ELUSIVE PROFITS: UNDERSTANDING ECONOMIC PERFORMANCE OF LOCAL TRADERS IN THE PASTORAL SMALL RUMINANT VALUE CHAIN IN NORTHERN KENYA

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Abstract

Traders tend to be regarded as exploitative towards producers even without knowledge of their businesses. This study examines marketing costs, net-profits and return to invested capital of small ruminant traders from Marsabit County. Based on 84 transactions made between 2014 and 2016, we found low average profits and a high risk of economic losses among local long-distance traders. For traders working in partnerships of two or more, the profits and losses over the study period amounted to incomes barely exceeding Kenya's minimum wage. Although traders play an important role in linking pastoralists to markets, the precariousness they face hinders the sustainability of pastoral small ruminant value chains in Kenya.

KEYWORDS: Traders, Small ruminants, Pastoral production, Value chain, Rendille, Kenya

Introduction

Pastoral livestock production is an important economic activity in Kenya, particularly in arid and semi-arid areas. Livestock sales are an important source of income for pastoral households and serve as a buffer against risks arising from droughts and epidemics (Otte and Chilonda 2002). Additionally, livestock markets, when functional, play an important role in securing pastoral welfare by offering opportunities to destock and restock herds after droughts. Multiple actors, such as traders, brokers, transporters, exporters, processors, butchers and meat distributors play different roles in securing the supply of livestock to domestic and international markets. Together, they create an estimated annual marketed livestock value of fifty to eighty million Euros from pastoralism in Kenya (CELEP 2017).

Local traders purchase livestock from pastoral producers at local markets to sell in distant secondary and terminal markets. These local traders play an important role in connecting pastoralists to consumers in urban areas as they

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streamline the flow of livestock from a vast and remote area (Roba et al. 2017). Particularly for trade networks embedded in social relations interwoven by ethnicity and kinship ties, local traders lower transaction costs and reduce risks associated with challenging market conditions (Allegretti 2017; Van Ufford and Zaal 2004). They also facilitate the sharing of market information on prices related to the supply in pastoral areas and the demand in secondary and terminal markets (Bailey et al. 1999).

Traders and brokers (and market intermediaries more generally) are often blamed for exploitation. They are portrayed as opportunistic (Holtzman and Kulibaba 1994: 81) and reaping excessive margins in the chain (Bailey et al. 1999: 14; Makokha and Witwer 2013: 13). As large-scale traders are better resourced to gather more accurate price information, Nunow (2000: 73) considers them as being in a position to monopolise market information to the disadvantage of pastoralists. In other value chains, a comparison of gross profit among farmers in Ethiopia revealed that those transacting without intermediaries received 225 per cent higher gross profit (Abebe et al. 2016), while assessment of farmer-trader margins in mandarin markets in Nepal showed that the traders received 33 per cent of the margin (Pokhrel and Thapa 2007), a figure which is substantially above what farmers receive as net-income for their production.

Traders mainly pursue price advantages by transacting in spatially and temporally separated markets. While doing this, they face constraints related to weak market information (Bailey et al. 1999; Pavanello 2010), high transport costs, insecurity (Watson and Binsbergen 2008) and unpredictability of prices at the terminal market (Barrett et al. 2003). Previous studies conducted in rural markets in Cameroon (Holtzman et al. 1980) and Ethiopia (Jabbar et al. 2008) have pointed out the costs and risks that considerably reduce livestock traders' profits. Several studies (Eze 2007; Jabbar et al. 2008; Konaka 2001; Van Ufford 1999b; Williams and Okike 2007), have empirically investigated the costs and returns to livestock traders in East and West Africa. Cost accounting among livestock traders in West Africa (Eze 2007; Williams and Okike 2007) linked the low net-return of traders to diverse variable and fixed costs. Traders' margins are significantly affected by transport costs, such that a longer distance between purchase and sales markets decreased margins (Jabbar et al. 2008). Variation in traders' profits are influenced by their total available working capital (Jabbar et al. 2008), and also by their level of education and personal experience (Eze 2007).

Although much development in pastoral areas hinges on livestock marketing, scarce research critically examines the material reality of businesses operated by livestock traders, particularly those who trade small ruminants. Specifically, relatively few studies have examined marketing costs and profits of goat and sheep traders in northern Kenya, although these are the animals regularly sold at the local markets to meet household needs. Konaka's analysis

of Samburu traders (2001) showed that margins are higher among cattle traders than for small ruminant traders. Other studies conducted in northern Kenya have mentioned livestock trade bottlenecks that potentially increase costs and reduce profits, like high transport costs (Bailey et al. 1999; Watson and Binsbergen van 2008), high transaction costs (Barrett and Luseno 2004), weak livestock marketing policy (McPeak 2006), and lack of knowledge by traders on attribute preferences of importers (Negassa et al. 2008). Although marketing costs are often mentioned as constraints, the extent and composition of costs incurred by livestock traders in Kenya are not well documented. As traders are often perceived as enriching themselves at the expense of pastoralists, the analysis presented in this paper focuses on the business transactions of livestock traders from pastoral areas. Against this background, the aim of this study is to assess the economic performance of pastoral small ruminant trade by examining the i) marketing costs and net-profits of local traders, and ii) strategies traders utilise to manage fluctuating profits.

Materials and methods

Study area

The research followed the pastoral meat value chain in Kenya between Marsabit County and Nairobi. However, the focal point of the study is Lower Laisamis sub-county, in the southern part of Marsabit County. The climate is classified as arid with variable rainfall that is less than 200 mm on average. The vegetation cover is predominantly bushland with dwarf shrubs and acacia (Roba 2008) that form the fodder resources for browsing livestock. Households usually keep sheep, goats, camels and to some extent cattle. The population in Lower Laisamis mainly comprises the Rendille ethnic group and, in areas bordering Samburu County to the South and Isiolo County to the East, the Ariaal (intermarriages between the Rendille and Samburu ethnic groups).

The active livestock markets included in the Lower Laisamis study area are two primary markets in Korr and Illaut which are the most accessible for livestock producers and a secondary market in Merille which receives livestock from wider Marsabit South (Figure 1). Towns like Merille, located along the Isiolo–Marsabit highway, have relatively vibrant economic activity for the area and are increasingly well-connected to growing mobile phone coverage. The Korr market is weekly, while the Illaut market is held every fortnight. The distance between the Illaut and Korr markets is about thirty kilometres. They are sixty to seventy kilometres away from the secondary market in Merille, which is located along the tarmac road linking Marsabit to Isiolo town.

