

LIVESTOCK TRADE IN KENYA AND ETHIOPIA (LITEK)

NARRATIVE SUMMARY

Livestock marketing is critical to development of arid and semi-arid lands in Kenya and Ethiopia. Donors are showing renewed interest in funding livestock marketing activities. Livestock market improvement offers the potential to reduce poverty in areas that are identified as the poorest in these countries. Such activities also allow donors to move from a “relief” mode to a “development” mode in dryland areas, as there is growing frustration with dryland activities being in permanent “relief” mode. However, the research community is not currently able to provide donors with clear and specific information to use in designing livestock marketing activities. It is not at all clear how research findings at the macro, meso, and micro levels are to be reconciled and used in program design. It is also not clear how markets should be designed to meet marketing needs in both “normal” and “crisis” periods.

What is missing is an overall sense of how interventions at different levels of the economy and under what prevailing conditions fit together spatially and over time, how they should be prioritized, and how they should be sequenced. While changes at all levels are needed, where should we start? How will changes at one level influence changes at a different level? Are any types of interventions pre-conditions for success of other interventions? Most specifically, can we be sure that changes in the market structure at higher levels will lead to poverty reduction at the household level? Can we be sure that potential benefits to changed market conditions at the local level will not be unobtainable due to blockages at higher levels? Can we identify policies at the international level that will encourage trade, or are currently inhibiting trade? Can we be sure that market interventions designed for normal times are flexible enough to address needs in crisis periods? The goal of this project is to begin developing an

understanding of livestock marketing in Kenya and Ethiopia. The outcome will be the publication of these various insights, and the provision of a set of recommendations to donors interested in livestock market development.

Previous project efforts involved holding a priority setting workshop in Nairobi in August 2003. The proceedings of the August 11-13, 2003 workshop held in Nairobi are available at: <http://faculty.maxwell.syr.edu/jomcpeak/marketworkshoppage.htm>. Project efforts last fiscal year focused on selecting and funding six targeted studies that investigated livestock marketing issues in Kenya and Ethiopia based on the outcome of the deliberations at the workshop as noted in the 2004 annual report. Efforts were also made to approach researchers who are involved in market research in this area and funded by other projects to invite them to contribute a chapter to an edited volume.

Over the course of the current fiscal year, twelve chapters (six funded, six contributed) have been reviewed, revised, edited, and formatted by the editors John McPeak and Peter Little. Chapters went through at least two rounds of revisions in response to comments by the editors. An introduction was written by McPeak and Little, and a conclusion by McPeak, Little, and Demment was also completed for a total of 14 chapters (see Research section below). Over the course of the spring and summer of 2005, we initiated discussion with ITDG publishing concerning this book and negotiated terms for the publication of the volume. In the summer we were informed that ITDG publishing was interested in publishing, and was willing to commit to this pending peer review of the volume. We anticipated delivery of this volume to the publisher by the end of the fiscal year on September 30, 2005 in the work plan and in our negotiations with ITDG. Given

some inevitable delays in assembling the contents, this deadline was not possible to meet with the final version. However, the final version was sent to the publisher on November 1st, 2005 and is currently in the hands of the publisher undergoing production.

RESEARCH

The material in this section is drawn from the contents of the submitted manuscript. The title of the book is: *Livestock Marketing in Eastern Africa: Research and Policy Challenges*, by John G. McPeak and Peter D. Little (editors). The book will be published by ITDG Publishing. Anticipated publication date is April 2006, estimated length is 250+ pages, and estimated list price is US \$ 29.95.

