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*Relating Pastoralists' Culture Orientation, Livestock Marketing Practices, and Household Food Security among the Afar Pastoralists of Northeastern Ethiopia*

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Relating Pastoralists' Culture Orientation, Livestock Marketing Practices, and Household Food Security among the *Afar* Pastoralists of Northeastern Ethiopia

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A Dissertation submitted to  
The Center for Rural Development

Presented in Fulfilment of the Requirements for the Degree of Doctor of Philosophy (in Rural Development) at Addis Ababa University

## **Declaration**

I would like to confirm that this Dissertation is entirely my own work, with no material previously published or written by another person except where cited in the text. The contents of the Dissertation are the result of work I have done since the beginning of my (research) higher degree candidature and do not include a substantial portion of work submitted to qualify for the award of any other Degree or Diploma in any University or other higher institution. Finally, I would like to confirm that any errors committed, if any, are my own responsibility.

Derib Woldeyohannes



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**Approval by the examining board members**

This is to certify that the thesis prepared by Derib Woldeyohannes Benti entitled: Relating Pastoralists' Culture Orientation, Livestock Marketing Practices, and Household Food Security among the *Afar* Pastoralists of Northeastern Ethiopia, and submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy (Rural Development) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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## **Abstract**

*Ethiopia's arid and semi-arid regions provide the lion's share of the country's livestock resource endowments. Regardless of pastoral resource endowment, these areas are the poorest and most reliant on relief aid. Drawing on the debating contention that pastoralists prefer to accumulate and use pastoral produce for cultural purposes rather than trading for cash incomes, this thesis hypothesized that 'the long-standing pastoralist tradition favors the accumulation and direct use of pastoral produce rather than remaining open to the market for exchange, thereby missing out on indirect (exchange) benefits toward food security'. Pastoral culture is present in the daily lives of pastoralists who establish and maintain relationships with one another by employing traditionally valued practices such as reciprocity and herd mobility. These are traditional survival strategies imbedded in their social norms, values, knowledge and institutions that are built up through generational learning, passed down orally through generations, and govern overall life. These communities rely on the traditional livestock farming sub-sector for their livelihoods and to meet their food consumption needs. In the face of recurring droughts, marketing pastoral produce is also a widely pursued approach to improve food security, and it has become equally important for supporting livelihoods in these areas. But, the potential contribution of pastoral marketing to the food security of pastoral production has received little attention. To this end, this study is guided by three key concepts: pastoral culture, marketing, and food security. Following that, the thesis attempted to address three specific objectives ultimately revealing the relationship between 'pastoralism', 'marketing', and 'food security' through a case study and survey data collected from (agro-)pastoral communities of Afar in Ethiopia. The study sought to shed light on the contribution of (agro-)pastoral marketing practices to food security by determining the extent to which pastoralists adhere to their traditions and how their orientation to culture norms influences their marketing interests. The thesis includes a literature review as well as three empirical studies. Methodologically, the thesis employed a mix of systematic literature review, case study analysis, household food insecurity access scale (HFIAS), ordered logistic regression, and propensity score matching (PSM) procedure. It begins with a systematic literature review to uncover "rural marketing – rural livelihood" relationships, which revealed that rural marketing had positive results at times and negative results at others, resulting in mixed effects on livelihood. The mixed effects necessitate a better understanding of the conditions that make rural marketing useful, as well as the mechanisms by which potential benefits may emerge. The review findings also indicate*

*that, while rural marketing has been somewhat successful among upland communities, there is little empirical evidence that the same holds true for (agro-)pastoralists, implying that more research on the livelihood effects of rural marketing using data from (agro-)pastoral groups is required. As a result, using data from (agro-)pastoralists (as representing rural communities that received little attention in the reviewed 'rural marketing – rural livelihood' relationship studies), the thesis empirically tested the potential positive/negative relationship between marketing practices and food security (as representing livelihood outcome). The first empirical study discovered a misalignment between Aramis-Adaar traditional practices and their livestock marketing endeavors, in which they operate under two competing systems of cultural and marketing practices (though both are important in sustaining livelihoods). Following the case study, the survey used Aramis-Adaar pastoral and Asale agro-pastoral groups and revealed 'the links between pastoral cultural elements and food (in)security', and estimated 'the food security effects of livestock commercial-orientations'. The survey results suggest that while properly integrating pastoralists into the market could be an important mechanism for overcoming the numerous problems that constrain pastoralism, livestock marketing practices fall short of adequately and sustainably supporting pastoralism, owing primarily to market production constraining factors such as pastoralists' cultural orientations. Future policy must align and level the playing field for market production ('competition') and pastoralism ('cooperation') in order to meet the needs of both pastoralism and marketing at the same time.*

## **Acknowledgements**

First and foremost, I am grateful to my research advisors, Dr. Worku Tuffa and Dr. Workneh Kassa, for their unwavering support during my PhD study. The motivations and continued encouragements, as well as the research experience from such energetic scholars, helped me to produce to the standard research outputs. Their advice was invaluable throughout the research and thesis writing process. Dr. Worku's motivational comments, phone conversations, and e-mails inspired me to keep working on standard and publishable research outputs. Dr. Workneh's deep and insightful comments, as well as a few yet inspiring in-person discussions, phone calls, and e-mail exchanges, have all contributed to the flavor of the papers in this thesis. I'd also like to mention the late Professor Dr. Workneh Nigatu for his guidance in the inception stage of the proposal development and shaping it to the standard. I'm really sad missing such a knowledgeable person in the latter stages of the research process.

I'm grateful to everyone who helped with the chapters of the thesis, whether by collaborating on co-authoring papers or providing insightful comments. I gratefully acknowledge Dr. Samuel Tefera and Dr. Messay Mulugeta for their contributions, respectively, to chapters 3 and 4. Abyiot and Lijalem, who have been wonderful colleagues over the years, deserve special recognition. I'd also like to thank all of my Professors and fellow PhD candidates for sharing their research knowledge with me both in and out of class. They were helpful, not only for discussions about the research topics addressed in this thesis, but also for the further development of research ideas.

I'd like to thank all of the respondents, as well as the experts, who gave me their time and information when gathering data for the empirical studies. My heartfelt gratitude goes to my friends Wondwossen (who provided driving assistance during survey data collection), Mareshet (who provided his personal vehicle during survey time), and Yirgalem from USA (who granted me a laptop and also for his financial support). I'm also grateful for the financial assistance provided by Yared, Birhanu, Girma, Hailemeskel, Adimkachew, Haimanot, Yegermal & Tilahun.

I'm grateful to my parents, sisters, and brothers for their spiritual and material support during the composition of this thesis and throughout my life. My special gratitude goes to Tsehay, my younger sister, who has been at my side throughout my studies, assisting me in every way possible.

Last but not least, I owe a big debt of gratitude to my lovely wife Mekdes, whose compassion and love pushed me to work hard in the last years of my study and finish my PhD writing business.

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### ***The Beginning!***

Some fifteen years before, I was a recent graduate assigned to work as a junior trainer at a training and vocational college in *Afar*. Grown up in the (central) highlands, everything in my new workplace – the other extreme of the Ethiopian land feature, the pastoral lowland setting – was rather strange to me. I used to see herdsmen trekking hundreds of camels and cattle, as well as thousands of goats and sheep, passing through my new village on a daily basis. This has become my usual activity as well as source of entertainment. I used to ask ‘What are they marching for? Where are they going? What exactly do they do there?’ I later learned that the herdsmen are (temporarily) relocating to areas where they can find pasture and water for the migrating herd. It has also been their custom to relocate on a regular basis. But I find it difficult to believe that people who have a large number of domesticated animals are starving. Why is that the case? This question has lived with me since my first footing on to the *Afar* land. It perplexes me that, despite the fact that the *Afar* gentleman owns and herds hundreds of large stock and thousands of small stock, the region has long been known for high levels of poverty, and food insecurity, and reliance on aid. It was in this way that the idea to investigate the relationship between pastoralism, marketing, and food security born in my mind and later grown into a Dissertation project that resulted in a publishable academic product.

# CHAPTER I

## GENERAL INTRODUCTION

### *1.1.Introduction*

Pastoralism and livestock farming are inextricably linked and inseparable. The arid and semi-arid lands account for the lion's share in terms of a large number of livestock of various species and occupants with vast area coverage (Aboud et al., 2012). Pastoral communities rely on livestock to make a living, and livestock encompassing all aspects of their lives, from social to economic to cultural values (Swanepoel et al., 2010). As a result, policies aimed at the development and sustenance of pastoralism must rely on pastoral resources, with primary concerns ranging from production systems to product distribution and risk management (Aboud et al., 2012; Omondi and Odhiambo, 2009). A market-based development approach with adequately anticipated trade-offs can be used to seek and ensure sustained production, distribution, and risk management in the drylands (Mortimore, 2009).

Ethiopia ranks first in Africa in terms of livestock resources. Smallholder highland crop-livestock mixed agriculture, agro-pastoralism and lowland pastoralism – found in the majority of *Somali* and the *Afar* regions, as well as parts of *Oromia* and Southern Nations, Nationalities and Peoples regions – all support a diverse range of livestock species and make the country a home for a large number of livestock resources. The country's (semi-)arid regions cover more than 60% of total land area, house 12-14% of the population, and provide larger<sup>1</sup> portion of livestock resource endowments (Fratkin, 2014). However, the country is not leveraging this advantage to provide sustainable livelihoods to its rural populations, many of whom are food insecure.

Regardless of livestock resource endowments, Ethiopia's pastoral areas are among the poorest in the country and rely heavily on relief. These regions lag behind in most social and economic indicators, and their livelihoods are highly vulnerable to a variety of shocks, particularly droughts, which are exacerbated by climate change. Above all, despite the significant benefits conferred by the pastoral production system, it is frequently derided as antiquated. The importance of pastoral production to domestic, regional, and national food security is frequently misrepresented, and policymakers frequently fail to recognize this sector (Fre and Tesfageris, 2013).

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<sup>1</sup> Ethiopia's lowland production system contributes approximately 28 percent of the cattle, 42 percent of the sheep, 70 percent of the goats, and 100 percent of the camel population (ILRI, 2017).

To explain such a paradox, a couple of hypotheses can be advanced. First, as a result of the recurring droughts that have hit these areas, livestock resources have been eroded and depleted, falling short of adequately and sustainably supporting livelihoods. Second, the pastoral tradition has long favored the accumulation and direct use of pastoral resources over remaining open to the market for exchange, failing to capitalize on indirect benefits (exchange value) toward food security as a result.

This thesis examines the pastoral and agro-pastoral (hereafter (agro-)pastoral) communities of *Afar* in Ethiopia to better understand the relationship between '*pastoralism*' (the pastoral tradition of social orientation in using pastoral resources – the social/cultural value of livestock), '*marketing*' (pastoralists' livestock marketing interests and exchange needs – the exchange value of livestock), and '*food security*' (consumption needs of pastoralists – the consumptive value of livestock). It seeks to shed light on (agro-)pastoralists' marketing practices toward food security by understanding the extent to which pastoralists adhere to their traditions and how pastoral culture norm orientation influences their marketing interests.

This section provides background and conceptual information on *pastoralism*, *marketing*, and *food security*; it describes the problem statement; and it states the objectives and research questions. It also provides an overview of the study's methodology.

## ***1.2.Pastoralism***

Pastoralism is a way of life in less desirable landscapes, such as drylands, where natural pastures are a valuable resource. Pastoralism is distinguished by herd movement in search of better pasture and water. Depending on the degree of livestock mobility, pastoralism can be nomadic, transhumant, or agro-pastoralism. Nomadic pastoralism, defined by the constant movement of herds, is a system in which pastoralists are solely livestock keepers who rely solely on the sale or exchange of animals and their products for food. Transhumance refers to the seasonal movement of herds across well-defined territories. While agro-pastoralism entails a mixed crop-livestock system in which farming accounts for more than 50% of household gross income and pastoralism accounts for the remaining 10-50%.

Pastoralism provides a significant source of income for millions of people in over 100 countries, with vast rangelands covering between 25 and 40% of the world's surface (Dong, 2016; Galvin, 2009). Extensive pastoral production generates significant economic and social benefits

because the livestock sector performs multiple functions that support the livelihoods of approximately 200 million pastoralists worldwide (Alary et al., 2011; Swanepoel et al., 2010). Pastoralism contributes to national economies across (semi-)arid regions, ranging from areas where pastoralists are heavily involved in raising live animals for export, generating foreign exchange and contributing to *GDP*, to areas where smaller herds are kept primarily for non-commercial purposes (Behnke, 2008; Davies and Hatfield, 2007). Pastoralism generally benefits national economies by providing food, agricultural inputs, and other household supplies, acting as a source of capital and savings for rural households, or producing marketed goods for trade and export. According to FAO (2018), an estimated 268 million Africans, who own a third of livestock and half the small ruminants, supply 60% of the beef, 40% of the meat from small ruminants, and 70% of the milk, rely on pastoralism and livestock as their primary source of income. Pastoralism accounts for anywhere from 20% to well over 80% of agricultural *GDP* in several African economies, and thus continues to be a vital source of income for African herders (Davies and Hatfield, 2007). Pastoralism is more than just traditional herding; it is also a social asset, because it is rich in important know-how that is spread throughout the (agro-)pastoral communities and along the transhumance routes. Furthermore, animal source foods are essential components of a well-balanced diet that contributes to nutritional security (Randolph et al., 2007). The rapidly increasing demand for animal protein, driven by rising global population and urbanization, ensures the sector's continued importance not only for food and nutrition security, but also for providing livelihood opportunities for (agro-)pastoralists worldwide (Alexandratos and Bruinsma, 2012; Randolph et al., 2007).

Pastoralism, however, is not without problems and drawbacks. Pastoralists face a number of crises including drought, degradation of rangeland resources, and conflicts. Clearly, despite the pastoral lowlands' abundance of livestock, their contribution to poverty reduction is less than it could be (Aklilu and Catley, 2010). Drought has harmed most pastoralist groups and their livelihoods (Megersa et al., 2014; Negatu, 2011). Droughts are frequently followed by herd losses (Barrett et al., 2004; Megersa et al., 2014) and food shortages (Megersa et al., 2014). As a result, the regions are well-known for their high and rising levels of poverty and destitution (Nassef et al., 2009), chronic food insecurity (Headey et al., 2014; Rettberg, 2010), and reliance on humanitarian aids (Devereux, 2010). They are politically, economically, and socially marginalized (Levine, 2010; Little et al., 2015), and are estranged from central governments (Stockton, 2012).

This has raised concerns over the viability of pastoralism in terms of improving livelihoods and eking out a living (Catley et al., 2016; Headey et al., 2014). The vulnerability context and severe poverty levels (Catley et al., 2016) necessitate justifications for alternative livelihoods and ways-out (Megersa et al., 2014), which begs for policy measures. As a result, most governments' pastoral development policies have shifted to '*moving pastoralists out of pastoralism*' and seeking alternative livelihoods (e.g., sedentarization and diversification) (Gebeye, 2016). Pastoralism has declined in recent centuries as a result of agricultural expansions, industrial development, and sedentary livestock farming, with most governments in these regions settling pastoralists and reducing herd populations to avoid overgrazing (Dong, 2016).

Pastoralism, on the other hand, provides numerous indirect services (e.g., exchange values), but national economies are frequently preoccupied with and limited to the direct benefits (indicators such as consumption values) in relation to food requirements. The contributions of resources derived from the sale of pastoral produce to pastoral development policy, in general, and to household food security, in particular, are underappreciated (Fre and Tesfagergis, 2013). Understanding pastoralism as a culture in relation to marketing pastoral produce toward (semi-)arid region food security goals is thus critical in order to shed light on the relationship between '*pastoralism*', '*marketing*', and '*food security*'.

### ***1.3. Marketing***

Scholars have attempted to conceptualize, define, and redefine (rural) marketing, claiming that it has evolved over time (Jha, 2012; Modi, 2009). Rao and Tagat (1985), for example, defined rural marketing as a process of interactive activities involving the government, non-profit organizations, the corporate sector, and rural clients, each with distinct functions, modes of operation, and stake. According to Jha (1988), marketing is conceptualized in rural-urban dichotomy, a two-way process concerned with the flow of agricultural produce from rural to urban, and rural to rural areas, and other goods and services from urban to rural. As a result, it is widely emphasized that rural marketing contributes to closing the growing gap between rural and urban economies (Vaswani et al., 2005).

