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Making decisions without reliable information: The struggle of local traders in the pastoral meat supply chain

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ABSTRACT

In Sub-Saharan Africa, arid and semi-arid rangelands are mainly used by pastoral communities for livestock production. In northern Kenya, these communities predominantly sell sheep and goats to local traders who connect them to different markets. This pastoral livestock supply chain is characterized by inadequate market information, without which it is difficult to improve the coordination of seller–buyer activities. This paper examines the information needs and constraints of producers and different categories of traders. Semi-structured and narrative interviews were conducted with 15 producers and 26 traders. Results revealed the particular information needs of traders; such as the range of prices in different markets, the extent of competition, grades of animals in high demand and further animal specifications. However, market information tended to change within a short time-span. Analysis of weekly prices for different grades revealed high price variability such that prices were only known on the market day. This unpredictability made it difficult for traders to improve prices offered to pastoral producers. We recommend strengthening relations of local traders to meat processors and wholesalers that structure information exchange so that they can make better decisions to improve their margins.

1. Introduction

In Africa, 43% of the land is arid and semi-arid, used for livestock production (Koochafkan and Stewart, 2008). In Sub-Saharan Africa, an estimated 50 million pastoralists rely on this land for their livelihoods (IIRR, 2014; Rass, 2006). Assessment of pastoralism's contribution to national economies revealed that it contributes over 35% of the agricultural GDP in Kenya, Sudan and Ethiopia (COMESA, 2009). Despite this significant contribution, pastoralist's livestock marketing has not been accorded priority in policy (Hatfield and Davies, 2007), budgetary allocations (Alushula, 2016) and institutional support (Otieno, 2008).

In Kenya, the long-term absence of a comprehensive livestock marketing policy has set the stage for minimal investments in marketing infrastructure and limited coordination among investments. The first statutes relevant to livestock marketing in the post-independence era were the Meat Control Act of 1977 (cap 356), the Animal Diseases Act of 1984 (cap 364) and the Crop and Livestock Production Act of 1977 (cap 321), revised in 2012. Although aspects of marketing were incorporated into the National Livestock Policy; sessional paper No. 2 of 2008, it does not specifically detail (i) ways to streamline livestock

marketing investments, and (ii) integration of livestock producers in value chains. Only in 2016, did parliament pass the Livestock and Livestock Product Marketing Bill which established the Kenya Livestock and Livestock Products Development and Marketing Board tasked with spearheading market research and development for the sector. The approach outlined in the “Agricultural Sector Development Strategy (ASDS), 2010–2020” places emphasis on improving market access by supporting livestock marketing groups, building market structures and strengthening associated infrastructure such as market information systems (Republic of Kenya, 2010, p. 42). Moreover, many counties within arid and semi-arid areas of Kenya have been investing in abattoirs to target high-value livestock export markets, mostly to Middle Eastern countries. A recent example of such an investment is the construction of an abattoir in Marsabit County (worth 3.8 million USD) commissioned jointly by national and county governments in 2014 (Otieno, 2014). Promoting livestock trade is a core aim of the Kenya Meat Commission (KMC), although the scale of its activities has gradually declined over the last decade, attributed, in large part, to mismanagement (Ringa, 2013).

Despite these interventions, pastoralists still face the problem of low

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prices; suppressed by unfavourable terms of trade, droughts (Little et al., 2014), distance from main markets (Nunow, 2000), and relatively few traders. The problem is not that pastoralists are unwilling to sell their livestock, but rather that market conditions are often not to their advantage. Pastoral producers' weak position in the supply chain is attributed to lack of access to market information (Bailey et al., 1999). This information is required to make timely decisions for organizing livestock sales (Pavanello, 2010, p. 27). Therefore, unequal information exchange leaves producers relatively disadvantaged compared to traders (Stuth et al., 2006, p. 204). However, traders face high risks related to inadequate terminal market information (Bailey et al., 1999; Stuth et al., 2006). A further problem is livestock price volatility caused by informational disparities (Barrett and Luseno, 2004), climatic conditions, and changes in demand and supply (Barrett et al., 2003).

To improve producer prices, livestock market information systems were promoted by government and international donors. An early example of a project in northern Kenya is the 'Livestock Information Network and Knowledge System' (LINKS) funded under USAID's 'Global Livestock Collaborative Research Support Program' (GL-CRSP) (Stuth et al., 2006, p. 203). In this project, prices and information on livestock volume, forage condition, security and water supply were transmitted on a regular basis for selected markets in East Africa. Another example is a project conducted by the German development cooperation agency, GTZ (now GIZ), that supported the collection of price information from four markets in Marsabit County to be broadcast across the region in Rendille and Borana languages (Bailey et al., 1999). However, these projects failed to influence producers' and traders' marketing decisions because of (i) limited access to communication infrastructure in remote areas (Stuth et al., 2006), (ii) coordination challenges for collecting and organizing information and punctually transmitting it to the users (Komen, 2010). Therefore, decisions regarding which animals to sell, where and when to sell and at what price remain a challenge, resulting in higher transaction costs for producers and traders, particularly, those who travel over longer distances.