The chapter titles and their authors are as follows:

- Chapter 1: Introduction, by Peter D. Little and John G. McPeak.
- Chapter 2: Household-level Livestock Marketing Behavior Among Northern Kenyan and Southern Ethiopian Pastoralists, by Christopher B. Barrett, Marc F. Bellemare, and Sharon M. Osterloh.
- Chapter 3: Livestock Marketing in Marsabit District, Kenya, over the Past Fifty Years, by John G. McPeak.
- Chapter 4: Determinants of Market Prices of Livestock: The Case of Cattle in Alemaya, Eastern Ethiopia, by Teresa Adugna.
- Chapter 5: Livestock Market Organization and Price Distributions in Northern Kenya, by Alan M. Green, Christopher B. Barrett, Winnie K. Luseno, and John G. McPeak.
- Chapter 6: Determinants of Cattle Prices in Southern Kenya: Implications for Breed Conservation and Pastoral Marketing Strategies, by Maren Radeny, Patti Kristjanson, Eric Ruto, Riccardo Scarpa, and Jacob Wakhungu
- Chapter 7: Linking Pastoralists and Exporters in a Livestock Marketing Chain: Recent Experiences from Ethiopia, by Solomon Desta, Getachew Gebru, Seyoum Tezera, and D. Layne Coppock.

Chapter 8: Innovations in Pastoral Livestock Marketing: The Emergence and the Role of 'Somali Cattle Traders-cum-ranchers' in Kenya, by Hussein A. Mahmoud.

Chapter 9: The Geography of Integration: Cross-border Livestock Trade in East Africa, by Fred Zaal, Morgan Ole Siloma, Rachel Andiema, Albino Kotomei.

Chapter 10: Working Across Borders: Methodological and Policy Challenges of Cross-border Livestock Trade in the Horn of Africa, by Peter D. Little.

Chapter 11: A Review of Policies and their Impact on Livestock Trade in Ethiopia During Three Regimes (1965-2005), by Yacob Aklilu.

Chapter 12: Livestock Market Information Systems for East Africa: The Case of LINKS/GL-CRSP, by Jerry Stuth, Abdi Jama, Robert Kaitho, Jimmy Wu, Abdirahman Ali, Gatarwa Kariuki, Margaret Kingamkono.

Chapter 13: Pastoralist Coping Strategies and Emergency Livestock Market Intervention, by John Morton.

Chapter 14: Policy Implications and Future Research Directions, by John G. McPeak, Peter D. Little, and Montague W. Demment.

Biographic and contact information about contributors is listed below in Personnel section of this report.

The following description of the contributions is drawn from chapter one of the volume.

The ordering of the chapters follows a conceptual division: we move from the household level, to the market level, to the issues of connections between markets, to national policy implications. The final two contributed chapters place specific emphasis on key interventions that are currently being formulated at the program level that could be scaled up to the national or even international policy level.

Chapters one and two mainly address household/micro-level dimensions of marketing. Chapter 2 by Barrett et al is based on data collected by the Pastoral Risk Management (PARIMA) Project of the GL-CRSP in Kenya and Ethiopia from 2000 to 2002. This chapter asks fundamental questions about what constrains households from selling more

animals. Analysis of this household level data is used to assess various hypotheses as to what kinds of investments should be made in arid and semi arid lands to improve livestock marketing systems. Critically, they find pastoralists are indeed quite active participants in livestock markets, and argue that many of the hypothesized constraints to pastoral involvement in markets are not supported by the evidence. They suggest that helping pastoralists build and keep herds by supporting viable pastoral production, improvements in institutional and physical infrastructure, and modifications to market institutions offer the most promise for stimulating livestock marketing and improving pastoralists' well being.

McPeak's Chapter (3) investigates long term changes in marketing behavior in Marsabit District, Kenya. Given the 'boom and bust' cycles in livestock populations, he argues it is important to develop a long-term understanding of marketing behavior to reveal what, if any, long term changes are occurring that may be masked by more volatile changes induced by livestock population dynamics. He reports the overall level of sales from the district and the livestock: grain terms of exchange do not appear to exhibit any long term trend. However, household level evidence suggests that sales rates have increased since the late 1960s. The data suggest herders sell more at a given herd size, but this impact has been offset by an overall decline in herd sizes. The findings indicate that: marketing policy needs to be designed both with short term fluctuations in mind and with long term objectives; there is little justification for increasing marketing in order to reduce aggregate herd size in this area; there is little evidence that existing alternative investments are more attractive than livestock keeping; and the goal of increasing revenue per animal sold rather than simply increasing the number of animals sold should be the objective of improving livestock marketing.

