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**PRIVATE TRANSFERS, INFORMAL LOANS AND RIKS SHARING
AMONG POOR URBAN HOUSEHOLDS**

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(*Draft: May 2007*)

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PRIVATE TRANSFERS, INFORMAL LOANS AND RISKS SHARING AMONG POOR URBAN HOUSEHOLDS

I. Introduction

The average household in the poor regions of the world is often faced with consumption risks that result from income and related shocks. In rural areas, such shocks include weather calamities that negatively affect crop production, adverse price shocks, loss of crops to pests, sickness or death of the household head or other working members, unexpected ceremonial expenses etc. In urban areas, income swings are often associated with the incidence and duration of unemployment, sickness of earning members and impending medical expenses, flailing business income for business operating households etc. Accordingly, while households in both rural and urban areas may be exposed to certain common types of shocks, some other risks can be peculiar to the social, livelihood and production structures prevailing in the specific community. Nevertheless, faced with various sources of income risk, it is reasonable that households strive to protect consumption through different means, formal or informal, and across time and space.

The question of how well households cope with and share risk has been at the forefront of the risk-sharing literature, mostly in the context of rural areas of developing economies. But most of the empirical tests have been aggregate, consumption based (see for example, Townsend, 1994; Deaton, 1997; Jalan and Ravallion, 1999). The hypothesis in these tests is that if households efficiently share risk, controlling for aggregate community income, changes in individual income should not have a significant effect on consumption. The particular mechanism(s) (or instruments) that households adopt for risk-sharing purposes is not apparent from such an approach (see Alderman and Paxson, 1994; Cox and Jimenez, 1998; Fafcahmps and Lund, 2003, for similar observations).

Knowledge of the actual means of insurance used by households, which are likely to be informal in nature for most poor regions of the world, has policy relevance of multiple dimensions. For instance, if interhousehold transfers and informal loans are the primary means through which households cope with risk, and they are found to be reasonably efficient, it may be the case that public insurance programs simply substitute these mechanisms with little or no gain in net social welfare. In fact, given the informational advantages that such households have (in assessing the magnitude and source of risk) relative to an outside principal, public insurance may even be less efficient.

On the other hand, if appropriate tests reveal that households self-insure through, say, accumulation of liquid and non-liquid assets, and that only relatively wealthy households are able to do so, targeted public insurance for the liquidity-constrained poor households may be efficiency-enhancing.

This paper contributes to a growing literature that investigates the mechanisms of risk-sharing among poor households. There are two aspects of the paper that are particularly relevant in the context of the literature. First, it focuses on poor urban areas. The disproportionate focus in the literature on rural households has meant that we know relatively little about the risk-sharing practices of poor urban households. Given that formal insurance is largely absent even in urban areas of most developing economies, it is apparent that these households may be no less vulnerable to income risk than their rural counterparts. Furthermore, because of lack of survey data, the little we know about risk sharing between poor urban households has come from small, targeted surveys. The use of a nationally representative urban survey data in this study is particularly appealing in this regard.¹ Second, the study uses information on both private transfer and informal loan activities to assess whether each mechanism serves risk sharing purposes. The simultaneous treatment of both potential instruments sheds light on relative performance, and also highlights idiosyncrasies that affect household participation in either (or both) mechanisms. It has been argued in the literature that if households are motivated by altruism, private transfers in the form of pure gifts are the primary means through which risk-sharing occurs. However, if enforcement problems are pronounced, informal credit with contingent repayment may be used to realize self-enforcing risk-sharing contracts (Fafchamps, 1999). Fafchamps and Lund (2003) argue that such enforcement problems are the reason behind their finding that informal loans (quasi-credit), and not gifts and transfers, perform risk-sharing functions in rural Filipino networks.

The literature has noted that, in the absence of formal insurance, poor households often devise various means of pooling risk. It has been documented that within and inter-household transfers in the form of remittances and gifts are used for consumption smoothing purposes by rural households in Botswana and India (Lucas and Stark, 1985; Rosenzweig and Stark, 1989; Rosenzweig, 1988). Informal loans with zero or small interest, no collateral and contingent repayment serve insurance purposes in the face of

¹ Recent studies of East European economies have used survey data (see for instance, Skoufias, 2003 and Skoufias, 2004 for Russia and Bulgaria, respectively).

shocks and income variability (Udry, 1990, 1994; Fafchamps and Lund, 2003). Households also accumulate savings and assets to run down in times of uncertainty and hardship (Paxson, 1992; Rosenzweig and Wolpin, 1993). In other evidence, households engage in income smoothing activities prior to the occurrence of shocks. Examples of such measures include crop diversification and choice of low return-low risk varieties by farming households (Dercon, 1996) and involvement in off-farm activities (Kochar, 1999; Rosenzweig and Stark, 1989). Labor and resource sharing is still another route households take to help each other in times of need (Platteau, 1997).

The nuances of urban living imply that risk-sharing in poor urban areas can be a distinctly different exercise than that in rural areas. Cox and Jimenez (1998) argue that it is difficult to judge *a priori* whether poor urban settings suit risk-sharing practices better than rural ones. Proximity and relative occupational uniformity significantly mitigate information problems in rural areas and promote risk-sharing arrangements. However, these same characteristics imply that rural households are subject to the same aggregate risk, which renders risk-sharing ineffective, while urban households are not. Urban risk-sharing, in contrast, is infected with significant moral hazard problems, even more so because of the relatively loose social structure that worsens information problems. Which way risk-sharing performance sways is therefore an empirical question.

The data reveal that transfers and loans in urban Ethiopia are largely informal, often transacted between relatives and friends. They are also primarily used to augment nondurable (especially food) consumption, supporting the hypothesis that they may be among the main instruments of consumption smoothing. The regression results further show that private transfers in urban Ethiopia significantly respond to presumed proxies of income risk. Unemployment of the head, female headship and in some cases sickness increase the probability of net transfer receipts. In contrast, informal loans do not seem to respond to any of these shocks. This latter result may imply that such loans, though informal, have very much the characteristics of formal loans where repayment considerations factor in to determine flow patterns; hence nullifying their potential use as instruments of insurance. The results suggest that altruistically motivated transfers, compared to informal loans, better serve risk-sharing purposes in urban Ethiopia.

