

Full Length Research Paper

The overlooked role of market knowledge in the market integration of Ethiopian pastoralists

Teklehaimanot Mebrahtu Leake^{1*}, Paul T. M. Ingenbleek² and Hans C. M. van Trijp²

¹Department of Accounting, College of Business and Economics, Haramaya University, Dire Dawa, Ethiopia.

²Wageningen University, Marketing and Consumer Behaviour Group, Hollandseweg 1, 6706 KN, Wageningen, Netherlands.

Received 15 January, 2019; Accepted 4 September, 2019

In response to rapid globalization, African countries have dedicated considerable efforts to transform rural producers into businesses and integrate them with global markets. Pastoralists are mostly isolated from the other livestock value chain members. This makes it difficult for them to acquire knowledge regarding how the market functions and what the value chain members' want. This study explores how much pastoralists know and what knowledge they need to seize market opportunities. Using qualitative evidence from Ethiopian pastoralists, this study finds that pastoralists understand routine and physically existing facts such as selling livestock in a fixed market place during regular market days. However, the pastoralists lack the higher order knowledge that includes a broader understanding of the market phenomena and the abilities to scrutinize and interpolate those phenomena into their livestock raising experiential realm to make informed production decisions. This will hinder their functioning as "businesses" in modern value chains. This study therefore suggests for the development of market knowledge among pastoralists. Policy makers and development workers can consider marketing training to build the market knowledge of pastoralists. Further research could study how to effectively train the pastoralists to acquaint them with market knowledge to focus on market-based livestock production.

Key words: Market integration, market knowledge, remoteness, pastoral, Ethiopia.

INTRODUCTION

In recent decades, the world has witnessed rapid globalization with the increasing integration of production chains, international trade, investment and capital flows (Neethi, 2012; Nisanke and Thorbecke, 2007). In response to this globalization trend, African countries continue to liberalize their economies to integrate their locally and nationally organized markets with global markets (Borras, 2010; Carletto et al., 2010). This has facilitated the transition of agricultural producers such as

farmers, fishers and pastoralists to participate in global markets (Carletto et al., 2010; Dixon et al., 2004). The perceived benefit for these producers is gaining access to higher purchasing power and higher price paying markets, which contributes to a better livelihood (Minten et al., 2009). However, rural producers may not benefit from their integration into global markets on par with or as fairly as producers that are closer to towns and cities with better infrastructure and education. While it is difficult for

*Corresponding author. E-mail: mlteklehaimanot@yahoo.com.

all rural producers to seize market opportunities due to the deprivation of productive resources, such as knowledge, education and infrastructure (Barrett, 2008; Dorward et al., 2005; Narayan et al., 2000), it is particularly difficult for those who live in remote areas such as pastoralists.

Pastoralists operate in extremely remote rural areas that have scarce required productive resources; this has contributed to their poverty (UNDP, 2013). To lift pastoralists out of poverty, the development literature has focused on creating an enabling institutional environment to connect them with global markets that have higher purchasing power compared to their serving local markets (Barrett, 2008; Swinnen and Maertens, 2007; Verbeke et al., 2009). This literature has identified the absence of or poor infrastructure and limited access to financial services as barriers that prevent pastoralists from connecting with markets and from taking advantage of market opportunities (Barrett, 2008; Davies, 2008; Watson and van Binsbergen, 2008). Consistent with recommendations from this literature, policy makers and development workers have dedicated considerable efforts to remove institutional barriers (FAO and IFAD, 2016; UNDP, 2008). Aid agencies, for example, invested in infrastructure to link East African pastoralists to export markets (Aklilu and Catley, 2009). Research has indicated, however, that such investments have had minimal impact on livestock sales and that market off-take rates from pastoralists in the region remain low (Aklilu and Catley, 2009; Little et al., 2014).

Following a business management approach, a growing body of literature has begun to focus on the behavioural features of the producers as determining factors to improve the producers' market access and market off-take rates of institutional arrangements (Ingenbleek et al., 2013; Jayne et al., 2010; Zulu et al., 2007). This literature highlights that the production, consumption and marketing behaviours of producers are centrally important for their market integration and to the improvement of their living standards (FAO, 2014a; Jayne et al., 2010). Underlying these behaviours is knowledge that creates a critical understanding of people's environments. This knowledge facilitates people's adaptation and enables them to transform resources into higher living standards and development (FAO and UNESCO, 2003; World Bank, 1999). In cognitive psychology, knowledge is regarded as a necessary precondition to guide and shape individuals' behaviour to make informed choices for a better future and to accomplish their tasks successfully (Frick et al., 2004; Wilcock et al., 2004). Frick et al. (2004) argue that it is important to ascertain how much people know and what type of knowledge is needed to promote their behaviour to achieve desired results. However, to the best of our knowledge, the literature still lacks an in-depth investigation of the knowledge that remote producers obtain from their day-to-day interactions in the

marketplace and the knowledge they need to acquire by other means. Such a grassroots level investigation is important because it will help to design focused interventions that respond directly to the knowledge need.

This paper studies the market knowledge of Ethiopian pastoralists. This study explores the knowledge the pastoralists have regarding the livestock market and the knowledge they lack, the latter of which disfavours them from seizing market opportunities by increasing livestock quality and market off-take rates. Ethiopia has the largest pastoralist population in East Africa (CSA, 2013), the region with the largest pastoralist population in the world (Homewood et al., 2012). The nearly 15 million Ethiopian pastoralists inhabit approximately 60% of the country's territory (World Bank, 2013) and contribute up to 35% to the country's agricultural gross domestic product (Davies and Hatfield, 2007). Ethiopian pastoralists therefore turn the remote, harsh drylands into economically viable production environments (Ingenbleek et al., 2013).

The main findings of the study include that Ethiopian pastoralists largely understand the livestock market as a fixed physical place with regular market days for sellers and buyers to meet and transact. These pastoralists rarely recognize markets as mechanisms with different actors and respective roles to facilitate transactions between trading partners. These pastoralists also rarely recognize the relevance of considering the needs and interests of buyers during livestock reproduction. Instead, the majority of the pastoralists attempt to sell animals that they produce primarily to satisfy their own needs and interests, which is building herd size to ensure sustainable milk production and gain higher social status. The pastoralist lack the higher order knowledge that includes a broader understanding of the market phenomena and the abilities to scrutinize and interpolate those phenomena into their livestock raising experiential realm to make informed production decisions.

Market integration of pastoralists

The market integration of pastoralists is posited to provide several benefits to global markets, national economies and to pastoralists themselves. First, integrating pastoralists more with markets can facilitate the supply of livestock and livestock products that helps the global market respond to the globally increasing demand for animal-protein (Davies and Hatfield, 2007; Delgado, 2003). Second, this integration enhances the foreign earnings of national economies from livestock exports thus contributing to the national economic development (Davies and Hatfield, 2007). Third, pastoralists can sell (destock) and buy (restock) livestock to respond to recurrent droughts and climate variability, which are increasingly threatening their livelihoods (Little et al., 2001, 2008; Vrieling et al., 2016). Fourth, the cash

obtained from selling livestock enables pastoralists to purchase food items, education for their children, medical services for their families and herds, and other consumer goods (e.g., mobile and radio) (Headey et al., 2014; Turner and Williams, 2002). Despite these perceived benefits, studies are reporting that the remote and traditional pastoralists are not taking full advantage of the market opportunities that have been created (Little et al., 2014; Rugadya et al., 2005; Verbeke et al., 2009). In Ethiopia, for example, existing export abattoirs are reported to operate at less than half of their installed capacity due to the supply shortage of export quality animals (Teklewold et al., 2009). Thus, the livestock potential from pastoralists is not exploited to reduce poverty and ensure food security (Verbeke et al., 2009).

The research that investigated the reasons that impede pastoralists from taking advantage of market opportunities predominantly focuses on post-production factors (Little et al., 2014), including the absence of roads, marketplaces, holding grounds, quarantine standards, and the information communication tools that facilitate sales (Barrett, 2008; Teklewold et al., 2009) and the frequent animal rejection at marketplaces for low quality (McPeak and Little, 2006; Rugadya et al., 2005). The barrier for pastoralists to successfully integrate with markets can be explained by their remoteness, which hampers their learning and their use of knowledge about the market environment and the value chain members. This barrier renders it more difficult for pastoralists to respond to the demand for the consistent and timely supply of quality livestock to the export market. Because their remoteness deprives the pastoralists from acquiring up-to-date knowledge from the external environment, they may have no option but to build on and consistently exploit the experience and knowledge they have learned from their community within their neighbourhood.

