Is a Friend in Need a Friend Indeed?[1]

Inclusion and Exclusion in Mutual Insurance Networks in Southern Ghana

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1 The puzzle of incomplete insurance in village communities

Theory predicts that, when there is perfect information and perfect enforcement, risk-averse members of a community that face risks in their sources of income should engage in mutual insurance to completely insure idiosyncratic income shocks. If it holds true, changes in individual consumption across states of nature would be unaffected by changes in individual income and proportional to changes in average community consumption. Empirical tests of this hypothesis have rejected full insurance, but they have also shown that some degree of mutual insurance does indeed exist (Deaton 1992; Townsend 1994; and Gertler and Gruber 1997). This has opened the door to a series of analyses to find out (1) what limits complete insurance and (2) who gets to be included and excluded in mutual insurance schemes.

Analyses of factors that limit the quality of insurance have focused on problems of monitoring and enforcement. If there are observability problems, households have private information that cannot be obtained by their insurance partners. Ligon (1998)

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shows that, in this case, inducing truthful revelation and a high level of effort requires a contract that offers a higher utility for revealed good outcomes than for bad ones, and therefore results in less than full insurance in some states of nature. Unless this is done, partial insurance will be observed at the community level. If there are enforcement problems, binding commitments cannot be specified, and insurance partners must rely on self-enforcing agreements. In this case, risk-sharing will be incomplete in states of nature with large shocks since a household will only provide a transfer if the discounted expected future benefits from participating in the insurance agreement exceed the one time gains from defection (Kimball 1988, Coate and Ravallion 1993). As an alternative to self-enforcement, transfers can be secured by incurring extraction costs. If these costs are variable, increasing with the level of transfer requested from partners, the community may choose partial insurance as the optimum level of insurance (Murgai et al. 2001).

Mutual insurance may, however, be practiced over networks of individuals other than the community as a whole, raising the question of who insures with whom, and if some individuals are left uninsured, who are the included and who are the excluded. To answer this question, research has focused on identifying the configuration of networks of reciprocal exchange between self-selected individuals (Platteau 1991, Fafchamps 1992, Fafchamps and Lund 2000). When there are association costs, insurance may be better provided in small sub-coalitions of individuals with high levels of insurance as they have low extraction costs (Murgai et al. 2001). Empirical studies show that these groups tend to form on the basis of a number of criteria including kinship, neighbourhood, ethnicity (Grimard 1997), and gender (Goldstein 2000). If mutual

insurance is only practiced among members of sub-coalitions, leaving some individuals outside insurance networks, tests of mutual insurance at the community level will show imperfect insurance.

This broad characterization of the formation of networks and sub-coalitions is, however, not fine enough to predict inclusion and exclusion of specific individuals in a community. This is serious if the excluded are vulnerable poor people left without insurance coverage. Inclusion/exclusion should be looked at from the angle of individuals in need of insurance because they have been exposed to a shock, which they are not fully able to absorb themselves. As a consequence, they find themselves short of cash to cover specific expenditures, either to meet household needs or to acquire personal items. This is what we study in this paper.

Critical to undertaking this task is an understanding of the social connections that underpin networks and social coalitions, and thus the next section frames the hypotheses we examine using anthropological work done on the area under study. Section III discusses the data we use for our analysis. Section IV lays out the logical framework we use to organize the empirical analysis. We then proceed in Section V to analyse econometrically the responses obtained by a person short of cash for the desired purchase of a household item. The same analysis is repeated in Section VI for the desired purchase of a personal item. In Section VII, we analyse the differential quality of insurance among those we have identified as included in insurance networks versus the rest of the population. We characterize the coping mechanisms which, in the end, are being used by different categories of households to cope with shocks. We also look at the differences in access to insurance for the poor and the non-poor. Section VIII concludes.

2 Framing the question

Answering the question of inclusion-exclusion at the individual level takes us into psychological analysis of the relations among individuals in a household, and sociological analysis of the relations between individuals in a community. We investigate two hypotheses:

H1: In a traditional agrarian community, many individuals who are short of cash to meet an expenditure do not ask their spouse for help, and some who ask do not get it. When this happens, this is due to poor marital relationships as perceived by the demanding party for asking, and as measured by the difference in perceptions between spouses for receiving help.

H2: Many individuals who are short of cash do not ask others or do not obtain help from others. When this happens, this is due to lack of social capital or to fear of social stigma and loss of reputation if they ask.

Our grounding for these hypotheses draws on the anthropological literature that analyses how networks of individuals form and what the functions of these networks are. The primary 'network' is composed of spouses. In a Western perspective, we may expect the household to be the logical unit of insurance, given the communal nature of many expenses and the ease with which spouses can observe each other's activities. However, evidence from Ghana and nearby countries seems to indicate that this is not the case – West African households tend to operate more as a collection of separate individual economies. For example, Vercruijsse et al. (1974) discuss the coastal Fante

communities in Ghana.[2] They note that '...women are economically active in their own right as much as the men are and this is not affected by being married and having children. Accordingly, their income does not have the character of a supplement and cannot even be conceived as being part of 'family income' (p. 36). Numerous writers such as Kwamena Poh (1974) argue that, for the Akan (the dominant ethnic group in the study area), marriage is an economic and procreative 'contract', not a spiritual union. Oppong (1974), characterizing the traditional Akan norm of marriage, notes that: 'according to custom, the Akan husband and wife do not own, manage, or inherit together any exclusive or substantial property of their own' (p. 328). She finds (in her sample of civil servant couples) that

> more than twice as many husbands own property together with their kin as with their wives, and fewer than one in ten couples have joint accounts...The new urban norm thus follows the traditional pattern to some extent in that responsibility for day to day maintenance of the family seems to be shared by most husbands and wives, while the majority maintain separate financial arrangements for spending, owning, and saving (p. 329–30).[3]

This practice of maintaining separate economies while jointly providing for communal consumption can be a source of significant frictions. Oppong (1974), in documenting economic practices among civil servants in Accra, writes that:

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2 While the area under study is composed primarily of Akwapim Akan, there has probably been some Fante influence.

3 Oppong is studying civil servants. We might expect them to be the most divergent from the Akan tradition of separate economies, both because of their relatively observable salaries and their urban/'modern' lifestyles. The fact that they are not is evidence of the deep seated nature of this feature of marital relations.

> In discussions, spouses commonly state that they insulate most of their cash and property dealings from observation and control by their partners on purpose... In some cases, the separation of interests is itself a matter of mutual agreement by husbands and wives, who consider the arrangement to be the most suitable adaptation to their domestic situation. In other cases, the arrangement is a continual source of friction, each spouse repeatedly attempting to gain more knowledge of and control over the other's spending (p. 330).

While we will not be able to explain why levels of friction differ among spouses, we will examine their implications for the provision of assistance from one spouse to the other.

A natural venue for insurance outside of the household is the ethnic group. Indeed, this was the approach taken by Grimard (1997) in a study of mutual insurance in Côte d'Ivoire. He found that mutual insurance, even if only partial, is practiced among members of a same ethnic groups. The area under study here is fairly homogenous in terms of ethnic groups – most of the respondents are Akwapim, a subgroup of the Akan. Within the Akan, however, the lineage has a central role in social life. As Smith (1972) puts it, 'whatever he wishes to do in life, the Akan turns to his lineage (*abusua*) for help; kindred consciousness is the most important fact in his life' (p. 113). These lineages are matrilineal; a child belongs to the lineage of his or her mother. Some authors (e.g. Fortes 1950) argue that it is the clan's association with local chiefs (often the chief was the head of the dominant clan) that was the most relevant unit of government in the Ashanti confederacy. In addition to political association, the lineage is an important locus of economic rights. For example, the traditional form of access to

children (who would presumably inherit from their mother's brothers). The economic and political rights conferred by lineage may also be useful in building the stock of social capital, which enables individuals to command assistance from others than kin.

