insurance schemes?

Answering question 1 is tricky, because households can choose the *iddir* to which they wish to belong. Because membership in *iddir* is endogenous, we cannot, for example, insert membership in *iddir* providing health insurance into question 1 to see how it modifies the impact of self-reported illness shocks; coefficients from such a regression would be biased and inconsistent. Instead, we take a different approach. We start by restricting the sample to villages south of Addis Ababa, where, in general, illness shocks have the largest effect on consumption. We separate these southern villages into two groups: those where *iddir* that provide health insurance are present and those where they are not present. Within these groups of villages, we estimate equation 1 using a modification of the specification reported in Table 3.3. Finally, we restrict the sample to households in the lowest three landholding quintiles to see if the availability of such insurance is particularly important for poorer households.

The results are reported in Table 3.8. These show that the illness shocks reported by poor households residing in villages where no *iddir* provide health insurance are associated with a large—20 percent—reduction in per capita consumption. In contrast, the impact of illness shocks on poor households in villages where *iddir* do provide health insurance is smaller and not statistically

TABLE 3.8 Impact of illness shocks on (log) consumption per capita in southern Ethiopia, 2004

Households residing in villages where:	Estimated coefficient	*t*-statistic (absolute value)
Iddir provide health insurance	–0.144	1.03
Iddir do not provide health insurance	–0.205	2.08**

SOURCE: Authors' calculations.

NOTES: Specification is a modified version of that reported in Table 3.3. Standard errors are calculated using the Huber–White method. * means significant at the 10 percent level; ** means significant at the 5 percent level.

significant. These results suggest that the availability of this health insurance attenuates illness shocks.

However, our household data have only limited information on how *iddir* manage the provision of health insurance. For this reason, we organized a small survey of *iddir* in four villages where the ERHS data indicated that *iddir* provided this form of assistance. The challenge in doing so was finding these *iddir*. There is no "official" list of *iddir,* let alone lists that describe which *iddir* provide which types of assistance. *Iddir* do not exist in a physical sense; for example, there is no *iddir* office. The names of *iddir* can be lengthy and are often shortened in different ways by different people. Leadership of *iddir* is, in many cases, on an elected basis, so the names of *iddir* leaders change over time.

Given all this, we organized the survey in the following fashion. Using the ERHS data, we generated a list of *iddir* in the four villages where *iddir* were known to provide health insurance. Enumerators were given a list of the names of 12 *iddir* that provided either cash grants or loans in the case of illness, along with identifying information such as alternate names, dates these *iddir* were formed, approximate numbers of members, and names of leaders such as the *iddir* chair. The enumerators were instructed to find at least eight of these *iddir*. Once they found an *iddir,* they asked if a small number of members would be willing to participate in a discussion about how this form of health insurance worked. The meetings included the *iddir* chair and, in nearly all cases, at least two other individuals knowledgeable about the functioning of the *iddir,* including the treasurer. Across all four villages, a semistructured questionnaire was administered to 33 *iddir*. Some questions were precoded (for example, Are members charged interest if they take a loan to cover health expenses?), while others were designed to encourage *iddir* members to explain how they functioned (for example, How do members go about requesting assistance?).

The successful provision of insurance revolves around the reconciliation of two forms of asymmetric information, adverse selection and moral hazard. In the context of health insurance, adverse selection arises because individuals who are less healthy than others have a greater incentive to seek insurance, but

the healthiness of such individuals is difficult to observe by the insurer. Moral hazard occurs when, once insured, an individual does not bear the full consequences of actions that are (at least partially) unobserved by the insurer.