At a more fundamental level, the literature on social cognition indicates that social influences, such as community and family orientation and education, build and modify the cognitive abilities or the knowledge of individuals through modelling, instruction and social persuasion (Bandura, 1989; Heckman, 2006). In contexts where productive resources that facilitate the flow of and exposure to knowledge and information are limited, communities orient their children to capitalize on local knowledge, passing knowledge from one generation to another, which leads to specialization in a specific economic activity (Narayan et al., 2000). Communities in productive resource scarce environments teach their children to develop knowledge that enables them to survive in that environment (Narayan et al., 2000). Consistent with this, a research conducted among Turkana pastoralists in Northern Kenya also reported that pastoral families teach their children (sons) to have large herds to accumulate wealth, secure food and marry more wives to have more children (McCabe, 2004). Other studies also report similar findings that pastoralists learn

(from their ancestors) to increase their herd size (livestock asset building, which is fully based on a production orientation) as a sign of social status and as insurance against drought, animal disease and raiding (Bellemare and Barrett, 2006; Hesse and MacGregor, 2006; Johannesen and Skonhoft, 2011). In this respect, community and family orientation (that is, the social influences) shapes the behaviour of remote pastoralists to remain specialized in an economic activity that the pastoral community has carried out for generations. Pastoralists thus may exploit the knowledge that is developed from what is known in their community to support their behaviour of building herd size; because they have minimal opportunity to develop market knowledge through exploring external sources to obtain a better understanding about market phenomena.

Knowledge shapes the perceptions, goals (aspirations) and expectations of people, with the aspirations and expectations shaping and directing behaviour (Bandura, 1989; Narayan et al., 2000; Wilcock et al., 2004). People empowered with knowledge of what to do ("know-what"), why doing the task is appropriate ("know-why") and how the task should be done ("know-how") in their domain accomplish tasks for a productive life (Hiebert, 1986; Narayan et al., 2009). The business literature also states that businesses that possess strategic and higher-order knowledge use their knowledge to scrutinize the market environment and interpret market information to develop and market products that meet the expectation of customers (Kim and Atuahene-Gima, 2010; Marinova, 2004). The same literature conceives market knowledge as a strategic resource to understand what customer's value and to create offerings that meet the expectation of customers (Glazer, 1991; Slater et al., 2012).

Market knowledge: A strategic resource for sustainable market integration

Creating an enabling institutional environment by building roads, marketplaces, and information communication facilities has been identified as important to facilitate the market integration of pastoralists, thus this study takes a business perspective to understand the knowledge barriers that undermine the efforts of remote pastoralists to raise livestock according to market requirements. We bring market knowledge as a complementary approach that can also lead to an effective use of roads, marketplaces and information communication facilities. Market knowledge provides an understanding of the market phenomena, what the customer needs and what to do to respond to what the customer needs. From a business perspective, the customer is the judge who evaluates the products and makes decisions regarding whether to buy products that provide equal or higher benefits or to reject products that provide benefits below expectation (Woodruff, 1997). Because it is the logic of

market exchange that buyers purchase products if they expect to derive benefits, it also holds true in the buying-selling relationship between the livestock buyers (customers) and the pastoralists. Livestock buyers, such as exporters, purchase animals from pastoralists if they find that the animals possess the attributes (breed, age, weight, and health) that importers seek and are willing to pay for.

The business literature asserts that, to develop the product that buyers are willing to repeatedly purchase and to sustain their linkage with the producers, producers need to have knowledge regarding what the customers desire to obtain from purchasing and using a product (Slater, 1997; Woodruff, 1997). Importantly, the producers that acquire and possess broader knowledge about the market phenomena such as how the market operates and the objectives of market exchanges, the market dynamics, such as changes in customer preferences and adjustments in export-import policies, and the actions of competitors, consistently adjust their products to customer preferences (Glazer, 1991; Kim and Atuahene-Gima, 2010). Market knowledge that refers to a systematically developed and stored understanding of the market phenomena therefore guides producers to make profitable production and marketing decisions (Glazer, 1991; Kim and Atuahene-Gima, 2010). In this respect, pastoralists that develop knowledge about how the livestock market operates and what livestock buyers want to obtain from purchasing livestock are likely to raise commercially viable livestock.

Market knowledge is based on the knowledge of concepts, facts and procedures (sequential production and marketing activities) referred to as the know-what, know-why and know-how (Bollinger and Smith, 2001; Grant, 1996). According to the knowledge-based view (Grant, 1996), *know-what* refers to the knowledge about concepts and facts such as what is the market, what determines the price of a product and what do customers want from the purchase of a product (Bollinger and Smith, 2001; Lundvall and Johnson, 1994). Businesses with knowledge of such underlying concepts and facts understand that a market consists of a heterogeneous interacting set of parties involved in the process of facilitating market exchange (Burnett, 2008; Kotler and Keller, 2012). Such broader understanding of the market enables pastoralists to utilize alternative mechanisms to trade their products and to influence the different parties such as individual brokers and traders and institutions that facilitate transactions (Kotler and Keller, 2012). The researchers also recognize that the product attributes the changes in demand for and the supply of similar products as well as the adjustments in government policies determines the price of a product, enabling them to make informed decisions to take advantages of favourable market conditions or to survive unfavourable ones.

Know-why refers to the knowledge about the logic of why things should be done, such as why businesses

should be customer-focused (Grant, 1996). *Know-why* is a higher-order knowledge that provides a fundamental understanding of the principle underlying the existence of businesses. Businesses exist to satisfy customers and thus to make a profit (Slater, 1997); this also holds for pastoralists as far as they participate in market exchanges. *Know-how* entails the knowledge of how things are actually done (e.g., how do customer-focused businesses create offerings that respond to changing customer preferences) (Clarke, 2001; Sinkula, 1994). Such knowledge of important sequential activities that customer-focused businesses undertake is relevant for pastoralists to realize which activities are first and which are next to consistently align products to customer needs (Flint, 2004; Webster, 2002). Customer-focused businesses first assess the market, select specific customers to serve and define what these customers value in specific product attributes (Flint, 2004; Lanning and Michaels, 2000). These businesses then procure inputs for production and develop the products according to the predefined attributes (Webster, 2002). Finally, the businesses communicate the product attributes and deliver the products to the pre-specified customers through an appropriate channel in a suitable time (Flint, 2004; Lanning and Michaels, 2000).

The capacity of pastoralists to integrate with and benefit from the livestock market can greatly depend on their knowledge and understanding of the market phenomena and the interpretation and translations of those phenomena to their livestock production and marketing business to consistently align their livestock to the preferences of livestock buyers. However, there is no evidence about what the pastoralists really know in this regard and what knowledge they need to focus on market-focused livestock production and marketing business. Therefore, a study was conducted that provides qualitative responses to the following research questions: (a) What do pastoralists understand about the market and how it functions? (b) Do pastoralists understand the logic why to know what the customer wants? (c) What do pastoralists know about how to respond to what the customer wants?

RESEARCH CASES AND METHODS

Research cases

To find answers to the research questions, we conducted a qualitative study in three pastoral regions in Ethiopia: Borana, Middle Awash (Afar), and Shinile (Somali) (Figure 1). In these regions, pastoralist supports 86 to 95% of the population's livelihood (CSA, 2007). The regions are prone to erratic rainfall and recurrent drought, which trigger feed and water shortages, as well as food and social insecurity. The regions differ in how remote they are from central markets, cities, trade routes and Ethiopia's export-import outlet/inlet, as well as in the existence/absence of large private and governmental investments with the high potential to influence the flow of knowledge and information. The regions are thus selected as comparative cases to understand and explain how



Figure 1. Regions included as cases in this study.

pastoralists in less remote (Middle Awash and Shinile) and pastoralists in more remote (Borana) areas differ in their market knowledge.

The Borana region is far from the central markets and has very few large-scale agricultural projects. Borana pastoralists pursue a less diversified livelihood, with pastoralism as the main source of livelihood. In this region, pasture (the main input for raising livestock) is more available compared to the two other regions. Borana pastoralists are known for having large herds of a cattle breed that is fertile and suitable for beef production (Haile et al., 2011; Zander and Mburu, 2013). This finding makes Borana an important source of supply for livestock traders, fattening operators, slaughterhouses and exporters who strive to respond to the growing demand for animal protein.

The Afar region is characterized by an arid and semi-arid climate with low and erratic rainfall, with a mean annual rainfall as that has decreased to 150 mm and a higher average temperature of as much as 48°C. The Middle Awash of Afar, the area selected as one case in this study, is close to the central markets and is crossed by a main road and a railway that connects Ethiopia with Djibouti, Ethiopia's export-import outlet/inlet. In this area, large scale state farms and the commercial irrigation of cotton plantations exist; these provide Afar pastoralists an opportunity to frequently interact with investors to obtain broader and up-to-date information regarding the market and employment opportunity. Middle Awash pastoralists also engage in income generation activities other than livestock selling. These pastoralists largely engage in charcoal production, which is supported by FARM-Africa (a non-governmental organization) to clear a thorny, shrub tree, named *Prosopis juliflora*. Locals call this tree the *devil tree*; it was introduced approximately three decades ago to afforest the arid lands of the region but resulted in negative impacts by invading and destroying the scarce vegetation available for pasture. Charcoal traders from large cities including Addis Ababa and Adama visit this area on nearly a daily basis to collect charcoal.