Sarkar et al. (2016) have identified more than half a dozen of categories within definitions of rural marketing after reviewing existing literature on the subject: rural-to-urban flows (agro/artisan marketing), rural-to-rural flows (farm marketing), developmental marketing, consumer

orientations, and holistic marketing, to mention but a few. This suggests that the concept has evolved from its first conception as 'agricultural' marketing to its more recent conception as 'holistic' marketing orientation. Sarkar and colleagues also have put forward a comprehensive definition for rural marketing as "the segmentation and targeting of rural consumers with tailor-made products, services and agro-inputs after conducting rural research; and the subsequent planning and implementation of a customized marketing mix with an objective to stimulate and satisfy customer demand through developmental marketing; as a result of which the organization's holistic marketing objectives should also be met through profitable exchanges between urban and rural markets and within rural markets themselves" (Sarkar et al., 2016:10). This implies that rural marketing should be distinguished from the marketing of multinationals (business enterprises) in rural areas, as is frequently stated (Modi, 2009), and instead focus on the integration of rural people into the market. In this regard, rural marketing is regarded as promoting pro-poor growth (Dorward, 2006) and should be viewed as one set of institutional mechanisms for cohesion and exchange in the rural economy (Dorward et al., 2003). Consequently, market infrastructure development and market expansion to all rural corners are at the heart of developing countries' poverty reduction and livelihood improvement policy efforts (Ellis, 2000, 1998), as marketing is one of the livelihood strategies of rural people (Chambers, 1995).

Pastoralists' integration into the market has become increasingly important in order to sustain livelihoods in the drylands (Aklilu et al., 2013; Little and McPeak, 2006). Pastoralists are increasingly interacting with market and town systems in order to sell surplus produce, buy grain, and trade other commodities when livestock products are insufficient for their subsistence (Devereux, 2010). The income generated from the integration into the market enables pastoralists to access consumer goods and promote long-term investments outside pastoralism (Adriansen, 2006). Market integration also facilitates pastoralists to diversify their livelihood activities (Bollig, 2016). This greatly contributes to the improvements in their quality of life (Headey et al., 2014). Increased market integration of pastoralists improves their livelihood through saving money in a bank and accessing adequate food to family (Tessema, 2012). Proponents of market integration (e.g., Little and McPeak, 2006) further argue that, given the vulnerability among pastoralists, livestock marketing is seen as a way out of poverty and economic relations. In support of this viewpoint, it has also been argued that by improving and promoting livestock marketing, poverty and food insecurity in these areas can be reduced (Galaty, 2008). In the same vein, Negatu (2011)

argued that a strategy to address the underlying sources of pastoralist vulnerability should include, among other things, support for livestock marketing. Aklilu et al. (2013) also add that viable pastoralism will continue to exist as markets function effectively and market exchange incomes are sufficient to purchase food. Furthermore, integrating pastoralists into the market allows pastoralists to respond to environmental factors through improved livestock management practices (Little et al., 2008). In periods of drought, for instance, pastoralists destock (and restock afterward) in which case the market uses to balance herd size to available range resources to help improve adaptive capacity to natural conditions (Tessema et al., 2019). In addition, pastoralists use to manage their herds to adapt to environmental conditions and respond to market opportunities thereby access foods other than animal origin. Thus, the marketing practices of pastoralists help to improve livelihoods and adapt to climate events through the increased incomes and enhanced adaptive capacities, respectively.

#### ***1.4. Food security***

Food security is achieved when availability and accessibility of food is ensured to all individuals at all times, allowing them to live a healthy and active life by meeting their nutritional needs and socio-cultural preferences (FAO, 1996). Food security is achieved through food availability, access, and use at the individual, household, community, and national levels (Scanlan, 2001). Food availability is achieved when a sufficient quantity of food is consistently available to all individuals within a country, through household production (current production and stocks from the previous years) and net cereal and non-cereal food imports. The ability of a household to procure enough food to meet the nutritional needs of all its members is referred to as access to food. It is a measure of a household's ability to obtain available food during a specified time period through a combination of home production and stocks, purchases, in kind exchanges, gifts, borrowing, or food aid. Food consumption is the proper use of food, which necessitates a diet rich in energy and essential nutrients, safe drinking water, and adequate sanitation. Effective food utilization relies on household knowledge of food storage and processing techniques, basic nutrition principles, and proper child care and illness management.

Food insecurity includes a wide range of phenomena such as famine, periodic hunger, and an uncertain food supply (Ramakrishna and Demeke, 2002). Food insecurity can be both chronic (long-term) and transitory (short-term). Chronic food insecurity means that a household is always

at risk of not being able to meet its members' food needs. It is a chronically insufficient diet caused by households' inability to obtain enough food for a healthy and active life, either through own production or market purchases. Transitory food insecurity, on the other hand, refers to a short-term decrease in a household's access to needed food as a result of factors such as food price volatility or income decline.

Food insecurity is widespread and continues to be a major development issue in developing economies, particularly for pastoral and agro-pastoral communities worldwide (Ambelu et al., 2017; Amwata et al., 2015; Dong et al., 2011). A sizable proportion of (agro-)pastoral communities are vulnerable to climate-induced shocks and stresses, which frequently result in production failures (Fenta et al., 2018). As a result, pastoral resources are depleted, resulting in food shortages. A variety of social, cultural, and economic factors have been identified as contributing to the higher incidence of food insecurity among (agro-)pastoral communities. Drought has been identified as the leading cause of food insecurity in these communities, followed by market and service issues and human factors (Lemma et al., 2013). Food (in)security among (agro-)pastoral communities is also explained by the livelihood system, livestock holdings, involvement in social networks, land holding, and non-farm incomes (Mayanja et al., 2015; Siraje and Bekele, 2013). Aside from the size of resources owned, such as farm land and livestock, family size (adult equivalent), mothers' time constraints, peace, and security all have an impact on food security in (agro-)pastoralist communities (Asenso-Okyere et al., 2013; Kahsay et al., 2019). However, analyzing food security in the context of pastoral and agro-pastoral communities with strong social ties and traditions necessitates an examination of cultural norms, social networks, and markets (Callon, 1999). Food security in this sense is the result of inter- and intra-societal networks and interactions. Because pastoralists are largely cultural people who have cultural institutions and social networks in their long history, they have for a long time been able to adjust and face the challenges (Janes, 2010; Reda, 2012). Social relations based on clan affiliation and kinship shape the entire system of life in these regions (Pedersen and Benjaminsen, 2008). Cultural elements therefore need to be taken into account in analyzing and understanding food (in)security in these regions.

Over the last four decades or so, the primary focus of food security analyses has shifted from global and national food supply to individual and household food security, with an emphasis on access, entitlement, and vulnerability. In this regard, Sen's (1981) entitlement approach has pushed the issue of food accessibility to the forefront of the food security discourse. The entitlement

approach is important because it recognizes that food insecurity can occur even when food is available, simply because people do not have entitlements to that food. Food entitlement refers to how much food a household has access to mainly through purchases (Sen, 1981). The emphasis is on whether or not people have enough command over food, rather than whether or not there is enough food to eat. As a result, the approach to measuring food security has shifted from quantitative measures of food intake (caloric adequacy) toward assessments of people's perceptions of their food security conditions.

With regards to food security measures, per-capita caloric intake has long been considered the standard for food security indicators including access and nutritional status at the individual level (Coates et al., 2007). However, while per-capita caloric intake reflects current consumption (the quantity aspect), it ignores other aspects, such as vulnerability and risks, as well as fluctuations and trends in consumption over time (Maxwell et al., 2014). There are also methodological limitations stemming from the traditional food security measures of caloric intakes. It has been claimed that gathering caloric intake data is technically difficult and costly in terms of time and intensive data needed (Coates et al., 2007). Because rural households rarely record what they produce, what proportion they use for auto-consumption, and how much they sell or buy, information distortion provided by them poses a significant challenge to generating credible numerical data. Food consumptions from livestock products, in particular, is the most difficult for agro-(pastoralists) to recall and quantify. Given the theoretical and practical measurement challenges rooted in caloric intake and income measures, researchers and policymakers have long recognized the need for food security measures that capture both the physical and the psychosocial dimensions of food security (Smith et al., 2017). As a result, cross-contextual indicators of food security which use scales based on the experience perceived by the affected individuals, and that correlate with food access (e.g., *HFIAS*) have been developed (Maxwell et al., 2008). The *HFIAS* is based on the underlying assumptions that a) food security is a measurable experience that can be described and measured in order to classify households according to their level of food insecurity, and b) food insecure households and individuals' reactions and responses are predictable, so these reactions and responses can be captured and quantified through a survey that can be summarized on a scale (Coates et al., 2007). Hence, this study employed *HFIAS*<sup>2</sup> in order

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<sup>2</sup> Pastoral resources such as rangelands and livestock, specially the large stock, are communally owned. Decisions on the use of such communal resources and sell of the large stock such as camels and cattle are on tribal (group) basis.

to assess the food security statuses of households; *HFIAS* has been tested in Ethiopia and proven to be a useful approach in developing economy contexts (Maxwell et al., 2014).

### ***1.5. Theoretical links between markets and food security in the (agro-)pastoral contexts***

In developing countries, there are at least two options for achieving food security. One option is farming (food production), and another is marketing (food purchases). Self-sufficiency for farming communities is currently a pipe dream due to a variety of factors such as drought. As a result, market dependence is real, and farming communities often use a combination of production and purchases to seek out and fulfill consumption requirements. The rural farming households' ability to obtain income to purchase food-grains is dependent on the functioning of the market (Staatz et al., 1990). Though how markets affect the life of rural people remains debatable<sup>3</sup>, scholars in the field of marketing have emphasized the importance of market development, market expansion, and networking through trade as a means of advancing rural development in developing countries (Fisher, 2003).

Integrating pastoralists into the market, in particular, is an important mechanism to stand out against climate variability and recurring droughts, which frequently confront pastoralism (Bellemare and Barrett, 2006). Pastoralists consume non-pastoral foodstuffs in addition to livestock products (Catley et al., 2016). Pastoralists are forced to buy non-pastoral food grains from grain markets with money earned from the sale of pastoral outputs because they do not produce them. As a result, the market is an important concept to understand food security in pastoral settings, and it is regarded as having the most influence on the pastoral economy. Food security in pastoral areas is dependent on the pastoralists' ability to buy grains (Teka et al., 1999); livestock trade is a major source of income for them (Roba et al., 2017). It is also clear that climate related shocks pose a significant challenge to pastoralists, and thus, pure pastoralism is rare (Dutilly-Diane, 2007; Tache and Oba, 2010). In effect, pastoral production is largely supported by

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These groups are also well-known for their traditional support networks during times of adversity, such as drought. However, meeting day-to-day family consumption needs and decisions on the sale of livestock other than camels and cattle are household responsibilities that necessitate individual efforts. This ensures that *HFIAS* can be used to assess the food security status of households in such communities.

<sup>3</sup> The debate has divided researchers into groups. One group of scholars (e.g., Guest, 2002; Kennedy and Cogill, 1988) argues that markets improve life in rural areas, while the other camp (e.g., Vadez et al., 2004) contends that markets erodes rural peoples' quality of life in some way. Others (e.g., Godoy et al., 1998) contend that markets have ambiguous effects on well-being, with some welfare outcomes hampered while others improved. For details on this issue, see also chapter 2 of the thesis.

non-pastoral products. In this regard, Mcpeak (2006) argued that pastoralists are more reliant on markets than are farmers. Devereux (2010) stated that pastoralists are heavily involved with markets and towns in order to sell livestock and buy grains. Nunow (2000) emphasized the importance of markets in allowing the pastoral system to survive and thrive for thousands of years. Reda (2011) contended that pastoralists are drawn into the market to meet basic household needs.

Drawing on Barrett (2008), a couple of consumption scenarios can be implied for pastoralists. Given a pastoral household's desire for a consumption bundle (pastoral and non-pastoral food sources), it can (a) produce both pastoral and non-pastoral foods for auto-consumption (agro-pastoralism), or (b) specialize in production of pastoral produce in which it is relatively skilled (pastoralism). In the latter case, the household consumes some portion, and trades the surplus for other goods and services it desires. The former scenario does not hold for pastoralists who are solely involved in livestock rearing. As a result, pastoralists are exchange dependent for food security, as livestock trade to purchase cereals has become an essential part of their livelihood (Helland, 2015; Little et al., 2014). Pastoralists' diets are supplemented, at least seasonally, with food-grains from trade; and they develop trade interdependencies and economic interactions with cultivators and highland systems (Negatu, 2011). This symbiotic relationship has the potential to make them economically indistinguishable from settled neighbors (Mulder et al., 2010). As a result, the improvement of pastoralists' livelihoods as a whole is highly dependent on a market system in which they bring pastoral produce to sell and buy non-pastoral foods in return (Lu, 2007; Rueff and Rahim, 2016). Therefore, ensuring enough food is not a sufficient condition for food security unless access to food is guaranteed (Molledo et al., 2014; Ruane and Sonnino, 2011). Such access to food is facilitated by the market connections that both producers and consumers have (FAO, 2011); producers secure household food needs not only through their own production but also through the market connections they have (Teka et al., 1999) through which they build purchasing power. Pastoralism typically produces pastoral produce (e.g., milk), for household consumption as well as offspring for sale, which is used to purchase non-pastoral products (e.g., cereals) (Catley et al., 2016).

In the pastoral context, the relationship between market and food security could be hypothesized in such a way that integration into the market influences food security in three ways: first, it opens demand for pastoral produce; second, it adds to total cash income; and third, it builds purchasing power. The market expands opportunities for non-pastoral activities as well. Because

food security is determined by both own production and exchange (Teka and Azeze, 2002), the proceeds from the sale of (surplus) pastoral produce are used to purchase non-pastoral products. As a result of one or more of these links, the market raises income and thus improves food security. Herders' food security status is determined by their own production (food products of animal origin), food purchases (food grains), stocks, and food transfers over a given time period. Because food security is dependent on both production and trade, the relationship between production, marketing, and food security remains an important clue for the framework of analysis. Pastoralists' primary source of income and wealth is the livestock trade. Livestock is regarded as a secure bank, and most pastoralists sell livestock when they are in desperate need. This is possible if the market performs well. It is, however, only theoretical. Despite the increasing opportunity and lucrative new markets offered to pastoralists by the rapid growth of demand for livestock and livestock products (Gautier et al., 2016), pastoralists are often characterized by low levels of participation in the markets (Negassa et al., 2011), and the opportunities are rare to them (Barrett et al., 2004; Bellemare and Barrett, 2006). Pastoralists are not benefiting sufficiently, as evidenced by the fact that food security is becoming a growing concern. Markets in pastoral settings are distinct in that they are influenced by non-economic factors such as customs and traditions (Tessema et al., 2019). There is a debating contention among scholars that pastoralists prefer to accumulate and use pastoral resources for cultural purposes than trading for cash incomes to make savings in money. The paradox is that, despite having a large potential for production and good market opportunities, pastoral regions' use of those opportunities is limited. This thesis investigates 'how pastoral tradition, marketing practices, and food security are linked'.

### ***1.6. Problem statement***

Pastoralism's viability has long been debated (Little and McPeak, 2006). The pastoral vulnerability, along with poverty and food insecurity that it entails, necessitates a compelling justification for ways out (Catley et al., 2016). Governments have, in effect, responded in policy terms. The majority of governments' pastoral development policy responses and orientations favor sedentary lifestyles (Pedersen and Benjaminsen, 2008) and encourage economic diversification by transforming pastoralists into more market-oriented livestock farmers (Catley et al., 2016; Headey et al., 2014). Successive governments in Ethiopia have planned and implemented sedentarization to reorient the centuries-old pastoralism toward the market and deal with the underlying problems

that prevail in pastoral areas (Aklilu and Catley, 2010; Haji and Legesse, 2017). Better results, however, are a long way off (Gebeye, 2016). Sedentarism has both costs and benefits, but it has not yet been proven to be a viable option.

The available but limited literature on the market in its various forms and its potential effects on pastoralists and pastoralism is riddled with contradictory arguments. There are proponents and opponents. Proponents (e.g., Little and McPeak, 2006) argue that, in light of pastoral poverty and the future viability of pastoralism, livestock marketing is seen as a way to alleviate poverty and establish economic relationships. Supporting this viewpoint, Galaty (2008) contends that by improving and promoting livestock marketing, poverty and food insecurity can be reduced. Negatu (2011) and Tessema et al. (2014) also suggest that a strategy to address the underlying causes of pastoral vulnerability should include, among other things, support for livestock marketing. To this end, pastoralism has a bright future and that viable pastoralism will continue to exist as markets function effectively (Aklilu et al., 2013). On the other side of the debate<sup>4</sup>, sedentary farming and livestock commoditization are blamed for negatively impacting pastoralism and are regarded as part of a powerful confluence of factors that stress pastoralists and jeopardize pastoralism (Catley et al., 2016; Krätli et al., 2013). Thus, while the market economy appears to be the way forward, marketing studies relevant to pastoralists are masked by sedentarism. In previous studies, failure in the sedentarization scheme is equated to market's negative effects because market is associated with sedentary mode of life (Krätli et al., 2013; Pedersen and Benjaminsen, 2008). Hence, understanding the market in the context of pastoralism apart from sedentarism is important to take account of its effects. This, in turn, necessitates an understanding of pastoral culture in relation to market; the effects of market on pastoral livelihoods is manifested in this direction (Cohen, 2005).