Lineages may also provide insurance directly as they provide a strong social network in times of trouble. Brokensha (1972) explains that 'we are concerned with this lineage, which is most important in matters of land tenure, inheritance, and any sort of 'trouble', including debt, arrest by the police, help in school fees, or finding employment' (p. 78). Fortes (1969) documents the role of lineage in providing assistance in times of trouble:

> Ashanti link this with the obligation of the lineage to help a member who is in debt or extreme distress. A lineage could not and cannot be held responsible for the private debts of any of its members. But it is incumbent on the head to take action to save a member from being driven to desperation by debt or misfortune (p. 188).

Using the broad definition of these lineages, the resulting groups are generally quite large. While there is some debate in the literature about this, there are probably less than ten of these that encompass the Ashanti population. Such dispersed groups are probably not the relevant unit for an analysis of local economic activity. Fortes provides some insight into how these units may be disaggregated when he writes, 'the lineage has a segmentary structure, each segment being defined in relation to other segments of a like order by reference to common and to differentiating ancestresses. This allows of both accretion to and differentiation within lineages' (Fortes 1950, p. 255).

This local segmentation is particularly important for informal insurance. Fortes (1950) writes that 'mutual aid – as when a member gets into debt or funeral expenses have to be met – is extended throughout the lineage, but the heaviest responsibility falls on this

segment' (p. 257). The local segment that he refers to is descendents of four to five generations from the same ancestresses.[4]

Fortes' characterization of local segments seems to be what we observe in the villages under study here. He notes that there are generally two or three dominant lineages in a village which account for about half of the population. This is roughly in accordance with what we observed in our four village clusters. Based on the evidence above, we can expect these local lineages to serve as networks that provide assistance to members.

In addition to the spouse and the lineage, membership in a variety of social organizations may be important as they either provide insurance directly (see Goldstein, 2000, for an example of the importance of these groups) or serve as vehicles that build the stock of social capital used in securing insurance (e.g. reputational effects for contract formation). Some data on the purpose and structure of organizations were collected from these villages but are not yet available. Hence, in the analysis that follows, we will use total organizational membership rather than membership in a specific organization.

3 Data

The data we use come from a two-year household survey carried out from November 1996 to October 1998 in the Akwapim South District of the Eastern Region of Ghana. Initially, four village clusters were selected based on their varying degree of market integration and diverse cropping patterns. As we will use social indicators in our

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4 As regards to terminology, Fortes (1950) and Brokensha (1972) state that the Twi word *abusua* denotes both the larger lineage and the more local clan segment, while Ayisi (1974) provides a technical discussion of the nomenclature. Fortes (1969) provides a detailed discussion of the political

analysis, it is worth discussing the history of these villages in some detail. 'Village 1' is a pair of adjacent villages three miles West of the large market town of Nsawam. Both villages were settled by Ashanti migrants during the 1850s. 'Village 2' lies about nine miles East of Nsawam and four miles Southwest of Aburi (an older larger town that was home to one of the first Christian missions in Ghana) on an road joining the two large towns. It is made up of two towns, 150 and 80 years old that joined together 50 years ago. This village has the largest population of the four clusters with about 2030 people.[5] Five miles North of Village 2 (and a 45 minute journey by vehicle) lies 'Village 3'. It is made up of a central town and two surrounding hamlets. The central town is fairly small (population is around 340) and it is the youngest of our four villages as it was settled in 1939. People were farming this area long before, however, as one of the neighbouring hamlets (pop. 110) was settled 200 years ago. With limited access to non-farm income opportunities, Village 3 is by far the most agriculturally active community among the four. Two miles south of Aburi, and one mile from the road from Aburi to the capital of Accra, is 'Village 4'. Settled in 1821, it has a population today of around 990 people. Twenty-five years ago, cocoa farming was the major livelihood in Village 4, and the village was fairly well off. Today, no one is growing cocoa and farming has shifted to food crops. Despite this shift in agricultural income, the village has continued to grow, nearly doubling in size since the early 1970s.[6]

Within each village cluster, 60 married couples or triples were selected at random for the survey.[7] Men and women were interviewed separately by an enumerator of the same

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5 Population figures are calculated using the number of houses multiplied by the average household size (5.6) in our data, adjusted for a joint occupancy rate of 37 per cent (GSS, 1995) in this region.

6 These histories are based on information from the village level questionnaires that also include social organizations, market infrastructure, and political and social organizations.

7 About 5–10 per cent of the households in the sample are polygamous.

gender. The survey was conducted in 15 rounds, about 4 to 6 weeks apart. A common set of agricultural questions was asked at each round and specialized modules (including on expenditures, shocks, transfers, and social interactions) were asked during different rounds. Information on the data and questionnaires is available at http://www.econ.yale.edu/~udry/ghanadata.html.

The data that we use in this paper are mainly drawn from the later rounds of the survey (rounds 14 and 15) when respondents were given a detailed transfers questionnaire. This questionnaire (which evolved from round 14 to round 15) gives us a detailed characterization of:

- Who in the community is, at a particular moment, short of cash to meet expenditures to acquire household items and personal items?
- Whether a person in this situation asks for assistance from his/her spouse or not.
- Whether a person in this situation asks for assistance from someone besides his or her spouse.
- Whether a person who asked for assistance from his or her spouse gets approved or rejected.
- What are the coping instruments that a particular person short of cash uses in addition to transfers from their spouse, family members, or friends?

To complement this information, we also use data from earlier rounds that give us a characterization of the quality of spousal relations. These relations are characterized under a number of aspects. Importantly, they are appraised separately by each side of the relation, which allows us to characterize how one party to the relation assesses its

quality, and also how this quality assessment diverges between the two parties. The variables on which we have information indicate the degree of trust each member has in the other, the degree to which the respondent thinks that his or her spouse treats him or her fairly, how well the respondent is getting along with her or his spouse, and whether there is a history of domestic violence in the relationship or not. Aside from domestic violence, which is binary, all relationship variables are ranked on a 1 to 5 scale, with 5 being the best.

We also use two other questionnaires for information on the social standing and interactions of individuals. The family background questionnaire provides us with a large number of variables that characterize the individual's social standing in the community. We add to this data using one of the learning questionnaires. In an effort to understand how agricultural technology was spread through these villages, respondents were asked if they knew seven people in the community selected at random. We use this to measure the probability that the individual knows any other individual in the village. We also know how often they talk with these individuals, so we can also construct a variable of intensity of social interactions using these data.

4 A proposed logical framework to analyse responses to a cash shortage

This section lays out the framework we use to analyse how people go about securing assistance. The way in which the questionnaire was structured was to elicit who provided the assistance in times of shortage, but not the order in which the consultations occurred (asking first to the spouse, then to others, or the reverse). Hence, part of our task will be to examine alternate structures of this process. Before turning to this

problem, we examine in greater depth the determinants of who is short in an effort to map the realized shortage to some of the underlying processes that may have caused it.

4.1 Understanding who is short of cash

We start by discussing what may cause the declared shortage and by speculating on how the respondent's report of a shortage is associated with unexpected income shocks. Reports of shortages come from the transfers' questionnaires where respondents were asked if they have been short of cash to buy a household or a personal item. This shortage could come from a number of causes (e.g. idiosyncratic income shocks, consumption smoothing difficulties, and the like) so our first task is to see if we can shed light on the causes and correlates of the shortage.

