



## Pastoralists' Use of Markets

John McPeak, Cornell University  
Pastoral Risk Management Project

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*Data collected in the drought year of 2000 from four sites in southern Ethiopia and northern Kenya are used to examine how market access influences livestock marketing behavior of pastoral households. Two sites had high market-access while two had low market access. We hypothesized that market access would be important in helping herders reduce drought-induced losses of stock. Across all sites livestock death rates were high due to drought. We confirmed that better market access was associated with higher rates of livestock sales and probably reduced losses. Better market access also gave opportunities to re-stock when ecological conditions improved. Market access is essential for improving pastoral welfare in our study region. Where market access is good marketing efficiency can be enhanced. Where market access is poor infrastructure investment should be a priority.*

### Background

Pastoralists in east Africa often face the possibility that there will not be enough forage to support their animals due to poor rainfall conditions. Pastoralists experience high livestock mortality during crisis periods when animals are not removed from areas with insufficient forage through sales or migration. Given the frequency of such losses and the widespread poverty in the PARIMA study area, it is natural to ask how future development efforts can help pastoralists avoid such losses during crisis periods. As mobility is discussed in a separate PARIMA Research Brief, we turn to the question of how markets can be used to adjust livestock numbers to changing forage conditions.

### Preliminary Findings

These preliminary findings are based on data gathered between March and December 2000 in 11 sites across northern Kenya and southern Ethiopia. Severe drought made this a difficult period in our study area. Median household herd size over this nine-month period decreased by 25% in Ethiopia and 44% in Kenya. The overall livestock sales rates for households were relatively high by pastoral standards. The annualized sales rate in Ethiopia was 22% and in Kenya it was 12%. However, even with these high sales rates, the observed decrease in herd size was due more to mortality than it was to sales. The annualized death rate in Ethiopia was 43% and in Kenya 53%<sup>1</sup>.

Use of markets differs among the study sites, with market access being a key determinant of market use. This is illustrated by considering the following graphs that

contrast high market-access sites, Finchawa in Ethiopia and Ngambo in Kenya,<sup>2</sup> with low market-access sites, Dillo in Ethiopia and Kargi in Kenya. The graphs depict data from surveys fielded<sup>3</sup> during June 2000 (or 0600 in the key), September 2000 (0900), and December 2000 (1200) with respect to three different livestock variables: birth rate minus the death rate (br-dr), sales rate (sales), and purchase rate (purchases).

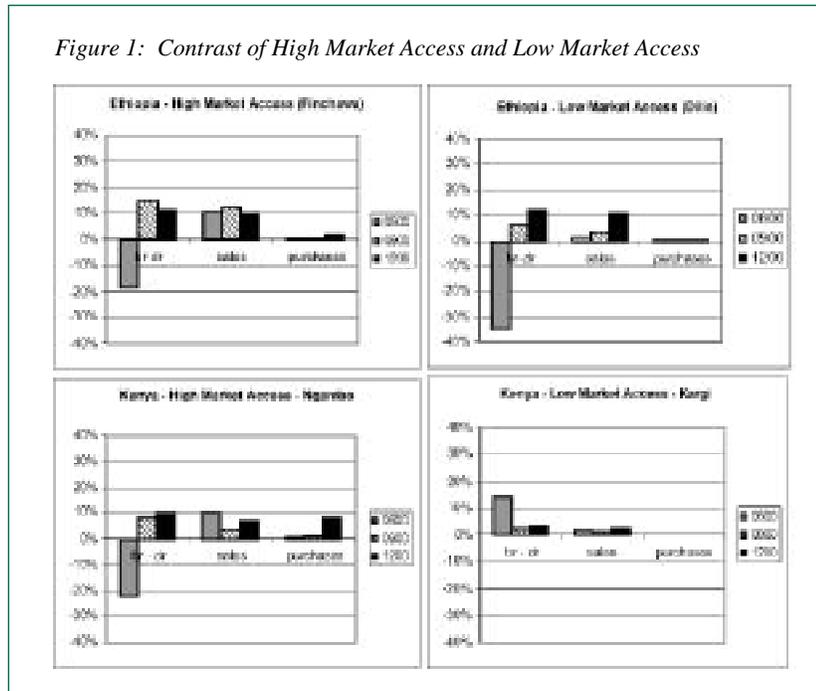
The first implication of these graphs is that, perhaps not surprisingly, higher market access is associated with higher sales rates. On average, the annualized sales rate in the two higher market access sites is 37%, compared to 14% for the two lower access sites.<sup>4</sup> More importantly from a risk management perspective, the ratio of the sales rate to the death rate in higher market access sites is 66%, compared to 24% in the lower market access sites.<sup>5</sup> Finally, we see that particularly in Ngambo, the market is being used for both de-stocking (sales are highest when the birth rate minus the death rate is lowest) and restocking (purchases are highest when the birth rate minus the death rate is highest).

### Practical Implications

Market access is a critical factor influencing market participation and risk management by pastoralists. Pastoralists with better market access sell livestock at a higher rate. Marketing played a greater role in modifying herd sizes in high market access sites than in low market access sites during the drought of 2000. Finally, pastoralists with high market access were able to use the market for self-restocking.

The data from the high market-access sites indicates current market structures are not perfect. Death rates still dominate sales rates and restocking through markets is only significant in one of the sites. However, it is clear that better market access does lead to higher market participation and better risk management. These preliminary findings suggest that the welfare of pastoralists in areas where market access is already high will be improved by investing in measures that increase market efficiency. Welfare of pastoralists currently poorly served by markets will be improved by investing in basic marketing infrastructure.

Figure 1: Contrast of High Market Access and Low Market Access



#### Footnotes

<sup>1</sup> Measured in Tropical Livestock Units (TLU), where 0.7 camel=1 head of cattle=11 goats =10 sheep.

The annualized figures are obtained by multiplying observations for a nine-month period by 4/3.

<sup>2</sup> Both Finchawa and Ngambo are on tarmac roads, while Dillo and Kargi are not.

<sup>3</sup> Sample specific averages are reported for the three-month period preceding the date the survey was fielded.

<sup>4</sup> This is computed by multiplying the average of the six observations (two sites and three periods per-site) of three-month period rates by four. It is also true that the sales level per-period is higher in the high market access sites (0.6 TLU per-period) than in the low market access sites (0.4 TLU per period).

<sup>5</sup> The annualized average mortality rate is roughly the same on average; 56% for the high market access sites and 53% for the low market access sites.

**About the Author:** Dr. John McPeak is a post-doctoral associate in the Department of Applied Economics and Management at Cornell University, Ithaca, New York, USA. He has been based in Marsabit, Kenya, for PARIMA. Dr. McPeak has special interests in resource and development economics. His email address is J.Mcpeak@cgiar.org until June, 2002, and afterwards can be reached care of Dr. Chris Barrett at cbb2@cornell.edu.

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.



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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