II. Data

2.1. Source

The data for the analyses in this paper come from the Ethiopian Urban Socio-Economic Surveys (EUSES) conducted by the Department of Economics, Addis Ababa University, Ethiopia in collaboration with various national and international institutions.²The nationally representative surveys collect extensive information on household demographics, employment and income, consumption, migration, transfer and credit activity, health and welfare from households residing in seven major urban centers in the country. Each urban center is allocated a share of participant households in the survey according to its contribution to the total population. Accordingly, while Addis Ababa (the capital city), Dire-Dawa and Awassa were allocated 900, 125 and 75 households, respectively, the other four cities (Bahir-Dar, Dessie, Jimma and Mekele) each contributed 100 households. Four rounds of the survey conducted between 1994 and 2000 are available to date.

For the current study, we use data from the first three rounds of the survey, collected in September 1994, November 1995 and January 1997. These rounds have a strong panel structure, tracking the same households whenever possible. In constructing our sample, we dropped households that reported operating formal businesses. We believe that such households have a structurally different income source composition and attitude towards risk from the average household.³ Regardless, the random sampling ensures that all income groups are represented in our sample. After data cleaning and dropping households with missing values for important variables, the final sample for this study consists of 2504 observations. This final sample derives information from 1202 households, each household contributing at most 3 observations, whenever available.

The unit of analysis for the current study is the household. However, the design of the surveys is such that most of the relevant questions were asked at the member level. As a result, enormous aggregations were required to arrive at household level values for important variables like income, private transfers and informal loans.

² The Collaborating institutions are Institute of Development Research, Ethiopia (1994 round); the then Ministry of Economic Development and Cooperation, Ethiopia and Michigan State University (1995 round); University of Goteborg, Sweden (1994, 1997 and 2000 rounds).

³ Since pre-transfer income and activity choice are considered exogenous for our analysis, this will not cause a sample selection problem.

2.2. Private Transfers and Informal Loans

As noted above, the primary objective of this paper is to investigate whether private transfers and informal loans serve as instruments of risk-sharing among poor urban households. We focus on these mechanisms for two reasons. First, public insurance and formal credit services (especially for consumption related purposes) are barely available in poor urban economies. Second, since revealing (and verifying) vulnerability to consumption risk is generally difficult, closely-knit relationships that can resolve the associated moral hazard and adverse selection problems provide potentially thriving means of insurance.

We define private transfers and informal loans primarily based the source of receipts. Transactions that take place with resident and non-resident household members, friends, relatives, neighbors etc. are considered private (informal) and are included for analysis. Local administrations, the government and non-governmental organizations (for transfers), and banks and credit associations (for loans) constitute formal sources and the associated transactions are excluded for the purposes of this paper. The amounts analyzed include both cash and value of in-kind transfers and loans.

Table 1 provides summary statistics on participation in private transfer and informal loan activities by urban households in Ethiopia. Statistics on amounts of transfers and loans conditional on participation are also presented. The transfer and loan summaries are based on activities in the 12 months prior to the survey month. The income statistics refer to monthly amounts. The figures in the table show that about 31% of households in the sample reported involvement in some type of transfer activity; a third of the sample reported participation in similar loan exchange (as recipients, givers or both; figures refer to the pooled sample). The participation statistics reveal that households are much more likely to receive than give transfers. This is even more so the case for loans. Average annual net transfer receipts (defined as transfers received minus transfers given) amount to 3.5 times mean monthly income. The comparable figures for loans are much less, however, whereby the mean annual net loan receipt (defined as loans received-loans repaid-loans given+ repayments received) is about half of average monthly household income.⁴ While most of the participation figures are comparable across years, the average

⁴ If we assume net receipts are evenly distributed across months, average monthly transfer and loan receipts represent 30% and 5% of average monthly income, respectively.

transfer and loan magnitudes for 1995 are remarkably smaller than those for 1994 and 1997. The relatively large standard deviations accompanying the means also show that there is a large degree of variation in income, transfer and loan flows between households.⁵

Sources of private transfers and informal loans are summarized in Table 2. As the responses to the transfer and loan questions were recorded at the member level, the statistics are based on receipts by individuals residing in the final sample of households. It is shown that an overwhelming majority of transfers involve inter-household transactions among relatives and friends. ‘Other’ (consisting of dowry, inheritances and unspecified) sources contribute less than 1% of total transfer receipts.⁶ The same is true for loan receipts; 80% of loan exchange takes place between friends, relatives or neighbors. Informal networks—referred to as *equb* and *iddir/mahber*, rotating savings and credit and insurance associations, respectively—are sources to less than 3% of total loan receipts.⁷

A summary of the reasons for transfer and loan receipts is presented in Table 3. Again these statistics are based on available responses by residents in the final sample of households. More than 2/3 of private transfer receipts by urban households in Ethiopia are intended for food consumption. Similarly, based on counts, about 47% of informal loans are used to augment food consumption. In case of loan receipts, however, the weighted statistics show that loans taken for nonfood-nondurable consumption (like educational, health, travel and rental expenses, etc.) are much larger in magnitude than those intended for food consumption.

Overall, Tables 2 and 3 reveal that private transfers and informal loans indeed serve consumption smoothing purposes. Our *a priori* that the scarcity of formal sources of insurance and credit, and the informational advantages that are present in closely-knit

⁵ The median income is 189.82 Birr. The median net transfer and loan amount is 400 and 0 Birr, respectively. The reason behind the 0 median value for net credit receipts is that an interestingly large (16%) of households reported fully repaying loans taken (or getting full repayments for loans extended) during the year.

⁶ Given that the focus is on private transfers, those from governmental and non-governmental organizations, which often take the form of food aid, are excluded from the analysis. In the original sample, such transfers amounted to about 13% of total transfer receipts.

⁷ In a similar manner, since the focus here is on informal loans, formal loan receipts are excluded from the analysis. However, a look at the original sample shows that loans from formal sources like banks and credit associations contribute to a very small proportion (about 8%) of total loans receipts.

relationships, may compel households to resort to reliance on private transfers and informal loans as instruments of insurance seems to be borne out. In the next section, we further examine the issue based on regression analysis.