Three studies of price formation in livestock markets are contained in the volume. Adugna's chapter (4) is a study of price formation in a cattle market in eastern Ethiopia. He focuses on changes in the price per kilogram liveweight of animals rather than price per head. He presents evidence indicating that animal condition, age, and weight

play significant roles in determining price per kilogram. In addition, the reason for purchase and the characteristics of the seller influence price. Finally, he notes that time of day and time of year influence the price that producers obtain for their animals. These findings provide a set of information that can be extended to producers to allow them to improve their production and marketing strategies to increase the benefits they obtain from marketing their animals.

Green et al in Chapter 5 investigate price formation in four northern Kenyan livestock markets for cattle, goats, and sheep. They find that both the mean price and price variance are influenced by animal characteristics, seller and buyer characteristics, seasonality, and market characteristics. They focus most analysis on the role of market characteristics, as these are most amenable to policy intervention. They present evidence indicating that introducing auctions is an effective way to increase pastoralists' income, as is improving market competitiveness by reducing transport bottlenecks. They find there is no evidence to suggest that market fees, availability of veterinary inputs or services, or availability of feeds increases market prices.

Radeny et al in Chapter 6 investigate determinants of cattle prices in seven livestock markets in southern Kenya. They report price formation is influenced by: where the market is in the market chain that brings livestock from producers to consumers in Nairobi; the purpose of purchase; whether or not it is a drought year; and animal specific characteristics. They place particular emphasis on the latter, as they find that there is currently no market incentive to conserve the Maasai Zebu breed, so that in situ conservation efforts of this genetic resource may have little impact. They also present information that can be used in developing an extension program to help producers target markets more effectively. Information on how animal characteristics impact price and price differences depending on market type can be used to help producers better define marketing strategies.

Desti et al in Chapter 7 develop this theme on linking producers to more remunerative markets as a way to increase their revenue. They describe recent efforts to actively link producers to better markets

in the rangelands of southern Ethiopia. There has recently emerged a flow of sheep and goats from the rangelands of northern Kenya and southern Ethiopia towards Addis Ababa, where many of these animals are sold onward in export markets (an issue also prominent in Chapter 11). A combination of seminars, exchange tours, support for groups, and a credit program were used to support participants in this emerging livestock market chain. This case study illustrates that through coordinated action over time livestock produced in pastoral rangelands can obtain a higher price by accessing particular market niches. They note both the promise and the difficulties of such an approach as revealed by their recent experience in the Borana plateau.

Chapter (8) by Mahmoud also illustrates the process by which pastoralists and traders can be linked to access more lucrative markets, although in this case study traders are transforming themselves into ranchers by leasing land strategically located near the Mombasa, Kenya market. In this study Somali traders from Garissa District, Kenya are shown to be increasingly concentrating their efforts on the growing Mombasa markets where they have strong cultural and religious (Islam) affiliations with butchers and slaughterhouse owners. To capture more value from this trade, pastoral traders have leased several ranches near the Kenya coast and have begun to fatten immature cattle purchased from the rangelands, to sell at the upper end of Mombasa and Nairobi markets. With added success in these enterprises, some lease owners are beginning to turn to full-time ranching and reduce their purchases from pastoral herds in the northeast. Mahmoud speculates in the chapter's conclusion that this trade in high-quality beef may launch the area into the even more demanding, overseas export trade.

Issues of cross border trade implicit in many of the earlier chapters are the explicit focus of Zaal et al in Chapter 9. They describe how cross border livestock trade operates within a policy vacuum and with mainly informal institutions. They contrast cross border livestock trade between Kenya and Uganda with trade between Kenya and Tanzania and show that the former is strongly shaped and frequently disrupted by widespread violence, often ethnic-based. They find in both areas that trans-

border trade appears to be most beneficial for larger traders who have considerable capital for animal purchases and paying high transport costs, as well as control well-developed networks that are needed to be successful in such a risky business. The trade itself only minimally impacts producers and most small-scale merchants are restricted to local, low-priced markets. In the conclusion Zaal et al point out the need for improved market coordination by private sector actors and increased public-sector investments in security, transport, and market infrastructure.