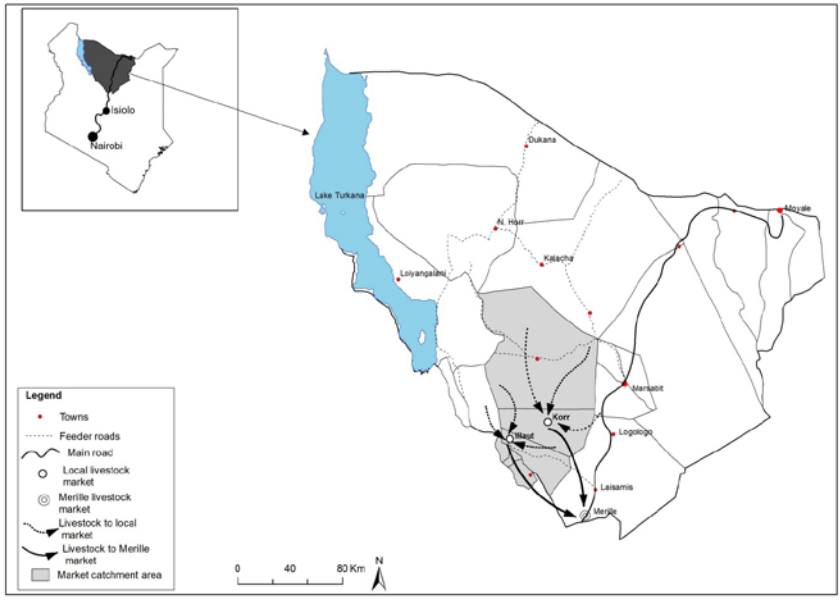


Figure 1. Livestock markets and routes in the Laisamis sub-county of Marsabit county. Map constructed by the authors, with the assistance of Hussein Wario.

The bulk of sheep and goats traded from Marsabit County are transported to the terminal market in Kariobangi, a neighbourhood of Nairobi. This market is located about 600 kilometres from the study area and operates daily, trading sheep and goats from all regions in Kenya and from northern Tanzania.

Data collection and analysis

The first author engaged with traders for twelve months overall between July 2014 and October 2016. In the first fieldwork period (July and August, 2014), he established the activities and the characteristics of the actors who were active in the markets. In the same period, the first round of data collection on marketing costs took place. In total, the marketing costs for nine trips were collected through interviews with nine Korr-based long-distance traders who were asked to recount their most recent trip in detail. Following this, a list of market actors, including all active traders with their contact information, was prepared. In Lower-Laisamis, there were fourteen long-distance traders, eight itinerant traders, six or seven inter-local market traders and two rearing traders. For this study, we focused on inter-local market traders and long-distance

traders. Inter-local market traders buy from the primary markets and trek livestock on the hoof to sell at the secondary market in Merille.

Prior to commencing data collection on traders' business transactions, the first author established rapport and built trust with them. This was done through regular informal interactions during market visits and after the market days where he became well acquainted with all the traders and identified those who later volunteered to record trip information in a booklet. Nearly all of the long-distance traders in Lower Laisamis (n=13) and approximately one-third of inter-local market traders (n=2) were selected based on the frequency of their trading and ability to keep regular records of the trips. There were additional long-distance traders from Marsabit (n=3), making a total of sixteen long-distance traders sharing their record keeping for this research. Fewer inter-local market traders were included in the study because they tended to be young morans (male Rendille warriors) with less literacy and ability to systematically record data of their transactions. The time invested in cultivating and maintaining these relationships has resulted in documentation of detailed business records that offer a rare glimpse into the businesses of these pastoral traders of sheep and goats.

Starting in July 2015, participating traders were trained to systematically record data about their transactions. In the booklet, they documented: i) the number of sheep and goats bought and sold, ii) the market of origin and destination, iii) amount of working capital invested per trip, iv) the value of total sales, and iv) disaggregated marketing costs per trip. The traders with the booklet recorded this information from July 2015 to August 2016. However, two long-distance traders dropped out of trade, stopping the recording after four months. To fill this gap, in fieldwork conducted between August and October 2016, information on their most recent two trips was collected from four additional long-distance traders in Korr who make frequent trips to the terminal market. The information on their transactions was obtained partly from their own records and partly from memory recall.

In this fieldwork period, the first author additionally obtained data from traders located in Marsabit town (n=3), to compare variations in marketing costs and profits of long-distance traders along different chains within Marsabit County. In total, 59 long-distance traders' trips and 25 inter-local market traders' trips were captured, including different chains with the following breakdowns: Illaut-Merille (25), Korr-Nairobi (51), and Marsabit-Nairobi (8). These data are used for the analysis of marketing costs and traders' net-profits.

Secondary information on the number of animals sold at the markets was obtained from the non-profit organisation, Food for the Hungry, Kenya (Fh Kenya) for the Merille and Illaut market. This information covers all market days from March 2014 to June 2015.

The study made use of budgetary analysis of the disaggregated marketing costs, working capital and total sales to analyse the costs and the profits. We used different measures to investigate profitability, starting with the traders' net-profit, computed as:

$$NP = GP-(\sum X_{1.....n}).$$

Where *(NP)* is the net-profit, (*GP)* is the gross profit and $(\sum X_{1.....n})$ is the sum of marketing costs incurred by the traders in performing marketing activities. It should be noted that, as small-scale entrepreneurs, the trader's own labour is not included as a marketing cost. Thus, the net-profit becomes the compensation for their labour.

We further calculated the return to invested capital which provides information on the overall returns to the trader from small ruminant trade. This is expressed as:

$$RoiC\ (per\ cent) = (\sum NP_{1.....n})/ (\sum x_{1.....n}) *100.$$

Where *RoiC* is the return to invested capital, $\sum NP_{1.....n}$, is the sum of the net-profits from overall trips of one trader, $(\sum x_{1.....n})$ is the sum of marketing costs incurred by the trader. To supplement these analyses, we also assessed other indicators of profitability such as profit per animal and the trader's average monthly income. Descriptive statistics are provided for the marketing costs and net-profits associated with different trader categories.

Results and discussion

The results will present the marketing costs, net-profits and strategies used by different types of local traders, such as those selling between different markets in northern Kenya (inter-local market traders) and those selling between northern Kenya and Nairobi (long-distance traders). However, before elaborating on the expenses and profits of the trading businesses, a brief summary of the characteristics of traders and brokers in the area is presented. The incomes of pastoralist producers in Lower Laisamis are not included in this study, so the relative margins of different value chain actors are not compared in this study.

Traders and brokers

In the study area, local traders can be differentiated by the distance covered and from their buying and selling points. Long-distance traders mostly buy

animals at the primary markets, but, in periods of low supply, some will work with itinerant traders. These itinerant traders travel to pastoralist homesteads, water points or villages to buy livestock.

