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Do Livestock Transfers Among Gabra Herders Insure Against Herd Loss?

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In pastoral societies, the transfer of animals from one household to another as gifts or loans is commonly observed. Three main interpretations of these livestock transfers have been advanced in the anthropological literature. First, transfers serve as a risk coping mechanisms—following livestock losses due to droughts, raids, or other adverse events, livestock flow into the impacted household's herd from herds belonging to other herders to avoid a food security crisis and help begin the herd rebuilding process. Second, transfers serve as risk management mechanisms—herders build a network of claims on other herders by strategically selecting transfer partners so that should they need animals in the future, they can call on pre-established relationships. Third, livestock transfers serve as a form of taxation that prevents excessive inequality—transfers flow from the wealthy to the poor in order to prevent poverty and increase equality. This study contrasts these three explanations using data on livestock transfers among Gabra herders in northern Kenya. Econometric analysis of transfers in and out of 88 household herds over a four year period (1993-1997) was performed. Findings have implications for both research on risk-sharing institutions and for the design of development policies in pastoral areas.[1]

Background

In many low-income, high-risk environments, formal sector risk-management institutions are not available. In the absence of formal sector alternatives, households must rely on a combination of self-insurance and informal risk-sharing institutions. The cultural practice of giving or loaning animals among pastoral households has been described in the anthropological literature as an informal risk-sharing arrangement.

Recent economic investigations of informal risk sharing mechanisms focus on how groups deal with the possibility that some individuals will not honor their obligation to help others in the group once the outcome of an event is known. In economics, this is called the "commitment problem." A variety of studies have shown that one way that is frequently used to address the commitment problem is to condition current period transfers on a record of past transfer behavior. That is, people are more likely to help you if you helped them or others in the past and less likely to help you if you did not provide such assistance in the past.

Another discovery made by researchers is that risk-sharing networks often are composed of groups within a community rather than as networks that encompass a whole geographically defined community. What is more, it appears that individuals have some ability to select which group they will be members of, and also are able to opt out of one group if they are unhappy with how it is performing. This means understanding informal risk sharing requires understanding the incentive structure influencing who enters into or opts out of a particular risk sharing group.

A key element to understanding the incentive structure facing herd owners in pastoral societies is related to recent research on asset dynamics and poverty traps. Current period asset holdings, in this case livestock, can significantly influence a household's future income and asset levels. Those with herd sizes below a critical threshold are unlikely to have their herd grow to a level that will take them out of poverty and thus enable them to reciprocate help given to them now by loaning out livestock to others who find themselves in need in the future. This implies that transfers may go to herders not just based on their observed need of help, but also may be influenced by estimates of the recipient's expected capacity to reciprocate in the future.

Thus, this study was undertaken to investigate how livestock transfers operate, and to assess how effective they are in helping herders deal with the risk of livestock loss. As livestock loss is an ever-present possibility for pastoralists, a relevant policy question is how formal development interventions should be designed to be compatible with this informal mechanism, or if the informal mechanism obviates the need for a formal development intervention.

Major Findings

The first major finding to report concerns the nature of herd loss in this area. One issue that needs to be investigated is the nature of herd loss. Clearly, if all households experience good times at the same time, and bad times during others, transfers between households will be of limited assistance. In economic terms, to what degree is risk idiosyncratic, thus affecting households differently at a given time, and to what degree is it covariate, effecting households in a common fashion at a given time? Figure one presents information on seasonal growth rates for household herds for half of the sample that are located in the Chalbi area. Each household is represented by an 'x' and a solid line representing the time period specific average of these household specific growth rates reflecting the net impact of births and deaths. Figure one illustrates that while herd loss on average follows a 'boom and bust' pattern, there is clearly a high degree of variability in how households experience growth. In every period, there are some households experiencing positive growth while others experience negative growth. This illustrates that the risk of herd loss is an ever-present reality. Given this pattern, it would seem transfers would serve as an effective means to confront herd loss, as there are in every period some 'winners' who can help out the 'losers', or more technically, there appears to be a significant idiosyncratic element to herd loss.

There are multiple types of transfers in Gabra society. In most cases of transfers recorded in the data set (92%), full ownership rights are transferred. For the remaining 8% rights to the transferred animal or future offspring are retained in some form by the donor. Most transfers were of goats and sheep (87%) and most involved female animals (57%). Transfers take place largely among people who are related in some sense (93% were described as moving animals between households that had some kind of family link) and who have transferred to each other in the past (72% to transfers were said to go to an individual to whom one had given in the past, 61% to individuals from whom one had received in the past). All 88 households surveyed engaged in livestock transfers at least once between 1993 and 1997.