Although strong pastoral beliefs are partly changing (Ikeya and Fratkin, 2005; Namgay et al., 2014), many pastoral communities still uphold their cultural identities and have continued with the age-old customs and traditions of pastoralism (Davies, 2006). Cultural institutions are a prominent feature of pastoral settings, and their presence indicates that culture has a reliance effect on the

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<sup>4</sup> Studies contend that sedentary farming does not provide equal marketing opportunities, nor does it appear to be associated with commoditization (Fratkin et al., 1999); it is regarded as a poorer adaptation than nomadic farming (Pedersen and Benjaminsen, 2008); and it worsens food security (Haji and Legesse, 2017; Levine, 2010). Sedentarization is frequently criticized for causing loss of nomad culture (Ptackova, 2015), and threatening the pastoral culture, social institutions and identity (Gebeye, 2016). The settlement schemes deplete traditional risk management strategies and socio-economic exchange networks (Bollig and Göbel, 1997), aggravate rangeland degradation (Beyene, 2014), and weaken traditional conflict handling (Tafere, 2013).

overall pastoral system. Pastoralist societies are adept at using such traditional institutions to cope with the variable nature of the environment (Mckune et al., 2015). The customary practices govern the overall life of pastoralists and influence their livestock marketing practices, as well (Chege et al., 2015). Such views and perception of pastoral communities towards cultural institutions have made them remain, in part, skeptical of enhanced marketing practices, as the latter can bring lifestyle changes to pastoralists. Often times, the pastoral customary institutions are identified as *'market discouraging norms'* (Randolph et al., 2007; Tessema et al., 2019). However, the specific pastoral culture elements that may discourage pastoralists' marketing practices are not well addressed in scholarly works (Tessema et al., 2019). The available literature on why pastoralists' market use has remained limited is dominated by economic factors, with cultural drives taking up less space and pastoral communities' cultural orientations largely ignored (Cohen, 2005). This further begs the question, *'What are the specific cultural motives of pastoralists behind livestock production and marketing?'* The answer to this question can help to understand the link and/or potential conflict between pastoralists' cultural and marketing practices.

It also emerges from the available literature that, to account for the effects of market, the prior studies focused more on settled upland agrarian societies<sup>5</sup>. The question of why the market is a missing opportunity towards food security among (agro-)pastoralists remains unanswered. Yet, considerable differences appear among the pastoral and sedentary agriculturalist settings (Negatu, 2011). In terms of access to market, for example, pastoralists inhabit inhospitable marginal lands far from roads and market outlets, thus, accessing markets for them is difficult (Watson and Binsbergen, 2008). Adding to it, market's functionality in these areas is hindered by high transactions costs, and poor market infrastructures (Aboud et al., 2012). Thus, empirical evidence on the food security effects of market in the context of (agro-)pastoralists is needed.

In addition, the majority of previous studies on market effects have addressed effects of market from the standpoint of overall welfare or livelihoods, providing little information on market effects on food security<sup>6</sup>. More importantly, the existing literature widely focused on consumption of

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<sup>5</sup> A myriad of studies have paid more attention to settled agrarian societies in this regard (Abdullah et al., 2017; Awotide et al., 2016; Carletto et al., 2017; Donovan and Poole, 2014; Gebru et al., 2019; Muriithi and Matz, 2015; Schöll et al., 2016), ignoring the context of (agro-)pastoralists. For detail accounts, see also the review chapter.

<sup>6</sup> The studies take different forms, e.g., effects on health (Godoy and Cardenas, 2000), livelihoods (Kennedy and Cogill, 1988), wellbeing (Godoy et al., 2005a), welfare (Godoy, 2001), or wealth, natural resource conservation (Godoy et al., 2005a). For details on this issue, see also the review chapter (Chapter 2 of the thesis).

pastoral produce for food (direct) relations to food security (Asenso-Okyere et al., 2013; Krätli et al., 2013). Stating differently, the ‘marketing – food security’ link has been barely addressed in food security analyses concerning (agro-)pastoralists. In Asenso-Okyere et al. (2013) and Kahsay et al. (2019), for instance, livestock marketing indicators are not included as determining food security. Yet, in both of the cases, linking pastoralists to markets thereby to increase incomes through sale of livestock and livestock products is promoted as among the efforts to enhance food security. Some more other attempts have also been made in relation to specific issues such as cross-border trade and regional integration (Teka and Azeze, 2002) and livestock commercialization (Nunow, 2000) to account for marketing’s effects on food security. These studies approached pastoral marketing and food security relations from caloric terms-of-trade perspective. This, as it stands, lacks to properly measure food security; it is only a proxy indicator. Not all these studies adequately investigate the livestock marketing issue and food security relations in the (agro-)pastoralist context. This issue is important particularly among the pastoral groups who inhabit the marginal areas and whose food security is highly exchange dependent. In addition, while (agro-)pastoralists are largely dependent on cultural reciprocities (Reda, 2011) and market exchange practices for their food needs (Davies, 2006; Little et al., 2014), these elements are rarely considered in the food security analyses (Asenso-Okyere et al., 2013; Kahsay et al., 2019). This appears to be a weak link for food security studies of these areas and thus the hypotheses regarding food insecurity determinants appear to be not well-grounded. These suggest that evidence as to how market contributes towards secured food needs of (agro-)pastoralists, in particular, is needed.

Given that the previous studies a) have given more attention to sedentarism evaluations, focused more on settled agricultural societies, and addressed market effects from the standpoint of overall welfare or livelihoods; b) ignored elements of pastoral culture norms and market exchange practices in the food security analyses; and c) emphasized the direct consumptions of pastoral produce for food, there is little empirical evidence on the links between pastoralist tradition and marketing, and how market can help combat low food security levels in the (agro-)pastoral contexts. As a result, the influences of pastoral culture on marketing practices and the roles that markets may play in achieving food security of (agro-)pastoralists are overlooked. Therefore, to take account of food security effects of market, this study seeks to understand the relationship between ‘*pastoralism*’, ‘*marketing*’, and ‘*food security*’ using case study information and survey data from the (semi-)arid regions of Ethiopia.

### ***1.7.Objectives of the study and research questions***

Self-sufficiency for pastoral communities is becoming increasingly rare these days due to a variety of factors such as droughts. As a result, market dependence is real, and pastoralists use a combination of production and purchases to seek out and meet consumption needs. Market is more important to pastoralists as climate variability and recurring droughts call, and they have been market reliant for a long time. Nonetheless, pastoralists are not sufficiently benefited from their integration into the market, as evidenced by the fact that food security is a growing concern in the drylands. There is a debating contention among scholars on whether pastoralists prefer to accumulate and use pastoral resources for cultural purposes rather than trading for cash incomes and support consumptions through food purchases. This study aims to uncover the relationship between '*pastoral tradition*', '*pastoralists' marketing practices*', and '*food security*'. The overall objective is therefore to provide empirical evidence on the effects of market on household food security among the *Afar* (agro-)pastoralists of northeastern Ethiopia. Thus, the leading question guiding this research appears as '*Do (agro-)pastoralists' marketing practices improve their food security?*' To this end, the thesis calls to subsequently addressing three specific objectives and questions, each of which is written as a stand-alone academic paper with a specific contribution to the body of knowledge.

Primarily, because previous studies have linked pastoral marketing with sedentarism (Krätli et al., 2013), failure in the sedentarization scheme is equated to marketing's negative effects. This entails to understand market in the context of pastoralism apart from sedentarism. Understanding pastoral culture norms in relation to the market is supposed to reveal the effects of the market on pastoral livelihoods (Cohen, 2005). Through a case study among *Aramis-Adaar* pastoral communities of *Afar* in northeastern Ethiopia, the first objective was '*to understand the likely links/mismatches that may exist between pastoralists' cultural norms and their marketing needs*'. Consequently, it seeks to investigate the research question, '*how do pastoralist culture norms interact with the pastoralists' market-oriented environment?*' What stands out after exploring the '*market oriented environment of pastoralists*' in relation to '*pastoral traditions*' is analyzing the effects of pastoralist marketing. At the heart of this lies '*food security analysis*', which eventually reveals the place of pastoral culture norms and marketing practices in determining food security. Using survey data from *Aramis-Adaar* pastoral and *Asale* agro-pastoral communities of *Afar* in northeastern Ethiopia, the second objective aimed '*to analyze the link between pastoral cultural*

*orientation and their market exchange practices with food (in)security*'. The preceding analysis also bears the second question, *'to what extent do pastoral culture orientation and marketing practices influence (agro-)pastoralists' food (in)security?'* Finally, the information from the preceding analyses stands out as an input to reveal the likely relationship that exists between markets – as understood in the pastoral context apart from sedentarism – and food security. *'How do the livestock marketing practices of (agro-)pastoralists contribute to food security?'* appears as a third question and remains central to analysis. Thus, to address the third objective, *'estimating the food security effects of livestock marketing practices'*, household survey data from *Aramis-Adaar* pastoralist and *Asale* agro-pastoralist communities of *Afar* in Ethiopia were used.

### ***1.8. Overview of research methodology***

This section presents the methodological stages followed in the process of gathering data and interpreting information. The data for the study were drawn from qualitative (case study) and quantitative (survey) sources. Over a two-month period each, two field works<sup>7</sup> were conducted: a case study (employed observations, *FGDs*, key informant interviews, and individual in-depth interviews) and a household survey (included pastoralists and agro-pastoralists). Pastoralists, clan leaders, livestock traders, and experts provided information for the study. Market visits and observations in village social gatherings were also part of information gathering process. A brief overview of methods used in the study is provided below (details in individual studies).

#### ***1.8.1. Case study***

The collection of data in natural settings is required for a qualitative study (Maykut and Morehouse, 1994). It necessitates studying not only people, but also settings, thereby acquiring the information as it exists and in its natural form. For gaining insights into situations, qualitative approach involves people and carefully observes, feels, tests, and appreciates the meaning that participants give to the situation. Case study methodology is a qualitative approach that provides

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<sup>7</sup> I've been a trainer in the study area for many years, and the pastoral development workers in the study districts were once my vocational college trainees. Development workers led me to clan leaders who welcomed me as a member of the clan, not as an outsider newcomer. I took advantage of this opportunity to interact and socialize with members of the community, which enabled me in gathering genuine information during my fieldwork (case study and survey). Nonetheless, I came across a few instances where some respondents responded arbitrarily to questions about livestock holdings, sales income, and household expenditure. These cases were either handled with lengthy discussions with respondents or were not included in the analyses.

tools for investigating phenomena in a specific context (Yin, 2018). It is an effective method for developing theory, evaluating programs, and developing interventions (Baxter and Jack, 2008).

This study used case study methodology as part of the information gathering process to maximize the validity of evidences. It used a qualitative based inductive method involving a mix of evidences from personal observations through market place visits and engaging in social gatherings with pastoralists. Individual in-depth interviews with pastoralists, key-informant interviews with clan leaders, experts, and livestock traders, and focus group discussions with pastoralists were employed, guided by case study protocol. In order to understand pastoralists' livestock marketing practices and related norms, village social gatherings and market places were visited on major market days to witness major market participants (actors), market types and sizes, livestock types traded, modes of livestock transportation, and price negotiation practices. Key informant interviews were conducted with purposively selected clan-leaders, pastoralists, and livestock traders. Pastoralists and clan leaders were interviewed about what cultural practices they adhere to and why and how they value them, which ones encourage (discourage) livestock marketing practices, and what roles clan leaders play in relation to decisions pertaining to livestock marketing. For triangulation and validation, livestock marketing and culture experts were approached to reflect on the major pastoralist cultural elements and their alignment with the livestock marketing practices. Livestock traders were asked to discuss the nature of their marketing interactions with pastoralists, as well as their experiences with pastoralist norms limiting livestock marketing practices. Focus group discussions were also held in order to triangulate the information obtained from individual interviews. Three focus group discussions with pastoralist participants were held in each of the three sites, providing in-depth analyses of cultural norms and marketing practices of pastoralists. The case study data were gathered between May and June of 2018.

Analysis of the case study data involved describing data and interpreting emerging themes. The evidence gathered from various sources was sorted and coded to reflect the interview questions based on broad themes and research objective, and it was then ready for thematic analysis. In reporting the results, representative direct quotations from case participants corresponding to each theme were included, with codes used to identify sources of the evidences anonymously. Thematic description was used to present and capture the in-depth trade-offs that emerge between pastoralists' cultural orientations and livestock marketing practices.

### **1.8.2. Household survey**

In addition to examining the link between pastoral cultural and marketing practices (which necessitated qualitative design), this study seeks to address two additional objectives: a) to examine association between (agro-)pastoralists' social-cultural-economic characteristics and level of food (in)security, and b) to analyze the food security effects of (agro-)pastoralists' livestock commercial-orientation. The latter objectives are numerically measured (quantifiable) and analyzed using a range of statistical techniques. As a result, a quantitative research design was used to collect data from randomly selected households using a pre-tested structured survey questionnaire. A survey questionnaire was prepared first, then pre-tested on sample households, revised based on feedbacks, and used as a guiding survey instrument. Among the *Aramis-Adaar* pastoral and *Asale* agro-pastoral communities, data were collected on households' socioeconomic variables, livestock holdings and herd characteristics, livestock sales participation, cultural practices, livelihood sources, risk aversion mechanisms, responses to food insecurity, and household income and expenditure. Furthermore, the standard 'Household Food Insecurity Access Scale' nine-item questions were used to collect information on the severity of food insecurity (Coates et al., 2007). Three hundred nineteen households from 13 *kebeles* were interviewed in total. Enumerators fluent in *Afar* and *Tigray* were recruited, trained, and used to conduct personal interviews with randomly selected pastoralist and agro-pastoralist household heads. The survey was conducted between April and May of 2019.

The household-food-insecurity-access-scale, ordered-logistic-regression, and propensity score matching procedures, respectively, were used to measure the severity of food insecurity, to assess the associations between (agro-)pastoralist social-cultural-economic characteristics and the level of food (in)security, and examine the food security effects of (agro-)pastoralists' livestock commercial-orientation.

### **1.9. Structure of the thesis**

The thesis has six chapters. The second chapter (*Rural marketing practices and livelihoods in developing countries: A review*), provides a review of the relevant literature on the likely links that may appear between rural marketing practices and livelihoods in developing country contexts through systematically reviewing the peer-reviewed literature to synthesize the existing evidence and identify priorities for future research. The chapter further aims to identify and discuss how

rural marketing practices have been measured in the literature, as well as what livelihood indicators have been used.