III. Specification

This section investigates, using econometric evidence, whether households in poor urban areas share risk through the use of private transfers and informal loans. The hypothesis is that if households use either or both potential channels of informal insurance, net positive flows should occur to households experiencing negative income shocks. In this regard, one would ideally like to obtain a measure of (unexpected, transitory) income variability and examine its correlation with the direction of net transfer and loan flows. Given the available information in the EUSES and that we only have at most three data points per household, we are not able to generate an exogenous measure of income risk to include as an explanatory variable.⁸

Lack of a direct measure of income variability may be a caveat of the study. However, we argue that it is also very difficult for partnering households to reveal (and verify) the nature of idiosyncratic income variations. That is, income changes *per se* may be poor signals for risk-sharing purposes anyway, and are unlikely to determine transfer and loan flows, if indeed the latter serve risk-sharing practices. This is especially true for urban areas. While households in rural areas can fairly objectively assess the seasonal harvests of a neighboring farming household, the varied occupational undertakings by urban households imply a similar exercise is likely to be difficult.⁹

⁸ In the welfare section of the surveys, households were asked to give the nature/direction of income change that they have experienced (within the past three years for the 1994 round, and since the previous survey for the 1995 and 1997 rounds). Unfortunately, the definition of 'income' in the respective question is not clear, and it is worrisome that households could impute net transfer, loan and other unearned income in their subjective calculation of income change. We experimented with the use of the variable as a proxy for income shocks, but our worry seems to have been proven in that the estimated coefficient had the 'wrong sign' (i.e. positive income changes were positively correlated with net transfer receipts) and was not statistically significant in almost all specifications.

⁹ A similar comparison between urban and rural households can be made when it comes to the difficulty involving revelation and verification of effort in production. This problem is potentially much more severe in urban areas because of the large variations in employment types and human capital. A similar point was made by Cox and Jimenez (1998). The relatively loose societal structure in urban compared to rural areas is another reason for a more significant moral hazard problem.

Consequently, we argue that, empirically, transfer and loan flows may be dictated more by readily observable signals of vulnerability to consumption risk than idiosyncratic income changes.¹⁰ Such signals constitute age composition of a household, female headship, employment status, number of working members, health status etc. The hypothesis is that if private transfers and loans fulfill risk-sharing purposes between urban households, those households exhibiting characteristics that are often positively correlated with vulnerability to consumption risk are more likely to be net recipients, *ceteris paribus*.

To test this hypothesis, we estimate separate incidence equations for transfer and loan receipts.¹¹ The explanatory variables that are used in the estimations are summarized in Table 4. The statistics reveal that the average household in the sample consists of 5.7 members. A somewhat surprisingly large proportion (42%) of households were female headed, while the mean age of heads was about 49 years¹². Heads have 5 years of schooling on average, while the mean years of schooling of all members above 15 years of age is 6.7 years. A fifth of heads were unemployed. A similar proportion reported having disabilities half of which are chronic. About 15% of heads reported experiencing sickness in the four weeks prior to survey date (see Appendix for definition and construction of variables).

We argue that female headship, head's unemployment, head's disability, number of workers and, to some extent, head's sickness are relatively conspicuous signals of vulnerability to income shocks. Number of workers potentially shows income source diversification and increased ability to self-insure. Female headship and head's disability signal the opposite. Unemployment and sickness of the head reveal negative income shocks. Controlling for number of workers, household size shows increased consumption needs. We control for age and human capital composition of the household to capture for liquidity constraint and life-cycle effects (see Cox et al, 1998, 2004, among others). Pre-

¹⁰ This is more true for transfers. If informal loans are pure credit, repayment considerations factor in to determine flow patterns.

¹¹ OLS estimation using the amount of transfers and loans resulted in statistically insignificant coefficients in most cases. In comparison, as is often the case in the literature, the coefficients in incidence equations are much better determined (see for example, Cox and Jimenez, 1998, and Kuhn and Stillman, 2004).

¹² A potential explanation for the large proportion of female headed households is that many women may have experienced separations from or death of husbands in the prolonged civil war that ended in 1991. It has also been noted that reintegration of ex-soldiers has been difficult in urban compared to rural areas (Dercon and Ayalew, 1998).

transfer income is the main variable scrutinized in the motives for transfer—altruism versus exchange—debate in the literature (Cox, 1987; Altonji et al., 1997).

Based on the categorization of households into three groups—as net givers, neither net givers nor net recipients, and net recipients—we estimate an ordered probit model for transfers and loans separately. Assume that z_h^* represents the latent variable that determines the transfer (loan) net receipt status of household h . The latent variable z_h^* is given by a linear function:

$$z_h^* = X_h\beta + \varepsilon_h,$$

where X_h denotes a vector of household characteristics and shock proxies, β represents a vector of regression coefficients, and ε_h denotes an error term which is assumed to be distributed standard normal.

Assume Z_h represents the observed categorical variable for transfer (loan) net receipt status. Z_h is then related to the latent variable z_h^* according to the following:

$$\begin{aligned} Z_h &= -1 \text{ if } z_h^* \leq \kappa_1, \\ Z_h &= 0 \text{ if } \kappa_1 < z_h^* \leq \kappa_2, \text{ and} \\ Z_h &= 1 \text{ if } z_h^* > \kappa_2. \end{aligned}$$

$Z_h = -1$, $Z_h = 0$ and $Z_h = 1$ represent net giver, neither net recipient nor net giver, and net recipient status, respectively. The cut-off points (κ 's) are estimated along with the regression parameters (Maddala, 1983; Long, 1997).