Table 1 provides a probit estimate of who is short of cash when needing to buy an item for the household. In addition to the village dummies, the two significant variables are a measure of agricultural shocks (lagged one survey round, about six weeks) and the level of personal wealth. The agricultural shock variable indicates that some of the reported shortages are due to the unexpected income shocks we associate with conventional insurance tests. The fact that wealth is negative and significant is consistent with general difficulties with consumption smoothing for individuals with lower levels of liquid assets.

We can also get a sense as to the cause of these shortages by asking the respondents directly. Table 2 presents their answers. These responses are broadly consistent with our probit results. Respondents indicate that shortages come from not having sold crops (28 per cent) and delayed harvest (11 per cent). But they also show that the realm of income

shocks is wider than just agriculture – shocks associated with illness (12 per cent) and losses in non-farm businesses (10 per cent) are important.

Respondents were asked separately if they were short of cash when they needed to buy an item for themselves. Table 3 presents the results of a cross tabulation of the responses to this and the household item shortage. Data show that, while some respondents were short for both household and individual items (6.3 per cent), many were short for only one or the other (with household items dominating (20.4 per cent)). This separation of types of shortages gives a preliminary indication that it is worth considering the two events separately.

Table 4 provides a probit estimate of who is short of cash to buy a personal item. In these results, agricultural shocks are not a significant predictor, but individual wealth and whether or not the respondent had received financial assistance from their family or parents in starting their household are.[8] Table 5 shows the respondents' explanations of why they were short. As with household items, the main reason is that they did not sell crops, either because of a marketing failure or a crop failure. Self-illness seems to play a more important role than it does in the household item shortage. There is also a larger dispersion across different minor reasons leading to a large group of 'other' responses.

We thus conclude by observing that individuals self-declare as being short of cash in meeting an expenditure when they were exposed to a shock that they were not able to cope with through their own accumulated wealth. Agricultural shocks play a major role in creating a shortage to meet an expenditure for a household item, and self-illness is

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8 For both Tables 4 and 1 we are unable to test for reported illness as a cause of the shortage as the timing of our illness data (other than that reported as a direct cause of the shortage) does not coincide with the shortage reports. Our agricultural shock data spans the entire survey.

particularly important in creating a shortage for individual items. Having established the origins of shortages, we now proceed to study how individuals use mutual insurance with kin and others to cope with these two types of shortages.

4.2 Frameworks for analysis

We have seen that individuals face a number of causes of financial shortfalls that create unexpected variations in their consumption. The question is: how do they cope? We examine what would appear to be a likely option: transfers from spouse and/or from others who are members of their social networks. Figures 1 and 2 show the outcomes of the process of requesting assistance. Figures 1 provides the data for cash shortages to acquire a household item, by individual respondent.[9] Figure 2 provides similar information for cash shortages to acquire a personal item. The figures below each response or action are the number of observations we have at each point. They provide an overview of how the requests and responses are distributed across the types of items.

The data show that being short of cash is a frequent state of nature. On average, 26.8 per cent of the observations show a shortfall for household expenditures and 13.9 per cent for personal expenditures. A total of 34 per cent of the households experienced a shortage of some type, including 6 per cent who were short of cash for both types of expenditures.

Among the 214 cases where respondents were short of cash for household items, 49.1 per cent asked their spouse for help, 18.7 per cent asked others (some asked both), and

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9 Each individual reported the number of times he/she was short. These figures define an individual as short of cash if he or she reported at least one shortage.

36 per cent did not ask anyone (Figure 1). Of those who asked their spouse for help, 74.3 per cent received the assistance they were requesting. The data indicate that only one person who asked for assistance for a household item from persons other than his or her spouse was turned down. Ultimately, only 54.7 per cent of those who were short of cash for a household item received assistance. Of the 45.3 per cent who did not get help, 79.4 per cent did not ask and 20.6 per cent asked but were turned down.

There are 111 cases of individuals reporting a shortage of cash needed to acquire a personal item (Figure 2). Of those, 22.5 per cent asked their spouse for assistance, 18 per cent asked others, and 63.1 per cent did not ask anyone. Of those who asked their spouse for assistance, only 52 per cent received help. Between those who got assistance from spouses and from others, only 27 per cent of those in need received transfers.

We can thus safely conclude that mutual insurance systems through transfers do not work for all individuals in need: 45 per cent of those short of cash to acquire a household item and 73 per cent for a personal item did not receive assistance, either because the individual did not ask for help, or because the demand was denied. Note that not asking largely reflects internalizing rejection, or not wanting to incur the transactions costs associated with asking, as opposed to being able to cope through one's own accumulated wealth since the individual declared being short of cash. Not asking, like having one's request rejected, reflects failure of deriving benefit from mutual insurance when in need. Showing the relative urgency of needs, assistance for shortfalls to buy household items is more prevalent than for personal items. With such a large gap in coverage, it is important to explain who is successful in getting assistance and who is not, and from what source the assistance comes for those who succeed.

We also need to understand (at least from an econometric standpoint) how individuals go about making their requests for assistance. In our data, we observe that individuals do not obtain assistance from both spouse and community members, but from either one or the other. Based on this, we can postulate two decision trees in seeking assistance. One is to proceed first with asking the spouse and then, if rejected, asking other community members. In this case, we have the sequence spouse-others (SO) in Figure 3 the other is to first ask others. If this fails, the individual can then turn to his/her spouse in a quest for help. In this case, we have the sequence others-spouse (OS) in Figure 4.

4.3 The empirical strategy

Given that there are very few observations of assistance being requested from both the spouse and others, we estimate both decision trees portrayed in Figures 3 and 4. In our initial examination of the data, we suspected that selection bias might be a problem. Running the different nodes as selection bias corrected probits, however, yielded the result that the errors between the selection and the final probit were nowhere significantly different from zero.[10] Moreover, the general tenor of the selection corrected results were the same as those discussed here. Hence, we report the uncorrected probits in what follows.

It also might be that both decisions are taken simultaneously, not sequentially. The most general representation of this is a bivariate probit of the two decisions. This model would allow for all four options in asking for help: asking spouse, asking others, asking both, or asking no one. Table 6 shows the results when we compare the log likelihood of the bivariate estimate with the two different sequential models. As can be seen, the

sequential models give a slightly better fit. In addition, the bivariate results indicate that the same coefficients are significant as in the sequential models. Hence, in what follows, we will report the results of the two sequential models, indicating differences across the two models when appropriate.

5 Responses to a cash shortage for household items

5.1 Requests to the spouse

Tables 7 shows the results of probit estimates of asking or not the spouse for assistance conditional on being short of cash for a household item. It corresponds to node SO2 in Figure 3.

In an effort to get a qualitative feel for how respondents viewed their union, we asked whether they trusted their spouse, how fairly they thought their spouse treated them, and how well they got along overall. We have included these variables in the regression in an effort to measure some of the intangibles of the recent history of the relationship.[11] One of the more striking result is the fact that better quality of spousal relations (as perceived by the respondent who is facing a cash shortage) are significantly associated with an increased probability of asking the spouse. This is true at the one per cent significance level for fairness, trust, and overall getting along. Domestic violence is less

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10 Note that the different sets of variables in each regression allow sufficient flexibility to identify the first stage in all cases.