Local traders can also be differentiated by their ethnicity and clan affiliation. In Marsabit town, traders constitute a greater mix of ethnic groups including the Gabra, Boran, Meru, Somali and Burji. The Merille market is considered advantageous for long-distance traders from many different ethnicities, including those from outside of Marsabit County. However, in the primary markets, livestock trade is primarily conducted by Rendille traders who are also pastoralists in the area. Until ten years ago, most livestock trade in Lower Laisamis was done by a handful of long-distance traders from the Burji ethnic group who came to the area as 'outsiders' from Central Marsabit. Among Rendille pastoralists, there was resentment against the Burji traders for exploitative pricing. Although there are a few long-standing Rendille livestock traders, it is only recently that Rendille traders have come to dominate the market. This recent shift from 'outsider' livestock traders to 'insiders' raised hopes for greater incomes in the Rendille pastoral area, as shared ethnic affiliations imply a greater responsibility to one another.

Rendille pastoralist producers had a greater feeling of trust for the Rendille traders, as expressed in the phrase, 'these are our people'. Further, the language barrier between producers and traders was eliminated and producers also could express themselves better when bargaining. As more pastoralists from the Rendille community took up the role of livestock trading, the number of traders increased. With this increased competition among traders, producers and traders in the area reported that they believed that the average buying prices increased. These 'insider' traders provided further advantages as they could be called upon for credit in times of need by their fellow clan members. This shared ethnic affiliation in Lower Laisamis makes it a particularly interesting for investigating the question of profit margins among pastoral livestock traders.

All the long-distance traders in the area were male with the exception of one woman. Not only was she the only female long-distance trader, but she was also considered to be very successful. Women were rare among long-distance traders because these trips require long absences from home which most women with competing household responsibilities could not easily manage. At the time of this study, there were no women inter-local market traders. However, within the local area, there were increasingly more women trader groups who collectively bought immature sheep and goats to be fattened for six to nine months and then sold at the primary and secondary markets. There were also some women trading as livestock resellers to take advantage of price differences within the same market.

Most of the traders were aged 25 to sixty years. Among the newer Rendille

livestock traders, those who were younger were more likely to work in small groups. The few traders who had been in the business for a long time were able to operate as sole traders and were also more likely to have established complementary businesses. The experienced older traders usually mentored the younger ones as they entered the trade. In this way, younger traders could benefit from the business contacts and knowledge of the older traders. Most traders have not completed primary education. However, those who migrated from pastoral areas to work in urban areas such as Nairobi, gained confidence and language skills that they could leverage into their work as traders.

Brokers, as intermediaries, mediate transactions between sellers and buyers. They are engaged on an agreed commission which is usually paid at the conclusion of sale. At the markets within Lower Laisamis, there was generally not a need for brokers because Rendille traders could easily communicate with other Rendille and also the Ariaal. The only time brokers were called upon was when traders needed assistance to quickly make purchases to fill a truck. As a result, primary markets in Lower Laisamis either had only one broker or none at all. In the secondary market in Merille, there were more brokers from the Rendille and Samburu ethnic groups. The role of a broker was not considered lucrative in the production area. However, it was the opposite in Nairobi.

In Nairobi, all long-distance traders from the study area were selling their animals on the spot-market in Kariobangi. None of the long-distance traders included in this study had a direct connection to buyers (including meat wholesalers, butchers, bars and hotels) and thus depended on brokers. Essentially there was one Gabra broker, supported by less experienced associate brokers from the same region, who was preferred by multiple pastoralist traders because of a sentiment of ethnic solidarity. This broker not only played a key role in information sharing, but also followed up on debts from clients for animals sold on credit. As the information about the final clients was tightly guarded by the brokers in Nairobi, long-distance traders from Marsabit had little power to negotiate more favourable exchange relations.

Marketing costs

Marketing costs of long-distance traders are more than six times higher than those of inter-local market traders. Due to the relatively short distances between the primary (such as Korr and Illaut) and secondary markets (such as Merille) (approximately seventy kilometres), the predominant mode of livestock transfer between markets within the production area is trekking on the hoof which is relatively inexpensive (the average fee paid to herders for trekking between Illaut and Merille is 3,375 Ksh). In this part of the chain, seventy

Table 1. Components of marketing costs by supply chain, currency in Kenyan shillings (Ksh). On average, one per cent of animals die per trip, en route to the terminal market, 1 USD=103 Kenyan Shillings, SD = Standard Deviation, % = the percentage of the total marketing cost incurred by a trader.

	Long-distance traders (trucking)						**Inter-local market traders (trekking)**		
Number of traders	**Korr** (n=13)			**Marsabit** (n=3)			**Illaut-Merille** (n=2)		
Cost items	Avg.	SD[3]	%[4]	Avg.	SD	%	Avg.	SD	%
I. Costs at primary market									
i. Commission for broker	-	-	-	5,975	2,964	8	-	-	-
ii. Fee for assistant & herder	3,164	1,332	5	3,140	2,600	4	-	-	-
iii. Travel to Illaut, food	1,490	494	2	-	-	-	-	-	-
iv. tax per animal sold	3,950	4,007	6	7,708	475	10	1,306	707	15
Sub-total	***8,604***	***5,833***	***13***	***16,823***	***6,039***	***22***	***1,306***	***707***	***15***
II. Transportation & handling									
i. Commission for lorry broker	1,139	248	2	1,000	518	1	-	-	-
ii. Truck rental	27,402	3,105	40	22,125	2,475	30	-	-	-
iii. Handling costs (loading sand and goats)	345	83	1	857	1,069	1	-	-	-
iv. Security fee for home guards	-	-	-	2,333	816	3	-	-	-
v. Herder accompanying the animal	4,129	562	6	5,875	991	8	3,375	1,102	37
vi. Health permit	841	104	1	920	483	1	-	-	-
vii. Livestock movement permit	7,000	-	10	7,000	-	9	-	-	-
viii. Illicit payments at checkpoints	4,200	1,697	6	4,075	900	7	-	-	-
Sub-total	***45,055***	***5,799***	***66***	***44,185***	***7,252***	***60***	***3,375***	***1,102***	***37***
III. Costs at terminal market									
i. Entry fee (Nairobi)	337	150	1	575	104	1	-	-	-
ii. Commission for broker (Nairobi)	3,000	-	4	3,828	975	5	-	-	-
iii. Trader's personal travel cost (fare & taxi)	2,868	1,521	4	4,730	1,896	6	2,981	774	33
iv. Tax per animal sold (Merille)	-	-	-	-	-	-	1,384	656	15
v. Loss of animals[1]	7,787	6,852	12	3,000	4,648	6	-	-	-
Sub-total	***13,992***	***8,523***	***21***	***13,133***	***2,975***	***18***	***4,365***	***1,430***	***48***
Total costs	**67,651**	**20,155**	**100**	**74,141**	**16,266**	**100**	**9,046**	**3,239**	**100**
Average number of animals	180	-	-	180	-	-	40	-	-
Average marketing costs per animal	356	-	-	390	-	-	226	-	-
Average working capital	500,000			620,000	-	-	110,000	-	-
Marketing cost as % of working capital	13.5	-	-	12	-	-	8.2	-	-
Time spent									
Buying animals and transportation	7-14 days	-	-	7-10 days	-	-	7 days	-	-
Days in transit	1 day	-	-	1 day	-	-	3 days	-	-
Total sale and return trip	3 days	-	-	3 days	-	-	1 day	-	-
Maximum number of trips per year	24 times	-	-	24 times	-	-	36 times	-	-