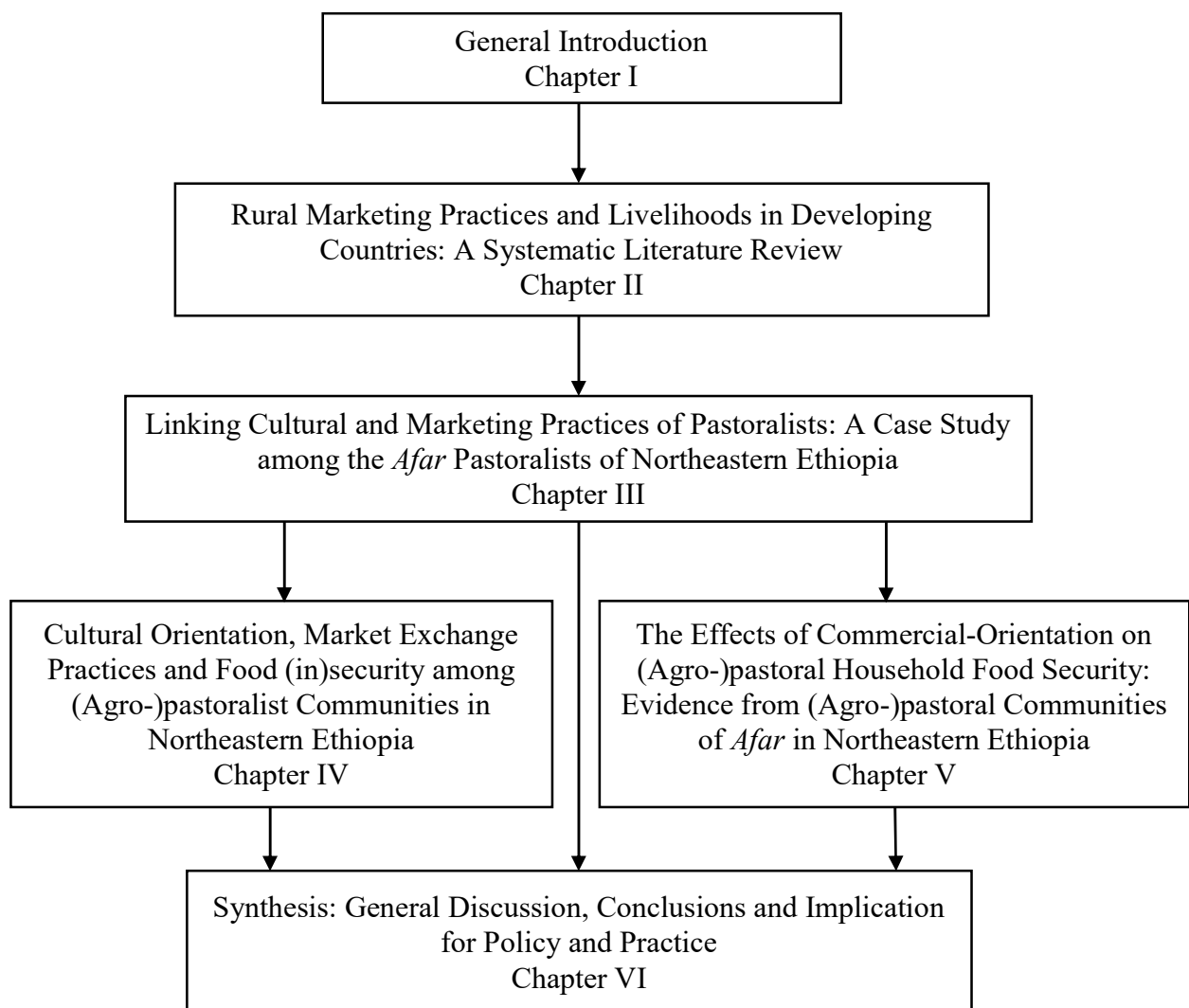


Figure 1.1: Structure of the thesis

Pastoralists are more tradition-oriented and adhere to the centuries-old cultural norms of pastoralism. Thus, it is critical to investigate how such pastoralist culture norms relate to their livestock marketing practices and interests in order to improve our understanding of the match or mismatch between pastoralism's culture orientation and market orientation. As a result, *Chapter 3* conducts an inductive case study on '*Linking Pastoralists' Cultural Practices to their Marketing Practices*'. The case study includes evidence from three focus group discussions with pastoralist household heads, three key-informant interviews with clan leaders, and twenty-seven individual in-depth interviews with pastoralists, livestock traders and experts, as well as field observations

(market visits and participate in social gatherings). The case study identifies the *Aramis-Adaar* culture that misalign with their livestock marketing needs.

Some (agro-)pastoral communities in the world's (semi-)arid regions have maintained their cultural identity while adhering to the age-old practices and traditions of pastoralism. These groups are also becoming increasingly reliant on markets for a living. In the attempts to address why food security remains a growing concern in the (semi-)arid areas around the world, however, cultural elements and market exchange practices appeared a loose link in understanding food (in)security in these regions. Therefore, Chapter 4 on '*Linking (Agro-)pastoralists' Cultural Orientation and Marketing Practices with their Food (in)security*' investigates the factors that influence food security in (agro-)pastoral households. Using survey data from (agro-)pastoralists, the chapter investigates how pastoralists' cultural norms and their livestock marketing practices affect food security positions.

One of the policy efforts to support livelihoods and address the low welfare levels in the drylands is to integrate (agro-)pastoralists into the market. To that end, governments have been encouraged to plan and implement sedentarization as a means of reorienting the centuries-old pastoralism toward the market, thereby promoting commercialization of the sector. Nonetheless, program evaluation studies revealed that the effects of sedentism-induced market interactions have had limited success. Previous studies have most often associated failure in the sedentarization scheme with the market's adverse effects, implying that little is known about the likely links between commercial-orientation of (agro-)pastoralists and their food security positions. Thus, Chapter 5 on '*Effects of livestock commercial-orientation on household food security*' focuses on the extent to which market exchange measured in commercial orientation influences the food security position of pastoralists and agro-pastoralists. It presents the results of a survey on 319 pastoralists and agro-pastoralists that examines food security effects of livestock commercial-orientation.

Finally, Chapter 6 '*Synthesis: General Discussion, Conclusions and Implication for Policy and Practice*', discusses the results and conclusions from the empirical studies. It also addresses the theoretical and policy implications of the research, and discusses limitations of the research and opportunities for future research.

## CHAPTER II

### RURAL MARKETING PRACTICES AND LIVELIHOODS IN DEVELOPING COUNTRIES: A SYSTEMATIC LITERATURE REVIEW

#### *Abstract*

*This paper seeks to highlight the likely links that may exist between rural marketing practices and livelihoods in developing-country contexts by systematically reviewing the peer-reviewed literature in order to synthesize the existing evidence and identify priorities for future research. It also seeks to determine how rural marketing practices have been measured and what livelihood indicators have been used in previous studies. The review was conducted specifically using the Science Direct and Google Scholar databases, resulting in a final 30 peer-reviewed articles meeting the selection criteria. The findings of the review show that the existing studies that have attempted to quantify the relationship between market and livelihoods do not provide clear-cut evidence for or against a positive relationship, resulting in a fragmentation in the literature. Rural marketing practices by rural people help them diversify their incomes and, as a result, improve livelihoods, though not across all indicators. Furthermore, the review shows that rural marketing sometimes depletes natural resources on which rural people rely for a living. Thus, this review concludes that, while market integration is a viable option for improving rural livelihoods, the diversified income generated by the integration must be invested in natural resource conservation schemes in addition to meeting consumption needs, in order to sustainably improve livelihoods in rural areas. It is also evident from the review that while the 'rural marketing – rural livelihood' relationship has been partially proven successful among upland crop farming communities, the reviewed studies have paid little attention to (agro-)pastoral lowland livestock farming communities. More research on the livelihood effects of rural marketing based on data from (agro-)pastoral groups is needed.*

*Key words: Rural, rural marketing; rural livelihoods; developing countries; systematic review*

This chapter is based on Benti, D.W., Birru, W.T. and Tessema, W.K. (submitted). Rural Marketing Practices and Livelihoods in Developing Countries: A Systematic Literature Review.

## ***2.1. Introduction and background***

In the face of rapidly changing global conditions, ensuring rural communities' economic viability is vital. Urbanization (rapid expansion of small towns into rural areas), income inequalities and poor service levels within these communities, as well as population growth and economic declines, are all threatening the viability of the livelihoods of rural communities around the developing world. The persistence of such challenges on a global scale has prompted governments and donor agencies to align policies aimed at improving rural people's livelihoods. Diversification of rural livelihoods and expansion of rural marketing practices are frequently mentioned as efforts to reduce poverty and improve rural people's livelihoods in low-income developing countries (Ellis, 2000; Gautam and Andersen, 2016; Walle and Cratty, 2004). Market development, market expansion, and networking through trade is a viable path forward for the development of rural areas in less developed countries, as it is viewed as a potential driver of development and economic growth in these areas (Barrett et al., 2012; Fisher, 2003; von Braun, 1995). In light of this, scholars generally believe that the transition from subsistence to commercial farming is a critical component of low-income countries' economic development, provided that the poorest groups of the rural population and the most vulnerable individuals within the household are able to reap the benefits of increased market integration (Carletto et al., 2017). However, rural commercialization was frequently presented as the result of colonialist-style rural policies that favored cash crop production primarily for export reasons with minimal benefits to the rural population, a viewpoint shared by researchers who support the 'food-first' view (Maxwell and Fernando, 1989). The main approach in this case was thus a comparison of some livelihood outcomes (for example, nutritional security) between cash crop adopters and non-adopters. This line of argument applauds rural/agricultural marketing rather than agricultural commercialization.

Rural marketing is frequently regarded as promoting pro-poor agricultural growth and should be viewed as one set of institutional mechanisms for rural economy coordination and exchange (Dorward, 2006; Dorward et al., 2003). A wide range of studies have been conducted to reveal the true effects of rural marketing on the livelihoods of developing-country rural communities (e.g., Baiyegunhi and Oppong, 2016; Donovan and Poole, 2014). To our knowledge, however, no studies have systematically examined the literature to provide an analysis of overall effects of rural marketing practices on the livelihoods of rural people, which is useful for gaining a broad

perspective of the field. Systematically examining/reviewing publications on 'the effects of rural marketing on rural livelihoods' can thus indicate progress in efforts made in this regard, as well as research gaps that may invite additional research to informing evidence-based rural development policy in the context of developing countries.

A systematic review differs from a traditional review in that it is guided by a set of rules, and it often is used to identify, evaluate, and integrate sufficient quality research on a specific topic in order to produce new synthetic insights (Khan et al., 2003). Systematic literature review method is increasingly being used to inform policy development and to identify gaps in the literature (Bambra, 2011). In order to answer a broader question: "*How does rural marketing contribute toward livelihood improvements among rural farming communities in developing countries?*", this paper employs a systematic literature review procedure in the manner suggested by Khan et al. (2003). Ultimately to unveil the links that may exist between rural marketing practices and livelihoods, the review specifically seeks to answer the following three questions through an extensive review of literature in the fields of marketing and livelihood: '*How rural marketing is conceptualized in the literature?*', '*What livelihood outcomes are used by the literature?*', and '*What effects does rural marketing have on the livelihoods of rural people?*'

This paper is divided into five parts. Section 2 provides a brief overview of the review's two themes, rural marketing and rural livelihoods. Section 3 focuses on the review process's methodological procedure. Section 4 presents and discusses the review's major findings. Finally, on section 5, the paper draws conclusions and suggests areas for further research based on the findings and discussions.

## ***2.2.A brief overview of rural marketing and rural livelihood***

### ***2.2.1. Rural marketing: What is it?***

Scholars have attempted to conceptualize, define, and redefine rural marketing, claiming that its definition has evolved over time (Jha, 2012; Modi, 2009). Rural marketing has been viewed from a variety of perspectives and operationalized in a variety of ways (Sridhar, 2010). Rao and Tagat (1985), for example, defined rural marketing as a process of interactive activities involving the government, non-profit organizations, the corporate sector, and rural clients, each with distinct functions, modes of operation, and stake. According to Jha (1988), it is conceptualized as a two-way process concerned with the flow of agricultural produce from rural to urban and rural to rural

areas, as well as other goods and services from urban to rural. As a result, it is widely emphasized that rural marketing contributes to closing the growing gap between rural and urban economies (Vaswani et al., 2005). Vaswani et al. (2005) proposed further reconceptualization of rural marketing by emphasizing the need for a new perspective of "*producers' empowerment*" in addition to the existing "*strategic marketing*" perspective, in order to broaden its domain to include a variety of market relationships that are part of growing rural–urban linkages. The former emphasizes the importance of rural producers being recognized as "producer sellers", whereas the latter emphasizes improving the productivity and profitability of small-scale agro-processing units in rural areas. In this sense, rural marketing is understood as agricultural produce marketing, and thus conceptually, it parallels agricultural marketing (Modi, 2009). According to Sridhar (2010), rural market boundaries should not be based on transactions that occur between two geographical locations, but rather on two distinct types of people and mindsets. The latter allows for more equity in transactions between or among parties in the rural marketing processes. In this sense, rural marketing can be defined as transactions between or among parties, regardless of their geographical location, as long as some sort of exchange occurs.

Sarkar et al. (2016) identified more than dozens of categories within definitions of rural marketing after reviewing existing literature on the subject: rural-to-urban flows (agro/artisan marketing), rural-to-rural flows (farm marketing), developmental marketing, consumer orientations, and holistic marketing, to name a few. This suggests that the concept has evolved from its original conception as 'agricultural' marketing to its more recent conception as a 'holistic' marketing orientation. The review also proposed a comprehensive definition for rural marketing as 'the segmentation and targeting of rural consumers with tailor-made products, services and agro-inputs after conducting rural research; and the subsequent planning and implementation of a customized marketing mix with an objective to stimulate and satisfy customer demand through developmental marketing; as a result of which the organization's holistic marketing objectives should also be met through profitable exchanges between urban and rural markets and within rural markets themselves' (Sarkar et al., 2016:10). As a result, rural marketing must be considered not only in terms of marketing by multinationals (business enterprises) in rural areas, as is frequently stated (Modi, 2009), but also in terms of rural peoples' integration into the market.

Aside from its conceptualizations, rural marketing has also been a subject of rural development studies due to its (perceived) roles to rural livelihood improvement. Marketing activities in rural

areas create market opportunities, which in turn stimulate factor employment across the economy (Dixon, 1981). Rural marketing in its various forms (e.g., smallholder commercialization) is one of the most effective ways to boost farm incomes, create rural jobs, and stimulate rural economies (Olwande et al., 2015). The increased promotion of market production in rural areas causes increases in income and better access to food through the market rather than self-sufficiency typical of subsistence production (Ntakyo and van den Berg, 2019). Rural markets, to that end, account for the lion's share of farming communities' revenues in rural areas towards supporting livelihoods of the rural communities. However, there are also concerns that rural marketing may at times behave undesirably and that rural communities should view rural marketing with skepticism (e.g., Gomez-baggethun et al., 2010).

With these considerations in mind, this paper conducts a systematic review of the literature on how rural marketing has been conceptualized, as well as what livelihood benefits (consequences) rural people would receive (or any damages they might suffer) if they were integrated into the rural marketing process.

### ***2.2.2. Rural livelihoods***

The term 'rural' refers to an open piece of land area that is often sparsely populated with scattered houses, has low population densities, and minimal infrastructure when compared to cities and urban centers (Mphande, 2016). The open piece of land area that designates 'rural areas' is primarily used for agricultural practices, which are the primary source of livelihood of rural people. Livelihood, which often refers to the activities, assets, and access that an individual or group may engage in or own in order to earn a living, is a widely used concept in development discussions (Ellis, 2000, 1998; Scoones, 2009). It includes people's abilities, assets, income, and activities required to meet their basic needs (Kileteny and Wakhungu, 2019). Hence, livelihoods are defined as occupations that people engage in for the sole purpose of generating a source of income. Livelihoods are conceptualized as various types of capital that can benefit an individual; specifically, human, social, economic, financial, physical, and natural resources that a person possesses and has at his or her disposal. Human capital consists of a person's demographic characteristics, skills, knowledge, and ability to work in order to be productive. Social capital is made up of formal and informal institutions, associations, extended family, and local mutual support mechanisms or networks that protect an individual's household from adversity. Cash

income, credit, and any other source of financial benefit are all examples of financial capital. Physical capital refers to the individual's shelter, infrastructure, and productive assets.

When livelihood is applied to rural settings, it is defined as 'a complex structure consisting primarily of agriculture, with a portion of the population diversifying into non-farm activities in order to achieve a sustainable livelihood and provide a better income for their households' (Mphande, 2016). Rural livelihood refers to an individual's capabilities, assets, and activities that they require in order to survive, and hence, it is a means for rural people to find and earn a living (Chambers, 1995). To this end, the main components of rural livelihood are farm and non-farm activities, diversification, and sustainability.

Despite the fact that farming has declined as a source of livelihood in rural areas in recent decades due to factors such as rising income levels and the allure of city life, farm activities such as food crop farming, livestock raising, and fishing continue to support rural livelihoods around the developing world (Kapur, 2019; Kumar et al., 2019). A large proportion of the population in developing countries lives in rural areas, and the majority of them rely on agriculture for their livelihood (World Bank, 2008). Farming, in particular, remains the primary source of income for the vast majority of African households living in rural areas (Davis et al., 2017). This highlights the importance of carefully considering how to promote rural livelihoods through significant investments in farming in rural Africa and elsewhere in the developing world.

Diversification of livelihoods into non-farm activities (for example, wage labor employment), on the other hand, is becoming increasingly important among rural people in the face of environmental shocks such as disasters and livestock disease outbreaks (Ellis, 2000). Diversification, defined as the process by which households build increasingly diverse livelihood portfolios using increasingly diverse combinations of resources and assets, is important in rural livelihood systems (Niehof, 2004). Production uncertainties, primarily caused by climate extreme events, compel rural people to seek alternative livelihood options such as wage labor employment or rely on a combination of farm and non-farm activities to support a household. Today, in most developing countries, farmers are choosing diversification over small-scale farming because land-based livelihoods are unsustainable and cannot support their families for food in times of adversity. Livelihoods diversification into non-farm activities in rural areas is sought to serve as a household strategy to manage farm production risks and uncertainties, as well as to help overcome market failures (Davis et al., 2017). Rural households frequently diversify their sources of income in order

to meet household needs. According to studies, households that practice some form of livelihood diversification have improved their consumption, income, food security status, and the adoption of natural resource management technologies (Kebebe and Shibru, 2017; Mentamo and Geda, 2016).