Cross-border trade is also a theme highlighted in Chapter 10 by Little. Herders who raise the livestock that enters cross border marketing networks often have little understanding of such market networks. Given official neglect, or even opposition, to such trade, it is often the wealthiest who are able to use their position of power to benefit from the opportunities created by cross border marketing incentives. Drawing on his long-term research along the Kenya and Somalia borderlands, Little outlines how cross border trade presents particular challenges to both research and policy making. Methodological innovations, such as key actor interviews, opportunistic sampling with an assortment of actors, and participant observation, are required. In the conclusion, Little suggests that the first policy tactic for researchers and practitioners should be educational: to inform policy makers about the activity's scale and importance to local and national economies. Policies that acknowledge and encourage regional trade across borders—rather than discourage it—can strengthen local food security; increase collection of state revenues and investments in key market and transport infrastructure; and reduce price volatility and market imperfections.

Alkilu in Chapter 11 provides a broad overview of the interaction between policy and livestock marketing in Ethiopia. In particular, he describes how rapid policy shifts brought about by sudden changes in government have had significant impacts on livestock marketing. He places particular emphasis on how policies have impacted export oriented livestock marketing. In the final section of the chapter, he describes two recent programs that are of particular interest for the focus on cross border trade. In one case, the design of the project does not appear as if it will lead to any significant improvement

in livestock marketing. In the second case, there is reason to be hopeful. Aklilu also brings out a theme that underlies many of the other contributions in this volume – it is almost impossible to talk about improving livestock marketing in this area without also improving livestock health care. Policy makers must seriously consider re-engaging with the animal health sector and combining improvements here with efforts to improve livestock marketing.

The final two chapters discuss two issues of critical importance in current policy debates. Chapter 12 by Stuth et al describes the development of a livestock information market system in this region. They present the historical record of such systems in the area, noting they have not been particularly successful. They illustrate how recent advances in technology may allow a breakthrough addressing one constraint that has long bedeviled developing such systems – the time taken to gather, transmit, process, and disseminate information often means the information is of little value by the time it is delivered. They describe an approach to collecting and disseminating information on a broad set of factors that can influence marketing behavior that is designed to improve the connection between livestock producers and markets, improve the well being of participants in livestock markets, and improve market efficiency through improved decision making.

Morton's contribution in Chapter 13 analyzes the recent trend towards using livestock marketing as a crisis period intervention. After carefully considering what is meant by coping with a crisis, he turns to the question of the compatibility of such programs with traditional crisis period coping strategies. He suggests that the key issue is to insure that emergency livestock marketing interventions do not compromise pastoral mobility, the main risk management mechanism (both in drought and non-drought years) practiced by herders. While the evidence is still limited, there are cases from Kenya that Morton argues show that crisis-based marketing interventions increased sales and allowed some herders during a drought to recoup some value through sales. In terms of project design, the chapter suggests that the importance of mobility as a coping strategy implies a need to work closely with local

pastoralists and private traders and incorporate their views on appropriate sites for purchasing, rather than with marketing agencies who might prefer to buy animals in market places distant from key seasonal grazing and water points.

Finally, in the book's last chapter (14) McPeak, Little, and Demment summarize the policy implications of the studies presented in this volume and identify critical areas needing further research. It ties together several of the key policy findings of the different chapters. The authors also describe what we currently know about livestock marketing in eastern Africa and what research questions remain to be answered.