The Somali region, specifically the Shinile zone, is a low land, arid area with 95% of the population engaged in pastoralism (Save the Children, 2011). Shinile zone is close to Dire-Dawa, one of the big Ethiopian cities, Djibouti and Somaliland. Shinile pastoralists sell livestock in and purchase food items and consumer goods from Dire-Dawa and have close interaction with Djibouti (Devereux, 2006). This area is also a route for the oldest and most vibrant informal cross border livestock trading (via Djibouti and Somaliland) (FAO, 2014b). In addition to selling livestock and livestock products, Shinile pastoralists generate income from charcoal production by selling to consumers in Dire-Dawa and Djibouti (8 of 10 of our interviewees produce and sell charcoal).

The present study of the three regions provides us with insights to reflect on the current livestock production and the marketing practice of Ethiopian pastoralists. In addition, the less remote contexts of Middle Awash and Shinile situated near large cities and Ethiopia's export-import route and the more remote Borana with minimal interaction with the central market allow us to provide a comparative perspective on the know-what, know-why and know-how.

Research methods

Field data were collected through triangulated methods of personal observation, individual interviews and focus group discussions. Using triangulation to source data in multiple approaches maximizes validity in a qualitative study (Gliner, 1994; Yin, 2011). Gliner (1994) specifically explained that employing triangulated methods is an utmost priority in ensuring validity in qualitative studies. In qualitative data collection, triangulation entails the use of multiple data collection methods, which include interviews, focus group discussions, personal observations and documents, which, in complementarity, improve the rigor of the data source, the validity and the convergence of the evidence (Oliver-Hoyo and Allen, 2006;

Schwandt, 2001). In researching the knowledge, behaviour and opinions of individuals, it provides a considerable confidence to report the findings if one (the researcher) personally saw the practice of the subjects of the research (direct observation), if someone who is part of the community expressed his feelings and opinions to the researcher (key-informant interview), and obtained the opinions and feelings of a group who share common values and similar views (Yin, 2011). This qualitative study explores the market knowledge that pastoralists have and what knowledge they need to seize market opportunities. The use of triangulated methods of personal observation, individual interviews and focus group discussions to collect data from the pastoralists (as individuals and in group) is thus particularly important for the methods to complement one another and ensure the validity of the evidence. The validity of this study's evidence is more enhanced by collecting data from different sources (experts, pastoralists, fattening operators, traders, brokers and exporters) and pastoral settings and compared the findings to arrive at valid justification about the Ethiopian pastoral context; sourcing data from different actors and comparing findings of different settings also help to ensure validity (Yin, 2011).

To first understand the current livestock production and the marketing practices of pastoralists, we personally observed the grazing areas and the market places to witness the herd size, the composition and feeding, trekking animals to marketplaces; we also observed to whom pastoralists communicate within the marketplaces and how they deal with brokers and traders. We also interviewed pastoralists on how they decide and select animals to sell. Experts (#10) who have rich experience in the livestock sector were also approached to reflect on the livestock production and the marketing practices of pastoralists; they also reflected on the Ethiopian livestock value chain.

Data on the know-what, know-why and know-how of the pastoralists were collected through in-depth interviews and focus group discussions based on a structured case study protocol (Yin, 2003). With regard to know-what, pastoralists were requested to explain what the livestock market means to them, who operates within the livestock market and in what role, and what are the quality attributes that different livestock buyers (exporters, fattening operators or slaughterhouses) seek. Know-what also includes the pastoralists' knowledge on what determines the prices of animals. The know-what questions assessed the pastoralists' abstract and factual understanding of the livestock market, the forces that cause livestock prices to change (market dynamics) and the specific attributes of target buyers of livestock.

Questions pertaining to know-why investigated the understanding of pastoralists of the underlying reason regarding why considering the livestock attribute preferences of buyers during the livestock reproduction process is important. Know-why questions also assessed the pastoralists' knowledge regarding why knowing how other livestock suppliers respond to the demands from livestock buyers is important to their livestock production and selling decisions. The questions on know-how focused on how market-oriented livestock producers scrutinize the livestock market phenomena, select specific livestock buyers they can profitably serve, and produce and market animals that specific buyers are willing to buy and pay for. Interviews on the know-what, know-why and know-how were conducted with 25 Borana, 15 Middle Awash and 10 Shinile pastoralists; 50 pastoralists in total. Key informants selection was based on the principle of representativeness (who have the necessary knowledge and experience to our research case) and saturation in which an additional interview no longer provides new information (Eisenhardt and Graebner, 2007; Mason, 2010). Interviews with pastoralists were largely conducted around settlements and grazing areas; a few were conducted around marketplaces. Marketplace interviews were conducted early, before peak market hours, or at the end of the market day to avoid infringing on the pastoralists' core business. In addition to the

interviews, we conducted three focus group discussions (one in each region) that consisted of an average of six to eight participants in each group. Each group discussion took, on average, one to one and half hours (Morgan, 1996). All interviews and discussions with pastoralists were conducted with the support of development agents (DAs) and employees of a local organization to easily bypass traditional hierarchies (from clan leaders to ordinary pastoralists), easily bridge communications and to minimize the stranger effect. The interviews and discussions on know-what, know-why and know-how were focused on obtaining responses to the research questions.

Finally, interviews were conducted with other actors from the Ethiopian livestock value chain including livestock brokers and traders (#10), fattening operators (#3), and meat and live animal exporters (#5) to obtain their opinions and reflections on the livestock quality and supply from pastoralists and the challenges these actors encounter to obtain the quality and quantity of livestock they want. Each interview lasted approximately 45 minutes to one hour. All interviews and group discussions were recorded and transcribed nearly exactly to capture the true feelings, the knowledge and the challenges of the pastoralists. We utilized a content analysis approach by identifying the quotes from individual informants that contain key words that pertain to the know-what, know-why or know-how (Table 1 for illustrative quotes). The quotes were then coded as know-what, know-why or know-how. Subsequently, we combined all quotes based on their respective codes for each region and summarized these into specific findings of the three types of knowledge. Finally, we compared the findings between the less remote areas of Middle Awash and Shinile regions on one hand and the remote Borana region on the other hand (Table 2).

RESULTS AND DISCUSSION

Figure 2 presents the current traditional livestock value chain that flows from pastoralists as primary producers to the export markets in Ethiopia and then to international markets. The value chain incorporates several members, including brokers traders, hotels, fattening operators, and slaughterhouses, as well as meat and live animal exporters, at different stages of market exchanges. Knowing what roles these members play in the market, the interdependence among chain members, what the subsequent chain members require from the preceding member(s), and why and how to respond to their requirements are useful to produce and supply what customers value. Producing and supplying products according to the requirements of the chain members strengthens and sustains relationships with the chain members, and thus enables them to satisfy the needs of end-consumers through collaborative and coordinated efforts (Kothandaraman and Wilson, 2001; Porter, 1985).

Current livestock production and marketing practices of Ethiopian pastoralists

The current livestock production and marketing practices reveal that the majority of Ethiopian pastoralists primarily raise livestock (cattle, goats, sheep and camels) to increase herd size as a reflection of social status and for nonmarket values (wealth in physical stock). The

Table 1. Illustrative quotes from pastoralists, traders, fattening operators, and experts.