How do *iddir* deal with these problems of asymmetric information? One obvious way would be to impose restrictions on who can join and when they join. The household survey asked *iddir* participants if their *iddir* restricted membership in any way. In the four villages where health insurance is offered, most *iddir* (81 percent) described by respondents imposed some sort of membership restriction. As Table 3.9 shows, the most common restriction was geographic—all members had to live in the same PA. Other common restrictions included belonging to the same church or mosque or being open to women only. Membership restrictions based on clan, ethnicity, or youth were not common, and beyond these broad categories, no other restrictions were mentioned. *Iddir* that imposed certain types of membership restrictions—based on residing in the same PA or belonging to the same church or mosque—were more likely to provide health insurance than those that did not (see Table 3.9), even after taking into account other *iddir* characteristics, such as age of members, number of members, and location (Table 3.10). In the *iddir* survey, a number of respondents commented that this restriction existed largely because it was impractical for members to attend monthly meetings if they lived too far away, a point we return to later. In contrast, there did not appear to be restrictions on when individuals could join these *iddir.* In almost all cases, new members could join at any time, and only two *iddir* required that new members belong for a minimum length of time before they were eligible for assistance with health shocks. However, individuals who joined after the *iddir* was formed had to pay a membership fee (Dercon et al. 2006).

TABLE 3.9 Characteristics of Ethiopian *iddir* (burial societies) by provision of health insurance, 2004

		Percentage of *iddir* that:		
Membership restriction	Percentage of *iddir* with this restriction	Do not provide health insurance	Provide health insurance	Probit value on difference
Must reside in the peasant association	41.0	23.5	38.1	0.04**
Must belong to the same clan	4.0	28.3	57.1	0.10*
Must belong to the same church or mosque	24.9	26.2	39.5	0.10*
Must belong to the same ethnic group	4.0	28.5	50.0	0.19
Youth only	4.0	30.0	14.3	0.37
Women only	23.7	30.3	26.8	0.67

SOURCE: Authors' calculations.

NOTES: * means significant at the 10 percent level; ** means significant at the 5 percent level.

TABLE 3.10 Correlates of the provision of health insurance by Ethiopian *iddir* (burial societies) in selected survey areas, 2004

Covariate	Marginal effect	*z*-statistic (absolute value)
Membership restriction		
Must reside in the peasant association (PA)[a]	0.197	2.15**
Must belong to the same clan[a]	0.174	0.81
Must belong to the same church or mosque[a]	0.210	2.12**
Women only[a]	0.060	0.62
Log age of *iddir*	–0.074	1.58
Iddir in the second, third, or fourth quartile for size[a]	0.139	1.79*

SOURCE: Authors' calculations.

NOTES: Results of the probit are presented in terms of the marginal effects of the regressors. Dummy variables measure the marginal impact of switching from zero to one. Standard errors are calculated using the Huber–White method. * means significant at the 10 percent level; ** means significant at the 5 percent level. PA dummies are included but not reported. The sample size is 169.

[a]Covariate is a dummy variable.

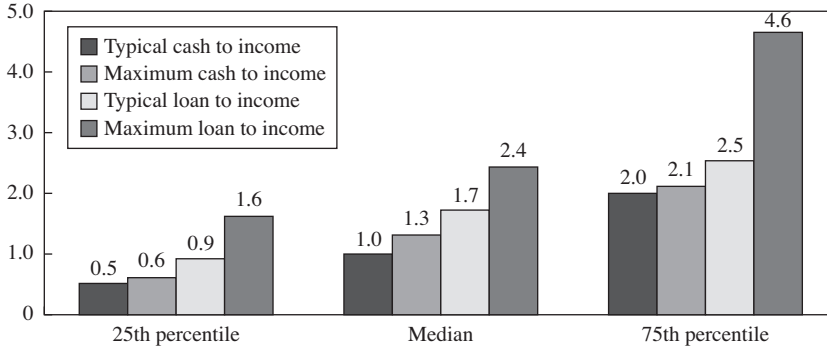
All 33 surveyed *iddir* stated that members who wanted to request assistance should do so before they incurred any expenditure; only two would consider requests from members after expenditures had been incurred. Further, assistance was almost always limited to direct medical expenses: only one *iddir* would provide funds to pay for hiring workers to assist with agricultural tasks, only one would pay to hire someone to assist with domestic tasks, and none would compensate for loss of income as a result of illness.