Because of the uncertainties and risk factors in production, the concept of livelihood was later expanded into sustainable rural livelihoods. Thus, the sustainability issue has been incorporated into the concept of livelihood, and 'sustainability' continues to be the most important component of rural livelihoods. Sustainable rural livelihood denotes the need to endure and survive stresses and shocks, as well as to retain, improve, and develop capabilities and productive resources among the rural communities while not jeopardizing the natural resource base (Chambers and Conway, 1991; Scoones, 2009). The sustainable livelihood approach provides a holistic and integrative approach capable of analyzing and comprehending the complexities of rural development.

Furthermore, innovative approaches to creating better livelihood opportunities, provision of infrastructure facilities, and wage and self-employment are the major strategies for improving better livelihood opportunities in rural areas (Kapur, 2019). Above all, market-based livelihoods, which are the primary livelihood diversification mechanisms in rural communities, are used to secure livelihood opportunities in rural areas (Kapur, 2019). When rural communities produce surplus food or non-food products and sell them in the market, they can achieve their livelihood objectives in a sustainable manner. Therefore, the purpose of this paper is to review and document the existing literature on the livelihood effects of rural communities' marketing practices.

### ***2.3. Review methodology***

A systematic literature review is a methodological approach that is rigorous and transparent in selecting, critically appraising, and synthesizing the findings of multiple studies (Higgins and Green, 2008; Khan et al., 2003). Systematic reviews have been developed specifically in the field of health, and are especially useful when studies report contradictory results (Lamé, 2019). In recent times, they are also increasingly being applied to rural development concepts such as food security, marketing, and livelihoods (e.g., Blundo-canto et al., 2018; Duncombe, 2015; Evans et al., 2015; Saleminck et al., 2017).

Rural marketing and rural livelihoods are broad rural development concepts that cover a wide range of topics. Recognizing that there are a number of journals indexed in various databases that

may publish these broader issues, the current review relied on two electronic databases, Science Direct and Google Scholar, to locate publications on rural marketing and rural livelihoods. Search strings in Science Direct (Elsevier) and Google Scholar were used to find articles that were particularly relevant to the purpose of this review. Because of their extensive coverage and high content quality, these two search engines have been used in recent reviews (e.g., Abu Hatab et al., 2019; Garcia et al., 2015). Science Direct and Google Scholar both have a large number of high-quality academic and scientific publications. For example, Science Direct is a website that offers subscription-based access to a large database of scientific research. It contains more than 12 million items of content, including 3,500 academic journals and 34,000 e-books (Elsevier, 2014). In addition to these databases, searches of reference lists and other capture in review articles were carried out in order to identify additional potential articles that were not found in the initial search.

The key words that appear in abstract, title, paper or key words searched included combinations of the terms ‘effects’, ‘impacts’, ‘rural’, ‘livelihoods’, ‘marketing’, ‘market’, ‘market participation’, ‘integration to market’, ‘market chain’, ‘commercialization’, and ‘commoditization’ (Figure 2.1). To search the databases, a Boolean search approach was used, which allowed combining all search terms under each of the four main categories (that is, effects, rural, livelihoods, and marketing) with a ‘OR’ operator and combining each categories’ search terms with those of other categories with a ‘AND’ operator (Figure 2.1). The two databases’ literature initial searches yielded 786 candidate articles.

The process of identification of relevant publications followed that, first, the titles of the identified studies were screened for the presence of a combination of the major search terms (marketing and livelihood), as well as topic relevance. In so doing, the titles of articles for items that were not related to rural marketing or rural livelihoods were screened on a title basis. This aided in the removal of papers that represented ‘false drops’ or papers that were not clearly within the subject area. Second, the abstracts of the identified studies were screened for relevance to the review question using predefined criteria. The exclusion criteria included non-farm marketing (e.g., land marketing, labor marketing, financial markets, energy markets, participation in non-farm enterprise activities), export markets, and publications pertaining to international trade or regional integrations. Furthermore, it is limited to rural economies and does not include urban economies. To ensure scientific quality, the review considered and was limited to original peer-reviewed journal articles.

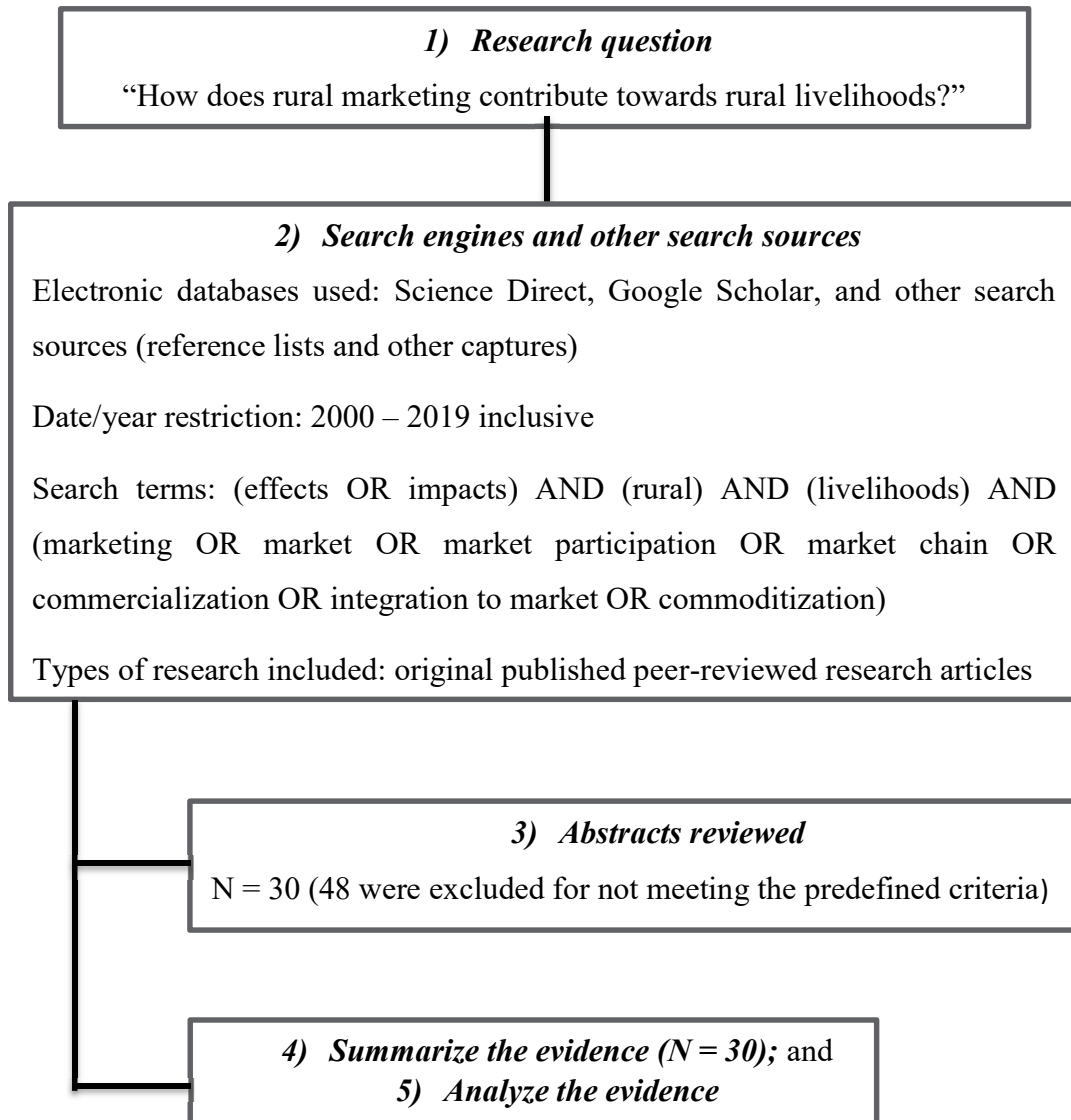


Figure 2.1: Steps followed in the systematic literature review

In reviewing the initial search results, papers that were not directly related to the review question were excluded using a preliminary screening based on title, key words, or abstract. Finally, full text/papers for all studies that appeared to meet the inclusion criteria were sought, and the extent to which each article addressed the topics was assessed.

Based on a full-text reading, a set of pre-determined assessment criteria was used to make a final decision on the inclusion/exclusion of articles in the review. At this stage, the primary reasons for article exclusion were: (1) the article did not discuss rural marketing or did not address interlinkages between at least two of the conceptual model's components, (2) the article addressed aspects of marketing and livelihood that were irrelevant to the focus and objectives of this review,

and (3) the article was an incorrectly included duplicate or a duplicate of another article. Following a full-text screening of the candidate articles, and after excluding several articles that did not meet the criteria, 30 peer-reviewed articles were retrieved, reviewed, synthesized, and discussed. The selected 30 papers were used in the subsequent information extraction and they were critically evaluated in relation to the review's questions and themes.

## ***2.4. Results and discussion***

The extraction of data from the selected studies focused on and is organized around three major themes for discussion: a) Rural marketing conceptualizations and/or measures; b) What livelihood indicators/outcomes are used; and c) The effects/consequences of rural marketing on rural livelihood. The details for the search results from the two bibliographic databases and other sources are subsequently presented in Tables and Figures. Table 2.1 details the 30 publications, while Tables 2.2, 2.3, and 2.4 respectively provide conceptualizations of rural marketing, the varieties of livelihood indicators used in the reviewed literature, and livelihood consequences of rural marketing.

*Table 2.1: Summary of the studies on how market contributes to livelihood in developing countries*

<b><i>Author/s and publication year</i></b>	<b><i>How is rural marketing conceptualized/measured?</i></b>	<b><i>What livelihood indicators are used?</i></b>	<b><i>What effects/consequences marketing does have on livelihood?</i></b>
Montalbano et al. (2018)	market/commercialization chain participation	food security	Farmers who sell to the market fare better: Participation in the market chain has a positive impact on food security, regardless of the outlet chosen.
Carletto et al. (2017)	commercialization, commercial agriculture	nutritional status	There is little evidence of a positive relationship between commercialization and nutritional status; there is little evidence of a link between increased commercialization and improved food security and nutritional outcomes.
Abdullah et al. (2017)	commercialization, output market participation, selling part of farm output	welfare measured by per-capita consumption expenditure	Market participation is associated with higher levels of welfare in that increasing market participation (selling a portion of farm output in the market) raises household income, which has a positive impact on welfare as measured by per-capita consumption expenditure.
Awotide et al. (2016)	market participation: If a farmer has marketed some of his or her farm output (rice), s/he is considered a market participant (commercialized)	welfare measured in consumption expenditure per capita	An increase in farmers' welfare is conditional on the farmer's likelihood of participating in output (rice) markets.

Asfaw et al. (2012)	output market participation: those who sold pigeon pea and did not sell any	welfare measured with <i>HFIAS</i> and <i>HDDS</i> indices, crop diversity	Participants in the output market (who sold pigeon pea) have significantly higher food security status in terms of <i>HFIAS</i> (but no evidence for dietary diversity); and maintain more pigeon pea diversity on-farm than those who did not sell any (non-participants) Participants in the output market (who sold pigeon pea) have significantly higher food security status in terms of <i>HFIAS</i> (but no evidence for dietary diversity); and maintain more pigeon pea diversity on-farm than those who did not sell any (non-participants)
Gomez-baggethun et al. (2010)	transformation and intensification of agricultural systems	traditional livestock farming, agriculture and ecological knowledge	The abrupt loss of traditional agricultural knowledge is caused by the rapid transformation and intensification of agricultural systems (due to the transition to a market economy).
Godoy et al. (2005b)	integration into market economy measured in cash earnings	wellbeing measured in nutritional status	There is little or no evidence that trade opening (market) improves nutritional status (food consumption)
Godoy et al. (2005a)	integration into market economy	wellbeing and natural resource conservation	The market exposure of rural people has mixed/unclear effects on wellbeing and natural resource conservation.
Vadez et al. (2004)	integration to market	agricultural diversity	As households integrate into the market economy, they deforest more, expand the area under cash crop, sell more farm produce, intensify production, and intercrop more; thus, while market expansion induces specialization and intensification in selected cash crops (threatens agricultural diversity), it does not completely eliminate it (households retain it), and thus improves individualism.
Godoy et al. (2004)	integration into a market economy or economic development	household income, wealth, consumption, imputed annual value of farm production	There is insufficient evidence to support the hypothesis that 'market integration worsens economic inequalities'; greater integration into a market economy does not exacerbate economic inequalities within a given society, but it does between societies.
Guest (2002)	market integration, capitalization of a community, development	distribution of traditional ecological knowledge	Local knowledge of the natural world does not have to be eroded as a result of integration into a market economy, but can actually promote the development of a new body of ecological knowledge.
Kennedy and Cogill (1988)	cash cropping: shifting from maize to sugarcane production	food security: incomes, caloric intake	Sugarcane producers' incomes are significantly higher than non-cane producers' incomes, and a portion of this additional income is used to increase household caloric intake.
Cazzuffi et al. (2019)	commercialization: share of output sold, sales of rice and overall crop sales	welfare: asset accumulation, consumption expenditure, income	Growing agricultural commercialization is associated with higher asset levels (asset accumulation), while decreasing consumption expenditure and having no significant impact on household income.
Schöll et al. (2016)	group marketing	income increases	Participation in a farmer group (group marketing) facilitates market connections by opening up new marketing opportunities or connecting farmers to existing markets. As a result, group marketing contributes to a higher increase in income, which leads to better living conditions in the long run.

Muriithi and Matz (2015)	commercialization through export or domestic market	welfare: income, asset holdings	While production for the export market is associated with higher income, commercialization's ability to alleviate poverty appears to be limited due to mixed evidence for the association with asset holdings and weak evidence for a positive role of production for the domestic market.
Tadesse et al. (2019)	participate in the improved farm technologies	income earnings, assets building, availability of food for consumption	Participating in improved farm technologies (varieties) leads to wealthier farmers improving their homes and increasing their livestock, whereas poor farmers primarily invest in furniture, cooking utensils, tools, and developing small businesses such as selling and buying cereals, milk, and weaving products in local markets.
Manda et al. (2018)	large-scale agricultural investment (out-grower schemes)	livelihood dynamics, household welfare: livelihood assets building	In terms of financial capital and other dynamics, out-grower schemes have a greater impact on livelihoods. They do not, however, result in substantial path-changing achievements for households. As a result, the "win-win" accounts relating to the contractual agreements of the out-grower arrangements continue to be inconsistent.
Pallante et al. (2016)	niche market development	agrobiodiversity conservation	The development of niche markets demonstrates that urban consumers are willing to pay a premium price sufficient to compensate for conservation opportunity costs; as a result, producers are encouraged to conserve genetic resources.
Matias et al. (2018)	commercialization, value chain analysis	income earning, changes in gross margins, forest conservation	Commercialization allows downstream actors to capture the majority of the economic value of wild honey in terms of income and gross margins, which has more disadvantages than advantages for upstream actors; and commercialization of traditional non-timber forest products has an impact on forest conservation.
Martins and Shackleton (2018)	commercialization/trade (selling) of palm wine	household incomes from palm wine sales	palm tapping and selling contributes to increase in household income and thus to local livelihoods improvements and poverty alleviation
Kyomugisha et al. (2018)	market access (volume sold), value addition, contract farming	income earnings	Farmers earn a relatively higher income by adding value (value addition) to farm produce and gaining market access through contractual arrangements.
Hepp et al. (2019)	transitioning towards commercial agriculture	food security	Market integration gradually decouples livelihood strategies from the land (de-agrarianization), exposing households to market volatility, debt, and sociocultural losses. Food security is no longer viewed from a 'producer's' perspective, but rather from a 'consumer's,' as commercialized households become more reliant on markets for their food supply.
Isakson (2011)	market provisioning	on-farm conservation of maize diversity	Some market activities are associated with lower measures of diversity, while most forms of market provisioning, including resource allocation to market production, are not; the statistical insignificance of market production variables did not confirm the conventional belief that greater participation in market activities translates into less diversity in the fields.