Know-what	<p>'I always trek and sell my animals in Dubuluq. It is about 5 hours trekking from here (the village the pastoralist lives in)' (A Borana pastoralist).</p> <p>'I have contact with traders from Djibouti and Somaliland. I usually ask them when they will come to Dire-Dawa and Babile and what type of animals they will buy' (A Shinile pastoralist).</p> <p>'What pastoralists usually know is selling their animals when they need cash. Most pastoralists wait for the regular market days to sell their animals' (A fattening operator).</p> <p>'Pastoralists understand very obvious facts like the fixed marketplace as means of exchange. In the past when drought hits the pastoralists, the government offices have been sometimes arranging direct contact between traders and pastoralists, and they force the pastoralists to sell animals to the traders to avoid losses. It was a forceful quota system, and this can tell you that pastoralists don't consider it as a trading mechanism. In response to your question on which pastoralists are more knowledgeable about the market, I would definitely say Shinile (Somali) and then Middle Awash, but they don't have enough resources to attract the market' (An expert from SOS Sahel).</p> <p>'I have been researching the situation of pastoralists for several years now. If you approach Borana pastoralists and ask them about rich people in their clan, they can explain to you the name of every rich pastoralist's number of animals, the number of lactating cows he has, and even their colours. But they don't know the value of his animals in terms of the market. Regarding awareness, Somali (Shinile) pastoralists are more aware about the market, but Borana pastoralists have a huge market potential' (An expert from Pastoralist Forum Ethiopia).</p>
Know-why	<p>'Why do you ask me to think about people living in cities (customers)? I am a pastoralist raising livestock. Of course, I sell animals, and I get money. We don't ask buyers for money for free' (A Borana pastoralist).</p> <p>'I have been frequently facing rejections of my animals in the marketplace. I don't know why traders reject my animals. You have to ask the traders why they reject our animals' (A Borana pastoralist).</p> <p>'Why should I know how others produce and supply livestock? I don't compete with anyone' (A pastoralist from Middle Awash).</p> <p>'Our customers, especially exporters, demand the supply of livestock with specific attributes (weight, height, age and sometimes colour). Pastoralists usually don't know why they should care about the history (age) of their animals and at what age to sell their animals. I travel a lot to visit several marketplaces to obtain the required quality and quantity of livestock' (A trader).</p> <p>'Pastoralists continue to practice the traditional way of herding livestock they inherited from their ancestors. They focus on building herd size. To purposely focus on the market is not yet in their mindset' (An expert from Mercy corps).</p>
Know-how	<p>'I choose an animal depending on the cash I need. I only sell an ox if I need more cash to buy heifers for reproduction, cereals and cloths. I sell goat if I need to buy small things like kerosene, and pens and pencils for my children' (A Borana pastoralist).</p> <p>'I don't think pastoralists know the detail market-oriented activities to reproduce livestock for market. Pastoralists focus on production activities for themselves, not for the market' (An expert in SOS Sahel).</p> <p>'Pastoralists are very traditional and largely focus on increasing herd size. I don't believe they know what activities to undertake to produce commercially viable livestock' (An expert from FAO).</p>

livestock raising and managing practices of pastoralists is primarily destined to fulfil their needs, for example, milk production for household consumption. Pastoralists focus more on female animals because milk production is their major source of food. One can easily observe in the places where their livestock are corralled that many pastoral households have high percentage of female animals in their herd composition (for some pastoralists, as much as 80 to 85%). Pastoralists restrict grazing areas to feed lactating cows while the remainder move over long distances to search for pasture and water to ensure sustainable milk production and herd reproduction. A Borana pastoralist noted 'I have a few cows settled

here to produce milk for the family. The other herds are far from here; it can even take me two days to find them'. Herd mobility is increasing periodically due to erratic rainfall and recurrent drought that force rangelands to deteriorate, which, in turn, leads to the reduction of milk production (Feed the Future, 2015).

The evidence from our interviews with pastoralists and experts shows that declining milk production forces pastoralists to use the livestock markets more to sell livestock to obtain cash to purchase food items.

Most pastoralists decide the type of animals (goat/sheep, cattle or camel) they should sell largely based on the amount of cash they need to cover their

Table 2. Summary of findings by region.

Variable	Borana	Shinile/Middle Awash
Know-what	They usually devote much of their time to reproducing livestock in the remote grazing field. They recognize the routine of selling livestock in the fixed marketplaces or selling to rural traders on the way to the marketplaces.	Because of their interaction with nearby cities, charcoal traders and buyers from Djibouti and Somaliland, they have a relatively broader understanding of the livestock market compared to Borana pastoralists. Shinile pastoralists are better in recognizing alternative means through which they can gather market information and trade animals.
Know-why	They understand minimal regarding why they should consider the interest of buyers during livestock production. Knowing how other livestock suppliers assess and respond to livestock buyers is not a concern for Borana pastoralists.	They relatively recognize why they should be concerned about the preferences of buyers, but they do not understand why they should focus on the actions of other livestock suppliers. They do not understand the essence of competition.
Know-how	For most Borana pastoralists, knowledge is more on asking for price, choosing the animal that can be sold at or equivalent to the estimated amount of the household expenditure and meeting the broker to negotiate on their behalf.	These pastoralists, especially in Shinile, recognize more market-oriented activities including asking hotel owners about their interest, buying from markets, stall fattening cattle and then selling to the hotels.

their expenditures rather than on market conditions that cause the price of animals to increase or decrease. Because the majority of pastoralists sell animals to satisfy their cash needs, the frequency and number of livestock market off-take is low (this is very low during the wet seasons as milk production is sufficiently high to feed a household). The experts we interviewed explained that although traders are not interested in drought stricken, thin and undernourished animals, pastoralists often become desperate to destock more livestock during the dry season to avoid losses. The experts noted that low market off-take rates during the wet season and high death rates during heavy droughts continue to shrink the herd size of Ethiopia pastoralists.

Market knowledge among pastoralists: Know-what, know-why and know-how

From the insights on the current livestock production and marketing practices and the

findings from the know-what, know-why and know-how interviews with pastoralists, as discussed, the capacity of pastoralists to successfully and sustainably participate in the livestock market is beyond developing physical resources such as roads and marketplaces. Although roads and marketplaces are necessary, they are not sufficient for pastoralists whose mindset is oriented to reproduce livestock for nonmarket values, such as obtaining social status. The explanation of the findings on know-what, know-how and know-how discloses that the majority of the pastoralists, most importantly Borana pastoralists who have a high potential of marketable cattle breeds, lack the mindset that incorporates why they should be so concerned about the needs and interests of customers during livestock reproduction.

Know-what

In the context of pastoralists, a *livestock market* is any mechanism (e.g., a fixed physical place, a

direct personal contact, a negotiation with buyers or an arrangement through non-governmental organizations (NGOs), government offices, experts, families, friends or brokers) that allows livestock sellers and buyers to interact and effect exchanges. Thus, market exchanges can be effectuated through multiple interaction mechanisms that allow the pastoralists and livestock buyers to have unrestricted access to each other and that enable buyers to influence the livestock production in response to their current and future demands. For Borana, what most pastoralists know and consider when trading their livestock is the regular market days in fixed marketplaces. For most of the Borana respondents (88%), the term 'market' means a fixed physical place where many people gather to buy or sell goods. These pastoralists explained that they usually trek their animals over long distances to sell them in the nearest marketplaces. One Borana pastoralist, for example, defined a market as 'Dubuluq'(the name of a marketplace with Friday as a regular market day). The pastoralist further

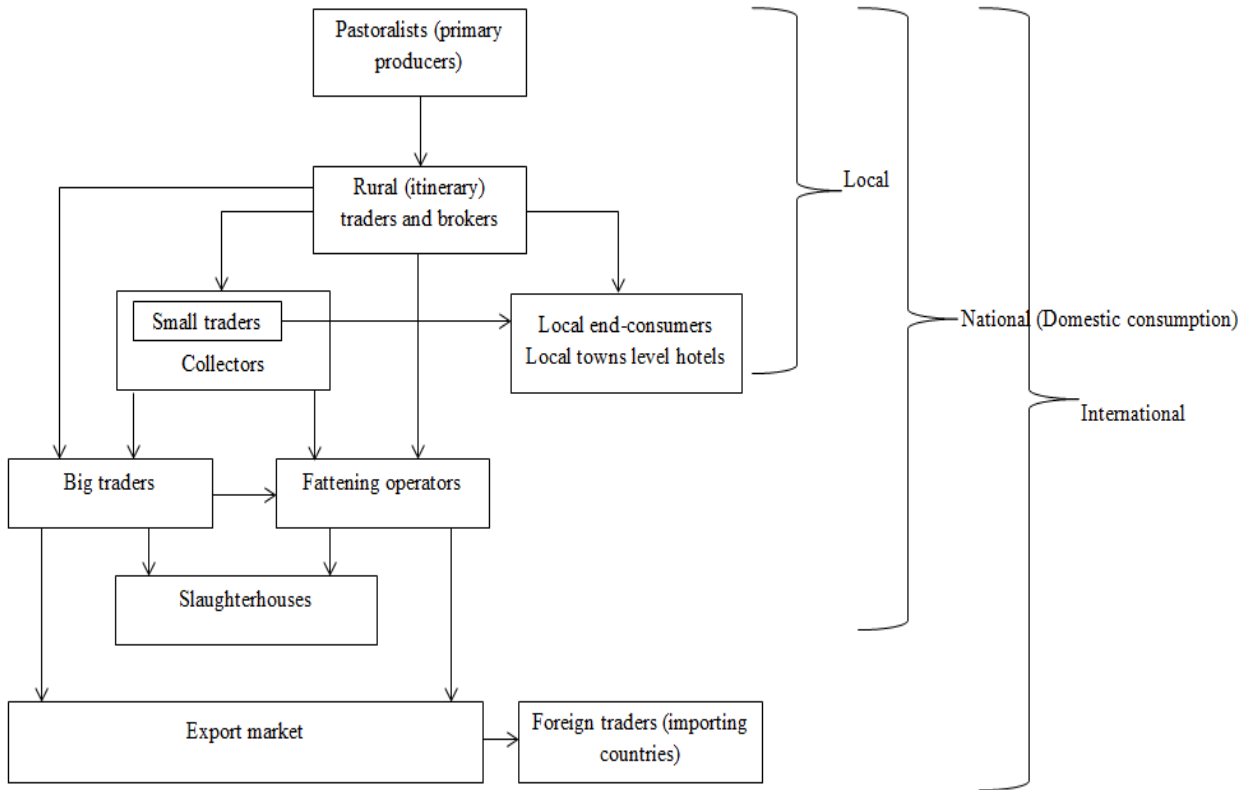


Figure 2. Ethiopian traditional livestock market chain.

