



## Herd Dynamics, Social Networks, and Informal Transfers Among Southern Ethiopian Pastoralists

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*Previous empirical work by the PARIMA project found evidence of highly nonlinear cattle accumulation dynamics among the Borana pastoralists of southern Ethiopia, consistent with the hypothesis of poverty traps. We explore two critical, logically subsequent questions: (1) Do Borana pastoralists understand these dynamics?; and (2) If they do, what are the consequences for informal inter-household gifts and loans of cattle? Using original primary data collected among the same population, we find that Borana pastoralists accurately perceive observed herd dynamics and that these patterns appear to result from adverse weather shocks affecting primarily households of intermediate or better herding ability. This underscores the importance of asset protection in the face of unanticipated shocks and has consequences on the design of transfer arrangements. In particular, we find that cattle transfers respond to recipients' cattle losses, but only so long as the recipient's herd does not fall too far below the critical asset threshold at which herd dynamics bifurcate. Those who are or become destitute disappear from social networks and do not receive transfers in response to shocks, so that public safety nets are required for the poorest households as complements to, rather than substitutes for, informal private social safety nets.*

### Background

Pastoralism is a risky activity. Climatic shocks, in particular, drive a cycle in which drought typically leads to a sharp decrease in herd size that is followed by a process of slow accumulation as better climatic conditions return. Recent research shows that individuals face different prospects for recovery from shocks—and different long-run steady state herd sizes—depending on their initial livestock holdings. Pastoralists who start either relatively wealthy (with herd sizes at around 40 cattle) or poor (with herds of one cow) are near their steady state herd sizes and, so long as the herds of wealthier individuals do not suffer severe shocks, their cattle holdings recover relatively quickly after droughts. Those who are shocked below the estimated critical herd size of roughly 2 cattle/person (or 12-15 head per household), however, tend not to recover but, instead, to collapse towards the lower-level equilibrium herd size of one cow.

These dynamics suggest the existence of a poverty trap. Those in the low-level equilibrium are, on average, unable to grow their herds, mainly because they become involuntarily sedentarized and cannot easily accumulate cattle when they are unable to take advantage of spatio-temporal variability in forage and water availability through opportunistic migration.

Related work in northern Kenya (Barrett et al., forthcoming), as well as recent theoretical work (Zimmerman and Carter, 2003), suggests that the

existence of poverty traps and critical asset thresholds affects household risk-management behavior. For example, those near the critical threshold tend to increase savings (and reduce short-term consumption) in an effort to escape a collapse towards poverty.

Do poverty traps also affect the way people assist each other through gifts and loans that may attenuate the impact of a negative shock? Using detailed data on household characteristics, livelihood choices, and asset dynamics collected in four sites comprised of Borana residents in southern Ethiopia—the same ethnic group and area that Lybbert et al.(2004) studied—over 2000-2003 and including data from 2004 on social networks and transfers of cattle as gifts among these same households, we explore whether pastoralists perceive the cattle accumulation dynamics evident in herd history data and whether this affects social aspects of risk management.

### Major Findings

Using data on pastoralists' expectations of herd size transitions under different rainfall states—data and methods are described in detail in Santos and Barrett (2006a)—we establish that Borana pastoralists indeed appear to understand the cattle accumulation dynamics that characterize their system. Moreover, their responses suggest that multiple dynamic equilibria arise due to adverse shocks associated with low rainfall years, but

Table 1. Knowing and giving—a hierarchical relation for Borana pastoralists in the southern Ethiopian rangelands<sup>1</sup>

		Give gift to match		
		No	Yes	Total
Know match	No	65	3	68
	Yes	370	123	493
	Total	435	126	561

<sup>1</sup>Based on survey of residents in four locations. The entry “65” indicates that 65 of 68 respondents (96%) would not gift cattle to a person they did not personally know. The entry “123” indicates that 123 out of 493 respondents (25%) would gift cattle to a person they knew.

this is only for pastoralists of intermediate or better herding ability. Mainstream pastoralists therefore commonly need safety nets to help avoid a collapse into destitution when severe droughts hit.