Distribution of the pooled estimation sample based on net transfer (loan) receipt status is presented in Table 5.¹³ It is shown that the proportion of net recipients is significantly larger than that of net givers. This may show that a few, relatively better-off households carry a significant burden of responsibility for the provision of transfers and loans. In the case of transfers, it may also highlight the role played by remittances received from non-

¹³ For both transfers and loans, the pooled sample reflects a very similar distribution to the ones obtained for the cross-section of households (i.e. by year). The proportion of net recipients of transfers is comparable to what other studies that rely on national survey have reported (see for example, Cox et al, 1998, for urban Peru, and Kuhn and Stillman, 2004 for urban Russia). Using Philippines data for private transfers, Cox et al (2004) present a much larger proportion of households that are net recipients (about 80%), but net givers accounted for about 10% of the sample.

domestic sources. For the third category of households that are neither net givers nor net recipients, we do not distinguish between households that were not involved in receiving and/or giving at all and those that have net zero values because of canceling out. This is especially noteworthy in case of loans because, as noted earlier, 16% of observations that belong to this category were involved in loan activities but have fully paid loans taken (or received full payments for loans given). This provides further evidence that households may indeed use informal loans to relieve transitory negative pressures on income and consumption.

IV. Results

The ordered probit estimates are presented in Table 6a. We first discuss the results for the estimations done on the pooled sample. The estimates for the transfer equation show that female headship and head's unemployment increase the likelihood of being a net transfer recipient while number of workers/earners in the household decreases it. Increase in income also makes households less likely to be net recipients. Household size, head's age and human capital composition have no effect on the probability of net receipts. Similarly, temporal sickness and permanent disability, even chronic, seem to have no effect.¹⁴ In general, the estimates seem to conform to the risk-sharing hypothesis. If increases in income and number of earners in the family are positively correlated with household's ability to self-ensure (and, generally, a more stable income stream), they lead to a reduced dependence on or need for transfer receipts. Head's unemployment, which is a more visible signal for negative pressures on income and consumption, is found to be positively associated with transfer receipts. The same effect is seen for female headship, which we argue is a perceived indicator of increased vulnerability to income variability.¹⁵

The estimates for the loan equation show two significant differences to those of the transfer equation: female headship and head's unemployment do not affect loan receipts. Presumably, repayment capacity of potential recipients may be an important determinant

¹⁴ Estimations that included regional dummies resulted in almost identical results. Furthermore, as a group, the regional dummies were never significant.

¹⁵ Some studies argue that female headship, by construct, should be highly correlated with transfer receipts because it shows husbands that have migrated in search of work and remit cash regularly (Cox et al, 2004; Cox and Jimenez, 1998). This is especially true when considering rural households and countries with significant international migration (e.g. the Philippines in case of Cox et al, 2004). None of these two is the case in this study. One may argue that there can be significant migration to the capital city, Addis Ababa, from the other urban centers. This is not the case either, as the 41% proportion of female headed households in the capital shows the survey average female headship ratio is typical of all regions.

of the decision to give (and maybe even to request) loans. Furthermore, household size has a positive and significant effect on the likelihood of loan receipts. Considering that we are controlling for household income and number of workers, this indicates that household size may show increased consumption needs and/or additional worth as visible collateral. Head's schooling seems to decrease the likelihood of loan receipts, holding everything else constant. The lack of significant effect of outward income risk proxies like head's unemployment and female headship implies that informal loans may not serve risk-sharing purposes in these areas.

Table 6a also presents results using a random effects ordered probit estimator. This is performed to check whether the results discussed above are robust to controls for household heterogeneities. It can be seen that, for both the transfer and loan equations, the random effects estimates largely follow the trend set by the pooled estimates. The notable changes when we control for household effects are that household income is no more statistically significant in the transfer equation and is significant at only 10% level in the loan equation; and that female headship and unemployment in the transfer equation have larger effects compared to the pooled estimates. The difference in results is intuitive. In the risk sharing equation, income should not matter when there are observable shock variables, and loses its significance as a proxy for other household-specific effects in the presence of controls for the latter. For loans, however, income remains relevant (though at the 10% level) because it represents household resources, which in turn determine the demand for loans for consumption smoothing purposes.

Table 6b presents the marginal effects of the estimates in Table 6a for the select variables that can be deemed potential outward indicators of household risk and vulnerability in a poor urban setting. Marginal effects in case of ordered probit estimation are typically computed as the implied change in probability within each category of status. Accordingly, Table 6b shows marginal effects for the three respective categories of net giver ($Z_h = -1$), neither net recipient nor net giver ($Z_h = 0$) and net recipient ($Z_h = 1$). Because the pooled estimates in Table 6a are typically lower than the random effects estimates, and also because their marginal effects are computationally easier to calculate, the reported marginal effects in Table 6b are based on the pooled results. As can be seen from the marginal effects, female headship and head's unemployment have economically significant effects on net transfer receipt status. Female headship increases the likelihood

of net transfer recipient status by 10 percentage points, decreases a neutral (neither giver nor recipient) status by 6.1 percentage points and decreases net giver status by 3.8 percentage points. Similarly, head's unemployment increases the probability of net receipts by 10.7 percentage points while decreasing the likelihood of the zero and net giver categories by 7.1 and 3.5 percentage points, respectively. Looking at the variables with a statistically significant effect in the loan equation, head's chronic disability increases the likelihood that a household will be a net recipient of loans by 5.1 percentage points, while a unit increase in household size raises the probability by 0.8 percentage points. Number of workers has the opposite effect, decreasing the likelihood by 2.3 percentage points.

To further analyze the determinants of receiving and giving, and examine the presumed symmetry that should exist, we also estimate separate probit equations for transfer (loan) receipts and giving. The results are presented in Tables 7 and 8. Again we report pooled as well as random effects estimates. The results in Table 7 show that female headship, unemployment and sickness (in the random effects specification) are associated with larger probability of receiving transfers. Female headship and head's unemployment raise the probability of net receipts by 14.5 and 13.8 percentage points, respectively. Household size causes the probability to decline. Notably, increased head's schooling improves the likelihood of transfer receipts. The loan receipt probit results are also shown in Table 7. As was the case in the ordered probit specification, the income risk proxies like unemployment, sickness and female head have no effect on the likelihood of loan receipts. This further confirms that informal loans may not be an effective means of consumption smoothing for the poor in urban Ethiopia.