explained, ‘I always sell my animals in Dubuluq. Other marketplaces are very far from our village.’ For Awash and Shinile, pastoralists have a relatively broader understanding of the livestock market. Importantly, Shinile pastoralists recognize a market as trading livestock in fixed marketplaces with cross-border traders and directly selling to hotel owners in Dire-Dawa and Djibouti. In this regard, one Shinile pastoralist noted, ‘I sell cattle in Babile (a nearby market place that is frequently visited by cross border traders via Somaliland and Djibouti) and have regular contact with and supply goats to Hotels in Dire-Dawa. I also know collectors who usually contact me one week in advance to prepare and supply sheep and goats to the rail route travelling from Dire-Dawa to Dewelle (Ethio-Djibouti border)’.

Livestock prices in Ethiopia change because of changes in the domestic demand for meat (usually due to consumers’ income changes, fasting, animal disease outbreaks, or government tax impositions), cross-border trade, supply (surplus or shortage) from producers, as well as consumer demands in importing countries and changes in the regulations of the importing countries. Borana pastoralists are more aware of the obvious facts such as the regularly occurring local Christian and Muslim fasting and holidays. Our respondents in Borana noted that they usually feel the price changes; however, they have minimal understanding of the factors that

cause the change. For Shinile, pastoralists are relatively more aware that, in addition to the regular fasting and holidays, demand from buyers from Dire-Dawa, Djibouti and Somaliland, and cross-border government control (tight or loose) cause the price of animals to change (increase or decrease). The evidence from our interviews with traders, fattening operators, exporters and experts shows that the different buyers in the Ethiopian livestock value chain have their own specific attributes for livestock they want to buy. Most pastoralists recognize that buyers are traders of a similar type. Most of the respondents in Borana responded to our question, ‘what different livestock buyers do you know?’ as, ‘I know the buyers are daldalaas (a Borana translation for traders)’. Pastoralists in Middle Awash and Shinile differentiate buyers as traders selling via or to Djibouti and Somaliland (export), retailers (hotels and slaughterhouses) and end-consumers buying goats and sheep.

Know-why

Exploring and acquiring knowledge from the market environment about the livestock value chain members is very difficult for the remote pastoralists who are isolated from accessing productive resources such as education, communication or minimal influence from the market.

Although understanding the logic of why pastoralists should consider the interest of livestock buyers during livestock production is difficult for all pastoralists, it is more difficult for the more remote Borana pastoralists. In contrast to Middle Awash and Shinile pastoralists who frequently meet with charcoal traders, central market traders and those trading to Djibouti and Somaliland, as well as to those who interact with large hotels in large cities such as Dire-Dawa, remote Borana pastoralists have minimal knowledge regarding why they should consider the needs and interests of buyers during livestock production. In response to the question 'Do you know why you should consider the interest of buyers when you raise your livestock?' one pastoralist in Shinile explained, 'Hotels in Dire-Dawa reject my goats if I do not supply the goats with the required weight and height'. Conversely, a pastoralist from Borana replied, 'We are pastoralists raising livestock for ourselves. Daldalaas give us money by taking our livestock in return.' For the remote pastoralists who usually spend much of their time reproducing livestock in the grazing fields, the livestock are important to the satisfaction of their own interests (that is, milk production and social status); they do not consider buyers' interest that could have guided their livestock production while raising the livestock.

With regard to whether knowing how other livestock suppliers respond to the preferences of livestock buyers, the pastoralists do not recognize it as competition from existing and potential livestock suppliers and as substitutes that livestock buyers may consider. Pastoralists know that there are others who supply livestock to the market, but they do not consider them as their competitors. The majority of the Borana pastoralists (92%) and the Middle Awash and Shinile (80%) do not sense and recognize rivalry although it exists. The pastoralists' responses to our question 'Do you consider highland farmers as your competitors?' were 'No, they are not our competitors. They do their own job and we do ours. We have our own separate fates and chances; they cannot take the chance that is already meant for us'. Competition, in the context of pastoralists, completion regards learning how other livestock suppliers respond to market requirements and strive to use such understanding as the input to produce high quality livestock for the market. The fact that pastoralists do not understand competition, regardless of whether they are less or more remote, can be explained from the customary rules they have developed for generations to support each other and not to compete over the scarce natural resources needed to survive in the harsh environment.

Know-how

On the knowledge of important sequential activities to produce and market livestock that buyers are willing to buy and pay for, pastoralists are more familiar with the

production-oriented and selling activities ("make and sell") such as raising the animals and selling when cash is needed. The customer-oriented activities of assessing the livestock market, selecting specific buyers to serve, defining livestock attributes in specific terms and reproducing livestock to respond to the needs of the buyers ("sense and respond") are nearly unknown to the pastoralists. Pastoralists know that they can gather price information by visiting marketplaces, by asking brokers from their clan and by discussing this with clan members who have been to the marketplaces. Pastoralists gather price information not to strategically use the information to leverage by responding to price trends but for immediate consumption to obtain the cash they need to cover immediate expenditures.

Comparatively, Middle Awash and Shinile pastoralists are more aware of the sequentially important production and marketing activities needed to produce and market commercially viable livestock. For example, Shinile pastoralists list more activities they know such as visiting the marketplaces to know what type of animals have high demand, asking traders about the demand for cattle, sheep and goats in Djibouti, Somaliland and the Middle East, asking hotel owners about their interest, and buying fodder and animals for stall fattening and resale. In contrast, the listing so most Borana pastoralists focus on choosing animals that can be sold at or equivalent to the cash they need, trekking the animals to the marketplaces and contacting brokers to negotiate for favourable prices on their behalf.

Overall, despite the knowledge differences that arise from locational advantage (remoteness), pastoralists understand more obvious and physical facts about the livestock market. Pastoralists' knowledge entails what they have acquired through every day experiences and repeated actions, as well as what they have learned from their ancestors. A higher-order and more abstract understanding regarding the manner in which the livestock market functions and most importantly, why the livestock buyer (the customer) is the most important stakeholder to consider while reproducing the livestock is not captured in the pastoralists' livestock production mindset. Consequently, it is commonplace to hear pastoralists complaining about the livestock market on one hand, and traders, fattening operators and exporters complaining about the quantity and the quality of the livestock supply from pastoralists on the other hand.

Reflections from livestock value chain members

Pastoralists complain that they benefit less from their market participation. The pastoralists complain that they encounter frequent rejections of their animals in the marketplaces or dispose of their animals at lower prices. One pastoralist in Borana explained, 'After travelling long distances to the marketplaces, we want to sell our

animals and return back to our settlements on time. But buyers often offer lower prices for our animals that we hoped to sell at better prices. We have no option other than selling. We cannot trek them back over the long distance'. Another pastoralist in Middle Awash exclaimed, 'I have no answer why I sold my best ox at a price that cannot even buy enough food for my family for Sugum (an Afar translation of the short (rainy) season of March to April)'. Pastoralists barely recognize that what is the best ox for them may not necessarily be best for the buyers. For example, pastoralists can consider a fattened, castrated ox as good quality, but castrated and old animals are not needed by exporters that pay higher prices. The pastoralists usually put the blame on the brokers and traders and rarely assume that their production-oriented business model is the reason for the lower prices and the low-quality animal-motivated rejections.