The data set was structured around the bi-modal rainfall pattern in the study area (in figure one fr is first rains, fds is first dry season, sr is second rains, sdr is second dry season), so each observation corresponds roughly to a three-month period for a given household. For the majority of observations (61%), herders did not transfer animals into or out of their herd. For 29% of observations they either transferred in or transferred out, and for the remaining 10% of observations they both transferred in and out of their herd in a given period. The average size of a transfer in or out of the herd when a transfer did happen is around 0.6 TLU's, or roughly 6 sheep or goats.[2] The overall average transfer level for all observations (including those when none are transferred) is 0.14 TLU out of the herd and 0.13 TLU into the herd, or just over one goat or sheep per period.[3]

Figure 1. Household Specific and Time Period Average for Chalbi Three Month Herd Growth Rates, early 1993-early 1997
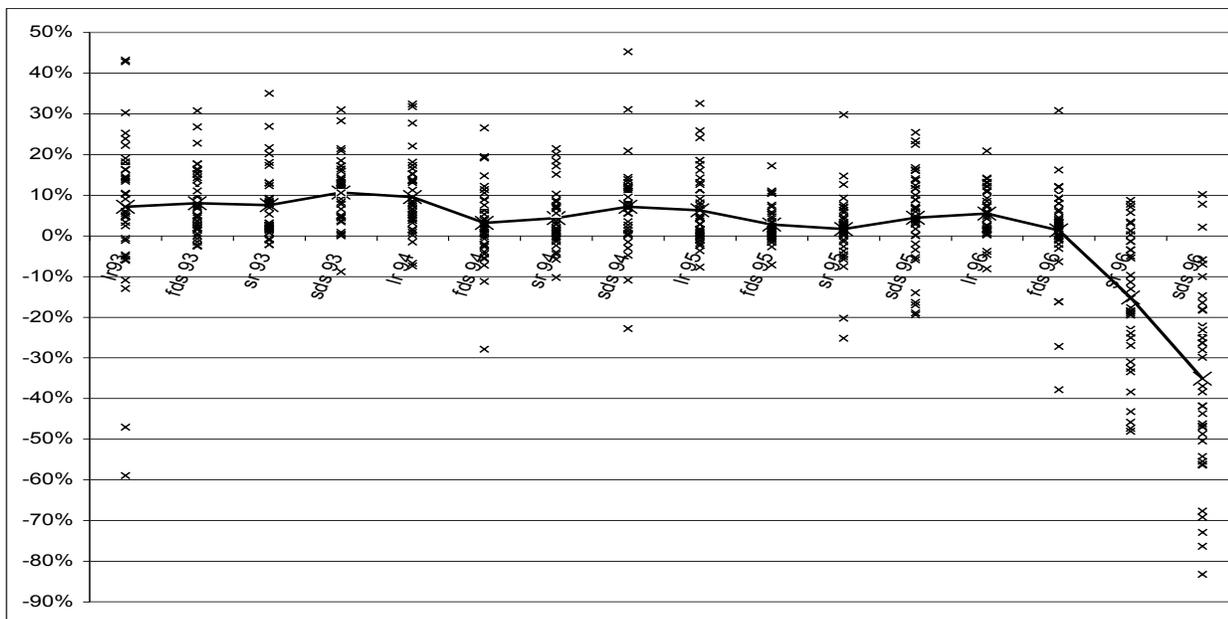
The solid line represents the average for all households. Household specific observations per time period are denoted by an x.
fr = first rains; fds = first dry season; sr = second rains; and sdr = second dry season.