11 We should note that these responses seem to be correlated with gender and village and hence we control for these effects (possibly in the administration of the questionnaire) with the inclusion of gender and village dummies. There is also some degree of collinearity among the reports of these variables, which is why we include each one in a separate regression.

robust, showing an effect only at the nine per cent significance level and it is not significant in the estimation of node OS3.

How should we understand these results? Before turning to any interpretation, we need to address the potential for endogeneity. Indeed, the most obvious explanation for these results is that the quality of relationship variables are determined by the response of the spouse to the request for help. While this critique is more germane to the next section where we discuss the spouse's response, we are partially protected from this source of endogeneity though the use of marital quality data from the round preceding the two rounds in which we measure shortages.

One explanation for not asking for help when spousal relations are poor is that the respondent is less likely to ask a spouse because he/she assumes that the spouse holds the same view and he/she will be turned down. Another explanation is that the respondent does not take his/her spouse's views of the relationship into account, but will not ask because of fears that the bad state of trust or unfair relations will lead to problems with reciprocity in the future. Yet, another explanation is simultaneity – that the marital quality variables are indicative of the failure of a larger process that drives insurance-type transfers by spouses, be it a commitment failure, the outcome of a non-cooperative bargaining process, or the like. The problem with this result is one highlighted by Manski (2000) – while we can show a correlation with the state of relations, we cannot isolate the cause of the state of relations and rule out alternate explanations.

Another factor that is important in determining whether or not the spouse is asked for assistance is ownership of non-land assets. This measure of wealth encompasses a wide range of assets including traditional cloth, livestock, and farm equipment (but not cash

where we failed to get reliable data). We might expect that, if there is a cost associated with asking for assistance, individuals prefer to use their own assets rather than seek assistance. Results show that wealthier individuals are less likely to ask their spouse for assistance. This result confirms that declaring oneself short of cash for an expenditure is ex-post relative to using one's own instruments for coping. The probability of asking is also increasing in the wealth of the spouse. This result that individual asset positions matter is consistent with the separateness of spouse's economic lives highlighted by the anthropological literature on this area.[12]

Table 7 also indicates that two other factors are related to seeking assistance from the spouse. First, women are more likely to ask their spouse for assistance than men. This is consistent with their roles as coordinators of much of the expenditures on children and household meals. Second, is the somewhat puzzling result that the longer a couple has been married, the less likely the respondent is to seek help from his or her spouse. This would suggest either increased separation in economic activities and insurance networks over the course of a relationship, or that the need to ask decreases during the course of the relationship, perhaps because we did not fully account for the accumulation of own assets. The results in the next section will shed some further light on this issue.

We thus conclude that who asks for help to a spouse when short of cash to meet an expenditure for a household item can be explained by a number of factors. One major factor is the quality of the relationship with the spouse as seen by the one who would be asking. Also important is the relative wealth position of the partners. Finally, women are more likely to ask their spouse than men when the household is in need. Who asks is

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12 Although not reported here, spouse shocks were not significant

thus characterized by considerable heterogeneity across individuals, explaining both inclusion and exclusion from mutual insurance schemes.

5.2 Who gets help from his/her spouse?

In the majority of cases where the spouse is asked for help for a household item, he or she delivers (87 per cent). Table 8 shows the results of probit estimations of a spouse's positive response for the SO sequence.

In explaining success in getting help, we use the absolute difference between the perceived quality of marital relation as seen by each spouse. These differences can be interpreted in various ways. For example, the difference in 'getting along' (the answer to the question 'over all, how well do you get along with your spouse') is illustrative of communication – the answer would be determined by how well the respondent saw the relationship and this would depend on perception of the spouse's views. Answer to the questions on 'how fair' the spouse treats the respondent and how much the respondent trusts his/her spouse are more indicative of a psychological asymmetry in the relationship – these are answers that are not likely to be tainted by the respondent's perception of the spouse's view of the relationship.

Estimates from both decision trees (nodes SO3 in Table 8 and OS4 (not reported)) indicate that the difference in perceived fairness of treatment is significantly negatively correlated with the decision to render assistance. The difference in responses to getting along and trust are not significant. Results (not reported here) show that this result is being driven by the spouse's report of fairness. Hence, we can conclude that those who do not receive insurance from their spouse are in the first instance those who do not ask because they have a low view of the trust, fairness, or quality of the relationship in

general, and (given that they ask) those who get turned down are those whose spouse has a dim view of the fairness of the relationship.

A number of intriguing possibilities is suggested by this two-tiered result. For example, the fact that people with a positive view of fairness ask, only to be turned down by a spouse with an opposing view, suggests a lack of communication or information between the pair. It is also consistent with a gambling view of the decision to ask: given a low cost of asking, even those who know that their spouse does not share their opinion about fairness of the relationship might take the chance in case they get lucky. In the end, we cannot rule out these competing explanations of the dynamics that leads to these characteristics being correlated with the transfer process. However, the fact that difference in perception of fairness is important in explaining success when asking suggests that communication in marital relationships is far from perfect and that this is correlated with increased probability of rejection.

5.3 Who gets help from others?

In examining who seeks and receives assistance from persons outside the household, the results change somewhat depending on which decision tree we are using. Table 9 provides the results for estimating the probability of asking others using the sample provided by the SO sequence (node SO4).

The sample associated with the SO tree (the 111 individuals who did not ask their spouse) shows a number of social capital variables to be significantly associated with the probability of asking others. Belonging to the major lineage in the village is positively associated with asking others. We include lineage because, as indicated earlier, it plays an important role in Akan economic and social life. The result is

consistent not only with possible assistance rendered by lineage members, but also in the associated social standing that comes from being a member of the lineage that controls access to the largest amount of land and holds a number of local political and ceremonial positions. The number of local organizations that an individual belonged to is also significantly correlated with the probability of asking others for assistance. We know that a few of these organizations exist specifically for insurance reasons (e.g. one group pays out for funeral expenses), so it is natural that this would be related to the probability that an individual could ask others for insurance for a variety of shocks. Village effects are also significant for two of the villages. This is indicative of inherent differences in organizational and social life (among other factors) that we cannot capture with our set of variables. Indeed, in our work in the villages, we discovered many differences that defy categorization in simple quantitative variables. For example, one village was without a chief and, instead, authority was vested in a council of elders. This difference in power structure made the resolution of disputes (say over the reneging on a reciprocal assistance agreement) markedly different in this village compared to others.

Among individual characteristics, gender is an important determinant of seeking assistance outside the household. This is consistent with the results obtained by Goldstein (2000) which indicate that women tend to insure outside the household and family, doing so instead with other women. For women, mutual insurance networks in the villages studied thus run by gender rather than kinship. The number of fostering episodes that an individual experienced while growing up is negatively related to the probability that he/she will ask others for assistance. Fostering is quite common in these villages, as in much of West Africa. This variable is capturing two main effects. First, fostering usually takes place outside the village and thus the respondent's absence while

growing up curtails his or her ability to develop networks. Second, it is likely indicative of a lower status within the family, resulting in lower willingness of extended family members to help. In this specification, personal wealth matters as the anticipated land inheritance is positively related with the probability of asking others. As future access to land provides capital to guarantee the future reciprocity of favours (as well as serving as an indicator of family wealth and status), this is not surprising.