Pastoralists' blame of brokers and traders holds true for post-production, specifically for the ability to bargain for prices. Well-informed brokers and traders occasionally use ruses, psychological games and communication signs that pastoralists barely understand to communicate pricing or to mislead pastoralists. We observed that pastoralists become victims of the communication artifices and psychological games. In Borana, for example, we observed a trader using three brokers offering different prices to a bull of a pastoralist. The first broker offered a higher price, and subsequent brokers undermined the quality of the animal and offered sequentially lower prices. Because the pastoralist did not understand the ruse, he rejected all subsequent prices and waited for other buyers to offer him a better price; however, no one offered him a price above that of the first broker. Late in the afternoon, only the broker who offered the lowest price appeared; he knew the pastoralist was desperate to sell his bull and return to his settlement before sunset. Experts substantiated our observation that such a ruse and other unethical business dealings that exploit pastoralists are very common. Although pastoralists believe that brokers cheat them, the pastoralists' lack of knowledge to envisage alternative selling means, to influence negotiations in the marketplace or to have greater certainty regarding future sales by bypassing brokers force them to utilize these familiar brokers. For example, we found binding sentences such as, 'I usually contact the brokers from my clan and whom I've known for many years. I don't contact other brokers even when I feel I didn't get the right price'.

Traders, fattening operators and exporters also express their dissatisfaction for the current production and marketing practices of pastoralists. Traders complain that their efforts to bridge the members of the livestock value chain are full of challenges due to the shortage of quality and quantity in the supply of livestock from the source. The complaint from traders can be summarized as, 'We serve the demands of livestock from different buyers with

different requirements. The supply from producers including pastoralists does not account for buyers' requirements and is not in volume. Pastoralists sell animals largely when they need cash. This makes our job challenging because we have to visit several local marketplaces to collect the volume and quality of livestock that our buyers want'. Fattening operators also state that the shortage of quality livestock supply, and other issues, provides an uncertain future for their business. Fattening operators usually buy young and skinny animals with high fattening (increase both in weight and height) potential to feed and fatten for resale for domestic and international consumption.

In the area, we visited and where many fattening operators are concentrated, fattening operators primarily focus on fattening cattle and goats. These fattening operators prefer a cattle breed named '*Boran*' (with Borana pastoralists as the main source of this breed) and similar breeds from other low land areas; this includes cattle from the Bale lowlands and goats from Afar and Somali. Boran cattle breed is ascertained as a fast growing and quality beef breed compared to other indigenous cattle breeds in Ethiopia (Haile et al., 2011). Borana pastoralists, however, largely reproduce this breed for milk production and high social value. Fattening operators complain that they are operating under capacity primarily because of the supply shortage of such livestock. A fattening operator in Modjo (a town approximately 70 km far from Addis Ababa and where many of the fattening operators are concentrated) noted, 'I have the capacity to fatten 1,000 to 1,500 bulls over a period of three months, but I only have 120 bulls in stock as we could not find the right quality and quantity livestock from the market'. Fattening operators explain the shortage of quality livestock as, 'We often face age, muscularity and genetic problems. Producers do not bring animals at their right age for fattening'.

Exporters also echoed their dissatisfaction with the current livestock production and marketing practices of pastoralists. The evidence from our interviews with exporters indicates that importing countries that usually purchase Ethiopian livestock prefer uncastrated, young (with an average age of 2.5 to 3 years), fattened, healthy and (most often hornless) male animals. However, obtaining livestock that exactly fulfil these attributes in large volumes at once is challenging. Pastoralists do not maintain history data on their animals, for example, age and heath data, as they do not purposely reproduce the livestock for market. An exporter in Adama (the terminal market) explained, 'My interaction with importers is increasingly becoming less frequent as importing countries are increasingly becoming strict in food quality and safety while there is no change in livestock quality in the source'. The consequence is that small quantity and low quality livestock supplier pastoralists sell their animals to small and rural traders at local markets at lower prices. The pastoralists subsequently lose profits

Table 3. Summarising the concluding remarks from literature and findings of this study.

Studies on market integration of pastoralists			Studies on market knowledge			This study	
Representative references	Focus	Concluding remark	Representative references	Focus	Concluding remark	Focus (market knowledge)	Major findings
Barrett (2008), McPeak and Little (2006), Rugadya et al. (2005), and Teklewold et al. (2009)	Institutional environment (roads, finance, marketplaces, information communication facilities) (The market integration literature overlooks the role of market knowledge of pastoralists to complement and which can also facilitate the utilization of the productive assets in the intuitional environment).	-Construction and expansion of roads, market places and market information facilities (communication technology). -Reducing transaction costs (opportunism and rent-seeking behavior of market channel members) to overcome supply-chain development problems.	Bollinger and Smith (2001), Glazer (1991), Grant (1996), Kim and Atuahene-Gima (2010)	Formally established businesses in advanced markets	Knowledge about how the market functions, what the customers in the market where the businesses operate and why customers become willing to repeatedly purchase and pay for enable the businesses to align their products to the customers' expectation and to supply products that they can sell ("sense and respond").	Know-what	Whereas a <i>livestock market</i> can be considered as any mechanism (e.g., a fixed physical place, a direct personal contact, a negotiation with buyers or an arrangement through non-governmental organizations (NGOs), government offices, experts, families, friends or brokers) that allows the pastoralists to trade their livestock, for the majority of pastoralists it is a fixed marketplaces regular where the pastoralists trade their livestock in regular market days.
						Know-why	Pastoralists who spend much of their time reproducing livestock in the grazing fields assume that they reproduce livestock essentially to satisfy their own interests (that is, milk production and social status), and rarely see their livestock reproduction business from the eyes of the buyers.
						Know-how	On the knowledge of important sequential activities to produce and market livestock, pastoralists are more familiar with the production-oriented and selling activities ("make and sell"). The customer-oriented activities of assessing the livestock market, selecting specific buyers to serve and reproducing livestock based on targeted needs ("sense and respond") are nearly unknown to the pastoralists.

with the knowledge that can help them to broaden their thinking horizon to understand the market can enable them to recognize the benefits of raising livestock purposely to satisfy the demands of the market and to earn profits.

To sum up the discussion of this study, we interface the concluding remarks from the literature on market integration of pastoralists, the concluding remarks of the business literature on market knowledge and the findings of this study (Table 3). The literatures on the market integration of the pastoralists largely exert efforts on creating an enabling institutional environment (developing roads, information communication facilities, marketplaces and access to finance). Despite such efforts remote and traditional pastoralists are

still not taking full advantage of created market opportunities. This study contends that creating an enabling institutional environment is necessary but not sufficient for the remote pastoralists to reproduce and supply livestock that meet customer requirements. The pastoralists lack the high-order knowledge of why to see their livestock reproduction and marketing from the eyes of the buyers in the market. The business literature ascertains that knowledge on why to focus on what the customer's value and become willing to purchase products is essential for producers to organize their production and marketing around creating value for the customer and take advantage of market opportunities. By developing such knowledge, the pastoralists can thus

comprehend how the market functions, make-informed choice and decision to organize their livestock reproduction to meet customer requirements and utilize the facilitating resources in the institutional environment to trade their livestock.

CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

This study sets out to find answers to research questions that include understanding pastoralists' knowledge of the livestock market, whether pastoralists comprehend the logic why to know what the customer wants and whether they know

how to respond to what the customer wants. Ethiopian pastoralists largely understand the livestock market as a fixed physical place with regular market days for sellers and buyers to meet and transact. These pastoralists rarely recognize markets as a mechanism with different actors and respective roles to facilitate transactions between trading partners. These pastoralists also rarely recognize the relevance of considering the needs and interests of buyers during livestock reproduction. Instead, the majority of the pastoralists attempt to sell animals that they produce primarily to satisfy their own needs and interests, which is building herd size to ensure sustainable milk production and gain higher social status. Pastoralists rarely know how to strategically scrutinize the livestock market phenomena with the intention to align livestock reproduction to respond to the changing preferences of livestock buyers. We thus contend that developing physical infrastructure is necessary but not sufficient for the successful and sustainable market integration of pastoralists. Beyond removing physical distance, pastoralists need knowledge that reorients their isolated mindset to incorporate an expanded perspective on how the market operates and the logic regarding why customers decide and are (un)willing to invest their money to purchase products. With such marketing-based livestock production mindsets, pastoralists can productively use the infrastructure to frequently sell animals that buyers are willing to purchase.

The comparative analyses reveal that less remote pastoralists have more opportunities to explore and acquire knowledge from the market environment, which enables them to recognize market opportunities and to align their livestock to what buyers are willing to spend their money on. Frequent interactions with buyers enable the less remote pastoralists to build experiences regarding the quality attributes of the animals that buyers seek. Conversely, remote pastoralists who spend much of their time in the remote grazing areas have minimal opportunities to learn from the external environment because of their limited interaction with market actors and institutions. Due to the limited flow of knowledge and the information from the market environment, remote pastoralists exploit the knowledge they have learned from their family and from the community orientation that supports livestock asset building. Pastoralists thus are rarely customer-centric or aware of customers during production.