The feature shared by these *iddir* was the way in which they addressed the problem of asymmetric information. Restricting membership geographically makes it easier to learn about members and to monitor their behavior. The same is true of the requirement of common church or mosque membership. Direct medical costs are observable. For example, one *iddir* reported of a member: "His neighbors serve as an informant. For example, if the member takes the money for medication and if he does not go to clinic/hospital, he will be asked to return the money." Other means of checking include going to the home of the member and asking to see receipts. In fact, about a third of the *iddir* surveyed stated that they had formal checks in place to make sure the funds provided were spent on medical costs. Second, a considerable number of *iddir* conducted background checks prior to approving a grant or loan, visiting the member at home or asking neighbors to confirm that assistance was needed. In contrast, compensation for income loss is much more problematic because it is difficult to determine how much of the income loss was directly ascribable to illness. The one informational asymmetry that these mechanisms do not address

is that of adverse selection, cases in which individuals who might anticipate having to incur medical expenses in the future would join with the express purpose of accessing funds held by the *iddir.* Although *iddir* do not prevent this directly—recall that new members can join at any time, and very few *iddir* restrict new members' access to health insurance—the imposition of a membership fee for new members discourages such behavior.

In addition to these mechanisms for dealing with informational asymmetries, these *iddir* take a number of steps to reduce the likelihood that the provision of health insurance will lead to financial difficulties for the *iddir.* One is their age structure. As Figure 3.2 shows, there is considerable dispersion in the distribution of ages of *iddir* members. As a result, there is—in effect—health insurance across generations, because young members contribute to the *iddir,* whereas older members are more likely to have age-related illnesses. Another observation consistent with this argument is that youth-only *iddir* are less likely than other *iddir* to provide health insurance. A second mechanism is size. Preliminary work with the ERHS data suggested a nonlinear relationship between the size of *iddir* and the likelihood of providing assistance, with *iddir* in the second, third, or fourth quartiles, ranked by size, slightly less likely to provide health insurance (see Table 3.10). Third, what is especially interesting is that the amount of money provided to members, in the form of either cash or loans, is tied fairly tightly to the amount of money *iddir* collect each month. Figure 3.3 shows that the 33 surveyed *iddir* are fairly conservative in this regard. The median *iddir* providing cash grants provides an amount equal to one month's income, and the maximum cash grant of the *iddir* at the 75th percentile is slightly more than two months' income. Loans as a ratio of monthly income tend to be higher than cash grants. However, although few *iddir* (4/33) charge interest on

FIGURE 3.3 Ratio of cash grants and loans to monthly *iddir* (burial society) income, 2004



SOURCE: Authors' calculations.

these loans, about 75 percent require repayment within three months. In addition, most (82 percent) impose sanctions if members do not repay, either taking the individuals to local court or prohibiting them from making monthly contributions. The latter is especially effective because members who fail to make monthly contributions risk forfeiting their claim to their past contributions.

To summarize, health shocks have serious consequences for the consumption levels of rural Ethiopian households. In some localities, a form of collective action—that of *iddir,* or burial societies—provides a type of health insurance, and in these villages, illness shocks appear to have smaller effects on consumption. These *iddir* have managed to address problems of asymmetric information by imposing membership restrictions that reduce the cost of obtaining information, restricting assistance to an observable component of illness shocks, and using membership fees to discourage adverse selection. Further, they use a number of mechanisms to ensure financial sustainability: age structure, grant and loan size relative to income, and a series of mechanisms to ensure timely repayment of loans.