In an effort to examine the effects of broader social interactions, we include a measure of the probability of knowing any random person in the village as an independent variable. We included this measure because the level of social connection that it indicates would provide a natural vehicle for not only identifying more effectively possible sources of assistance, but also providing greater social connections to enforce mutual insurance arrangements.[13] This effect is significantly negative in the OS2 specification. This result is counter to what we would expect. However, one plausible explanation for the underlying relationship is that there is a reduction in social standing associated with asking others for help. This loss of social standing comes from revealing that you (or your partner) cannot make ends meet. Revealing this inability to cope will lead to being recognized as a risky person to deal with and is likely to curtail future access to credit and other forms of capital, as well as incurring a broader loss of status. The more people the individual knows, the higher the cost will be, as knowledge of this failure will spread more broadly through the village. Hence, these individuals are more likely to avoid asking, unless it is absolutely necessary. Social connections can thus be a curse in calling on others for mutual insurance. A complementary explanation draws on

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[13] An alternative to this hypothesis might revolve around the 'big man' hypothesis. A 'big man' is someone who is well known and usually wealthy. While this informal position confers added prestige, it also brings responsibility to respond to the needs of others. Big men might seek to avoid others in

the fact that the ability to provide for one's spouse is a major criterion by which a relationship is judged. Hence, admitting an inability to provide one's share of the household items reveals a weakness in the relationship that will harm future bargaining positions, both within the relationship and also in case of divorce.

We thus conclude that asking others when not asking a spouse is limited by a number of factors that are indicative of the individual's standing in the community. Lineage position is important, both in support that comes directly from membership or from the anticipated access to resources through inheritance. Relations conferred by growing up in the community (fostering) and gender also appear to be important. However, social connections in the community may be a curse for mutual insurance if asking others is a signal that undermines social capital.

6 Responses to a cash shortage for a personal item

The response to a cash shortage when needing to buy a personal item seems to generate a different type of response. [14] We can see part of the picture from the data in Figures 2 as compared to Figure 1. In this section, we estimate probits to examine the two possible decision trees when seeking assistance for a personal item.[15] Results show that not only the patterns in seeking assistance differ, but also different characteristics are associated with the choice of whom to ask. This is particularly true for the decision to ask someone other than the spouse.

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order to avoid unilateral claims for assistance. However, given the high average value of probability of knowing variable, this does not seem to be what is captured by this variable.

14 These data were collected under the instruction that this was a good to be consumed solely by the individual. Feedback from the field staff indicated this was a fairly straightforward concept.

6.1 Requests to the spouse

Results of these estimates for the SO sequence are given in Table 10. Results for the OS sequence are essentially identical and not reported. The request to the spouse is strongly associated with gender in estimates of both decision paths (nodes SO2 and OS3). Women are much more likely to ask their spouse for help than the other way around.

The variables we use to measure quality of the conjugal relationship are not significant. However, a history of domestic violence is significant and negative. The most frequent causes of domestic violence cited by male respondents were insults from their spouse (17 per cent) and disobedience (11 per cent). These do not suggest direct economic causes (in fact very few of the other responses were centred around directly economic reasons). Hence, the effect of domestic violence on the propensity to ask is likely to be through the tenor of the relationship, in particular how it affects the bargaining process, as well as the bargaining outcomes. Since a spousal transfer for a personal item is more likely to be a gift than a transfer for a household item, the importance of domestic violence is suggestive of the role of the tenor of the relationship in explaining the ease with which spouses may approach one another with a request for a gift.

6.2 Requests to others

In seeking assistance for a personal item, a different set of social relations and individual characteristics matter than for a household item. Table 11 provides these estimates for the SO sequence (node SO4). Four results are notable.

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15 Note that, because of the low number of observations, we do not estimate the spouse response to a request for assistance.

First, belonging to the major village lineage is significantly and positively associated with seeking outside assistance. This is similar to what we observed in seeking help for a household item. Second, the number of years a respondent or his or her family has been in the village is negatively related with the probability of asking others. We included this variable given the social standing that the anthropological literature attributes to the length of time an individual or his or her family has lived in a village. This social standing might provide greater access to informal insurance. Our result here is consistent with the fact that long established families have better access to modes of insurance other than mutual transfers. If there is a social cost incurred in obtaining the transfer needed (and this is perhaps more pronounced for personal items which the transferor might not approve of), then these individuals would prefer to use other modes to obtain the needed item – be it credit, use of reciprocal labour arrangements, or the like.

Our third common result is that the variable for the probability of knowing others is not significantly related to with seeking help from others. However, when we use the probability of talking to others (a measure of quality of relationship), this is significantly and positively related to the probability of asking others. This result might seem to be at odds with the household item result where the signs on the probability of knowing others is negative. This may indicate that, for a personal item, there is no reflection on the intra-household relationship when one seeks help from others. In the case of a personal item, our respondents prefer individuals that they know well because the strength of their relationship with the person they are asking to for assistance helps overcome problems of information and enforcement and thus allows for better mutual insurance.

Overall, the fact remains that asking others for help with a personal expenditure is more difficult than asking for a household expenditure. Social connections (major lineage, talking to others) help, but social capital is clearly harder to mobilize for this purpose, leaving many excluded from insurance to cope with this type of shock.

7 A friend in deed? The quality of insurance and the implications of exclusion

The previous sections have identified the factors that are associated with asking for and receiving help from others. This section examines the 'help' in more detail, examining the terms of the assistance and the implications for consumption smoothing. We also discuss the strategies used by those that are rejected or never ask others for assistance. The final part of this section looks more explicitly at the question of how the poor manage shortages and examines whether their access to this type of mutual insurance is different from the rest of the population.

7.1 The quality of insurance

On what terms is help given by the spouse and by others? Figures 1 and 2 indicate that, even when help is forthcoming from a spouse or another individual, it is often an explicit (albeit interest free) loan.[16] Table 12 summarizes these figures. What is clear is that the spouse treats household items differently from personal items, while individuals outside the household do not. Spouses are more likely to provide assistance for a

16 This is what distinguishes these loans from the response to the question of how individual's managed (after being turned down or not seeking help). The latter are likely to be consumer loans of shorter duration and implicit interest.

household item in the form of a loan, and to do this in kind rather than in cash. According to discussions with respondents, this is often for fear of fungibility – i.e. that the cash will not go to the designated household expense, which suggests contract enforcement problems.

Personal items appear to follow a different pattern altogether, with 69 per cent of the assistance from the spouse taking the form of a gift. Assistance from others for both types of items, on the other hand, is usually a loan. This is different from those who buy items on credit in that there is usually no interest charged. Items bought on credit (according to anecdotal evidence) incur an implicit interest rate, as the credit price is different from the cash price once repayment spans a certain period of time.

Ultimately, what we care about is how this shortage of cash affects consumption. One way to test for the quality of the insurance received by those who obtained assistance is to look at the variation in their consumption relative to other members of the community. Given the data we have from earlier rounds of the survey, we can conduct a test of the type developed in Townsend (1994) and others, and used in Goldstein (2000) on a different configuration of these data for full insurance. If we assume that people who are helped in rounds 14 and 15 were also helped in these earlier rounds (i.e. they are usually helped), we can test whether this population and/or the rest of the village exhibits full insurance. Our econometric test is to estimate the following equation:

$$c_{ist} - c_{ist-1} = a(\bar{c}_{st} - \bar{c}_{st-1}) + b(y_{ist} - y_{ist-1}) + e$$

where c_{ist} is the consumption of individual i in state s at time t, $\bar{c}_{st}$ is the village average consumption and y_{ist} is the individual idiosyncratic income shock.[17] Theory predicts that, in the case of full insurance, β should equal zero and α should equal 1, i.e., the change in individual i's consumption should be unaffected by own income shocks and move with the community's average change in consumption.