Strengthening information exchange is associated with: higher producer prices (Coronado et al., 2010), increased negotiating power (Shepherd and Schalke, 1995) and improved marketing decisions of both producers and traders (Magesa et al., 2014). Understanding of information exchange requires analysis of: (i) "micro-level factors that influence individual actors to transmit information", and (ii) "macro-level factors that determine the structure of channels directing the flow of information" (Frenzen and Nakamoto, 1993, p. 360). Analysing these relations can be grounded by social exchange theory (Emerson, 1976), complimented by investigation of activities and interdependencies between actors (Dubois et al., 2004) and further, by evaluating why supply chain actors engage in information sharing, what information they share, with whom and how (Kembro et al., 2014).

Only a few studies briefly touched on market information exchange in pastoral livestock markets (Bailey et al., 1999; Pavanello, 2010). This includes Stuth et al.'s (2006) research on the challenges and priorities for developing livestock information network and knowledge systems in northern Kenya and southern Ethiopia; and Jama et al.'s (2006) analysis of the strengths and limitations of livestock market information services to inform the design of better systems in Ethiopia's highland regions. However, these studies do not adequately consider the information requirements and constraints of different actors along the livestock supply chain.

To fill this gap, this paper aims to: (i) identify specific information needs of pastoral producers and traders in sheep and goat supply chains in northern Kenya, (ii) assess information gaps and constraints that hamper information flow and access within the chain, and (iii) identify options traders use to bridge information gaps. These aims are accomplished primarily through qualitative techniques described in the methods section. In the sheep and goat supply chain; producers and traders transact in spot markets through direct negotiations, hence price information varies due to many factors and it is assumed that

traders cannot anticipate prices based on past prices. We therefore test the hypothesis that current prices for four grades of goats in Nairobi are influenced by previous prices through time-series correlation of current and previous prices. This price analysis gives further perspective to contextualize the information needs and constraints shared by traders and pastoralists.

2. Theoretical framework

To understand information flow within exchange relationships that are not based on explicit agreements and contracts, we used a theoretical framework that emphasizes actors' relational interdependence and social networks. Social exchange theory reveals dynamics of exchange among mutually dependent actors interacting in a context where power is unequally distributed (Emerson, 1976, p. 351) and embedded within networks (Molm, 2003).

Although social exchange can be applied to different kinds of relations, business exchange is a specific form of exchange that entails assessment of three complementary flows - product (material), finance (money) and knowledge (information) (Kaipia, 2009; Le Heron et al., 2001). The relational perspective in business, which includes socially embedded exchange processes, can include studies such as how supply chain actors engage in information seeking and what information is shared with whom (Kembro et al., 2014). Transmission of market information between actors requires analyses of both the "micro-level" factors that shape how individual actors convey information and the "macro-level" factors that explain the structures connecting the actors that define information flow (Frenzen and Nakamoto, 1993, p. 360).

In supply chains, actors share information to perform purposeful activities (Zott and Amit, 2010). Fulfilling the activities of an actor in the chain is partly contingent upon the degree of connection to other actors, with varying levels of interdependence. This perspective draws attention to the importance of activity links in supply networks that relate the activities of disparate upstream and downstream actors (Håkansson and Snehota, 1995). Additionally, it is essential to understand the constraints to information sharing in supply chains (Kumar and Pugazhendhi 2012, 2148) to show how they influence the overall functioning of the system. For example, "the dynamics of how the delays, amplifications, and oscillations" affect supply chain processes, particularly in relation to transmission of demand related information (Sahin and Robinson 2002, p. 506).

In our study, we use social exchange theory to show how different sheep and goat supply chain actors seek to fulfil different information needs for making marketing decisions. Likewise, the limits of information exchange in this context reveal aspects of power inequalities within the chain.

3. Methods

3.1. Study area

This study was conducted in the southern part of Marsabit County in northern Kenya (Fig. 1). The area is rural, with sparsely populated arid lands and represents an important livestock production area. It is home to pastoralists who mainly rely on livestock production for their livelihoods, mostly from the Rendille ethnic group but also, along the border to Samburu County, from the Ariaal ethnic group.

In the study area, sheep and goats are sold to acquire income for regular household needs at primary markets, in Illaut and Korr, and at a secondary market, in Merille town. The Illaut market is held every two weeks. Occasionally cattle and camels are offered. Meanwhile, only sheep and goats are traded at the Korr market which takes place every Saturday. Primary markets are collection points for traders trekking livestock to the secondary market (usually 2–3 days of walking). For those transporting animals to the terminal market at Kariobangi in Nairobi, lorries are used to cover this distance of over 600 km. Traders

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