GENDER

First, three of the research efforts listed above have been led or had significant input made by women (Patti Kristjanson, Winnie Luseno, Sharon Osterloh, Maren Radney) and one also involved women enumerators (Eunice Lepariyo and Sarah Hirbo collected some of the data used in the chapter led by Winnie Luseno). These impacts are worth noting, as markets tend to be male dominated, so the presence of female enumerators and researchers in these markets has to some extent challenged existing gender roles, and secondly, since the literature on livestock markets tends to be written by males, this also challenges existing gender roles in the academic world.

More explicitly, the focus of research on market functioning and group formation will identify the role currently played by women participants, and also address the potential for increased involvement of women in markets. This is most directly addressed by the study of group formation in southern Ethiopia led by Layne Coppock, as many of these groups are women's groups involved in smallstock marketing.

POLICY

As noted above, many of the findings are of direct importance to policy makers. We draw on the concluding chapter (14) of the volume to make the following points.

History matters. Government efforts to transform pastoral production into commercially-oriented enterprises and directly intervene in livestock markets have a history in eastern Africa dating back to the colonial period. For at least the past 50 years, policy makers have assumed that pastoral lands are overstocked and degraded and thus contain an abundant 'surplus' of animals that can be tapped through market incentives. The political actors, ideologies, and regimes have changed but the same basic story still persists—pastoralists need to sell more animals! In subtle and not so subtle ways, this volume challenges this old assumption that there is an untapped supply of animals on the rangelands that beg to be marketed. The editors of the volume don't believe the difficulty in increasing the sales volume reflects cultural attitudes toward marketing or animals, but rather the realities of pastoral production in these areas: herds are 60 to 70 percent female, herd losses of up to 50 percent over a period of a few months are disturbingly common, and there is growing evidence that there are thresholds in household herd size below which families are more likely to be driven over time towards total stocklessness than towards recovery. Instead, what the chapters in the book show is that while there may be small, incremental increases in herd off-take rates and aggregate sales volume in response to changing marketing opportunities, greater potential lies with the direction of animals towards markets where they obtain a higher value as traders and herders respond to new market opportunities. This would allow producers to improve their well being by redirecting animals from local to regional markets, or even to international markets, though the aggregate volume of marketed animals may stay the same or change only marginally. In short, the studies contained in the book indicate it is easier to identify policies and market opportunities that allow producers to 'sell better' rather than 'sell more'.

'Selling better' appears possible given the findings reported in the book. As noted in the chapters by Green et al, Radeny et al, Zaal et al, and Little, herders presently retain 50 percent or less of the terminal market price. This would suggest that there is room to improve the producer price by increasing market efficiency. What policies are suggested by

the studies of the volume to allow producers to 'sell better' and capture more of this share?

New opportunities may also bring about changes in production techniques that could eventually lead to increased volumes, as in the case of the ranches Mahmoud discusses forming in coastal Kenya. As we will note below, there are coordinated policies that can be implemented to change the production environment at a larger scale, thus creating the potential for increased sales volume. But for the most part what the studies in the volume find is that for the immediate future new market opportunities and changing policies create market opportunities that can be seized upon by selling animals at more remunerative prices, as illustrated by Desta et al and Zaal et al.

Macro policy matters. Macroeconomic policy making influences the market opportunities that are available to producers. This is perhaps most clearly brought out in the chapters in the middle section of the volume considering export marketing and cross border trade. The patterns of live animal and meat exports appear very sensitive to decisions made in capital cities, which is most clearly illustrated in the chapter by Aklilu. In this and other related chapters, it is clear that the controls the Ethiopian government placed on meat prices and marketing in the 1980s redirected animals to cross-border markets in neighboring countries. In addition, as Zaal et al and Little note, the flows of cross border trade are influenced heavily by the prevailing economic conditions and policies in the bordering countries. The flow of trade across a border can change direction, or even as noted by Desta et al flow in one direction for some species while in another direction for another species in reaction to different policies and economic opportunities.