Table 13 presents the results of this regression for the entire sample, and then separately for those who received help and those who did not,[18] using consumption and shock data from the same survey.[19] The income shock data consist of agricultural plot level unexpected events and illnesses. The consumption data presented is for private consumption – goods that can be clearly assigned to individuals for their own consumption based on their own expenditure reports. Thus, we define those who received help only as those who received help for a personal item outside of the household. We estimate this equation (in parts B and C of Table 13) only for those who expressed a shortage as we cannot be certain about the classification of the rest of the population.

When we estimate this equation for the entire sample (Table 13, Part A), a joint F-test of the coefficients fails to reject the hypothesis of full insurance.[20] When we estimate this equation for the sample restricted to those who received help in rounds 14 and/or 15, we also fail to reject the hypothesis of full insurance. However, when we estimate this

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17 There are better ways to test this hypothesis (e.g. Ravallion and Chaudhuri 1997), but data constraints make this our best option.

18 See Goldstein (2000) for a discussion of the data and the errors in variables estimation.

19 Note that we face two sources of attrition here: missing consumption data in all panels, and those for whom we cannot identify help/no help in panels B and C.

20 The proper test for this hypothesis would be a Likelihood Ratio test, which we are working on.

equation for the sample of individuals who were short of cash for a personal item and received no assistance, we can reject the hypothesis of full insurance at the 3 per cent level. Although these results come from a small sample, they provide evidence that receiving assistance is consistent with full insurance, while failing to receive assistance when short is associated with full insurance failure.

7.2 How do the excluded manage?

In round 15, the questionnaire included a component which asked those who received no help how they coped with their cash shortage. We can see this data summarized in Figures 1 and 2 for the household item and the personal item, respectively. The patterns of coping were different across the two items.

In the case of a household item, the major response was to find some way to buy the item. Most respondents (52 per cent) bought the item on credit, followed by seeking additional work (9 per cent) and selling crops from the farm (7 per cent). A minority, but not insignificant number of individuals, responded by not buying the item (27 per cent). Overall, a larger fraction of those who were short of cash for a personal item received no help whatsoever (73 per cent compared to 45 per cent of those short of cash for a household item). The main mode of coping was to not buy the item (74 per cent), followed by credit (10 per cent), and finding additional work and selling crops from the farm (7 per cent each). Unlike the response to the shortage of cash for a household item, there was a difference in how each gender managed the shortage for a personal item, with women more likely to buy the item on credit. However, the dominant choice for both genders was to not buy the item.

7.3 How do the poor manage?

In examining which groups might be excluded from mutual insurance, we can take inspiration from Jalan and Ravallion (1999). Using data from China, they find that non-land wealth is positively correlated with a household's ability to insure consumption. This leads then to conclude that the poor are less well insured. We can use two measures to examine whether or not the poor have less effective insurance. One option is to use the wealth variable included in many of the regressions discussed above. This is measured by non-land assets. As our earlier results have shown, wealth matters at two junctures. First, people with higher levels of average non-land assets during the two-year survey period are less likely to have a shortage of cash for both household and personal items.[21] This suggests that they chose to smooth consumption using their assets. Second, people with lower assets are more likely to ask their spouse for assistance with a household item. However, wealth is not significantly correlated with the probability of asking others for assistance.

Another approach would be to measure poverty in terms of per capita food expenditure. We created two poverty lines: one based on 80 per cent of the $1/day benchmark, and the other, which is about half that amount, is defined as the bottom quartile of the expenditure distribution. Data came from an average of the thrice-administered expenditure questionnaires.[22] Using these two poverty measures, we recalculated the estimates of who were short, using the specification of Table 1. Both measures were not significantly correlated with the probability of being short of cash for a household item.

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21 Note that two measures of land assets (inherited land and the number of plots owned) are not significantly correlated with the probability of being short of cash.

22 We use the sum of the respondent's own reports of expenditures to determine poverty at the household (per capita adjusted) level.

Similarly, when we estimate the probability of asking one's spouse, the probability of the spouse helping, and the probability of asking others, we do not find that either measure of poverty is significant at the 10 per cent level or better.[23] Mutual insurance thus seems to work equally well for the poor.

We can also examine those who end up without help in Figures 1 and 2 to see if the poor are disproportionately represented in this group. An analysis of each group shows that, for the household item, 33 per cent of the poor (using the first definition here and for the discussion that follows) receive no help, while 38 per cent of the non-poor receive no help. While there is no major difference in representation, coping strategies are slightly different. The poor are more likely to use credit (63 per cent of poor) than the non-poor (40 per cent). The non-poor were more likely not to buy the item (35 per cent) than the poor (26 per cent) but we need to keep in mind that we are dealing with a small number of responses. In terms of a shortage when needing to buy a personal item, the poor were more likely to defer consumption (80 per cent) than the non-poor (70 per cent), and more likely to buy things on credit (20 per cent) than the non-poor (5 per cent).

Thus, for the region under study, poor individuals have equal access to transfers from their spouse, family, and friends. By contrast to the inference made by Jalan and Ravallion (1999) for China, mutual insurance is here equally accessible to poor and non-poor. Being poor matters, however, in two ways. First, low wealth endowments are more likely to be associated with an initial cash shortage for both personal and household items. Second, the poor utilize different alternate mechanisms when they are

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23 The closest result comes with the difference in fair specification of spouse helping where the first measure of poverty is negative with a z-statistic of 1.60.

rejected from mutual insurance support or do not seek this assistance, relying more on credit or accepting not to buy the item and to defer consumption.

8 Conclusions

This paper attempted to bring together the anthropological, sociological, and psychological dimensions of intra and extra-household relations with the work on risk and insurance in economics. What we show is that the shape of social relations matters: personal relations within the household and social status and connections within the community are important for receiving transfers in times of shortage. Within the household, the gender of the demanding party (+ for women), the quality of the relationship, and the wealth of the other partner are all associated with the likelihood of asking for assistance. Among those who asked, and hence with good quality spousal relationships as seen by the demanding party, receiving assistance depends on equality in perception of this relationship between spouses. Those who had a mistaken appreciation of the relationship are turned down. Outside the household, membership in the major lineage, participation in secular organizations, the individual's fostering history (-), and anticipated land inheritance are all related to receiving assistance from others. Gender is also associated with receiving assistance outside the household, with women more likely to get help for a household item.

We also showed that the patterns of requests for assistance and responses to requests differ according to the item for which insurance is sought. People are overall less likely to ask for help with a personal item. Those who do capitalize on the strength of their social relations in seeking help outside the household. However, individuals with high levels of active connections in the village seem to be reticent to ask others for help with

a household item, possibly to avoid losing social status in exposing weakness. Domestic violence, rather than other measures of relationship quality, appears to be important in whether or not assistance for a personal item is sought within the household. These contrasts suggest that there are different categories of people who are unable to access mutual insurance for specific types of shortages.

These characteristics can help identify individuals who are likely to be excluded from insurance via transfers. As we have shown, these individuals' consumption shows that they are not perfectly insured, by contrast with those who received assistance. In addition, we also examined the correlation of poverty with access to transfers in times of shortage. We found that individuals who are asset poor are more likely to be short of cash for household and personal items and are more likely to ask their spouse for assistance with the household item. However, they do not appear to face different responses to requests for transfers from others. Hence, mutual insurance is more needed by the poor, but equally accessible to them.