Fraval et al. (2018)	rural-urban linkages	livelihoods (income, food security)	Households in good rural-urban connectivity areas have diverse livelihoods as a result of their market connections (market opportunity), which has implications for achieving income and food security outcomes.
Fischer and Qaim (2012)	collective marketing (farmer group), market access	welfare measured in total annual income earnings	Collective marketing has a positive income effect for active group members, implying that group marketing (farmer group) improves welfare and promotes commercial behavior (commercialization)
Donovan and Poole (2014)	market access through linkages to certified coffee markets	asset building	Market-linked households increased their resilience to future shocks by building specific elements of their asset base.
Corsi et al. (2017)	market access (operationalized in terms of perceived improvement to market access)	food security: the number of sacks of peanuts and sesame that farmers produced	Improved access to markets achieved through collective actions ensures greater food security; the more food secure a farmer is, the more access to markets he or she has, but access to markets also ensures greater food security.
Ntakyo and van den Berg (2019)	market production: share of output marketed and participation in cash crop production	food security: calorie consumption, dietary diversity	Market production has mixed effects: it has a negative impact on calorie consumption but a positive impact on dietary diversity.
Conway-Gómez (2008)	turtle protein sale/trade, and preference for cash, trips outside the communities (external linkages)	turtle protein consumption (eat, send turtle, send eggs, hours turtling)	Close proximity to the market does not result in increased turtle protein consumption; greater market integration does not result in increased turtle consumption; poorest households tend to integrate to the market and pose the greatest risks to turtle abundance.
Asuming-Brempong (2013)	commercialization	food security	Commercialization has several advantages, including increased household income and improved household food security.

#### ***2.4.1. Rural marketing – how conceptualized and/or measured?***

It is important to understand how rural marketing has been conceptualized, defined, operationalized, and/or measured in the literature in order to properly capture its effects on rural people's livelihoods in general. In this regard, the studies in this review have used various conceptualizations and/or measures to qualify the farming communities' marketing practices, which included commercialization, market integration, market access, cash-cropping, contract farming, collective (group) marketing, rural-urban linkages, market provisioning, value addition, and diversification (See also Figure 2.2 and Table 2.2). Commercialization appeared more frequently (it appeared in 40% of the reviewed studies) as a measure of rural people's market participation. For example, Cazzuffi et al. (2019), operationalized crop farmers' marketing practices as commercialization and measured the proportion of farm output (crops) sold in grain markets to capture the extent to which farm producers engage with the market. Commercialization – measured by output market participation or selling a portion of farm output, share of output sold,

and transitioning to commercial agriculture – has also been used to measure market participation by Abdullah et al. (2017), Carletto et al. (2017); Ntakyo and van den Berg (2019).

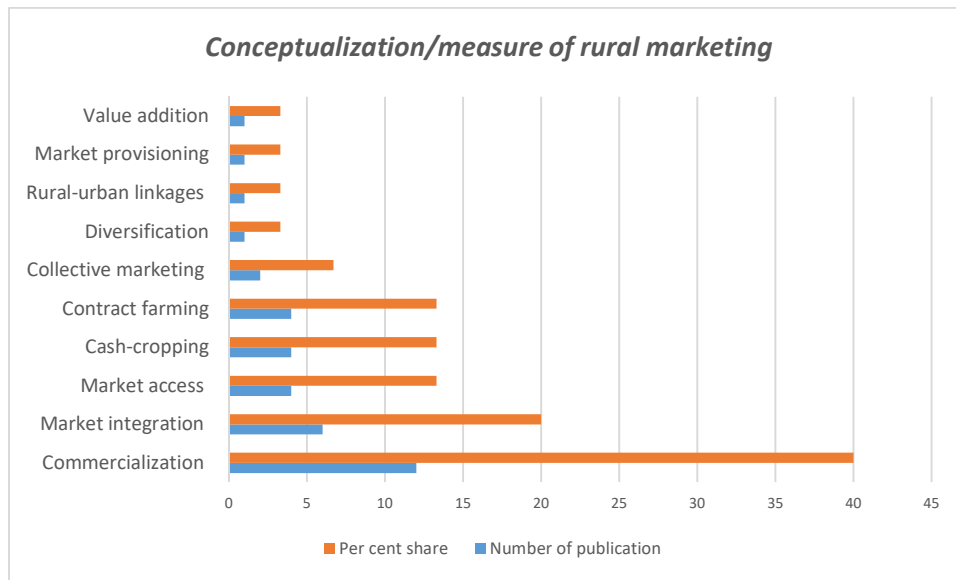


Figure 2.2: Conceptualization/measure of rural marketing

Conway-Gómez (2008), on the other hand, used market integration (the second frequent measure of market participation appearing in the 20% of the reviewed studies) to consider rural marketing, which was measured and operationalized as a preference for cash/monetary equivalent of farm produce, trips outside of communities (external linkages), community capitalization, or economic development. In another study, rural marketing has been evaluated based on market access and measured in terms of perceived improvement to market access and how important the role of collective action is to assure access to local markets (Corsi et al., 2017). Farm producers' transition from production of food crops (e.g., maize) to cash crops (e.g., sugarcane) and their participation in improved farm technologies/intervention were also considered indicators/measure of transition to commercial agriculture (Ntakyo and van den Berg, 2019; Tadesse et al., 2019). Rural marketing has also been defined as membership in a farmer group (group marketing), which may facilitate connections to markets either by linking farmers to the market or opening up new marketing opportunities towards increases in income that would in the long run improve livelihood (Schöll et al., 2016). Furthermore, market provisioning, defined as the allocation of productive resources to market production, has been used to represent rural people's market participation (Isakson, 2011). Diversification (on-farm crop diversity), rural-urban linkages, and value addition

have also been used to represent rural people's marketing activities, albeit less frequently (Asfaw et al., 2012; Fraval et al., 2018; Kyomugisha et al., 2018).

*Table 2.2: Conceptualizations and/or measurement of rural marketing*

<b><i>Rural marketing</i></b>	<b><i>Representative studies</i></b>
Commercialization (measured by output market participation or selling a portion of farm output, share of output sold, transitioning towards commercial agriculture)	(Abdullah et al., 2017; Asfaw et al., 2012; Asuming-Brempong, 2013; Awotide et al., 2016; Carletto et al., 2017; Cazzuffi et al., 2019; Fischer and Qaim, 2012; Hepp et al., 2019; Martins and Shackleton, 2018; Montalbano et al., 2018; Muriithi and Matz, 2015; Ntakyo and van den Berg, 2019)
Market integration (measured in preference for cash/monetary equivalent of farm produce, trips outside the communities (external linkages), capitalization of a community, economic development)	(Conway-Gómez, 2008; Godoy et al., 2005b, 2005a, 2004; Guest, 2002; Vadez et al., 2004)
Market access (operationalized and measured in terms of perceived improvement to market access, linkages to certified high value markets, membership in farmer groups, volume of farm produce sold, how important is role of collective action to assure access to local markets)	(Corsi et al., 2017; Donovan and Poole, 2014; Fischer and Qaim, 2012; Kyomugisha et al., 2018)
Diversification (on-farm crop diversity)	(Asfaw et al., 2012)
Cash-cropping: shifting from staple/subsistence to cash crop production, participate in improved farm technologies/ intervention	(Corsi et al., 2017; Kennedy and Cogill, 1988; Ntakyo and van den Berg, 2019; Tadesse et al., 2019)
Contract farming/out-growers' scheme, large-scale agricultural investments, transformation/intensification of agricultural systems	(Gomez-baggethun et al., 2010; Kennedy and Cogill, 1988; Kyomugisha et al., 2018; Manda et al., 2018)
Collective marketing (promotes commercial behavior), group marketing facilitates connection to markets either by linking farmers to the market or opening up new marketing potentials	(Fischer and Qaim, 2012; Schöll et al., 2016)
Rural-urban linkages	(Fraval et al., 2018)
Market provisioning: allocation of productive resources to market production	(Isakson, 2011)
Value addition, value chain analysis, value chain participation	(Kyomugisha et al., 2018)

In sum, previous studies that have investigated the effects of rural people's market involvements differ greatly in their measures of rural marketing, often using only one or a few measures, highlighting that the effects of rural marketing can vary depending on how it is conceptualized and measured. Rural marketing can behave positively, negatively, or arbitrarily on the livelihood variables in question, implying that the observable effects of market integration are dependent on how market integration is defined or measured (Godoy et al., 1997). As a result, proper conceptualization of rural marketing is evidently critical in understanding its effects, as it appears to result differentially.

### 2.4.2. *Livelihood indicators/outcomes and measures*

Another finding from the review is how rural livelihood is defined and which livelihood indicators/outcomes have been used in the literature. ‘Livelihood’ has been defined differently in the literature, and different indicators have been used to measure it: welfare/wellbeing, food security, natural resource conservation, agriculture/farm diversity, economic inequalities, and assets building (Table 2.3 and Figure 2.3). Welfare or wellbeing, as measured in food (in)security, per-capita consumption expenditure, asset holdings or asset accumulation, consumption expenditure, income earnings, nutritional status, household per capita food expenditure, and per capita caloric consumption, has been used as a measure of livelihood by Abdullah et al. (2017), Carletto et al. (2017), Manda et al. (2018), and others, implying that most of the studies used in this review (46.6%) preferred to represent livelihood in a broader generic term.

*Table 2.3: Livelihood indicators used in the reviewed studies*

<i>Livelihood indicators/measures</i>	<i>Representative studies</i>
Welfare/wellbeing (measured in food (in)security, per-capita consumption expenditure, asset holdings/accumulation, consumption expenditure, income earnings, nutritional status, household per capita food expenditure, and per capita caloric consumption)	(Abdullah et al., 2017; Asfaw et al., 2012; Awotide et al., 2016; Carletto et al., 2017; Cazzuffi et al., 2019; Fischer and Qaim, 2012; Godoy et al., 2005b; Kyomugisha et al., 2018; Manda et al., 2018; Martins and Shackleton, 2018; Matias et al., 2018; Muriithi and Matz, 2015; Schöll et al., 2016; Tadesse et al., 2019)
Food security (consumption of farm produce to assure the family fat intake and household income from cash crop – measured in number of sacks of a staple and cash crop produced)	(Asuming-Brempong, 2013; Corsi et al., 2017; Fraval et al., 2018; Hepp et al., 2019; Kennedy and Cogill, 1988; Montalbano et al., 2018; Ntakyo and van den Berg, 2019)
Livelihood assets building	(Donovan and Poole, 2014)
Economic inequalities	(Godoy et al., 2004)
Agrobiodiversity conservation, crop diversity conservation, genetic resource conservation, traditional agricultural/traditional and ecological knowledge distribution	(Gomez-baggethun et al., 2010; Guest, 2002; Isakson, 2011; Matias et al., 2018; Pallante et al., 2016)
Agricultural diversity (farm diversity)	(Vadez et al., 2004)

On the other hand, food security measured in the consumption of farm produce to insure the family fat intake and household income from cash crop (measured in number of sacks of a staple and cash crop produced) has been used as livelihood outcome (e.g., Asuming-Brempong, 2013; Ntakyo and van den Berg, 2019). Other studies that have been reviewed have used such livelihood indicators as asset building, economic inequalities, and farm diversity, but less frequently (Donovan and Poole, 2014; Godoy et al., 2004; Vadez et al., 2004). Furthermore, in the reviewed studies, (natural) resource conservation, defined as conservation of agrobiodiversity, crop diversity, and genetic resources, and conservation and distribution of traditional agricultural

knowledge and ecological knowledge, has also been accounted for as livelihood indicator and/or measure (Gomez-baggethun et al., 2010; Guest, 2002; Isakson, 2011; Matias et al., 2018; Pallante et al., 2016).

These findings indicate that the majority of previous studies (nearly half of the studies included in the review) relied solely on a few generic livelihood effect indicators, providing a limited understanding of the determinants of household market participation and the benefits accrued across various types of households. The studies addressed this issue by viewing market effects solely from the standpoint of overall welfare or wellbeing, providing little information about market effects on specific livelihood outcomes, such as food security, indicating that more research is needed in this area. By doing so, policymakers and development practitioners could be provided with sufficient guidance to design policy interventions aimed at assisting farm producers in reaping greater benefits from their market connections.

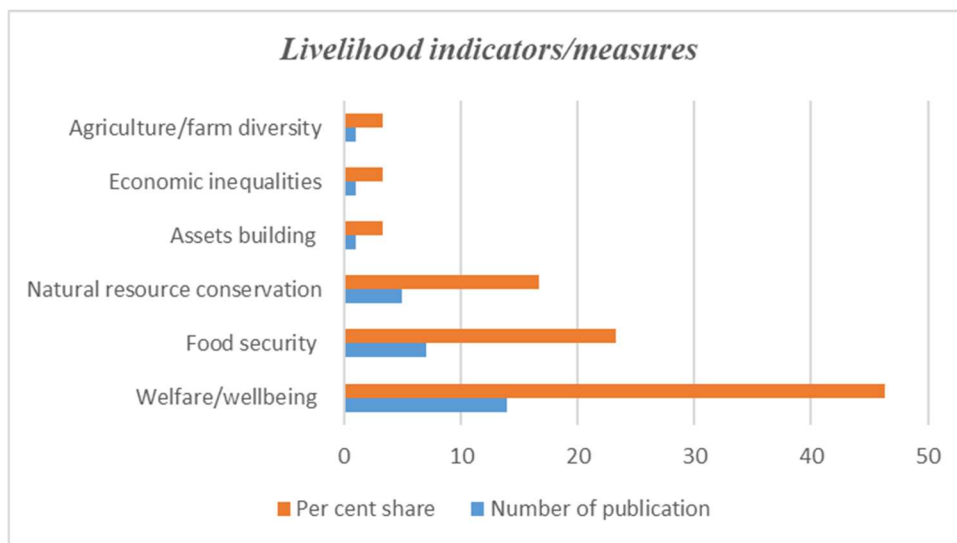


Figure 2.3: Livelihood indicators/measures

### 2.4.3. *Livelihood effects of rural marketing*

According to the findings of the review, rural marketing has a variety of effects on rural livelihoods. Positive or negative links, weak links or no evidence of any links, or mixed/unclear/inconsistent effects characterize the relationship between rural marketing and rural livelihoods (Table 2.4 and Figure 2.4). The current review revealed that the evidence on how rural marketing activities influence the lives of rural people remains inconclusive and debatable, with the debate dividing researchers into groups and the existing empirical literature into strands.

First, one group of scholars is adamant that markets improve the lives of people living in rural areas (e.g., Guest, 2002; Kennedy and Cogill, 1988). This group accounts for the majority (53.3%) of the reviewed literature (Figure 2.4). The reviewed studies have emphasized that the welfare of rural farming communities is largely dependent on whether they participate in output marketing, in that income from the sale of farm output, among other things, is an important factor that influences the welfare of the households (Abdullah et al., 2017). In this sense, market-oriented output generates more income than subsistence output, resulting in increased household consumption (Muriithi and Matz, 2015). In the reviewed studies, improvements in rural livelihoods are manifested in various ways, including, among others, higher incomes (Fraval et al., 2018; Kyomugisha et al., 2018), improved food security (Asuming-Brempong, 2013; Corsi et al., 2017), asset building (Cazzuffi et al., 2019; Donovan and Poole, 2014; Tadesse et al., 2019), poverty alleviation (Martins and Shackleton, 2018), and resilience to shocks (Donovan and Poole, 2014). For example, households in good rural-urban connection areas have diverse livelihoods due to their market connections (market opportunity), which has implications for achieving higher income and food security effects (Fraval et al., 2018). Similarly, improved market access achieved through collective action ensures greater food security (Corsi et al., 2017). Consistent with concluding remarks by Corsi et al. (2017), the underlying constraints on household assets and investments concurrently addressed, Donovan and Poole (2014) similarly concluded that improved market access contributes towards rural poverty reduction efforts. Palm tapping and selling contributes to an increase in household income and, as a result, to improvements in local livelihoods, which leads to poverty alleviation (Martins and Shackleton, 2018). Donovan and Poole (2014) demonstrated in their study that households linked to markets built specific elements of their asset base and increased their resilience to future shocks. Cazzuffi et al. (2019) discovered that increased agricultural commercialization is strongly associated with higher asset levels (asset accumulations). It is also argued that an increase in yield through the use of improved crop varieties raises welfare (as measured by per capita consumption expenditure), which is dependent on the likelihood of participation in the farm output market (Awotide et al., 2016). Another study suggests that participation in the output market (selling a portion of farm produce) contributes significantly to higher food security status (in *HFIAS* measure, but no evidence for dietary diversity); and helps to maintain greater on-farm crop diversity (Asfaw et al., 2012). Furthermore, commercialization (commercial behavior) promoted through collective marketing has positive income effects

(improves marketing performance, bargaining power), implying that group marketing contributes to welfare improvements in rural areas by leveraging economies of scale in selling (Fischer and Qaim, 2012). Participation in the output market encourages crop variety diversification. In this regard, Vadez et al. (2004) argue that, while market expansion induces specialization and intensification in selected cash crops, it does not completely eliminate agricultural diversity; rather, households retain it, which improves individual household food security. Such positive association examples, however, cannot simply be generalized. There are also cases where the market does not improve the livelihoods of rural communities and degrades the natural resource base of rural areas.