Social transfers—gifts between households—are a longstanding means of managing shocks after the fact. But not all herders have equal access to such transfers. Table 1 displays data related to who knows whom (social network structure) and who helps whom (social transfer patterns). Three key facts emerge. First, not everyone knows everyone else, even in an ethnically homogeneous setting in which virtually everyone pursues the same livelihood. Second, social acquaintance is clearly a necessary condition for one’s willingness to make a transfer. People don’t give livestock to those they don’t know. Finally, mere acquaintance, although necessary, is clearly insufficient for mobilizing support. In just one quarter of the cases where the respondent knew the match was he or she willing to give an animal to the person. Plainly, the romantic image of homogeneous communities in which everyone knows everyone else and is willing to help everyone else is a fiction, at least in this setting.

Econometric analysis of the social transfers that do occur exhibit an interesting pattern that seems to reflect behavior in response to the existence of a poverty trap. Transfers flow in response to herd losses, but this effect depends heavily on the wealth of the prospective recipient household. If his or her wealth is too low—more precisely, below five cattle and thus in the vicinity of the low level equilibrium, signaling limited expected capacity to reciprocate in the future—then there is no expected transfer in response to herd loss. Only losses that leave an individual near the critical threshold, i.e., at a point where a modest transfer from another household

can nudge the recipient back onto a recovery and growth path, trigger social transfers. The social safety net seems to operate only for those households of moderate or greater livestock wealth and not for the poorest.

Wealth dynamics affect social transfers largely by conditioning a herder’s social network. Destitution (owning a herd that is persistently below 5 cattle) has a strongly negative and statistically significant impact on the probability of being known within the community. Since the possibility of receiving any assistance from others depends fundamentally on being known by others, as shown in Table 1, the social invisibility of the destitute explains much of their exclusion from social transfer networks. This is corroborated by other social science accounts that report exclusion from one’s community is a traditional way of responding to persistent destitution among east Africa pastoralists (Illife 1987, Anderson and Broch-Due 1999). As we argue, at length, elsewhere (Santos and Barrett 2006b), the triage that results from these two effects (transfers conditioned by ex-post wealth and social exclusion as a function of wealth) leads to a social safety net system appropriate to an environment characterized by poverty traps.

### Practical Implications

Wealth dynamics have a profound impact upon the structure of the informal institutions east African pastoralists use to manage risk. In particular, the existence of asset thresholds at which wealth and welfare dynamics bifurcate highlights the criticality of safety nets designed to catch people suffering shocks so as to enable them to recover and to keep them from falling into long-term destitution. Borana pastoralists recognize these patterns in their own descriptions of herd

dynamics and act in such a way that marginalizes those who are trapped in persistent poverty, concentrating transfers on those who are below, but sufficiently near, the unstable threshold for asset transfers to make a difference in terms of the recipient's viability as a pastoralist. The apparent social invisibility of the persistently poor appears to be the corollary of a safety net approach that necessarily involves triage.

This result clearly opens a window for public intervention in attacking persistent poverty, as it squarely addresses one

common criticism of outside interventions: that they “crowd out” private transfers, disrupting extant social transfer systems and failing to produce net positive transfers to the poor since those from outside the system merely offset those that would otherwise emerge within the system. While that may be true, up to a point, for some wealthier herders—although transfer volumes are quite limited, so the extent of any such displacement is questionable (Lybbert et al., 2004)—it seems untrue for poorer households.

### Further Reading

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The GL-CRSP Pastoral Risk Management Project (PARIMA) was established in 1997 and conducts research, training, and outreach in an effort to improve welfare of pastoral and agro-pastoral peoples with a focus on northern Kenya and southern Ethiopia. The project is led by Dr. D. Layne Coppock, Utah State University, Email contact: [Lcoppock@cc.usu.edu](mailto:Lcoppock@cc.usu.edu).



The Global Livestock CRSP is comprised of multidisciplinary, collaborative projects focused on human nutrition, economic growth, environment and policy related to animal agriculture and linked by a global theme of risk in a changing environment. The program is active in East Africa, Central Asia and Latin America.

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