Incomplete insurance in rural communities, as observed in most empirical tests reported in the literature, can thus be due to the social exclusion of many community members with specific individual, household, and community characteristics. In fact, we have shown that inability to rely on mutual insurance to face cash shortages is surprisingly pervasive. Mutual insurance thus works for some, but not for many. And for whom and for what it does not work can be predicted, potentially helping target remedial assistance on the excluded individuals.

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Table 1

Explaining who is short of cash to buy a household item

Probit analysis, sequence spouse-others, node SO1

Dependent variable: individual is (yes/no) short for the purchase of a household item

Variables	dF/dx	P>|z|	Mean
Income shock			
Value of damage due to agricultural shock (10^6 cedis)	0.07	0.08	.0063
Individual asset position			
Size of inherited land area (ha)	0.06	0.11	0.19
Size of land area anticipated to be inherited (ha)	0.05	0.41	0.06
Number of plots owned	-0.01	0.50	3.50
Value of non-land assets (10^6 cedis)	-0.01	0.01	0.75
Received other assistance to get started = 1	0.05	0.30	0.19
Individual characteristics			
Gender: woman = 1	-0.04	0.35	0.52
Has other sources of income = 1	-0.04	0.21	0.52
Household characteristics			
Member of major village clan = 1	0.03	0.41	0.47
Location			
Village 2 = 1	-0.06	0.28	0.23
Village 3 = 1	0.19	0.00	0.27
Village 4 = 1	0.16	0.00	0.24
Goodness-of-fit			
Number of observations	743		
Pseudo R2	0.07		

Table 2
Reasons for being short of household item
(n= 212)

Reason	% of responses
Did not sell crops	28
Illness (other family member)	12
Crop was not ready when expected (delayed harvest)	11
Unexpected loss in business	10
Did not get paid for work when expected	7
Illness (self)	7
Unexpected household expense	7
Other	18

Table 3
Incidence of cash shortage to buy household and personal items
% of total, n = 799 observations

		Household item		
		No	Yes	Total
Personal item	No	65.7	7.6	73.3
	Yes	20.4	6.3	26.7
	Total	86.1	13.9	100

Table 4
Explaining who is short of cash to buy a personal item

Probit analysis, sequence spouse-others, SO1 Dependent variable: individual is (yes/no) short for the purchase of a personal item		
Variables	dF/dx	P>|z|
Income shock		
Value of damage due to agricultural shock (10^6 cedis)	0.02	0.33
Individual asset position		
Size of inherited land area (ha)	0.03	0.21
Size of land area anticipated to be inherited (ha)	0.03	0.51
Number of plots owned	0.01	0.04
Value of non-land assets (10^6 cedis)	-0.00	0.01
Received other assistance to get started = 1	-0.05	0.04
Individual characteristics		
Gender: woman = 1	-0.01	0.92

Has other sources of income = 1	0.01	0.67
Household characteristics		
Member of major village clan = 1	-0.00	0.85
Location		
Village 2 = 1	-0.01	0.41
Village 3 = 1	0.32	0.00
Village 4 = 1	0.20	0.00
Goodness-of-fit		
Number of observations	741	
Pseudo R2	0.20	

Table 5

Respondents' reasons for being short of cash for self-items

(n=111)

Reason	% of responses
Did not sell crops	32
Illness (self)	13
Did not get paid for work when expected	7
Did not get expected job	7
Crop was not ready when expected (delayed harvest)	6
Unexpected loss in business	6
Other	29

Table 6

Comparison of alternate decision structures

	Likelihood ratios	
	Help asked for household item	Help asked for personal item
Bivariate probit	-1130	-42.6
Sequential decision		
Spouse-others	-1078	-41.1
Others-spouse	-1040	-41.8

Table 7

Explaining who asks spouse for money when short of cash to buy household item

Probit analysis, sequence spouse-others, node SO2

Dependent variable: individual asks spouse for money (yes/no)

When short of cash to purchase a household item

Variables	dF/dx	P>|z|
Individual asset position		
Value of non-land assets (10^6 cedis)	-0.01	0.05
Individual characteristics		
Quality of marital relations as seen by the demanding party: Fair	0.17	0.00
Gender: woman = 1	0.17	0.10
Household characteristics		
Value of spouse assets (10^6 cedis)	0.03	0.01
Years married	-0.01	0.01
Number of household members	-0.03	0.05
Location		
Village 2 = 1	-0.39	0.00
Village 3 = 1	-0.34	0.01
Village 4 = 1	-0.65	0.00
Goodness-of-fit		
Number of observations	174	
Pseudo R2	0.29	
Partial results with other variables characterizing the quality of marital relations as seen by the demanding party		
Trust	0.17	0.00
Get along	0.19	0.00
Domestic violence = 1	-0.17	0.09

Table 8

Explaining whether spouse helped with cash when asked for a household item

Probit analysis, sequence spouse-others, node SO3

Dependent variable: spouse was helped (yes/no) when asked for cash for a household item

Variables	dF/dx	P>|z|
Income shock		
Value of damage due to agricultural shock (10^6 cedis)	-1.80	0.30
Individual characteristics		
Gender: woman = 1	0.05	0.67
Household characteristics		
Absolute difference in spouses' perceptions of fairness	-0.08	0.04
Value of spouse assets (10^6 cedis)	0.00	0.76

Years married	0.01	0.17
Location		
Village 2 = 1	-0.14	0.07
Village 3 = 1	-0.09	0.46
Village 4 = 1	-0.16	0.07
Goodness-of-fit		
Number of observations	81	
Pseudo R2	0.22	

Table 9

Explaining who asked other for help when short to buy a household item

Probit analysis, sequence ask spouse-ask other, node SO4 (and partial result for sequence ask other-ask spouse, OS2 node) Dependent variable: Individual asks others (yes/no) when short of cash to purchase a household item			
Variables	dF/dx	P>[z]	mean
Individual asset position			
Size of inherited land area (ha)	-0.01	0.89	0.42
Size of land area anticipated to be inherited (ha)	0.49	0.09	0.05
Value of non-land assets (10^6 cedis)	0.01	0.88	0.72
Individual social capital			
Probability of knowing any person in the community	-0.72	0.19	0.90
Years respondent or family lived in the village	-0.00	0.25	75.28
Number of fostering episodes	-0.17	0.04	0.77
Number of organizations respondent belongs to	0.10	0.10	1.21
Individual characteristics			
Gender: female=1	0.26	0.07	0.46
Household characteristics			
Member of major village lineage = 1	0.21	0.06	0.59
Location			
Village 2 = 1	-0.30	0.13	0.10
Village 3 = 1	-0.53	0.01	0.37
Village 4 = 1	-0.55	0.01	0.44
Goodness-of-fit			
Number of observations	111		
Pseudo R-squared	0.28		
Partial result with other variables characterizing the individual's social capital instead of probability of knowing others			
Probability of talking to others	0.04	0.91	0.19
Partial result in OS sequence, node OS2			
Probability of knowing any person in the community	-0.45	0.08	0.91

Table 10

Explaining who asks spouse for money when short of cash to buy a personal item

Probit analysis, sequence spouse-others, node SO2

Dependent variable: individual asks spouse for money (yes/no) when short of cash to purchase a personal item

Variables	dF/dx	P>|z|
Individual asset position		
Value of non-land assets (10^6 cedis)	0.00	0.30
Individual characteristics		
Quality of marital relations as seen by the demanding party: Fair	-0.03	0.48
Gender: woman = 1	0.46	0.00
Household characteristics		
Value of spouse assets (10^6 cedis)	-0.01	0.40
Years married	0.00	0.90
Number of household members	-0.01	0.63
Location		
Village 2 = 1	NA	NA
Village 3 = 1	-0.15	0.63
Village 4 = 1	-0.17	0.33
Goodness-of-fit		
Number of observations	86	
Pseudo R2	0.28	
Partial results with other variables characterizing the quality of marital relations as seen by the demanding party		
Trust	-0.02	0.50
Get along	-0.03	0.55
Domestic violence = 1	-0.19	0.04

NA Village predicts failure perfectly.