The probit estimates for transfer (loan) giving are shown in Table 8. Comparing the results in Tables 7 and 8, one can observe remarkable symmetry between the net transfer recipient and net giver equations. The variables with significant coefficients in the net transfer giver equation—income (in the pooled estimates), female headship, head's schooling, number of workers and head's unemployment—all but head's schooling have reversed signs compared to the corresponding coefficients for net receipts. The major exception is head's schooling. In general, better head schooling seems to increase participation in transfer activity—that is, it is associated with higher probability of giving as well as receiving. This may be indicative of better networking opportunities for educated heads. As can be seen in Table 8, we fail to find significance in the loan giving pooled or random effects probit estimates.

Overall, based on the regression results, one can conclude that private transfers serve risk-sharing purposes in urban Ethiopia while informal transfers do not. Interestingly, the contrasting results for the two potential mechanisms of insurance could highlight a more subtle but important distinction between ‘risk sharing’ and ‘consumption smoothing’. Private transfers respond to income risk proxies and enable risk sharing, thereby smoothing the consumption of unfortunate households (at least partially). But consumption smoothing can operate without risk sharing. Informal loans do not respond to income risk proxies, which rules out their relevance for risk sharing, but they do respond to indicators of household resources like income and number of workers, and resource needs like household size. Therefore, households that need to augment current consumption due to a variety of reasons (e.g. holiday celebrations, purchase of durable goods, impending ceremonies like weddings, child birth, educational and travel expenses etc.) and lack the resources to do so could seek loans to fulfill their needs. This is precisely what is borne out in the descriptive statistics. In Table 2, it is shown that what can be largely categorized as ‘non-insurance’ items (e.g. nonfood-nondurable consumption, durable consumption, business expenditure, ceremonial expenses etc.) constitute about 25% of the reasons for transfer receipts and 50 to 75 percent (unweighted and weighted statistics) of the reasons for loan receipts. As such, fixed, short term informal loans smooth consumption without necessarily serving risk-sharing practices.

Excluding Remittances

As shown in Table 2, transfers by nonresident household members mostly in the form of remittances constitute about 25.8% of all transfers. While this proportion is not that high per se, a valid argument can be made that the underlying mechanisms driving remittance receipts are very different from typical inter-household transfers. For once, it can be argued that most remitters may have informational advantages on the income or other status of a household relative to neighbors or friends with no kinship to the household. Therefore, remittances may have a more magnified role in risk-sharing if they are not hampered by associated information problems of income revelation and verification. In contrast, if remittances are recurrent (e.g. regularly sent by a migrating spouse or member) irrespective of the status of a household or sent for specific purposes (e.g. to aid

educational expenditures on children), they may have very little relevance for risk-sharing. Since the evidence above suggests that transfers (and not informal loans) seem to be responsive to outward indicators of household risk and vulnerability, it is useful to find out how this evidence is affected by the inclusion of remittances as part of total transfers.

For this, we subtracted the value of any transfers labeled as ‘remittances’ from total household transfers received or given out. We then rerun the ordered probit and probit estimates using the leftover amount, which largely comprises only inter-household transfers. The results are presented in Table 9.

According to the ordered probit estimates in Table 9, the likelihood of net transfer receipts excluding remittances still rises with female headship and falls with number of workers and income. The difference with corresponding results in Table 6a is that now head’s unemployment does not have a statistically significant impact while head’s schooling lowers the probability of net recipient status. When looking at the probit estimates in Table 9 though, head’s unemployment still raises the likelihood of transfer receipts. In comparison, household size does not seem to have any effect in the probit estimates in Table 9 though it reduced the likelihood of transfer receipts when including remittances (shown in Table 7). For the net giver probit estimates in Table 9, both female headship and head’s unemployment lack statistical significance while most other variables preserve their signs and significance. In general, it can be inferred that the exclusion of remittances from transfers does not qualitatively change the results of and conclusions derived from the analysis of total transfers including remittances.

V. Conclusion

Based on nationally representative survey data from poor urban areas, we investigate whether households use private transfers and informal loans for risk-sharing purposes. A break-down of reported uses of transfer receipts shows that they are primarily intended for augmenting food consumption; loan receipts are mostly used for nondurable consumption, food plus nonfood. However, results from pooled and ordered probit estimates indicate that transfer receipts, not loans, respond to the presumed income risk

proxies. We explain loan flows as serving desired consumption goals that are mostly unrelated to insurance.

As transfers seem to serve risk-sharing purposes, there is a possibility that the provision of public insurance potentially changes private incentives and simply substitutes private insurance. In situations of aggregate risk, however, private transfers are not effective and well-timed public insurance programs would be much warranted. The development of insurance and financial markets in such economies also provides households, at least those that may not engage in transfer arrangements for a variety of reasons, alternative ways to protect consumption during adverse idiosyncratic income shocks.

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Table 1: Summary Statistics on Income, Transfers and Loans (Proportions, Means and Standard Deviations)

Variable	Pooled	1994	1995	1997
Income	416.12 (1441.42)	387.26 (1146.06)	394.10 (1348.20)	486.98 (1890.93)
Transfers				
Transfer status				
Any transfer activity	30.51	29.01	30.19	33.23
Received transfers	23.88	22.14	23.95	26.53
Gave transfers	9.90	9.64	9.55	10.73
Transfers amount				
Transfers received	2073.74 (5496.84)	2424.93 (6933.05)	1245.76 (2019.34)	2490.50 (5814.46)
Transfers given	494.26 (759.39)	422.81 (555.74)	532.31 (750.78)	554.84 (985.49)
Net transfers received	1462.73 (4975.02)	1710.14 (6150.62)	819.75 (1977.17)	1808.79 (5350.95)
Loans				
Loan status				
Any loan activity	33.15	32.44	37.45	29.21
Received loans	30.19	29.10	34.52	26.83
Gave loans	5.67	6.68	4.97	4.92
Loans amount				
Loans received	272.67 (1901.72)	392.49 (2925.97)	178.24 (527.29)	211.82 (503.21)
Loans given	166.08 (545.54)	149.49 (613.47)	224.23 (564.74)	132.58 (339.52)
Net loans received	219.95 (1668.53)	321.31 (2525.23)	134.56 (558.26)	172.21 (500.25)
N	2054	1048	785	671

Note: Proportions are given in percentages. Amount statistics are conditional on involvement in transfer or loan activity. Transfers and loans are given in real 1994 Ethiopian birr. N corresponds to total size of the pooled or yearly samples.