The capacity of the pastoralists to expand their thinking horizons to envision beyond the status quo to incorporate a market-based mindset can be stimulated through empowering them with market knowledge. We therefore recommend that, in their policies and projects, policy makers and development workers consider building pastoralists' market knowledge. One option to facilitate market knowledge development among pastoralists is to create an opportunity for pastoralists to easily interact with and learn from subsequent members of the livestock

value chain. Thus far, the development literature has provided insights on developing infrastructure such as roads and information communication facilities to allow information to flow among market actors (Barrett, 2008; Verbeke et al., 2009). Constructing roads and information communication facilities can reduce the barriers that undermine the livestock value chain members', including pastoralists, efforts to frequently interact. Developing infrastructure, however, takes long periods and requires the allocation of capital budgets with long-term effects. Focusing on infrastructure to facilitate market knowledge development over shorter periods will slow the undertaking of other recurrent and important activities that compete for scarce resources in developing countries such as Ethiopia. Policy makers and development workers should therefore seek complementary approaches such as marketing training that they can offer within their recurrent budgets to help remote pastoralists develop market knowledge over a relatively shorter period.

Marketing training is a specific element of education that conveys new market knowledge or that modifies and/or expands the market knowledge and the learner attitudes of learners or helps to maintain level of competence to respond to new developments and changing circumstances, and it enhances productivity (Goldstein, 1993). Because education shapes the minds of people by teaching fundamental concepts to develop foundational knowledge that will help them to process information to make logical and strategic decisions for a better future (Bostrom and Sandberg, 2009; Heckman, 2006; UNESCO, 2006), marketing training can equip pastoralists with a fundamental knowledge of how the livestock market functions and the reasons to consider the preferences of livestock buyers. Teaching fundamental marketing concepts such as markets, exchanges, customers, market dynamics, competition and value creation can acquaint the pastoralists with this fundamental marketing knowledge (Kotler and Keller, 2012).

This qualitative study investigated the market knowledge gap among pastoralists. Further quantitative study could be necessary to provide complementary insights and also to share the experience of conducting quantitative study to explore the market knowledge of remote and traditional communities. Further research could also study how to effectively teach the low-literate pastoralists to acquaint them with market knowledge so that they can focus on market-based livestock production to earn profits and to lift themselves out of poverty. Because pastoralists have their own traditional means of transferring knowledge over generations, such as metaphors and storytelling, further research could identify teaching methods and investigate how the methods from educational literature can be integrated with the pastoralists' traditionally structured methods to convey new knowledge. Studying and documenting the

knowledge gap and the methods suitable to teach the low-literate, traditional pastoral community could serve as an input to designing training interventions that empowers pastoralists to adjust their livestock to reap sustainable market-based economic benefits.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

- Aklilu Y, Catley A (2009). Livestock Exports from the Horn of Africa: An Analysis of Benefits by Pastoralist Wealth Group and Policy Implications. Feinstein Center, Tufts University, Medford, MA.
- Bandura A (1989). Social Cognitive Theory, in R. Vasta (eds), *Annals of Child Development*. Six Theories of Child Development. Greenwich, CT: JAI Press 6:1-60.
- Barrett CB (2008). Smallholder Market Participation: Concepts and Evidence from Eastern and Southern Africa. *Food Policy* 33(4):299-317.
- Bellemare MF, Barrett CB (2006). An Ordered Tobit Model of Market Participation: Evidence from Kenya and Ethiopia. *American Journal of Agricultural Economics* 88(2):324-337.
- Bollinger AS, Smith RD (2001). Managing Organizational Knowledge as a Strategic Asset. *Journal of Knowledge Management* 5(1):8-18.
- Borras SM (2010). The Politics of Transnational Agrarian Movements. *Development and Change* 41(5):771-803.
- Bostrom N, Sandberg A (2009). Cognitive Enhancement: Methods, Ethics, Regulatory Challenges. *Science and Engineering Ethics* 15(3):311-341.
- Burnett J (2008). *Core Concepts of Marketing*. Global Text, Jacobs Foundation.
- Carletto C, Kirk A, Winters PC, Davis B (2010). Globalization and Smallholders: The Adoption, Diffusion, and Welfare Impact of Non-Traditional Export Crops in Guatemala. *World Development* 38(6):814-827.
- Clarke T (2001). The Knowledge Economy. *Education+ Training* 43(4/5):189-196.
- Central Statistical Agency (CSA) (2007). 2007 Population and Housing Census of Ethiopia Report. Ethiopian Central Statistical Agency (CSA), Addis Ababa, Ethiopia.
- Central Statistical Agency (CSA) (2013). Report on Livestock and Livestock Characteristics (private peasant holdings), Agricultural Sample Survey, 2012/13 (2005 E.C.), Statistical Bulletin 570, Volume II. Addis Ababa: Ethiopian Central Statistical Agency.
- Davies J (2008). Turning the Tide: Enabling Sustainable Development for Africa's Mobile Pastoralists. *Natural Resources Forum* (32):175-184.
- Davies J, Hatfield R (2007). The Economics of Mobile Pastoralism: A Global Summary. *Nomadic Peoples* 11(1):91-116.
- Delgado CL (2003). Rising Consumption of Meat and Milk in Developing Countries has created a New Food Revolution. *Journal of Nutrition* 133(11):3907S-3910S.
- Devereux S (2006). *Vulnerable Livelihoods in Somali Region, Ethiopia*. Institute of Development Studies. Research Report 57, London.
- Dixon J, Tanyeri-Abur A, Wattenbach H (2004). Framework for Analysing Impacts of Globalization on Smallholders, in Dixon, Taniguchi, Wattenbach and Tanyeri-Abur (eds) *Smallholders, Globalization and Policy Analysis* (Vol. 5): FAO.
- Dorward A, Kydd J, Morrison J, Poulton C (2005). Institutions, Markets and Economic Coordination: Linking Development Policy to Theory and Praxis. *Development and Change* 36(1):1-25.
- Eisenhardt KM, Graebner ME (2007). Theory Building from Cases: Opportunities and Challenges. *Academy of Management Journal* 50(1):25-32.
- Food and Agriculture Organization (FAO) (2014a). *Understanding Smallholder Farmer Attitudes to Commercialization: The Case of Maize in Kenya*. Rome.
- Food and Agriculture Organization (FAO) (2014b). *Informal Cross Border Livestock Trade in the Somali Region*. Policy Brief, FAO's Regional Initiative in Support to Vulnerable Pastoralists and Agro-Pastoralists in the Horn of Africa.
- FAO and IFAD (2016). *FAO's and IFAD's Engagement in Pastoral Development: Joint evaluation synthesis*. Report no. 3909.
- FAO and UNESCO (2003). *Education for Rural Development: Towards New Policy Responses*. A Joint Study conducted by FAO and UNESCO.
- Feed The Future (2015). *Ethiopia Pastoralist Areas Resilience Improvement and Market Expansion (PRIME) Project Evaluation*. Baseline Survey Report. Feed the Future report for USAID.
- Flint DJ (2004). Strategic Marketing in Global Supply Chains: Four Challenges. *Industrial Marketing Management* 33(1):45-50.
- Frick J, Kaiser FG, Wilson M (2004). Environmental Knowledge and Conservation Behaviour: Exploring Prevalence and Structure in a Representative Sample, Personality and Individual differences 37(8):1597-1613.
- Glazer R (1991). Marketing in an Information-Intensive Environment: Strategic Implications of Knowledge as an Asset, *Journal of Marketing* 55(4):1-19.
- Gliner JA (1994). Reviewing qualitative research: Proposed criteria for fairness and rigor. *The Occupational Therapy Journal of Research* 14(2):78-90.
- Goldstein IL (1993). *Training in organizations: Needs Assessment, Development, and Evaluation*. Thomson Brooks/Cole Publishing Co.
- Grant RM (1996). Toward a Knowledge-based theory of the firm. *Strategic Management Journal* 17:109-122.
- Haile A, Ayalew W, Kebede N, Dessie T, Tegegne A (2011). Breeding Strategy to Improve Ethiopian Boran Cattle for Meat and Milk Production. Improving Productivity and Market Success of Ethiopian Farmers project (IPMS). ILRI working paper no. 26.
- Headey D, Taffesse AS, You L (2014). Diversification and Development in Pastoralist Ethiopia. *World Development* 56:200-213.
- Heckman JJ (2006). Skill Formation and the Economics of Investing in Disadvantaged Children *Science* 312(5782):1900-1902.
- Hesse C, MacGregor L (2006). Pastoralism: Drylands' Invisible Asset? Developing a Framework for Assessing the Value of Pastoralism in East Africa. International Institute for Environment and Development (Iied) issue paper no 142.
- Hiebert J (1986). *Conceptual and Procedural Knowledge: The Case of Mathematics*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Homewood KM, Trench PC, Brockington D (2012). Pastoralist Livelihoods and Wildlife Revenues in East Africa: A Case for Coexistence?, *Pastoralism* 2(1):1-23.
- Ingenbleek P, Tessema WK, van Trijp JCM (2013). Conducting Field Research in Subsistence Markets, with an Application to Market Orientation in the Context of Ethiopian Pastoralists. *International Journal of Research in Marketing* 30(3):83-97.
- Jayne T, Mather D, Mghenyi E (2010). Principal Challenges Confronting Smallholder Agriculture in Sub-Saharan Africa. *World Development* 38(10):1384-1398.
- Johannessen AB, A Skonhott A (2011). Livestock as Insurance and Social Status: Evidence from Reindeer Herding in Norway. *Environmental and Resource Economics* 48(4):679-694.
- Kim N, Atuahene-Gima K (2010). Using Exploratory and Exploitative Market Learning for New Product Development. *Journal of Product Innovation Management* 27(4):519-536.
- Kothandaraman P, Wilson DT (2001). The Future of Competition: Value-creating Networks. *Industrial Marketing Management* 30:379-389.
- Kotler P, Keller K (2012). *Marketing Management*. 14th ed. Pearson, Prentice Hall.
- Lanning MJ and Michaels EG (2000). *Business is a Value Delivery System: In Delivery Value to Customers*, McKinsey Quarterly www.mckinseyquarterly.com
- Little PD, Smith K, Cellarius BA, Coppock DL, Barrett CB (2001). Avoiding Disaster: Diversification and Risk Management among East African Herders. *Development and Change* 32(3):401-433.