Source: 59 trips made by long-distance traders, 25 trips made by inter-local market traders, 2014–2016.

per cent of the costs are for labour and subsistence associated with travelling with the animals. Marketing costs can be grouped according to activities performed at different stages by traders: costs incurred at purchase, costs of transporting and handling livestock and the costs at sales markets. We identified seventeen types of costs associated with trucking livestock from Marsabit to Nairobi and four types of costs associated with trekking livestock between different markets within Marsabit (Table 1).

Between these two types of traders (long-distance and inter-local market), there is a marked difference in the working capital required. Therefore, the total investments required for a trip are indicated in our analysis. While inter-local market traders needed an average of 110,000 Ksh per trip (usually forty goats per trip), long-distance traders required an average of 560,000 Ksh per trip, for purchasing a truckload (usually 150-180 goats per trip), and to cover the high transportation costs as detailed in (Table 1). For local long-distance traders, transportation and handling accounted for the majority of their marketing costs; 66 per cent (from Korr) and sixty per cent (from Marsabit). This includes standardised payments for the official movement and health permits per truck and the varying costs for truck rental, herder's fee and illicit payments at travel checkpoints. Transport costs were also found to be the largest cost component in previous studies on cattle trade in India and West Africa (Das et al. 2014; Eze 2007; Williams and Okike 2007), although the detailed breakdowns of these costs are not included in these studies.

Long-distance traders who purchased goats and sheep from the primary market in Marsabit had costs that were twice as high as those who purchased from Korr and Illaut market. The latter costs are lower because of the weekly and fortnightly market days in Korr and Illaut that aggregate more animals, reducing efforts for traders to source the required number of animals. During our fieldwork, the long-distance traders from Korr concluded the majority of their purchases within one week (including two market days), and sometimes in up to two weeks. The benefits of organised markets in livestock production areas were also highlighted for northern Benin where the increased number of markets was linked to a reduction in cattle procurement costs as well as a decline in the number of days required to collect the herd (Van Ufford 1999). The Marsabit market is held every day with an intermittent flow of animals from grazing areas within a radius of approximately fifty kilometres, such as Hawaye, Shurr and Jaldesa. Due to the high frequency, the Marsabit market has a lower number of animals available on a daily basis, hence increasing the time needed for traders to gather the required number of sheep and goats through multiple visits. The daily market is convenient for producers, because they can present animals when they wish to sell but this does not necessarily imply this is a beneficial arrangement for producers in terms of getting

favourable prices. Marsabit traders choose to save time by partly delegating purchasing tasks to local brokers, although this increases their purchase costs.

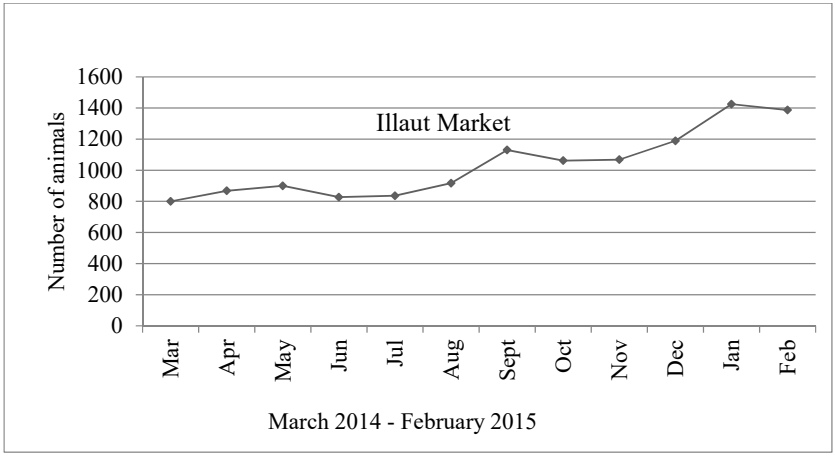
Furthermore, traders in Marsabit pay higher taxes when buying because of closer supervision by tax collectors in Marsabit town. Although the problems associated with multiple taxes and non-transparent tax enforcement have been highlighted by other studies such as Jabbar et al. (2008) who reported that 52 per cent of small ruminant traders in the Ethiopian highland markets ranked this problem highly, this study establishes the actual figures for taxes and fees. These account for slightly above twenty per cent of the total marketing costs for small ruminant traders in northern Kenya, with an average of 15,628 Ksh incurred per trip between northern Kenya and Nairobi. These payments constitute a requirement for substantial upfront investment prior to moving the animals from the point of origin. This was a priority issue for livestock traders in Lower Laisamis.

Traders in Marsabit had higher labour costs, both for herding animals and for loading sand and goats. Only traders in Marsabit incurred security costs because they are still bound by a regulation requiring their truck to be escorted by security guards. This was introduced as a measure to reduce incidences of banditry and violence along the Marsabit–Isiolo highway. Although these used to be very common, they now only happen occasionally.

Supply seasonality at the primary markets

The time taken by long-distance traders to assemble the required number of sheep and goats to fill a truck depends on the supply at primary markets. However, sales at primary and secondary markets fluctuate between months (Figure 2). For example, the Illaut market's supply during June-July was lowered when most herds generally shifted towards dry season grazing areas close to the Merille secondary market. Consequently, the number of animals supplied to the Merille market increased. As shown in the graph, the livestock sold in Merille, between March 2014 and February 2015 doubled. One reason for this is the improved connectivity resulting from Merille–Isiolo highway, which was completed during this time. Located at the confluence of Marsabit and Samburu Counties, the Merille market became the preferred collection point for additional traders from Meru, Nairobi and Nanyuki who transport livestock to the regional and terminal markets because of the potential for large purchases and the ease of filling a truck in a single market day.