Current policies regarding cross border trade in livestock and livestock products are not clear or consistent. The legal ambiguities increase inefficiency and the potential for markets to be disrupted by rent-seeking behavior. At the regional level, there is a need for the countries of this region to agree on an approach to cross border trade that will reduce the risks faced by participants. This type of agreement is of course easier discussed than implemented

given the political realities faced by countries in this region. In addition, as Aklilu stresses, little can be done with cross border marketing without also addressing veterinary policy. As the countries of this region revisit veterinary policy, it would be sensible to harmonize to the greatest extent possible these policies to minimize potential conflict.

Markets are very dynamic. The markets described in the volume are not static. They are changing, adapting, evolving markets. They are shaped by a number of opportunities and constraints which often occur outside the country where the animals are produced. As noted above, there are examples of cross-border livestock flows being quickly redirected; trade and production for high-value urban niche markets being rapidly transformed; and growth in chilled meat exports affecting local market arrangements in southern Ethiopia that confirm the dynamism of the trade. Policy will need to be adaptive and forward-looking, and research will need to be ongoing. There are emerging opportunities that can be identified by a clever marketing strategy and we predict there will continue to be opportunities that flexible and timely decision making will be able to exploit. On the other hand, as brought out by Aklilu, opportunities will not always last if not exploited, so that inaction may result in other market participants taking advantage of the opportunity, leaving domestic producers shut out of markets they could have benefited from if policy makers had taken a more facilitative stance.

Improved information delivery is possible. Given advances in technology, Stuth et al describe how it is possible to collect and deliver information on these changing market opportunities to producers at markets in remote areas in ways that were never before possible. The image of the small-scale trader at a distant border market receiving market information from a partner based more than 500km away or reading a text message on a mobile phone delivered from an automated server is likely to become an increasingly common fixture in key markets. The possibility for timely action in response to information about distant market opportunities is created by this flow in information.

Since information flow is a component of market functioning, the changes in technology that delivers market information readily to market participants may be an important force in shaping the structure and dynamics of future pastoral markets.

Capacity to act on information is critical and needs support. Collecting and delivering the information does not always mean people will be able to act on it, however. Capacity building among producers and in production areas will be needed to translate this information into improved well being. As noted by Barrett et al, producers are relatively well informed about prices in local markets. And Green et al discuss results indicating access to information about prices does not translate into higher producer prices. If producers are not able to access distant markets it is unclear what benefit they will derive from improved information about these markets.

This is where capacity building plays a critical, complementary, role to information delivery. Desta et al. present one possible model for such efforts, as training and support for alternative income generation activities by creating trading groups allowed these groups to take advantage of new opportunities. Mahmoud, Zaai et al, and Little present evidence that in the absence of such efforts, the largest share of the benefits of improved information is likely to accrue to large scale, formal sector traders. However, even this situation may increase the value of livestock marketing overall, and still have some benefits for producers as well. More research contrasting the benefits and costs of producer groups forming to market livestock with existing trader networks will help define the kinds of policies that should be adopted.

The livestock market is composed of many different types of markets. Many of the chapters of the book point out that we are not looking at 'a livestock market', but really many different sub-markets in the livestock sector. Spatially, it is clear that markets in different areas do not operate in the same way, as can be seen by contrasts between Adugna, Green et al and Radeny et al and within different markets in a given area as stressed by Green et al and Radeny et al. There appear to be

major differences in the price obtained for animals with identical characteristics depending on where the animal is sold. One aspect of this is that locally defined marketing institutions can influence price formation as described by Green et al. Specifically, the auction based market delivers higher prices to producers, although it should be noted that Zaal et al indicate trader groups frequently seek to undermine efforts to introduce auctions. In addition, local markets differ in how prices are formed. The three studies on price formation in markets allow greater understanding of the relative impact of different animal characteristics on pricing in the specific local setting. With appropriate extension effort, these findings will allow livestock producers to better formulate herd management and marketing strategies, including potentially the formation of marketing groups as discussed above in order to obtain access to distant markets that offer higher prices. Price information systems may further support such marketing strategies as groups develop greater leverage with traders