Table 2: Transfer and Loan Sources

	Unweighted	Weighted
Transfers		
Nonresident household member	25.76	32.26
Relative or friend	73.90	67.55
Other	0.34	0.19
N	885	885
Loans		
Money lender	4.26	5.52
Friend, relative or neighbor	80.72	79.90
Informal network	1.60	2.89
Other	13.42	11.68
N	939	939

Note: Statistics are based on household member-level transfer and loan transactions. The weights are transfer or loan amounts given in real 1994 Ethiopian birr.

Table 3: Transfer and Loan Reason

Use	Transfers		Loans	
	Unweighted	Weighted	Unweighted	Weighted
Food consumption	68.68	69.28	47.26	22.36
Nonfood-nondurable consumption	15.01	8.01	22.28	25.84
Durable consumption	5.79	4.24	12.59	16.57
Business expenditure	1.18	6.48	11.30	31.32
Saving related	2.36	6.79		
Ceremonial expenses			4.09	2.83
Other	6.97	5.20	2.48	1.08
N	846	846	929	929

Note: Statistics are based on available household member-level transfer and loan transactions. The weights are transfer or loan amounts given in real 1994 Ethiopian birr.

Table 4: Summary Statistics on Explanatory Variables (Means and Standard Deviations)

Explanatory Variable	Pooled	1994	1995	1997
Household size	5.70 (2.67)	5.86 (2.73)	5.67 (2.68)	5.48 (2.58)
Female headed Head's age	0.42 49.21 (13.68)	0.40 48.00 (13.28)	0.43 49.00 (13.95)	0.44 51.33 (13.73)
Head's schooling	5.42 (5.36)	5.53 (5.40)	5.36 (5.31)	5.33 (5.34)
Average schooling	6.66 (3.47)	6.77 (3.58)	5.36 (5.31)	5.33 (5.34)
Number of workers	1.52 (1.05)	1.54 (1.06)	1.50 (1.01)	1.51 (1.06)
Head unemployed	0.22	0.21	0.20	0.24
Head disabled	0.20	0.23	0.17	0.19
Head chronically disabled	0.10	0.12	0.08	0.08
Head sick	0.14	0.16	0.14	0.13
N	2504	1048	785	671

Table 5: Distribution of Estimation Sample based on Transfer and Credit Receipt Status

Status	Transfers		Credit	
	Count	Frequency	Count	Frequency
Net givers	180	7.19	101	4.03
Neither net-givers nor net-recipients	1741	69.53	1995	79.67
Net recipients	583	23.28	408	16.29
N	2054	100.00	2054	100.00

Note: Distribution corresponds to the pooled sample.

Table 6a: Ordered probit estimates of net transfer and net loan receipts

Variable	Net transfer receipts		Net loan receipts	
	Pooled	Random effects	Pooled	Random effects
Income	$-0.263 \times 10^{-4}***$ (2.51)	-0.190×10^{-4} (0.90)	$-0.358 \times 10^{-4}***$ (3.22)	$-0.373 \times 10^{-4}*$ (1.78)
Household size	-0.172×10^{-1} (1.56)	-0.208×10^{-1} (1.38)	$0.345 \times 10^{-1}***$ (2.87)	$0.364 \times 10^{-1}***$ (2.64)
Female headed	$0.328***$ (5.31)	$0.412***$ (4.70)	0.573×10^{-1} (0.88)	0.571×10^{-1} (0.73)
Head's age	-0.110×10^{-1} (0.96)	-0.118×10^{-1} (0.75)	-0.133×10^{-2} (0.11)	0.194×10^{-3} (0.01)
Head's age squared	$0.183 \times 10^{-3}*$ (1.70)	0.209×10^{-3} (1.42)	-0.311×10^{-4} (0.29)	-0.485×10^{-4} (0.36)
Head's schooling	-0.518×10^{-2} (0.61)	-0.854×10^{-2} (0.77)	$-0.160 \times 10^{-1}*$ (1.80)	$-0.169 \times 10^{-1}*$ (1.67)
Average schooling	0.465×10^{-2} (0.44)	0.650×10^{-2} (0.46)	-0.145×10^{-1} (1.31)	-0.165×10^{-1} (1.26)
Number of workers	$-0.766 \times 10^{-1}***$ (2.66)	$-0.835 \times 10^{-1}**$ (2.28)	$-0.933 \times 10^{-1}***$ (3.17)	$-0.986 \times 10^{-1}***$ (2.89)
Head unemployed	$0.337***$ (5.19)	$0.435***$ (4.79)	-0.754×10^{-1} (1.07)	-0.838×10^{-1} (1.03)
Head sick	0.448×10^{-1} (0.60)	0.771×10^{-1} (0.88)	-0.206×10^{-2} (0.03)	-0.177×10^{-1} (0.21)
Head chronically disabled	-0.907×10^{-1} (1.11)	-0.105 (1.00)	$0.195**$ (2.21)	$0.213**$ (2.09)
κ_1	-1.626 (5.40)	-1.932 (4.61)	-2.044 (6.31)	-2.205 (5.80)
κ_2	0.693 (2.31)	0.920 (2.20)	0.736 (2.31)	0.847 (2.25)
Log-likelihood	-1855.83	-1806.39	-1491.76	-1482.06
Wald- χ^2 (11)	181.26	155.28	58.88	44.27

Notes: N=2054. Asymptotic |t| statistics are shown in parentheses. ***-shows significance at 1% level; **-shows significance at 5%; *-shows significance at 10%.