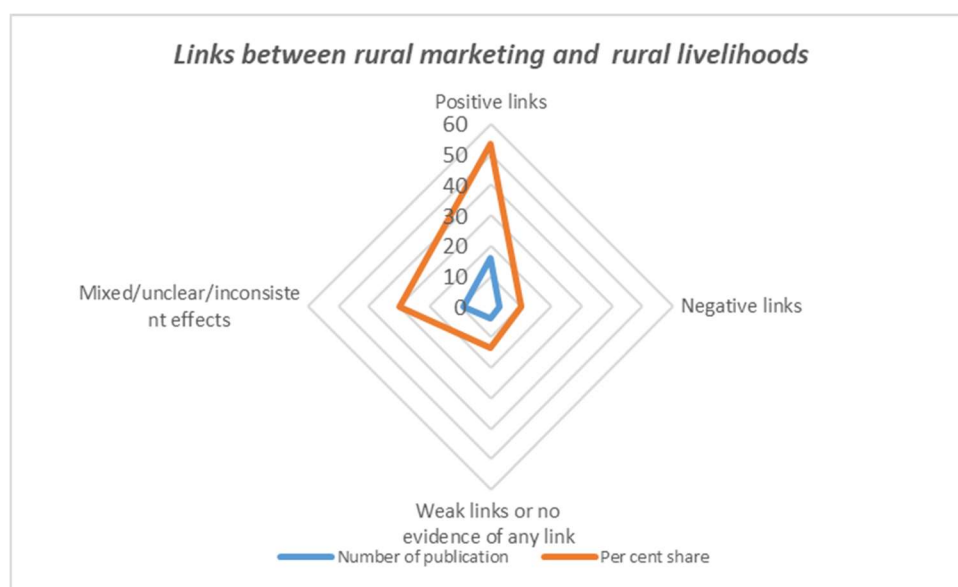


Figure 2.4: The links between rural marketing and rural livelihood

Second, the opposing camp, which accounts for 10% of the reviewed literature, claims that markets harm or erode rural people's quality of life in some way (e.g., Godoy et al., 1997). In addition to the positive contributions, rural marketing may be negatively linked to rural people's livelihoods. In this line of argument, it has been contended that rural peoples' integration into the market gradually decouples their livelihood strategies from land (de-agrarianization), exposing households to market volatility, indebtedness, and socio-cultural losses (Hepp et al., 2019). It has also been argued in the literature that the rapid transformation and intensification of agricultural systems, primarily as a result of the transition to a market economy, results in an abrupt loss of traditional agricultural knowledge (Gomez-baggethun et al., 2010). According to Matias et al. (2018), commercialization of traditional non-timber forest products, which allows downstream

actors to capture the majority of the economic value in terms of income earnings and gross margins, is a disadvantage for upstream actors rather than an opportunity. The same study demonstrated that commercialization of traditional non-timber forest products has (unfavorable) impact on forest conservation (Matias et al., 2018). Similarly, Vadez et al. (2004) discovered that as farmers integrate into the market economy, they deforest more.

*Table 2.4: Effects of rural marketing*

<b><i>Links between rural marketing and rural livelihoods</i></b>	<b><i>Representative studies</i></b>
<i>Positive link: markets improve life in rural areas</i>	(Abdullah et al., 2017; Asfaw et al., 2012; Asuming-Brempong, 2013; Awotide et al., 2016; Corsi et al., 2017; Donovan and Poole, 2014; Fischer and Qaim, 2012; Fraval et al., 2018; Guest, 2002; Kennedy and Cogill, 1988; Kyomugisha et al., 2018; Martins and Shackleton, 2018; Montalbano et al., 2018; Pallante et al., 2016; Schöll et al., 2016; Tadesse et al., 2019)
<i>Negative link: markets erode quality of life of rural people, it ends disadvantageous than bringing opportunities</i>	(Gomez-baggethun et al., 2010; Hepp et al., 2019; Matias et al., 2018)
<i>Weak link or no evidence of any link or limited evidence</i>	(Carletto et al., 2017; Godoy et al., 2005b, 2004; Muriithi and Matz, 2015)
<i>Mixed/unclear/inconsistent effects/results: Markets have ambiguous effects on wellbeing – some welfare outcomes may be hampered (negative link), while others may be improved (positive link)</i>	(Cazzuffi et al., 2019; Conway-Gómez, 2008; Godoy et al., 2005a; Hepp et al., 2019; Isakson, 2011; Manda et al., 2018; Muriithi and Matz, 2015; Ntakyo and van den Berg, 2019; Vadez et al., 2004)

Such negative links between rural marketing and rural livelihoods are frequently related to the devastating effects of markets on conservation. This is typically regarded as the viewpoint of market pessimists and anthropologists, who believe that markets harm conservation and see market integration as a largely destructive process (Rigg, 2006). In this case, thus, the market is blamed for eroding rural people's quality of life, ending up disadvantageous rather than bringing opportunities to them.

Third, still another body of literature (accounting to 30%) argues that markets have ambiguous effects on wellbeing. Cazzuffi et al. (2019), for example, found that participation in the output market (commercialization) has a mixed effect. On the one hand, it aids in the reduction of food insecurity in household asset accumulation measures. Commercialization, on the other hand, worsens food insecurity in terms of consumption expenditure. These findings suggest that agricultural commercialization improves welfare over time (in the medium to long term), but not in the short term. Similarly, commercialization has had mixed effects on welfare in that, while production for the export market is associated with higher income, the ability of commercialization to alleviate poverty appears to be limited due to the mixed evidence for the association with asset

holdings and weak evidence for a positive role of production for the domestic market (Muriithi and Matz, 2015). Ntakyo and van den Berg (2019) have also discovered that rice production for market had mixed effects, with negative effects on calorie consumption and positive effects on dietary diversity. According to Isakson (2011), some market activities are associated with lower levels of crop field diversity, whereas most forms of market provisioning, including resource allocation to market production, are not, refuting the conventional belief that greater participation in market activities translates into less diversity in the crop fields. In another study, out-grower schemes, which is used as a proxy for farmers' marketing activities, had greater livelihood impacts across financial capital, but they are of low quality and fail to produce significant path-changing gains for households. Thus, contractual arrangements mean that larger "win-win" narratives associated with out-growers are inconsistent (Manda et al., 2018). Moreover, a relationship characterized as 'weak link' between market and livelihood is documented in the reviewed works. For example, Godoy et al. (2005b) discovered a weak link or no evidence that trade opening (market) improves nutritional status (food consumption). Carletto et al. (2017) have identified a weak link between increased commercialization and improved food security and nutritional outcomes.

In sum, the present review results evidently show that there is ample evidence of mixed effects of rural marketing on rural people's livelihoods, indicating that markets have ambiguous or unclear evidence of effects on wellbeing. While some welfare outcomes are improved as a result of market interactions others could be hampered.

## ***2.5. Conclusion and direction for future research***

### ***2.5.1. Conclusion***

The review boldly concludes that the relationship between rural marketing practices and rural livelihoods is not fully revealed, and the findings are not always consistent with one another. Rural marketing can have ambiguous effects or unclear evidence of effects on wellbeing. While some welfare outcomes are improved as a result of market interactions others could be hampered. This could be due to a variety of factors, including inconsistencies in conceptualizing/measuring rural marketing and the use of different livelihood outcomes, making it difficult to identify the causal relationship empirically. Most of the studies reviewed addressed the issue by focusing solely on overall welfare or wellbeing, wealth, or livelihood, providing little information about market

effects on specific livelihood outcomes, such as food security. They are also inconsistent results when it comes to measuring rural marketing. As a result, how to define rural marketing and what livelihood outcomes to consider are critical in revealing the market's livelihood effects. The review's findings suggest that it is hardly possible to make a priori assumptions about the direction of the link between rural marketing practices and rural livelihoods. Markets can have a positive, negative, or arbitrary effect on livelihood variables. According to the review, rural marketing practices by rural people help them diversify their incomes and thus improve livelihoods in rural areas in terms of some of the livelihood outcomes (but not with all the indicators). The review also revealed that rural marketing sometimes depletes natural resources on which rural people rely for a living. Although the latter scenario is supported by the least amount of literature reviewed (Figure 3.3), it is not the least important in terms of market development policy because it is largely related to natural resource degradation. Therefore, it is concluded from the findings of the review that, while market integration is a viable option for improving rural livelihoods, the diversified income generated by the integration must be invested in natural resource conservation programs in addition to meeting consumption needs in order to sustainably improve livelihoods.

The review's findings, on the other hand, by-imply that previous studies focused solely on upland agrarian societies, ignoring lowland non-agrarian pastoral communities. While the vast majority of pastoral communities live in rural areas and constitute the majority of rural settings, and are heavily reliant on market exchange practices to support their livelihoods, studies on the 'rural marketing – rural livelihood' relationship have paid little attention to them. A second concluding remark from the review is thus, while rural marketing has been partially successful among upland crop farming communities, there is little empirical evidence that the same holds true for (agro-)pastoral lowland livestock farming communities, implying that more research on the livelihood effects of rural marketing using data from (agro-)pastoral groups is needed.

### ***2.5.2. Direction for future research***

It is evident from the present review that the focus of the reviewed studies has invariably been on the settled upland agrarian societies. The relationship between market and livelihood in non-agrarian societies (such as pastoralists and agro-pastoralists) has not been addressed. The current review, in particular, provides no evidence of the effects of pastoral produce marketing on the food security positions of (agro-)pastoralists. Though it is widely held that rural households that adopt commercialization earn higher annual incomes and thus have higher welfare levels, there is also a

case to be made that rural marketing may affect different socioeconomic groups differently depending on the socioeconomic, institutional, and policy environments. The positive or negative relationships between markets and livelihoods of the upland non-pastoral groups may not mean the same thing to the lowland (agro-)pastoral groups because there are significant distinctions between pastoral and sedentary upland farming environments (Negatu, 2011). Because pastoralists, for example, live in inhospitable marginal lands far from market outlets, accessing markets for their produce is a relatively difficult aspect (Watson and Binsbergen, 2008). Furthermore, the market's functionality in these areas is hampered by high transaction costs and inadequate market infrastructure (Aboud et al., 2012; Hauck and Rubenstein, 2017). There is thus a need to better understand the conditions under which rural marketing is useful, as well as the mechanisms through which potential benefits may emerge. Specifically, the questions 'Does rural marketing practice affect upland farming communities and (agro-)pastoral groups similarly?', 'Does the positive association between the market economy and the livelihoods of rural upland farming communities adequately translate to the (agro-)pastoral context?', and 'What factors are responsible for varying effects of rural marketing (if any) between the upland and lowland groups?' need future research attention. As a result, to shed some light on this rather contentious, yet important, relationship, it is important to test the positive/negative association that may appear between marketing practices and food security using data from (agro-)pastoral communities.

### CHAPTER III

## LINKING CULTURAL AND MARKETING PRACTICES OF PASTORALISTS: A CASE STUDY AMONG THE AFAR PASTORALISTS OF NORTHEASTERN ETHIOPIA

### *Abstract*

*This study aimed to analyze the pastoralists' cultural and marketing practices to uncover the links (and mismatches) between commoditization ideals of market production and cultural epitomes of socially oriented pastoralism. The study is based on a case study from Aramis-Adaar pastoralists of Afar in northeastern Ethiopia. The case study results reveal that the exchange value of livestock is competing with their consumption and social values. Pastoralists' cultural orientation in Aramis-Adaar, which is manifested in communalism, tribalism, ritualism, accumulationism and mobility, is in conflict with their marketing needs. In order to sustainably improve pastoralists' livelihoods, the results of this study imply that there remains scope for improving pastoralists' market integration by taking pastoralists' cultural elements into consideration. Thus, addressing the mismatch that appears between cultural orientation of pastoralists and their marketing needs demands policy attention.*

*Keywords: Cultural practices, Livestock marketing, Pastoralists, Afar, Northeastern Ethiopia*

This chapter is based Benti, D.W., Tessema, W.K., Alemu, S.T. and Birru, W.T. (Accepted). Linking Cultural and Marketing Practices of Pastoralists: A Case Study among the *Afar* Pastoralists of Northeastern Ethiopia.

### **3.1.Introduction**

Based on the premise that markets have been at the core of the policy debates on global development (Broad, 2004), pro-poor policies have been designed to make small-scale producers integrate into product markets to sell their produce that will improve their livelihoods (Onis and Senses, 2005). While opting for increased market integration of producer groups, such as pastoralists, it is important to achieve livelihood sustainability by balancing the cultural, environmental and economic interests (Basiago, 1999). To this end, the positive attachment of pastoralism with the values, culture and identity of the pastoralists need to be accommodative with their drive for increased market integration.

Pastoralists are people who depend on livestock husbandry using natural pasture and rely (directly or indirectly) on their livestock for food and income (Koocheki and Gliessman, 2005). The arid and semi-arid regions inhabited by pastoralists are characterized by vast areas of rangeland coverage and endowed with a large livestock population (Melesse and Jemal, 2012). The rapid growth of demand for livestock and livestock products in the global market creates an increased opportunity and offers new markets to the pastoralists (Gautier et al., 2016). However, the regions' contribution towards improved livelihood of pastoralists is still far below their potential (Aklilu and Catley, 2011). Pastoralists in developing countries are still known for high levels of poverty and destitution (Headey et al., 2014; Rettberg, 2010). Pastoralists frequently suffer from chronic food insecurity (Rettberg, 2010), which they fill the gap through relief food aids (Devereux, 2010). Since pastoralists are largely located at the lowland peripheries, their economic and political networks with central governments have been weak as compared to upland agrarian societies (Little et al., 2015; Stockton, 2012). The pastoral economy is also hindered by its low market orientation and significant market imperfections (Hoddinott et al., 2015). Pastoralists are often characterized by limited levels of participation in markets (Bellemare and Barrett, 2006). The market imperfections in pastoralist economy are usually the results of high transactions costs, poor market infrastructure, and weak backward and forward linkages with other sectors of the economy (Davies and Hatfield, 2007).

Yet, it is more important to ensure that pastoralists are properly integrated into markets as their livelihood is largely dependent on livestock market exchanges. There have been concerns as to how to enhance market orientation of pastoralists to better align their livestock to markets to enhance their livelihood benefits from the ever increasing global demand for livestock and

livestock products also called “livestock revolution” (Delgado et al., 1999). Increased integration of pastoralists into the market brings benefits to pastoralists as well as to the national economy and the global market. Through the income accrued from the sale of livestock, pastoralists are able to access non-pastoral food products (e.g., grain). Market integration also facilitates diversification of the livelihood activities of pastoralists (Tessema, 2012), improves livestock management practices (Little et al., 2008), and facilitates the supply of pastoral products to the global markets (Davies and Hatfield, 2007). Hence, the improvement of pastoralists’ livelihood is largely linked to a system of markets where they can bring their livestock and livestock products to sell and buy non-pastoral foods such as cereals, tea, and sugar. As pastoralists’ diets are supplemented with grains, either from trade or cultivation (Sadler et al., 2010), livestock marketing to purchase cereals has become an integral part of pastoralism (Davies, 2006; Little et al., 2014). To this end, pastoralists develop market exchange interdependencies and economic interactions with crop farmers and other people from nearby towns (Ikeya and Fratkin, 2005). This has increasingly led pastoralists to integrate economically to the extent that they are indistinguishable from settled crop farming neighbors (Mulder et al., 2010).

Increased reliance of pastoralists on markets is important not only for sustaining pastoral livelihoods but also for the contributions of pastoralism to national economies. It, moreover, contributes to the global supply of animal-protein, which demands more policy focus and support to pastoralist regions around the world (Davies and Hatfield, 2007). With the main intention of reorienting pastoralists into markets, the pre-1990’s pastoral development policies focused on as to how to sedentarize pastoralists (Krätli, 2019; Levine, 2010). This approach gave rise to development prescriptions that advocate for sedentarization as opposed to mobile pastoralism (Krätli, 2019). There has been a significant decline in the number of pastoralist households over time, due to the governments’ promotion of policy directions for sedentarization and pastoralists’ search for alternative livelihoods such as petty trading and crops farming (Namgay et al., 2014). Contrary to the policy directions, however, sedentary farming and commoditization of livestock are blamed for impacting pastoralism itself (Krätli et al., 2013; Sadler et al., 2010) and failed to bring about desirable results (Gebeye, 2016; Haji and Legesse, 2017). Sedentarism failed to provide equal marketing opportunities for pastoralists to enhance their market integration (Gebeye, 2016). Sedentarization worsens pastoralists’ food security (Haji and Legesse, 2017) as sedentary children found to have lower nutritional status compared to mobile children (Catley et al., 2016).