It is also evident that within a given physical market location, specific sub markets operate. All three pricing studies find that the characteristics of the buyer and seller impact the price. Whether this is because there are qualitative differences in the animals in these different sub-markets that are not recorded or because there are differences in the nature of the negotiation between the buyer and seller remains as a topic for further research. Evolving market information systems based on animal condition and price, such as LINKS, may provide long-term market data that will allow such analysis. Another aspect of sub-markets existing within a given physical market is noted by Radeny et al and Zaal et al. Animals sourced from different areas and destined for different segments of the meat market are moving side by side through the overall marketing chain. This offers some opportunities for obtaining access to higher value market chains even in remote areas as the connection to higher value markets already exists for some producers operating in these areas.

The production environment plays a major role in marketing patterns. Barrett et al and

McPeak stress the fact that household herd size is one of the main determinants of household marketing behavior. Herd size in this production environment is highly variable, due to 'boom and bust' dynamics. Given this finding, the argument that increased market volume can be used as a mechanism to regulate herd size appears to be getting it completely backwards. Rather, the evidence suggests changing herd size is one of the main driving forces behind changing market volumes, and if market volumes are to increase, it will require an increase in herd size under current conditions and practices.

This is not to say that offtake rates are immutable. As McPeak notes, over a longer period of time, offtake rates in Marsabit District appear to have almost doubled. However, the fact that herd sizes in the area he studies are by historical standards quite low means that the overall sales volume from the district has shown no overall upward trend over the past half century. While it may not be the case for all rangelands in the area that herd sizes are relatively low by historical standards, the evidence suggests this is the case for northern Kenya and southern Ethiopia. These low herd sizes have dampened whatever increase in volume would have come about by increased offtake rates and increased market orientation by producers. At the same time, as noted in McPeak's chapter, increased market integration has allowed herders to meet subsistence needs with these smaller herds that would not be possible to meet by directly consuming livestock and livestock products.

In a related fashion, Barrett et al argue that efforts to diversify the economy in pastoral areas is likely to lead to lower, rather than higher, sales volumes over time. As alternative options to generate income develop, reliance on livestock is likely to decline. As they point out, this may have positive implications for welfare of residents of these areas, but does caution that increased sales volumes may be less likely in the long run in more diversified economies. This also is a topic meriting further research.

As we noted above, we believe major constraints to 'selling more' lie in a constellation of factors influencing the production environment. Improved production technologies that reduce risks could

positively change the production environment, but also present some challenges. As noted by Morton, producers appear to be very interested in veterinary inputs during crisis periods (consistent with the indirect evidence on the interaction between veterinary supplies and price in Green et al), but as Aklilu notes veterinary policy is not currently well defined in Ethiopia and our own work in Kenya suggests major improvements could be made there as well. It would seem that better veterinary programs would at least partially address some of the 'boom and bust' dynamic in pastoral production in these countries because of the strong interaction between nutritional state, migration strategies during dry periods, and disease infection and response. Changing breed composition to improve marketability is another possible production strategy noted by Zaal et al and Radeny et al, although the latter study notes how this strategy presents problems for breed conservation. Zaal et al suggest different breeds may be entering different sub-markets, with improved breeds being sold in the highest value added sub-market. Improved feed availability is another production technology available, though Green et al report that it does not appear to have a positive impact on prices at local markets. However, Mahmoud presents an interesting response to this situation in coastal Kenya, as traders have taken to developing fattening ranches of their own initiative. Clearly the availability, feasibility, and drawbacks of alternative improved production technologies in this environment merits further research.

That said, if improved marketing systems and production technologies are to alleviate poverty and improve the general welfare of herders, they must not compromise the main pastoral production and risk management strategy which is mobility. The discussion by Morton on how markets and mobility can be made compatible in emergency periods contributes to developing policies that allow flexibility in marketing without compromising flexibility in mobility. This issue is also implicit in many of the other studies, where the objective is to develop ways to improve markets without jeopardizing pastoral production systems. Barrett et al present a strong argument in their conclusion that mobile pastoralism continues to be the most viable

activity possible in the arid and semi-arid areas they study, and McPeak argues that it remains the core economic activity of the area he investigates for the past half century and no viable alternatives appear poised to challenge it.