Conclusions and Policy Implications

Using longitudinal data and qualitative survey work, we have attempted to understand the role of groups and networks in determining how the poor manage their exposure to risks and cope with shocks to their livelihoods. In the Ethiopian villages where surveys were conducted, drought and illness have especially malign effects; for example, illness shocks reduce per capita consumption by 9 percent in regions where malaria is endemic. Nearly all households in the ERHS reported that they have a network of individuals on whom they can call for help. These networks consist largely of other households in the same village. This suggests that the scope for addressing covariate risks is likely to be limited, a supposition borne out by the observation made in "Shocks in Rural Ethiopia" that drought shocks lead to reductions in household consumption levels. Individuals within these networks would appear to engage in reciprocal assistance. Further, they typically have other ties; in particular, they are relatives, members of the same *iddir,* or members of the same labor-sharing group. Although these ties may convey benefits—for example, by providing multiple opportunities to observe other members, which limits opportunistic behavior—they limit the ability of members to cope with covariate shocks. Better-off households tend to have larger networks, as do households whose relations (parents or other relatives) had either status or connections within the village. Network heterogeneity is mixed: network members tend to be varied when measured by age or landownership but not in terms of ownership of oxen. *Iddir* providing health insurance are homogeneous along some dimensions (geography and, to a certain extent, religion) but heterogeneous with respect to age. They impose membership restrictions that reduce the cost of obtaining

information and restrict assistance to an observable component of illness shocks (medical expenditures) that can be verified; further, they limit the extent of their assistance so that the provision of assistance does not come at the cost of financial sustainability. An attraction of such an approach is that it addresses the malign effect that asymmetries in information can have in the provision of insurance. A limitation is that some households are not able to fully insure themselves against health shocks.

Subsequent to the fielding of ERHS 2004, the Government of Ethiopia introduced a social safety net intervention, the Productive Safety Nets Programme (PSNP). It provides transfers of cash and food to food-insecure households in chronically food-insecure localities (Gilligan, Hoddinott, and Seyoum 2009). It is unclear how this will affect participation in networks and *iddir*. Although there are concerns that public interventions crowd out informal insurance arrangements, it is also possible that access to the PSNP will strengthen networks by providing a complementary source of resources for households. Further, given the positive association between wealth and network size, PSNP transfers may allow beneficiaries to increase the size of their networks. The impact of the PSNP on networks and informal insurance is a topic that awaits further study.

The present study looks in depth into the context "box" of the conceptual framework presented in Chapter 2 to show that risks from multiple sources affect poverty outcomes (for instance, by lowering consumption), but existing forms of collective action can be effective in mitigating the effects of the shocks to improve household welfare. Assets, especially human (age, ethnicity), natural (land endowments), and social (membership in religious groups) capitals, play a role in shaping the composition of burial societies and enabling their financial sustainability by creating rules regarding such things as sanctions, size of loans or grants, and membership fees (patterns of interaction) that address the problems of asymmetric information. Interestingly, both asset heterogeneity (age, land ownership) and homogeneity (religion) contribute to the sustainability of this form of collective action, but they also result in the exclusion of certain households from the insurance schemes offered by the *iddir*. These also highlight the importance of trust, a proven determinant of successful collective action in NRM, in creating incentives for lasting cooperation. Finally, these results show the limitations of local collective action. In turn, these results point to the following policy implications:

- Realism is needed in assessing the pro-poor benefits of support to collective action. Because wealthier and better-educated households tend to participate more in groups and to have larger networks implies that development practitioners need to pay more attention to identifying those barriers that prevent the poor—or other segments of the population—from participating in collective action. Not only because they have lower levels

of wealth, but also because they participate less in risk-smoothing networks, the poor are more likely to be vulnerable to both covariate and idiosyncratic shocks.

- Realism is also needed in terms of the role of collective action in responding to shocks. Specifically, where households have limited ability to develop spatial networks, collective action has limited ability to respond to covariate (common) shocks. Direct public action is more appropriate in this area.
- Collective action may be more suitable for providing insurance in response to idiosyncratic (individual) shocks. Public action and policy that supports forms of collective action in this area must recognize, as exemplified by the *iddir* study here, that successful collective action
  - is based on norms of trust and reciprocity (because trust is easier to destroy than create, the principal of "do no harm" is important here, particularly when government actions are aimed toward existing collective action institutions),
  - has mechanisms for overcoming information problems, and
  - has mechanisms for sanctioning individuals who break the rules.
- *Iddir* providing health insurance exist in only some of the villages where illness shocks are prevalent and costly. Supporting the dissemination of examples of "good practice" across space—helping create "associations of associations" for example—would be valuable.

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