As small ruminants are generally sold to cater for regular household expenses, Ayele et al., (2006), observed that the number of sheep and goats sold in Afar and Somali pastoral areas increased during the dry season because of higher food expenses pushing down selling prices. As confirmed by traders,



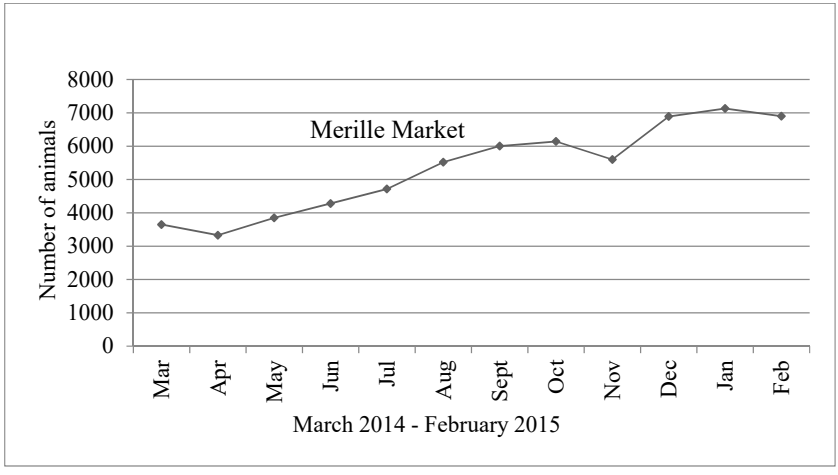


Figure 2. Monthly sales of sheep and goats at primary and secondary markets. Source: Fh Kenya (Marsabit field office), total number of the two market days per month in Illaut and the four market days per month in Merille.

such seasonal fluctuations in supply influenced the number of monthly trips they could make to the terminal market.

Usually there are between six and ten long-distance traders and four to six other traders coming to the Illaut market. When the supply is low (between 800 and 1,000 sheep and goats), traders cannot purchase the needed animals in the usual week including two market days. As one inter-local market trader puts it, 'when we [traders] come and find that there are few stocks [livestock] in the market, we buy in a rush in the morning and by 11.00 a.m. there is no animal in the market'.[1] Such a period of low supply typically involves additional trips to other markets, leading to costs related to repeated travel, besides the increased costs of herding and watering. Alternatively, long-distance traders from Korr might also visit more remote areas such as Oltorot and Kargi and water points (within a radius of sixty kilometres) while those in Marsabit town sometimes also travel to Shurr and Hawaye grazing areas (about fifty kilometres away). They also collaborate with itinerant traders who frequently buy from these areas. As the time period increases between purchase and sale, the costs also increase and eventually squeeze the trader's profit margin.

Varying transport costs

None of the local traders in this study owns a truck. They depend on renting them from truck owners with businesses in Marsabit town. Usually, lorries that bring goods from Nairobi or other towns outside this pastoral area are rented on their way back to Nairobi. This means, in periods when the trucks are committed to other more lucrative businesses (e.g. distributing relief food within the county) or when many traders are competing for transport services, the transport costs are higher. As expressed by a long-distance trader in Korr, 'the vehicle hire normally costs 25,000 Ksh per trip, but sometimes it costs 27,000 or 28,000 and during the Eid festivals it can be as high as 35,000 Ksh'.[2] Usually during festive seasons like Eid and Christmas when demand is high, there is stiffer competition for transport service. The speed of securing a truck influences other costs of the trip. An extended search for cheaper trucks increases the period of grazing of the purchased animals, which in turn increases the costs associated with watering and herding.

Mahmoud (2008) mentioned police 'tips' among Burji cattle traders trucking cattle from Moyale in northern Kenya to Nairobi, but did not establish the actual costs. In our study, we documented that the illicit payments are on average 4,000 Ksh per trip and in extreme cases, up to 10,000 Ksh. As stated by one long-distance trader, 'so many problems are associated with trucking animals

1 Interview, inter-local market trader in Illaut, (Sept. 2015)

2 Interview, a long-distance trader in Korr (Aug. 2014)

to Nairobi. In the past, when we trekked animals to the market, no permit and county council receipt was required, but now, there are so many police barriers'.[3] Payment of illicit costs appears to be a widespread practice among long-distance livestock traders. This is similar to an observation made more than three decades ago in cattle and meat markets in Ivory Coast, where long-distance cross border livestock trucking compelled transporters and traders to offer bribes and 'gift' to police and customs officials along the route (Staatz 1980).

Strict adherence to the official travel regulation would disadvantage traders from northern Kenya through missed business opportunities. In fact, all traders target to sell in Nairobi at the more vibrant early morning market between 5.00 and 10.00 a.m., when most trading activity takes place. In Kenya, night travel with livestock (6.00 p.m.–6.00 a.m.) is banned by official health and movement permits. For this reason, goat and sheep traders are extorted by police at many checkpoints along the way on the main tarmacked road between Merille and Nairobi. Generally, trucks starting a journey after 5.00 p.m. pay higher fees due to a proliferation of police checkpoints. When payments are not made and while payments are being negotiated, the truck is retained from continuation of the trip and the overall time of the journey is extended, contributing to deterioration of the animals' body condition and wellbeing. This in turn affects the selling price and ultimately the traders' profit. Delays add to traders' marketing costs for example through increased mortality and weight loss during transportation. In an example from West Africa, this weight loss during transit was estimated for cattle at nine per cent of body weight between Ouagadougou and Abidjan, a distance of 1,150 kilometres (Staatz 1980).

Delayed sales at the terminal market

Risks faced by traders are high because they have few options but to sell once they arrive at the terminal market. If the animals are not sold on the first day, traders graze them along the road reserves in the city and hold them overnight in pens in the market to sell on the next day. As confirmed by a trader from Korr, 'sometimes I go and find there are no buyers in the market and I am forced to sleep several days around the market which is expensive because I have to pay for my accommodation, where the animals stay and graze and many other petty costs incurred while waiting for the market to improve'.[4] This situation is similar to that reported in Benin where long-distance traders also face multiple risks at terminal markets, including likelihood of losing animals at the collection stage, weight loss due to limited pasture and water in urban areas, road accidents and animal thefts (Van Ufford 1999).

3 Interview, a long-distance trader in Korr (July 2014)

4 Interview, a long-distance trader in Korr (Aug. 2014)

Traders' strategies to reduce marketing costs

Long-distance traders have few entry points to decrease marketing costs given their current constraints. One strategy is that instead of employing labour to move the herd from primary markets to their collection point and accompanying the truck to the terminal market, they perform these activities themselves. This lowers their trip costs by up to 7,000 Ksh. Furthermore, due to the high working capital requirements, traders often operate in partnerships of two or more in order to pull together the required capital. Traders in partnership also have other organisational advantages: for example, while two traders may be selling in Nairobi, the remaining traders will continue animal purchases in pastoral areas for the next trip. Such collaboration increases their monthly income by reducing the number of days required to organise a trip, as well as enabling multiple trips to occur in quick succession. The overall number of trips a trader can make is reliant on the number of days required to gather the goats, which is affected by seasonality in supply and availability of transport. Currently traders take between five and fourteen days to organise the transport of a truck-load of goats from Marsabit to Nairobi. From the trip record, we established that a long-distance trader, as an upper limit, makes 24 trips per year while an inter-local market trader can make up to 36 trips.