Table 6b: Marginal effects of ordered probit estimates for potential household risk indicator variables

	Net transfer receipts			Net loan receipts		
	$Z_h = -1$	$Z_h = 0$	$Z_h = 1$	$Z_h = -1$	$Z_h = 0$	$Z_h = 1$
Household size	0.002	0.003	-0.005	-0.003	-0.006	0.008
Female headed	-0.038	-0.061	0.099	-0.005	-0.009	0.014
Head's schooling	0.001	0.001	-0.002	0.001	0.003	-0.004
Number of workers	0.009	0.013	-0.023	0.008	0.015	-0.023
Head unemployed	-0.035	-0.071	0.107	0.006	0.011	-0.018
Head chronically disabled	0.012	0.015	-0.026	-0.014	-0.037	0.051

Note: $Z_h = -1$ denotes net giver status; $Z_h = 0$ denotes neither net recipient nor net giver status; $Z_h = 1$ denotes net recipient status. Marginal effects are based on pooled estimates since they are relatively more amenable for computation.

Table 7: Probit estimates of net transfer and net loan receipts

Variable	Net transfer recipient			Net loan recipient		
	Pooled	Random effects	Marginal effects	Pooled	Random effects	Marginal effects
Income	-0.341×10^{-4} (1.37)	-0.266×10^{-4} (0.62)	-0.612×10^{-5}	$-0.192 \times 10^{-3***}$ (2.74)	$-0.212 \times 10^{-3***}$ (2.85)	-0.418×10^{-4}
Household size	$-0.411 \times 10^{-1***}$ (3.08)	$-0.467 \times 10^{-1**}$ (2.31)	-0.107×10^{-1}	$0.408 \times 10^{-1***}$ (2.98)	$0.453 \times 10^{-1***}$ (2.67)	0.894×10^{-2}
Female headed	$0.408***$ (5.64)	$0.598***$ (5.11)	0.145	0.308×10^{-1} (0.40)	0.274×10^{-1} (0.28)	0.541×10^{-2}
Head's age	-0.644×10^{-2} (0.51)	-0.616×10^{-2} (0.31)	-0.142×10^{-2}	-0.787×10^{-2} (0.58)	-0.691×10^{-2} (0.38)	-0.136×10^{-2}
Head's age squared	0.174×10^{-3} (1.49)	0.218×10^{-3} (1.17)	0.502×10^{-4}	-0.649×10^{-6} (0.01)	-0.263×10^{-4} (0.15)	-0.519×10^{-5}
Head's schooling	$0.198 \times 10^{-1**}$ (2.04)	$0.255 \times 10^{-1*}$ (1.72)	0.587×10^{-2}	-0.113×10^{-1} (1.09)	-0.138×10^{-1} (1.07)	-0.273×10^{-2}
Average schooling	0.173×10^{-1} (1.40)	0.234×10^{-1} (1.27)	0.539×10^{-2}	-0.831×10^{-2} (0.63)	-0.103×10^{-1} (0.63)	-0.203×10^{-2}
Number of workers	-0.158×10^{-1} (0.46)	-0.240×10^{-1} (0.49)	-0.551×10^{-2}	$-0.793 \times 10^{-1**}$ (2.08)	$-0.839 \times 10^{-1*}$ (1.85)	-0.165×10^{-1}
Head unemployed	$0.381***$ (5.29)	$0.522***$ (4.60)	0.138	-0.849×10^{-1} (1.02)	-0.987×10^{-1} (0.97)	-0.188×10^{-1}
Head sick	0.110 (1.35)	0.179^* (1.65)	0.439×10^{-1}	0.228×10^{-1} (0.26)	0.846×10^{-2} (0.08)	0.167×10^{-2}
Head chronically disabled	-0.133 (1.35)	-0.159 (1.20)	-0.342×10^{-1}	0.193^* (1.89)	0.205^* (1.71)	0.444×10^{-1}
Constant	$-1.120***$ (3.31)	$-1.671***$ (3.03)		-0.557 (1.53)	-0.688 (1.44)	
Log-likelihood	-1274.14	-1220.77		-1088.25	-1074.59	
Wald- χ^2 (11)	163.37	107.37		41.85	37.47	

Notes: N=2054. Dependent variable is (a) for transfers: net transfer receipt=1 if net transfers received >0, zero otherwise; (b) for loans: net loan receipt=1 if net loans received >0, zero otherwise. Asymptotic |t| statistics are shown in parentheses. ***-shows significance at 1% level; **-shows significance at 5%; *-shows significance at 10%. Marginal effects are based on random effects estimates.

Table 8: Probit Estimates of net transfer and net loan giving

Variable	Net transfer giver			Net loan giver		
	Pooled	Random effects	Marginal effects	Pooled	Random effects	Marginal effects
Income	0.290×10^{-4} *	0.288×10^{-4}	0.235×10^{-5}	-0.691×10^{-5}	-0.936×10^{-5}	-0.500×10^{-6}
	(1.92)	(1.15)		(0.38)	(0.19)	
Household size	-0.183×10^{-1}	-0.167×10^{-1}	-0.136×10^{-2}	-0.116×10^{-1}	-0.117×10^{-1}	-0.625×10^{-3}
	(0.95)	(0.81)		(0.56)	(0.48)	
Female headed	-0.228 **	-0.245 **	-0.194×10^{-1}	-0.114	-0.123	-0.648×10^{-2}
	(2.08)	(1.98)		(1.00)	(0.88)	
Head's age	0.274×10^{-2}	0.166×10^{-2}	0.136×10^{-3}	-0.167×10^{-1}	-0.021	-0.111×10^{-2}
	(0.13)	(0.07)		(0.77)	(0.83)	
Head's age squared	-0.596×10^{-4}	-0.503×10^{-4}	-0.411×10^{-5}	0.113×10^{-3}	0.141×10^{-3}	0.750×10^{-5}
	(0.28)	(0.22)		(0.54)	(0.58)	
Head's schooling	0.416×10^{-1} ***	0.463×10^{-1} ***	0.378×10^{-2}	0.163×10^{-1}	0.161×10^{-1}	0.860×10^{-3}
	(3.08)	(3.09)		(1.02)	(0.94)	
Average schooling	0.250×10^{-1}	0.257×10^{-1}	0.210×10^{-2}	0.284×10^{-1}	0.322×10^{-1}	0.172×10^{-2}
	(1.32)	(1.24)		(1.42)	(1.34)	
Number of workers	0.162 ***	0.169 ***	0.138×10^{-1}	0.737×10^{-1}	0.834×10^{-1}	0.445×10^{-2}
	(4.18)	(3.58)		(1.55)	(1.47)	
Head unemployed	-0.279 **	-0.301 **	-0.213×10^{-1}	-0.207×10^{-2}	0.004	0.230×10^{-3}
	(2.10)	(1.99)		(0.02)	(0.03)	
Head sick	0.133	0.130	0.116×10^{-1}	0.955×10^{-1}	0.115	0.666×10^{-2}
	(1.06)	(0.94)		(0.68)	(0.72)	
Head chronically disabled	0.112×10^{-1}	0.276×10^{-1}	0.230×10^{-2}	-0.235	-0.310	-0.130×10^{-1}
	(0.07)	(0.16)		(1.22)	(1.31)	
Constant	-2.014 ***	-2.179 ***		-1.542 ***	-1.642 ***	
	(3.91)	(3.69)		(2.83)	(2.58)	
Log-likelihood	-575.14	-573.01		-407.276	-405.60	
Wald- χ^2 (11)	114.91	95.23		35.58	25.67	