- Little PD, McPeak J, Barrett CB, Kristjanson P (2008). Challenging Orthodoxies: Understanding Poverty in Pastoral Areas of East Africa. *Development and Change* 39(4):587-611.
- Little PD, Debsu DN, Tiki W (2014). How Pastoralists Perceive and Respond to Market Opportunities: The Case of the Horn of Africa. *Food Policy* 49:389-397.
- Lundvall BÅ, Johnson B (1994). The learning economy. *Journal of Industry Studies* 1(2):23-42.
- Marinova D (2004). Actualizing innovation effort: the impact of market knowledge diffusion in a dynamic system of competition. *Journal of Marketing* 68(3):1-20.
- Mason M (2010). Sample Size and Saturation in PhD Studies Using Qualitative Interviews. *Qualitative Social Research Forum* 3(11):1-13.
- McCabe JT (2004). *Cattle Bring Us to Our Enemies: Turkana Ecology, Politics, and Raiding in a Disequilibrium System*, University of Michigan Press.
- McPeak J, Little D (2006). *Pastoral Livestock Marketing in Eastern Africa: Research and Policy Challenges*. ITDG Publishing, London.
- Minten B, Randrianarison L, Swinnen JF (2009). Global Retail Chains and Poor Farmers: Evidence from Madagascar. *World Development* 37(11):1728-1741.
- Morgan DL (1996). *Focus groups as qualitative research* (Vol. 16). Sage publications.
- Narayan D, Patel R, Schafft K, Rademacher A, Koch-Schulte S (2000). *Voices of the Poor: Can Anyone Hear Us?* New York: Oxford University Press.
- Narayan D, Pritchett L, Kapoor S (2009). *Moving Out of Poverty: Success from the Bottom Up*. World Bank Publications.
- Neethi P (2012). Globalization Lived Locally: Investigating Kerala's Local Labour Control Regimes. *Development and Change* 43(6):1239-1263.
- Nissanke M, Thorbecke E (2007). The impact of globalization on the world's poor: Transmission mechanisms. Palgrave Macmillan.
- Oliver-Hoyo M, Allen D (2006). The Use of Triangulation Methods in Qualitative Educational Research. *Journal of College Science Teaching* 35:42-47.
- Porter ME (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. The Free Press, New York.
- Rugadya M, Oboikol E, Kamusiime H (2005). *Critical Pastoral Issues and Policy Statements for the National Land Policy in Uganda*. Land Research Policy Brief Series No 5, Associates for Development, Kampala, Uganda.
- Schwandt TA (2001). *Dictionary of qualitative inquiry*. Second edition. Thousand Oaks, CA: Sage.
- Save the Children (2011). *Participatory natural resource management with Somali pastoral & agropastoral communities: a lasting community led response to climate change*. Available at: <https://resourcecentre.savethechildren.net/library/participatory-natural-resource-management-somali-pastoral-agropastoral-communities-lasting>
- Slater SF (1997). Developing a Customer Value-based Theory of the Firm. *Journal of the Academy of Marketing Science* 25(2):162-167.
- Slater SF, Olson EM, Sørensen HE (2012). Creating and Exploiting Market Knowledge Assets. *Journal of Business Strategy* 33(4):18-27.
- Swinnen JFM, Maertens M (2007). Globalization, Privatization, and Vertical Coordination in Food Value Chains in Developing and Transition Countries. *Agricultural Economics* 37(2):89-102.
- Teklewold H, Legese G, Alemu D, Negassa A (2009). *Market structure and function for live animal and meat exports in some selected areas of Ethiopia*. EARI Research report. Addis Ababa: Ethiopian Agricultural Research Institute.
- Turner MD, Williams TO (2002). Livestock Market Dynamics and Local Vulnerabilities in the Sahel. *World Development* 30(4):683-705.
- UNDP (2008). *Improving Market Access for Dryland Commodities in East Africa Synthesis Report*. Available at: https://www.undp.org/content/dam/aplaws/publication/en/publications/environment-energy/www-ee-library/sustainable-land-management/improving-market-access-for-dryland-commodities-in-east-africa-synthesis-report/Market_access.pdf
- UNDP (2013). *Promoting Sustainable Livelihoods, Reducing Vulnerability and Building Resilience in the Drylands: Lessons from the UNDP Integrated Drylands Development Programme*. New York. Available at: <https://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/sustainable%20land%20management/Promoting%20Sustainable%20Livelihoods.%20Reducing%20Vulnerability%20and%20Building%20Resilience%20in%20the%20Drylands.%20Lessons%20from%20the%20UNDP%20Integrated%20Drylands%20Development%20Programme.pdf>
- UNESCO (2006). *Education for All: Literacy for Life*. EFA Global Monitoring Report 2006, UNESCO. Paris. Available at: <https://web.oas.org/childhood/EN/Lists/Recursos%20%20Bibliografia/Attachments/22/20.pdf>
- Verbeke W, D'Haese M, Kyeyamwa H, Opuda-Asibo J, van Huylbroeck G (2009). *Assessing Institutional Development for Livestock Market Participation of Traditional Cattle Keepers in Uganda, Tanzania and Kenya*. *Outlook on Agriculture* 38(3):275-283.
- Vrieling A, Meroni M, Mude AG, Chantarat S, Ummenhofer CC, de Bie KC (2016). *Early Assessment of Seasonal Forage Availability for Mitigating the Impact of Drought on East African Pastoralists*. *Remote Sensing of Environment* 174:44-55.
- Watson DJ, van Binsbergen J (2008). *Livestock Market Access and Opportunities in Turkana, Kenya*. ILRI Research Report 3. Nairobi: International Livestock Research Institute.
- Webster FE (2002). *Market-driven Management: How to Define, Develop, and Deliver Customer Value* (Vol. 28): John Wiley & Sons Incorporated.
- Wilcock A, Pun M, Khanona J, Aung M (2004). *Consumer Attitudes, Knowledge and Behaviour: A Review of Food Safety Issues*. *Trends in Food Science and Technology* 15(2):56-66.
- Woodruff RB (1997). *Customer Value: The Next Source for Competitive Advantage*. *Journal of the Academy of Marketing Science* 25(2):139-153.
- World Bank (1999). *World Development Report 1998/9: Knowledge for Development*. Oxford: Oxford University Press.
- World Bank (2013). *Community-Based Development: Making a Difference in Pastoral Ethiopia*. Pastoral Community Development Project. The World Bank publications. Washington, DC.
- Yin RK (2003). *Case study Research Design and Methods*. Third edition. Applied Social Research Methods Series, Vol. 5. Sage Publications.
- Yin RK (2011). *Qualitative research from start to finish*. New York, NY: The Guilford Press.
- Zander K, Mburu J (2013). *Compensating Pastoralists for Conserving Animal Genetic Resources: The Case of Borana Cattle in Ethiopia*. Bonn: Center for Development Research.
- Zulu B, Jayne TS, Beaver M (2007). *Smallholder Household Maize Production and Marketing Behavior in Zambia and its Implications for Policy*. FSRP Working paper.