OUTREACH

There is no explicit outreach component of this project. We do however provide an opportunity for Desta et al to articulate their outreach and research effort to a wider audience.

DEVELOPMENTAL IMPACT

Environmental impact. If we accept that livestock accumulation and low sales rates have an adverse environmental impact, improving market efficiency should reduce pressure on rangeland resources. As indicated above, there is reason to doubt the logic of this relationship. Instead, the research findings of this project indicate that improved livestock marketing will not automatically take care of environmental problems. Instead, direct, explicitly defined environmental efforts will need to be formulated.

Agricultural sustainability. Livestock marketing is a good example of the type of intervention that is extremely sustainable over time. Livestock marketing exists in the area, and has existed for quite some time. Clearly people are buying animals produced in livestock raising areas, and clearly people in livestock raising areas are selling animals in the market. The question is how do we reduce inefficiencies in this market to improve market functioning and improve the well-being of agricultural producers. There are very few physical inputs required, and not all that many capital costs. It is a question of finding out what is working, and identifying how to build upon success and eliminate inefficiency.

Contributions to US agriculture. There could be a few ideas on market efficiency or crisis period mitigation that have some relevance to US livestock production areas as we go forward. From a methodological standpoint, the discussion of

research methods for cross border livestock trade could have some applicability in the US, as could some of the price decomposition methods used in the market pricing studies.

Contributions to the host country. More than half (18 of 32) of our contributors are citizens of countries in eastern Africa and more than a third (13 of 32) are based in the eastern Africa region. Three chapters are sole authored by African researchers. This type of professional development and exposure allows recognition from outside of the host country of the contribution made by host country researchers. This project has also provided research opportunities that illustrate researchers who remain based in the host country or return to the host country after their studies will not be left out of future research projects conducted by international teams.

Linkages and networking. The contributors to this volume are based in seven different countries at twenty different institutions. We see this type of collaboration as extremely important, and have found that it leads to strong collaboration over time.

Collaboration with international research centers and other CRSPs. One project was awarded to a team based at the International Livestock Research Institute. In addition, major contributions have been generated from the PARIMA team and the LINKS team. Chris Barrett has also obtained some support for these efforts from his SAGA funds from USAID.

OTHER CONTRIBUTIONS

Support for free markets and broad-based economic growth. This is a project based on improving market functioning by identifying and reducing inefficiencies through targeted research. Livestock raising is the key economic activity in arid and semi-arid areas. Improving livestock marketing offers the only viable potential base for a future of broad based economic growth in this area. While other activities will undoubtedly be important to the economic future of arid and semi-arid areas, none will be possible without ensuring the health of the core economic activity of livestock raising and marketing.

Contributions to and compliance with mission objectives. USAID is trying to move interventions in pastoral areas from “relief mode” to “development mode”. They are looking at ways to ensure mission activities contributes to building a viable economic future that prevents humanitarian crises rather than address immediate humanitarian needs in ways that do not head off future crises. That is also the aim of this project.

Concern for individuals. Livestock marketing offers a way to build an economic future for areas that contain the poorest of the poor, and are marginalized in the national economy. We are identifying ways to improve the economic opportunities facing the individual livestock producer, and also the prospects for other individuals involved in different parts of the marketing chain.

Support for democracy. There is nothing explicitly in the project that addresses support for democracy, however the alleviation of poverty and the reduction in risk associate with improved markets is certainly an important step to set a favorable environment for democracy.

Humanitarian assistance. The research focuses on how livestock markets function during crisis periods and also how markets function to help people recover from crisis periods. The goal is to identify how to use market based interventions to minimize the need for humanitarian assistance that takes place outside normal marketing channels. This will both increase the sustainability of future crisis period interventions and reduce their unintended impacts on market functioning.

COLLABORATING PERSONNEL

Ethiopia

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