Notes: N=2054. Dependent variable is (a) for transfers: net transfer given=1 if net transfers given >0, zero otherwise (b) for loans: net loan given=1 if net loans given >0, zero otherwise. Asymptotic |t| statistics are shown in parentheses. ***-shows significance at 1% level; **-shows significance at 5%; *-shows significance at 10%. Marginal effects are based on random effects estimates.

Table 9: Ordered Probit and Probit Estimates of Net Transfer Receipts, Remittances Excluded

Variable	Ordered Probit Estimates		Probit Estimates			
	Pooled	Random Effects	Net Recipient		Net Giver	
			Pooled	Random Effects	Pooled	Random Effects
Income	$-0.333 \times 10^{-4}^{**}$ (2.32)	$-0.327 \times 10^{-4}^*$ (1.65)	-0.392×10^{-4} (1.07)	-0.396×10^{-4} (0.66)	$0.350 \times 10^{-4}^{**}$ (2.14)	0.354×10^{-4} (1.58)
Household size	0.778×10^{-2} (0.63)	0.710×10^{-2} (0.52)	-0.220×10^{-1} (1.22)	-0.222×10^{-1} (1.20)	$-0.292 \times 10^{-1}^*$ (1.67)	-0.289×10^{-1} (1.53)
Female headed	0.174^{***} (2.51)	0.183^{**} (2.37)	0.242^{***} (2.50)	0.249^{***} (2.47)	-0.134 (1.37)	-0.137 (1.25)
Head's age	-0.141×10^{-1} (1.13)	-0.149×10^{-1} (1.08)	-0.167×10^{-1} (1.04)	-0.170×10^{-1} (1.00)	0.654×10^{-2} (0.35)	0.611×10^{-2} (0.29)
Head's age squared	0.139×10^{-3} (1.22)	0.147×10^{-3} (1.14)	0.159×10^{-3} (1.08)	0.162×10^{-3} (1.03)	-0.946×10^{-4} (0.51)	-0.895×10^{-4} (0.44)
Head's schooling	$-0.247 \times 10^{-1}^{***}$ (2.69)	$-0.270 \times 10^{-1}^{***}$ (2.72)	0.146×10^{-1} (1.12)	0.147×10^{-1} (1.09)	$0.501 \times 10^{-1}^{***}$ (4.10)	$0.557 \times 10^{-1}^{***}$ (4.02)
Average schooling	-0.136×10^{-1} (1.16)	-0.137×10^{-1} (1.07)	-0.175×10^{-1} (1.07)	-0.177×10^{-1} (1.05)	0.127×10^{-1} (0.76)	0.123×10^{-1} (0.66)
Number of workers	-0.109^{***} (3.23)	-0.109^{***} (3.29)	0.225×10^{-2} (0.05)	0.262×10^{-2} (0.06)	0.181^{***} (5.05)	0.188^{***} (4.36)
Head unemployed	0.103 (1.38)	0.116 (1.45)	0.191^{***} (1.96)	0.196^{***} (1.98)	-0.403×10^{-1} (0.37)	-0.504×10^{-1} (0.41)
Head sick	0.364×10^{-1} (0.43)	0.417×10^{-1} (0.48)	0.108 (1.02)	0.111 (1.02)	0.506×10^{-1} (0.44)	0.469×10^{-1} (0.37)
Head chronically disabled	0.170 (0.02)	-0.745×10^{-2} (0.07)	0.882×10^{-3} (0.01)	-0.214×10^{-2} (0.02)	0.228×10^{-1} (0.16)	0.380×10^{-1} (0.24)
κ_1	-1.988 (5.87)	-2.104 (5.68)				
κ_2	0.917 (2.73)	0.975 (2.67)				
Log-likelihood	-1342.26	-1339.30	638.44	-638.27	-690.01	-688.05
Wald- χ^2 (11)	104.52	107.27	30.76	29.84	136.73	107.79

Notes: N=2504. Asymptotic |t| statistics are shown in parentheses. ***-shows significance at 1% level; **-shows significance at 5%; *-shows significance at 10%.

Appendix: Variable Definitions and Construction

Variable	Definition/Construction
Net transfer receipts	Gross private transfers received minus gross private transfers given
Net loan receipts	Total loans taken-repayments made-loans given+ repayments received
Income	Pre-transfer income earned from one or more of the following sources: wage/salary employment, informal female business, informal child business
Household size	Number of household members currently residing in the household
Female headed	Dummy variable=1 if head is female
Head's schooling	Years of schooling completed by head
Average schooling	Average years of schooling completed by all household members above the age of 15
Number of workers	Number of household members involved in income-earning activity
Head unemployed	Dummy variable=1 if head is unemployed
Head disabled	Dummy variable=1 if head reported having a disability
Head chronically disabled	Dummy variable=1 if head's reported disability is chronic (e.g. very poor or complete loss of eye sight)
Head sick	Dummy variable=1 if head reported experiencing illness in the month prior to the survey

Note: Transactions considered include both cash and in-kind transfers and loans. Transfers, loans and income are all reported in real 1994 Ethiopian birr.