Determining the net-profit of traders

Net-profits were determined by subtracting marketing costs from the gross-profits obtained by different traders, showing that net-profits fluctuate highly. First, these fluctuations are presented for both long-distance and inter-local market traders. Then, variations in net-profits are explained according to different trading arrangements and different traders' strategies to deal with the risk from the fluctuations.

Profits and losses of small ruminant traders

The level of profits and even losses has no discernible pattern over the year for different types of traders involved in the small ruminant trade originating in northern Kenya. Furthermore, a correlation analysis showed that there is only a weak linear relationship between the number of goats and sheep sold and the net profit per trip ($r < 0,4$ for both types of traders).

In this study, traders explained that they target to sell at periodic Christmas and Eid markets in anticipation of peak demand during such festive seasons. However, they also realised that only a few early trucks receive better sale prices from the peak demand while the majority of traders coincide with

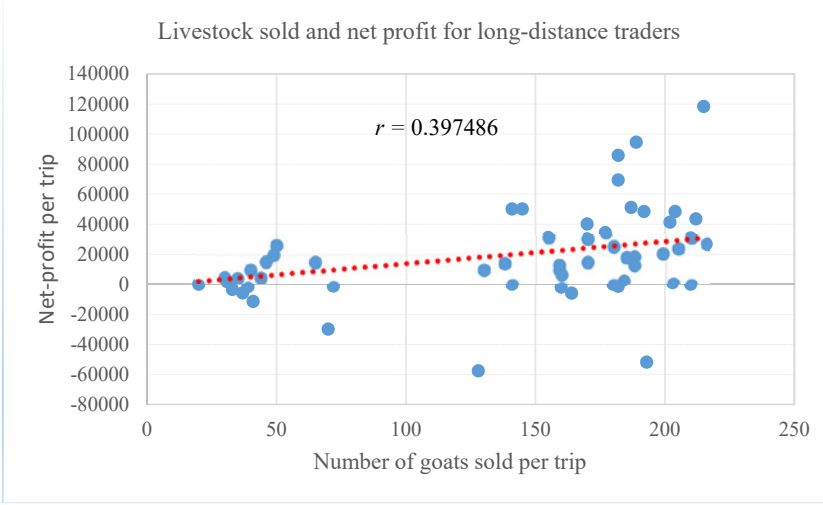


Figure 3. Scatter plot and correlation co-efficient of long-distance traders.

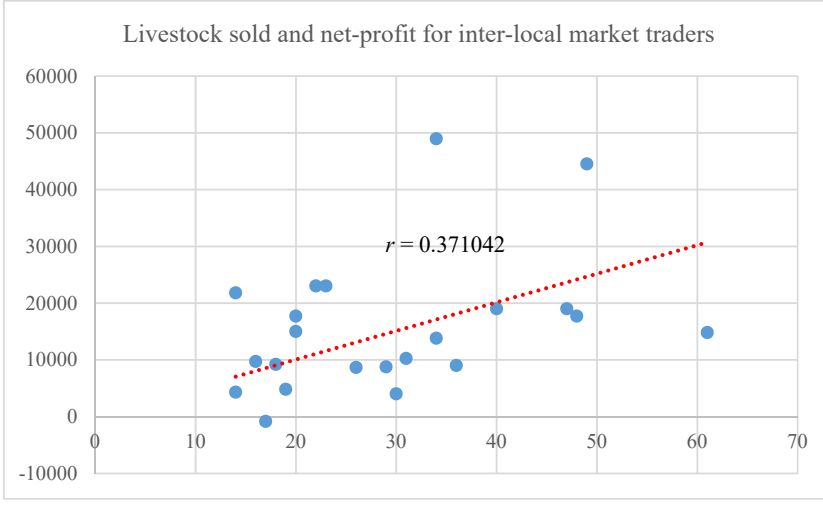


Figure 4. Scatter plot and correlation co-efficient of inter-local market traders.

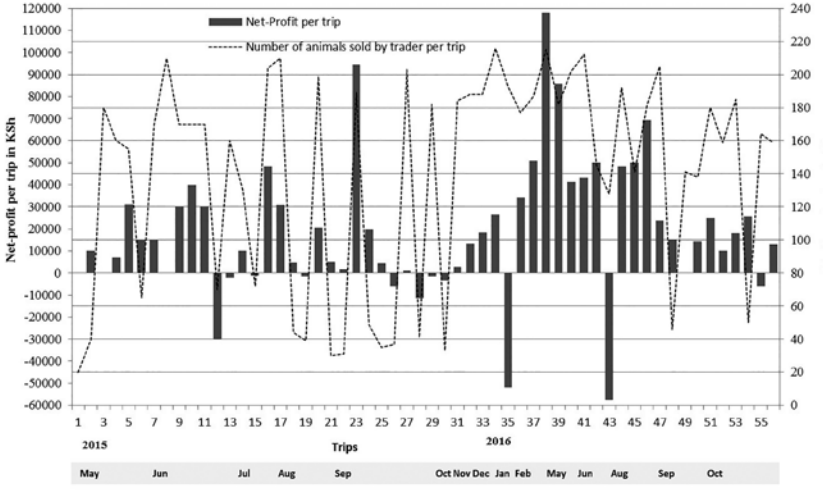


Figure 5. Fluctuating net-profits of long-distance traders. Source: Records for 56 trips of long-distance traders, data gaps in April, May and July 2016 (trips are sorted according to the Nairobi selling date).

oversupply at the terminal market, leading to reduced prices. As can be seen in Figure 5, the high demand does not necessarily translate into good profits, as the traders involved in this record-keeping experienced low profits (e.g. 14,000 Ksh) as well as losses (e.g. 11,500 Ksh), between October and December 2015.

This is contrary to the observation by Zaal et al., (2006) who reported a pattern of price increases during Easter, Christmas, Ramadan and after monthly pay days for cross-border livestock trade over the Kenya–Uganda and Kenya–Tanzania borders. However, this observation was based on demand and pattern of sales for cattle and small stock at different periods and not on records of costs and profits kept by traders. These results are also not aligned with findings about the West African livestock market (William et al. 2006), which showed that traders' profits followed discernible seasonal patterns, classified into i) a peak period with generally higher price offers and better profits for traders corresponding with the rainy season, and ii) off-peak period with low prices and low traders' profits coinciding with the dry season.

We further categorised the net-profit per trip (Table 2) revealing that in 49 per cent of the trips, long-distance traders made a net-profit of less than 10,000 Ksh (approx. 100 USD) while only in two per cent of the trips did the

Table 2. Range of profits and losses per trip. Source: 56 out of the 59 trips of long-distance traders and 22 out of the 25 trips of inter-local market traders that had complete data.