Figure 2. Simulation of estimation results to predict net transfer.
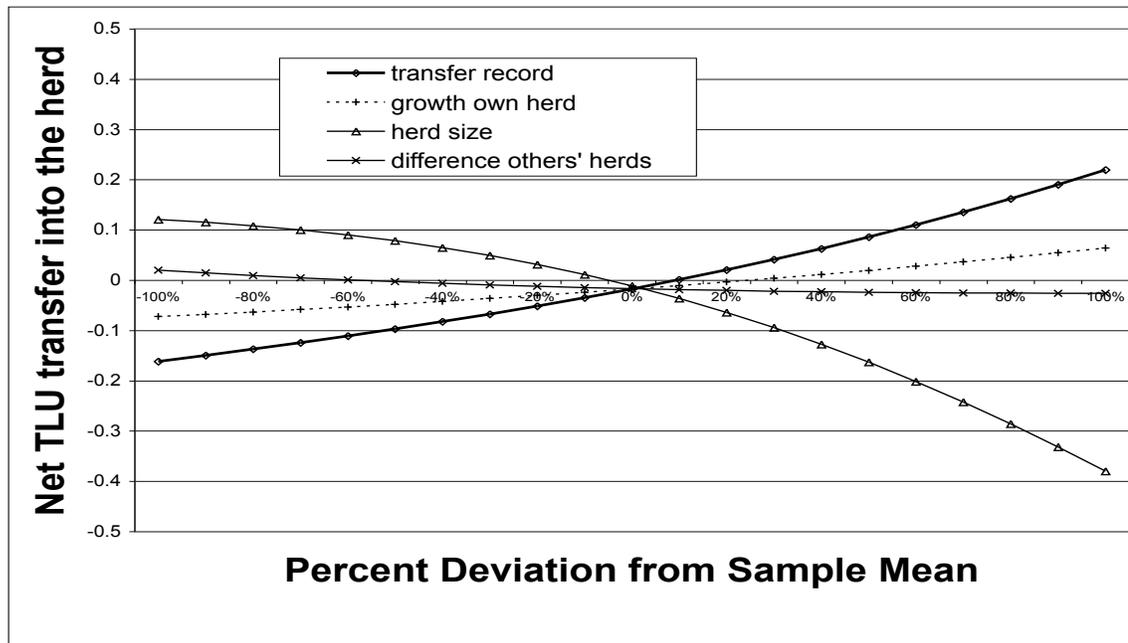
To put this in context, consider that the average herd size in surveyed households over all time periods was 29 TLUs (equivalent to 290 goats or sheep), herd losses during a drought in late 1996 averaged 12.2 TLUs per household (122 goats or sheep), and of the 8% of herders who reported herd losses to raiders from 1993-1997, the average household loss was 14 TLU per raid (140 goats or sheep). Alternatively, we can contrast the magnitude of transfers to that of herd growth, as the average herd increased by 0.5 TLU per three month period (5 goats or sheep) due to births and deaths in the household herd.

Econometric analysis of livestock transfer behavior reveals that transfers are conditioned on past transfer behavior. Those with a record of being net donors of livestock in the past are more likely to obtain transfers into their herd—all else equal—than herders with records of being past recipients. This is represented by the dark line labeled 'transfer record' in figure two. It is also the case that transfers into the herd are positively correlated with herd growth due to births and deaths in the household herd over the past year. That is, transfers do not appear to flow to herders after they suffer losses, but rather are obtained after recovery is already underway in the household herd. This is illustrated by the dashed line labeled 'growth own herd'. Household herd size does have a significant impact on transfer behavior, as herders transfer animals out of the herd when it is bigger and transfer animals into the herd when it is smaller as represented by the solid line with a triangle labeled 'herd size'. However, it does not appear that transfers are directly redistributive, as there is little evidence that transfers go from herders with larger than average herds to herders with smaller than average

herds within a given period as noted by the solid line with an x labeled 'difference others' herds'.

Practical Implications

Livestock transfers in this area are found to be limited in the help they give to households attempting to escape poverty or avoid poverty due to livestock losses. The existing informal practice of livestock transfers between households helps some, but the size of the transfers are extremely small compared to the size of the losses households suffer. In addition, help is not provided solely on the basis of need. Transfers flow to those who have helped others more in the past than they have been helped, and also to those whose herds are growing. The decision to transfer animals out of the herd seems most consistent with a risk management strategy—as a herd becomes large enough, a herd owner establishes or reinforces relationships with those most likely to be able to return the favor if the current period donor suffers a change in fortune in the future. Overall, herders don't seem to seek out those most in need of help, but rather they target those who have small but growing herds and a history of giving animals to others in the past.

One policy alternative is to target livestock transfers at those also targeted by informal assistance, under the assumption that the evaluation of other herders in the area about who is most likely to make good use of the transfer is correct. This would make sense if herders understand there is some kind of threshold in herd size above which one is drawn toward sustainable production and below which one is driven out of

livestock raising, and they target those at or slightly below this threshold. Another alternative would be to specifically target those excluded from the informal transfer mechanism directly with a long-term program of restocking, training, and support to help them escape poverty. The specific context would help determine which was more desired by the community, financially viable, and otherwise appropriate. In either case, it is clear that current transfers do not address food security crises, as they come at least a year after recovery has begun within the household herd.

Footnotes

[1] This brief summarizes the findings of a paper forthcoming in the Journal of Development Economics entitled "Confronting the Risk of Asset Loss: What Role do Livestock Transfers in Northern Kenya Play?" by the author of this brief.
[2] A TLU is a tropical livestock unit, corresponding to 1 TLU = 0.7 camels = 1 head of cattle = 10 sheep = 11 goats.
[3] The net transfer average is essentially zero.

Further Reading

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