Table 11

Explaining who asked others for help to buy a personal item

Probit analysis, sequence ask spouse-ask other, node SO4		
Variables	dF/dx	P>[z]
Individual asset position		
Size of inherited land area (ha)	-0.04	0.51
Value of non-land assets (10^6 cedis)	0.03	0.37
Individual social capital		
Probability of knowing any person in the community	-0.34	0.43
Years respondent or family lived in the village	-0.00	0.01
Number of fostering episodes	-0.03	0.60
Number of organizations respondent belongs to	0.02	0.65
Individual characteristics		
Gender: female=1	0.06	0.43
Household characteristics		
Member of major village lineage = 1	0.13	0.07
Location		
Village 3 = 1	-1.00	0.00
Village 4 = 1	-0.63	0.00
Goodness-of-fit		
Number of observations	80	
Pseudo R-squared	0.43	
Partial results with other variables characterizing the individual's social capital instead of probability of knowing others		
Probability of talking to others	0.38	0.06

Table 12

Forms of assistance

	Type		Form			
	Gift	Loan	Cash	Kind	Both	Number
Spouse assistance						
Household item	40.7%	59.3%	38.5%	48.4%	13.2%	91
Personal item	69.2%	30.8%	84.6%	15.4%	0.0%	13
Assistance from others						
Household item	28.2%	71.8%				39
Personal item	27.8%	72.2%				18

Table 13

Errors in variable regression: Change in private consumption

A. Whole sample (n = 203)

Dependent variable: change in private cons.	Coefficient	t-stat	95% conf interval	
Village mean consumption	-0.57	-0.75	-2.10	0.93
Change in illness shocks	-0.01	-0.05	-0.36	0.34
Change in agricultural shocks	0.02	1.04	-0.02	0.05
Constant	5214	-0.71	-9303	19732
F-Test of perfect insurance coefficients	F(3,199) = 1.96		Prob > F = 0.12	

B. Those who received assistance for personal items (n = 14)

Dependent variable: change in private cons.	Coefficient	t-stat	95% conf interval	
Village mean consumption	-2.18	-0.91	-7.52	3.16
Change in illness shocks	-0.17	-0.71	-0.71	0.36
Change in agricultural shocks	-0.03	-0.37	-0.20	0.14
Constant	33851	1.74	-9501	77204
F-Test of perfect insurance coefficients	F(3,10) = 0.70		Prob > F = 0.57	

C. Those who were short but received no assistance (n = 49)

Dependent variable: change in private cons.	Coefficient	t-stat	95% conf interval	
Village mean consumption	-1.53	-1.58	-3.48	0.42
Change in illness shocks	-0.16	-0.80	-0.57	0.25
Change in agricultural shocks	-0.01	-0.80	-0.03	0.01
Constant	21979	1.85	-1928	45887
F-Test of perfect insurance coefficients	F(3,45) = 3.20		Prob > F = 0.03	

Figure 1
Assistance for the purchase of a household item
Rounds 14 and 15, 245 households, 798 observations
* Based on questions in Round 15 only with 402 observations

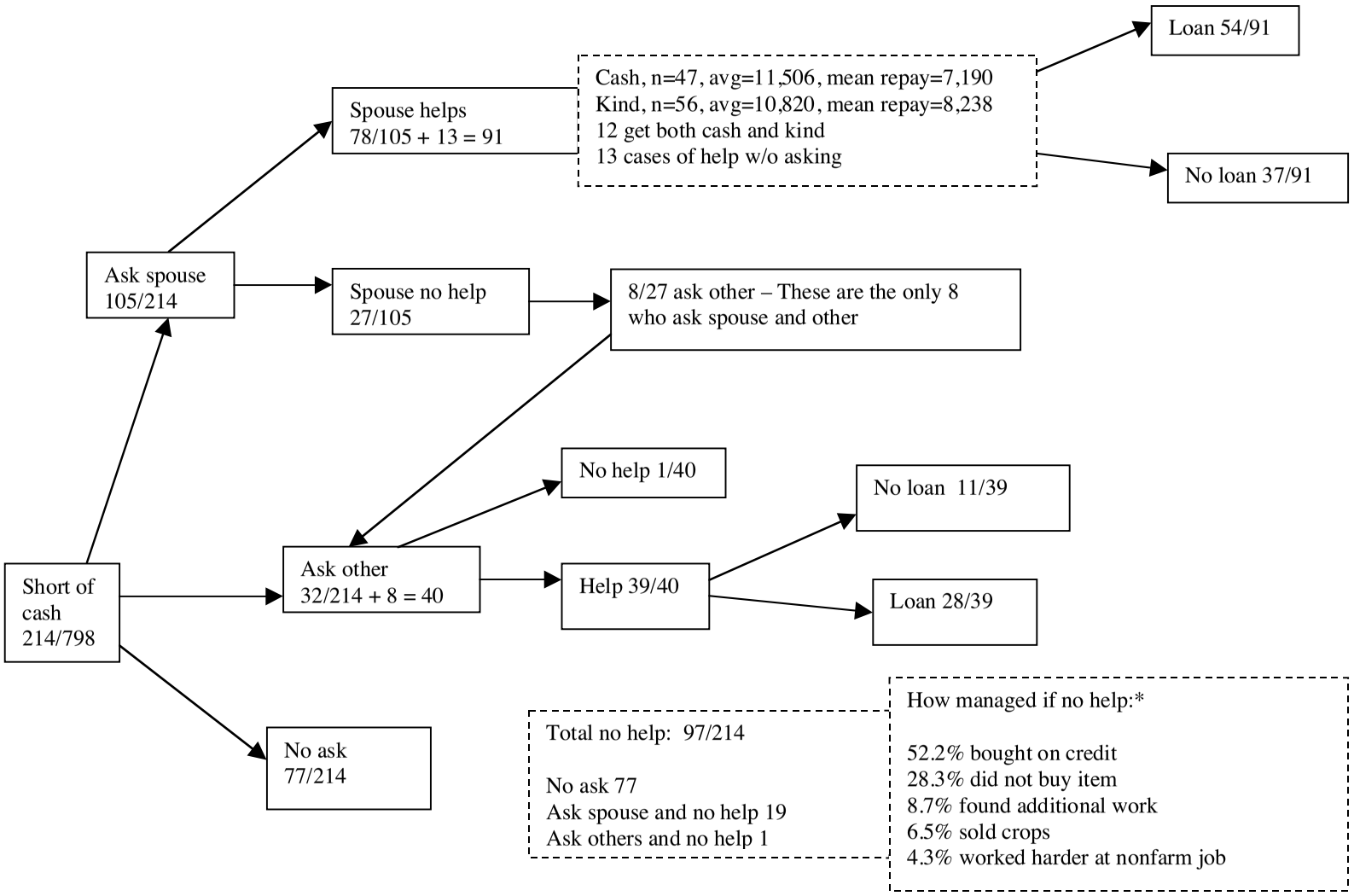

Figure 2
Assistance for the purchase of a personal item
Rounds 14 and 15, 245 households, 796 observations
* Based on questions in Round 15 only with 402 observations