Net-Profit range/ trader/ trip (Ksh)	Long-distance traders n=56	Inter-local market traders n=22
< -10, 000	5%	-
-10, 000 to -5, 000	4%	-
-5, 000 to 0	9%	5%
0 to 5, 000	20%	14%
5, 000 to 10, 000	11%	22%
10, 000 to 20, 000	27%	36%
20, 000 to 50, 000	22%	23%
> 50, 000	2%	-
Average animals sold per trip	180	40
Current number of trips per year	19	30

traders make more than 50,000 Ksh (approx. 500 USD). Apart from modest overall net-profits observed in most trips, long-distance traders recorded losses in eighteen per cent of their trips (Figure 5). This shows widely-varying profits that underline the risks for reduced profits and even loss involved in the small ruminant trade, arising from livestock mortality, variable and high marketing costs, and occasionally delayed or forced sales. A closer look at the pattern of net-profits among long-distance traders confirms another statement from a trader who indicated that the 'goat business is more like gambling, there are days we get good profit but there are also days we make huge losses. Even in a situation where we don't get a profit, we still have to sell them'.[5]

In contrast to long-distance traders, the net-profits of inter-local market traders are more stable (Table 2) with losses recorded only in one trip over the sampled period (Figure 6).

Inter-local market traders incurred lower expenses; hence their profit was largely the difference between the buying and selling prices of the sheep and goats. Secondly, at the time of this research, Lower Laisamis had few inter-local market traders, resulting in less competition and more advantage when bargaining with buyers. As the inter-local market traders concentrate a higher number of goats than other sellers in the area, they are positioned to gain higher prices and preference from buyers interested in bigger purchases. Finally, those who are in business for an extended period of time have regular contacts with buyers and have the possibility to make oral agreements on prices prior to purchase, which assures them positive net-profit. The benefit of direct buyer

5 Interview with a long-distance trader in Merille, Aug. 2014

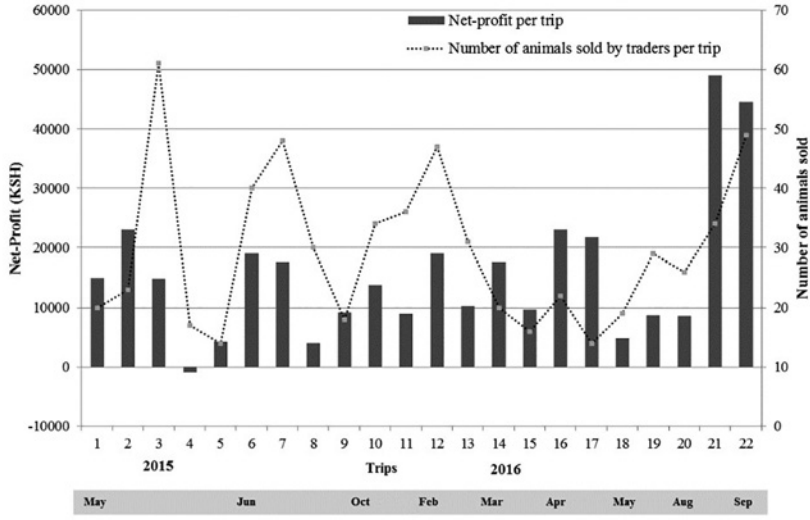


Figure 6. The net-profits of inter-local market traders. Source: Records from 25 trips, data gaps in July–September and November–December 2015, and June-July 2016.

relations is also confirmed by a study (Jabbar et al. 2008) in which livestock traders had higher margins per animal when there were 'long-term business relations based on trust, reliable information on price and supply, and assured delivery of products in a timely manner usually reduce transaction costs and increase unit margin' (ibid.: 14). This is further reinforced by Das et al. (2014), who observed that the marketing chain in which a producer and a buyer have a direct relationship is preferred by producers.

In contrast, long-distance traders are susceptible to unpredictable prices at the terminal market in Nairobi where they have little control in negotiations. Profit is also influenced by the different trader trading arrangements (Table 3). While the majority of traders in the study area work in a partnership of two or more, sole traders are individuals who operate their livestock business alone. The high working capital required for this means that there are relatively few traders who are able to operate as sole traders. As shown in Table 3, the net-profit and monthly income differ between traders.

Inter-local market traders had higher overall profitability, measured by return to invested capital and net-profit per animal. For example, a comparison of net-profit per animal showed that an inter-local market trader receives more

Table 3. Net-profits of traders under different trading arrangements, 2015–2016 (currency in Ksh).

Variables	Long-distance traders			Inter-local market traders
	Partners of 3	Partners of 2	Sole trader	
Number of trips	18	6	2	13
Duration in months	12	2	1	9
Investment per trip	481,456	612,500	525, 000	110,240
Total investment for all trips	8,666,210	3,675,000	1,050,000	1,433,150
Total gross profit for all trips	1,615,190	534,730	240,000	362,900
Total costs for all trips	1,014,800	417,730	122,350	123,000
Total net-profit (total gross profit – total costs)	600,390	117,000	117,650	239,900*
Average return to invested capital (total net profit/total investment	6%	3%	19%	19%
Average monthly income	16,678	29,250	58,825*	39,900
Other measures of profitability				
Average marketing cost per animal (total cost/total number of animals)	285	390	327	226
Average net-profit per animal	168	127	314	735

* The average profit for sole traders in this period is greater because the last two trips were exceptionally high as shown in Figure 6.

than twice that of an individual trader, with highest net-profit among the long-distance traders. The average return to invested capital varied depending on if a trader was working alone, as a pair or as a group of three or more. In partnerships of two and three, the average return to invested capital was three per cent and six per cent respectively, whereas a trader working alone has an average return estimated at nineteen per cent (Table 3). However, sole trading is not a reason for high profit: rather the large profits are linked to the two trips whose profits fall in the highest bracket of the two per cent profit range in Table 3. With much less risk and lower investment, inter-local market traders achieved the same average return to invested capital, also at nineteen per cent. The average return to invested capital is lower than what was established 25 years ago among small ruminant traders by Oruko, (1993), in the coastal area of Kenya, where a fifteen per cent return to investment was reported for traders buying from villages and selling at primary markets and ten per cent per head for the itinerant traders, transacting between markets. Further, the figures established by Chabari (1986), were a seventeen per cent and 25 per cent return to capital received by small ruminant traders in Nakuru and Kajiado

respectively. Researchers have attributed low margins to distance from the sales market. Jabbar et al. (2008), established the inverse relation between the traders' margin and increase in the distance between purchase and sale markets in Ethiopian highland.

Overall, despite the large capital investment and substantial efforts, local traders in northern Kenya make a low profit from most trips and hence receive only a low monthly income, especially if they work in groups of two or more. Although the average income is considered acceptable in the production area, it is similar to what could be earned through rural-urban migration where young men from pastoral areas take up jobs as watchmen, messengers, gardeners and cleaners with incomes ranging from 11,000 Ksh to 12,200 Ksh.[6] For reference to another pastoral area, pastoralist producers in Mongolia were able to earn a livelihood comparable to minimum wage from the combined income from livestock including milk, meat and hides (Meurs et al. 2017).

The lack of other employment alternatives led a trader to say, 'in this business, I sometimes get profit and other times I operate at a loss. I was saying to myself, if I had other options, like a job, I could have left this business, but this is the only option I have for now'.[7] Although development efforts have promoted diversification, there are still relatively few employment options in the area. Additionally, the occasional high profits observed among the long-distance traders makes them remain optimistic in future trips and by extension in the entire trade. Other traders capitalise on opportunity from complementary trading activities. These strategies are detailed in the next section.

Strategies to deal with low profit

Although the type of strategies used by traders varies with the marketing chain and overall working capital, we identified two broad strategies used by traders: strategies to improve profits from the small ruminant trade and strategies to diversify income through alternative businesses.

To improve their profits from the small ruminant trade, traders take different approaches. An example of a strategy used by both long-distance traders and inter-local market traders is adding value by rearing and improving the body condition of animals. In this added-value strategy, some traders use their own herd as a reserve to recover from losses or when they require additional working capital. For instance, along with their routine trading, they buy extra, mostly expectant goats to add to their herd for an estimated period of one year and later sell them strategically. Such value addition based on fattening prior to sale was reported to give higher margins to traders employing such

6 http://www.africapay.org/kenya/home/salary/minimum-wages

7 Interview with a long-distance trader in Korr, July 2014.

a strategy among beef cattle traders in southern Ethiopia (Ayele et al. 2017) and a higher net income per ram among sheep traders in Nigeria (Zalkuwi et al. 2014). The second strategy common among inter-local market traders, also sometimes used by the long-distance traders, is inter-species bartering; e.g. camels or donkeys are bartered for goats and sheep, making use of different values attributed to different species in various pastoral communities. Another strategy occasionally used by wealthier traders with higher working capital is to shift between species of livestock. When profits on selling camels in Nairobi are better than for goats, then these wealthier traders may switch to camels.

A common strategy among long-distance traders is to transport more sheep and goats than the 150 allowed on the travel permit. We found that on average, long-distance traders transport 180 sheep and goats per trip to the terminal market. When the extra animals survive the journey, the average transport cost per animal is reduced, giving long-distance traders more of a cushion to face the market price volatility at the terminal market.

Finally, some traders employ strategies to complement the livestock trade with additional income from alternative businesses like retail food shops, butchery and car hire. They capitalise on any opportunity from petty trade by purchasing merchandise in Nairobi such as ropes, veterinary medicines, shoes and motorbike spare parts to be sold upon return to the pastoral area. They either sell these items to local shop owners, sell the items themselves from their own homes, or, in some cases, through their own retail shop. Only very few of the traders had these types of retail shops and these were usually traders who had been in the small ruminant trade for decades. However, such a second business can overextend traders' time and lead to unpaid arrears that may also trap part of their working capital.

Conclusion and policy recommendations

Against the preconception that livestock traders are exploitative and enrich themselves at pastoralists' expense, this study investigated economic performance, particularly marketing costs and net-profits, of local inter-local market traders who sell between markets in Marsabit South, and local long-distance traders who sell between Marsabit County and the Nairobi terminal market.

The cost analysis reveals that long-distance traders expend more than six times more on marketing costs than inter-local market traders. Per trip, over sixty per cent of the costs are spent on transportation and livestock handling and an estimated seventeen per cent are for statutory permits and illicit payments. The results show that marketing costs vary across the three chains and among different types of traders. Different reasons are identified for the

variation in marketing costs: the supply seasonality at the local markets, fluctuating transport costs and delayed sales at the terminal market.

We examined the profitability of traders' activities and, contrary to popular belief, we found that the long-distance traders operating in groups of two and more earn a monthly income that barely exceeds the minimum wage in Kenya from alternative employment. Compared to the high investment needed, net-profits of long-distance traders (that become income for their labour) are low, resulting in returns on capital investment of three to six per cent. However, we also established that inter-local market traders can achieve a relatively high return to invested capital (estimated at nineteen per cent) and higher net-profits per animal. However, the profits for all traders fluctuated widely over the course of the year.

The study showed that the micro-economics of the local livestock traders' businesses are embedded within broader social, economic and political structures that influence the viability of the businesses and ultimately, the livelihoods of pastoral households. Although pastoralists are specifically adapted to managing high variability in ecological processes, the same cannot be said of economic processes. Rather, the power-dynamics of exchange shape material outcomes in ways that reinforce uneven geographical development. Hence, the histories of how pastoralists have negotiated encounters with capitalism (Chang and Koster 1994) also surface in the issue of how to interpret the context in which local traders operate. In this case, where local traders use one main broker to sell sheep and goats in a Nairobi spot market, there are limited options to control process variability, in turn limiting control of output variability.

The results on marketing costs and net-profits and the insight gained on policies and regulations can be used to devise policy changes to help increase profitability in the pastoral meat value chains. One measure to directly lower marketing costs is revision of the regulation established under legal notice 119 of 1984 that bans night travel for long-distance traders and creates opportunity for extortion by the police. Similarly, decentralising the issuance of the official permits, which can currently only be done in Marsabit town, is important to reduce costs and time delays, especially in situations where traders need to act quickly to try to take advantage of a good market. In addition, a review and harmonisation of local taxes (tax per head of goat sold at northern Kenyan local markets and the costs for health and movement permits) are necessary to lower the overall marketing costs.

Blaming local traders for exploitation misses the mark in terms of analysis of how they are acting within the constraints of a broader socio-economic system that is not adequately supporting pastoral regions. Therefore, development policy that merely looks to eliminate these 'intermediaries' without actually assessing who is doing what and how the value chain functions may do more

harm than good. More research needs to be done regarding supportive measures to improve the sustainability of the pastoral small ruminant value chains in northern Kenya. For example, an investigation could be conducted on how to improve accessibility and relevance of micro-credit programmes to support different types of local traders.

Further, as this research was conducted in a pastoral area where shared Rendille ethnicity added incentive to pass benefits down to producers, this analysis of the local traders' economic performance reveals their limited room for manoeuvre resulting from the current configuration of the value chain. Future research is required to deepen understanding of the extent to which policies and investments discriminate against pastoralist ethnic groups. Specifically, more research is needed regarding the transformation of linkages between rural pastoral areas and urban markets such that pastoralists can access greater benefits from the pastoral meat value chain.

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