Literature on pastoralists' marketing practices focus on two broader issues. First, while market economy stands way forward, marketing studies pertinent to pastoralists are embedded in and masked by sedentarism. In previous studies market is associated with sedentarism and failure in sedentarization scheme has been associated with market's adverse effects (Catley et al., 2016; Pedersen and Benjaminsen, 2008). Second, the program evaluation studies have neglected cultural elements of pastoralists (Haji and Legesse, 2017). In answering the question why pastoralists' use of market remained limited, the available literature is dominated by economic factors, where cultural drives take up less space and the cultural orientations of pastoral communities have largely been disregarded (Cohen, 2005). Studies, on the other hand, show that although strong pastoral beliefs are partly changing due mainly to the ever-encroaching urban centers and neighboring farming communities' traditions (Ikeya and Fratkin, 2005; Namgay et al., 2014), many pastoral communities still uphold their cultural identities and have continued with the age-old customs and traditions of pastoralism (Davies, 2006). They value traditional institutions that are central to pastoralists' existence (Reda, 2011). The customary practices govern the overall life of pastoralists and influence their livestock marketing practices (Chege et al., 2015). Pastoralists are also adept at using their cultural institutions (e.g., herd mobility and social support networks) to cope with variable nature of the pastoral environment (Mckune et al., 2015). Such views and perception of pastoral communities towards cultural institutions have made them remain, in part, skeptical of enhanced marketing practices, as the latter can bring lifestyle changes to pastoralists. In light of this, previous studies have identified customary institutions of pastoralists as '*market discouraging norms*' (Randolph et al., 2007; Tessema et al., 2019).

Cultural elements that are responsible for discouraging the marketing practices of pastoralists are not yet well addressed in scholarly works (Tessema et al., 2019). There is relatively little understanding of how the specific pastoral culture elements relate to marketing. To the best of our knowledge, no study has attempted to specify cultural elements that discourage livestock marketing needs of pastoralists. This further entails the question: 'what are the specific cultural motives of pastoralists behind their livestock production and marketing?' The answer to this question can shed light on understanding the link and possible conflict between cultural and marketing practices of pastoralists. Understanding the decisions that pastoralists would make on the use of pastoral resources requires awareness of the roles livestock may play in their economy. These days, exchange value in the pastoral context is competing with their consumption and social

values; sustaining pastoralism as a livelihood system may require balancing these competing roles (values). Therefore, this study aims to analyze the link (the mismatch, otherwise) between cultural and marketing practices of pastoralists using *Aramis-Adaar* pastoral communities of the *Afar* in northeastern Ethiopia. We choose *Aramis-Adaar* pastoral communities because cultural institutions such as the rule of clan elders and social support networks still characterize the mode of life of these communities (Reda, 2011). Thus, the study contributes to the body of knowledge in that it aims to unpack and extend the previous claim on ‘*market discouraging norms*’ by specifying the culture elements that indeed conflict with marketing practices of pastoralists. Furthermore, the case study bases its foundation in *Afar* into which only a few researchers venture.

### **3.2. Background on understanding pastoralists’ cultural and marketing practices**

#### **3.2.1. Pastoralist cultural practices**

Pastoralism is a mode of production in which cultural traditions take a central stage to function in an often changing environment (Fernandez-gimenez and Febre, 2006). Today, with the growing encroachment of urban centers into rural areas and the practices of the neighboring farming communities (Ikeya and Fratkin, 2005; Namgay et al., 2014) strong pastoral beliefs are partly changing. However, several pastoral groups (e.g., *Afar* in Ethiopia) still have maintained their cultural identity and have continued to abide by the age-old practices and traditions of pastoralists (Davies, 2006). Pastoralists highly value traditional institutions that are fundamental to their lives and affect their entire livelihood (Chege et al., 2015; Tessema et al., 2019). Various cultural strategies such as accumulation of herds and reciprocity have allowed pastoralists to survive for centuries in uncertain environments (Fernandez-gimenez and Febre, 2006; Warren, 1995). These practices can be elaborated as follows.

First, pastoralists practice communal systems of livestock rearing and rely heavily on livestock products for their livelihood (Reda, 2012). The traditional model of pastoral production emphasizes relying on a strategy to build up herds as a buffer strategy (Næss and Bårdsen, 2013). Pastoralists’ intention to increase and retain surplus stocks is to compensate for the considerable loss caused by frequent droughts (Perevolotsky, 1986; Sato, 1997). Pastoralists also traditionally consider large-stock size as indicators of their wealth status (‘rich’ versus ‘poor’). More importantly, the accumulation of herd can be transformed into a network of social connections

through the redistribution of the surpluses to ensure social status, which in turn is used as an adaptation strategy in the face of environmental shocks (Mckune et al., 2015; Reda, 2012).

Second, cultural activities related to livestock transfers and exchanges between relatives and associates have also been used by pastoralists to confront asset loss (Mcpeak, 2006). Through the development of diverse but productive traditional social support institutions (e.g., livestock transfers), pastoralists have adapted to take advantage of the environment (Krätli, 2019). This greatly contributes to the pastoralists' resilience by allowing them for herds rebuilding aftershocks (Moritz, 2013a). A significant feature of such institutions is the common practice of social support from which pastoralists receive livestock as either loans or gifts (Warren, 1995). Pastoralists consider the significance of an internal livestock exchange as a traditional mechanism for accruing insurance (Davies, 2006), and hence exercise between households in a matrix of kinship lines (Moritz, 2013a). Thus, reciprocity among pastoral households of kinship or clan lineage is a means of social security (Fernandez-gimenez and Febre, 2006) by which strong social ties are further formed, providing a form of protection against outright destitution (Davies, 2006). Such practices therefore help to connect pastoralists with varying herd size and social status together, to respond to uncertainties thereby sustaining pastoralism as a livelihood option (Mulder et al., 2010; Scoones, 2020).

Third, mobility, moving along with livestock to find better grazing pasture and water, is yet another cultural element that makes up pastoralism. Since the drylands that pastoralists inhabit are one of the most inhospitable environments for human occupation (Gebre-Mariam, 1987), mobility remains essential in the pastoral system of production to serve as a coping strategy against climatic uncertainties such as droughts (Turner and Schlecht, 2019). In times of drought, pastoralists disperse herds or move them to new grazing areas. In addition to adapting their livelihoods to ecological niches at varying environmental conditions, pastoralists have often used resources sustainably while synchronizing their social cultural practices. Therefore, pastoralism is generally an effective, low-energy base subsistence system of production which has persisted through the centuries mainly due to traditional coping strategies of pastoralists (e.g., mobility).

### ***3.2.2. Pastoralist marketing practices***

Market infrastructure development and market expansion in rural areas are at the core of the development strategies aimed to improve livelihoods of rural communities of the developing

economies (Ellis, 2000, 1998). Rural marketing, as one of the rural people's livelihood strategies (Chambers, 1995), should therefore be seen as one set of institutions for coordination and exchange in the rural economy (Dorward et al., 2003). Farm producers' integration into the market, as one variant of rural marketing, has been discussed primarily in development economics (Fafchamps, 1992). Market integration is often seen as the extent to which farm producers specialize in growing cash crops for the market versus subsistence farming (Fafchamps, 1992; Timmer, 1997; von Braun, 1995). When it comes to pastoral production, market integration has become even more important to support their livelihoods (Aklilu et al., 2013). Pastoralists primarily raise livestock for direct consumptions of pastoral food products such as milk. Pastoralists are increasingly engaged with the markets and towns to sell livestock to buy cereals for their food when livestock products (e.g., milk) becomes inadequate for their family consumption (Devereux, 2010).

Enhanced market integration brings many benefits to pastoralists, in particular, and to the national economy and to the global market, in general (Little and McPeak, 2006). First, the income generated from the integration into market enables pastoralists to access consumer goods (e.g., grain), cover children's education fees and family members' medical expenses, and promote long-term investments outside pastoralism (Adriansen, 2006). Market integration also facilitates pastoralists to diversify their livelihood activities (Bollig, 2016; Tessema, 2012). This greatly contributes to the improvements in their quality of life (Headey et al., 2014). For instance, survey based study by Tessema (2012) has found that increased market integration of pastoralists improved their livelihood (e.g., selling livestock to buy a house in a nearby town to rent, saving money in a bank, and availing adequate food to family). Proponents of market integration (e.g., Little and McPeak, 2006) support enhanced livestock marketing as a way out of poverty for the pastoralist communities. Galaty (2008) argues that by improving and promoting the marketing of livestock, poverty and food insecurity can be mitigated. Negatu (2011) also argued that a strategy to address the underlying sources of pastoralist vulnerability should include support for enhanced livestock marketing. Pastoralism will continue to exist as markets function effectively and market exchange incomes are sufficient to purchase food for pastoralist households (Aklilu et al., 2013). Second, from an environment perspective, the motivation behind livestock marketing in the drylands has been changing over time from 'market as a source of problem' to 'problems management' (Little and McPeak, 2006). Integrating pastoralists into the market allows pastoralists to respond to environmental factors through improved livestock management practices

(Amanor, 1995; Little et al., 2008). In periods of drought, pastoralists destock (and restock after drought) in which case the market serves to balance herd size to available range resources (Morton and Barton, 2002; Tessema et al., 2019). In addition, pastoralists use to manage their herds (e.g., change herd structure) to adapt to environmental conditions and respond to market opportunities. It has been emphasized that pastoralists' strategies of herd management do not rely on natural herd growth parameters but are rational adaptations to environmental and socio-economic settings that reflect integration into the market economy (Amanor, 1995).

Third, consumers in the national and international markets increasingly demand for animal source foods, a proportion of which comes from pastoral production system (Blench, 2001). Improved integration of pastoralists into markets allows linkages between pastoral producers and the consumers (Little and McPeak, 2006). This can facilitate the supply of pastoral produce that can help the global market respond to the growing global demand for animal protein (Davies and Hatfield, 2007; Gautier et al., 2016). This, in turn, increases the foreign income of the national economy from livestock exports and contributes greatly to the national economic growth (Davies and Hatfield, 2007). Thus, marketing practices of pastoralists help to improve their livelihood (through the increased income), adapt to climatic conditions, and respond to consumer demands at local and global levels (through supplying animal protein).

### ***3.2.3. A conceptual framework***

Two broad concepts: '*pastoralists' cultural*' and '*marketing*' practices guided this study, as they are important components to sustain the livelihoods of pastoralists (See also Figure 2.1). *Culture* in general is a complex social construct denoting a range of concepts from a set of values and beliefs people may have about how the world around them works (Gorodnichenko and Roland, 2017) to the regularities of everyday life that are taken for granted by a member of a society (Rogoff, 2003). In light of this, *culture* describes the way things are done and should be done in a society. In its broader sense, *marketing* is used to describe a production decision that can be affected by both production factors (e.g., labor) and market signals (e.g., price) where it focuses on customer value creation in order to enhance long term relationships (Darroch et al., 2004). From the point of farm producers, *marketing* entails the degree of allocation of resources (e.g., land) for production that is meant for exchange in the market (Gebremedhin and Jaleta, 2010) which translates into increased commercialization of production. When applied to pastoralists, both

concepts – *culture* and *marketing* – remain crucial and behave differently. And hence, should be approached uniquely as the unique nature of pastoralism itself dictates so. Pastoralism is a way of survival that has survived because of its ability to adapt to the changing circumstances. Among the pastoral communities, adaptive strategies to cope with the highly variable environments remain essential for survival and maintaining livelihoods (Bollig, 2016). The pastoral culture and norm-based customary institutions such as herd mobility, reciprocity, and accumulation of herds are among the approaches adapted by pastoralists (Fernandez-gimenez and Febre, 2006). Such socially oriented institutions play a pivotal role in pastoral mode of production, and helped pastoralism to sustain the livelihood of pastoralists for several centuries. Similarly, enhanced incorporation of pastoralists into the cash based economy serves as an adaptive technique that characterizes pastoralism today. Marketing practices of pastoralists help to improve livelihood, adapt to climate events, and respond to global demand for animal protein (Little and McPeak, 2006). Based on this background, we use the context of *Aramis-Adaar pastoralists’ cultural and marketing practices* to unpack where *Aramis-Adaar culture* and *Aramis-Adaar’s marketing practices* actually ‘converge’ or ‘diverge’ to shed light into the understanding of the linkage between *culture* and *marketing* practices of pastoralists in *Afar* region of Ethiopia.

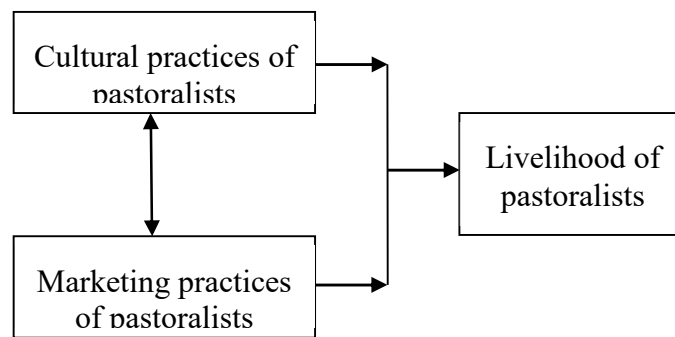


Figure 3.1. Conceptual framework of the study (Source: Own review)

### 3.3. Research method

This section describes the case study area, research design, case participants’ selection, data collection, and analysis procedures.

### 3.3.1. Description of the study area

Pastoralism, that covers about 60 percent of the landmass of the country, is still an important sector of the Ethiopian economy where an estimated 12 million pastoralists base their livelihood (Gebremeskel et al., 2019). The majority of *Afar* and *Somali*, and parts of *Oromia* and Southern Nations, Nationalities and Peoples (*SNNP*) regions make Ethiopia home for a large number of livestock owned by pastoralists (Aklilu and Catley, 2011). To investigate the stated objective, we base our case on the *Afar* region which is one of the most dominantly pastoral regions of Ethiopia (Gebremeskel et al., 2019). An estimated 90% of the region's population depends on pastoralism – herding camels, cattle, sheep, and goats (MoARD, 2010). The region represents large communities who live largely on livestock production. Of the 32 districts in *Afar* region, 29 are entirely dependent on pastoralism and three on agro-pastoralism (practice farming in addition to pastoralism) for their livelihood. The climate in the *Afar* region is arid to semi-arid, with irregular precipitation that often lasts for a short period. It is a large, sparsely populated dryland region with agricultural potential along the *Awash* River valley. Approximately half of the region consists of semi-arid and arid rangelands that can only sustain mobile livestock production; and even the higher rainfall areas are generally unable to support reliable rain-fed agriculture (Helland, 2015).

The region is divided into five administrative zones: *Awsi-Rasu*, *Kilbeti-Rasu*, *Gebi-Rasu*, *Fenti-Rasu* and *Hari-Rasu*, which are constituted in eight livelihood zones: *Asale*, *Awsa-Gewane*, and *Chenno* agro-pastoral, and *Asale*, *Aramis-Adaar*, *Eli-Daar*, *Namalefan* and *Baadu*, and *Teru* pastoral (MoARD, 2010). Unlike other studies which often use administrative zones, we revert to use livelihood zones to select the case study area, because households within livelihood zones share nearly similar options to obtain access to food and cash incomes, and access the same markets. Accordingly, *Aramis-Adaar* pastoral livelihood zone was purposively selected as a case (Figure 3.1). *Aramis-Adaar* pastoral livelihood zone is located in the western and southwestern part of the region and borders *Amhara* region to the west.

*Aramis-Adaar* is purposively selected because pastoralism is the main source of livelihood of the area. Larger part of *Aramis-Adaar* is adjacent to the neighboring *Amhara* region, and largely dependent on its markets for selling livestock and purchasing grains. Hence, it has an access to major markets in *Bati*, *Kemissie*, and *Sembete* towns in the *Amhara* region. Livestock sales plays dominant role for household cash needs. Food sources are predominantly purchases of cereals such as maize, wheat and sorghum in addition to livestock products such as milk. Households in this

livelihood zone spend most of their income on food. The altitude of *Aramis-Adaar* ranges from 500-600 masl in the east to 600-1000 masl in the west. The climate is generally dry with an annual average temperature in excess of 30°C and a total annual rainfall of 250-400 mm. Grazing areas are fed by streams from the southeastern highlands of *Amhara*. Cattle, sheep, goats, and camels are the most important livestock species. *Aramis-Adaar* is the most populated livelihood zone in *Afar*, constituting more than half of regional rural population, with estimated population of 426,108 (CSA, 2013), and hence, regarded as the best representative of the *Afar* region. Based on suggestions from livestock sector and culture experts, three districts (*Chefra*, *Dalifage*, and *Dulecha*) each from the Northern tip, Central and Southern tip, respectively, were included as case study sites to maintain the representation of different pastoralist clans within the *Aramis-Adaar*.

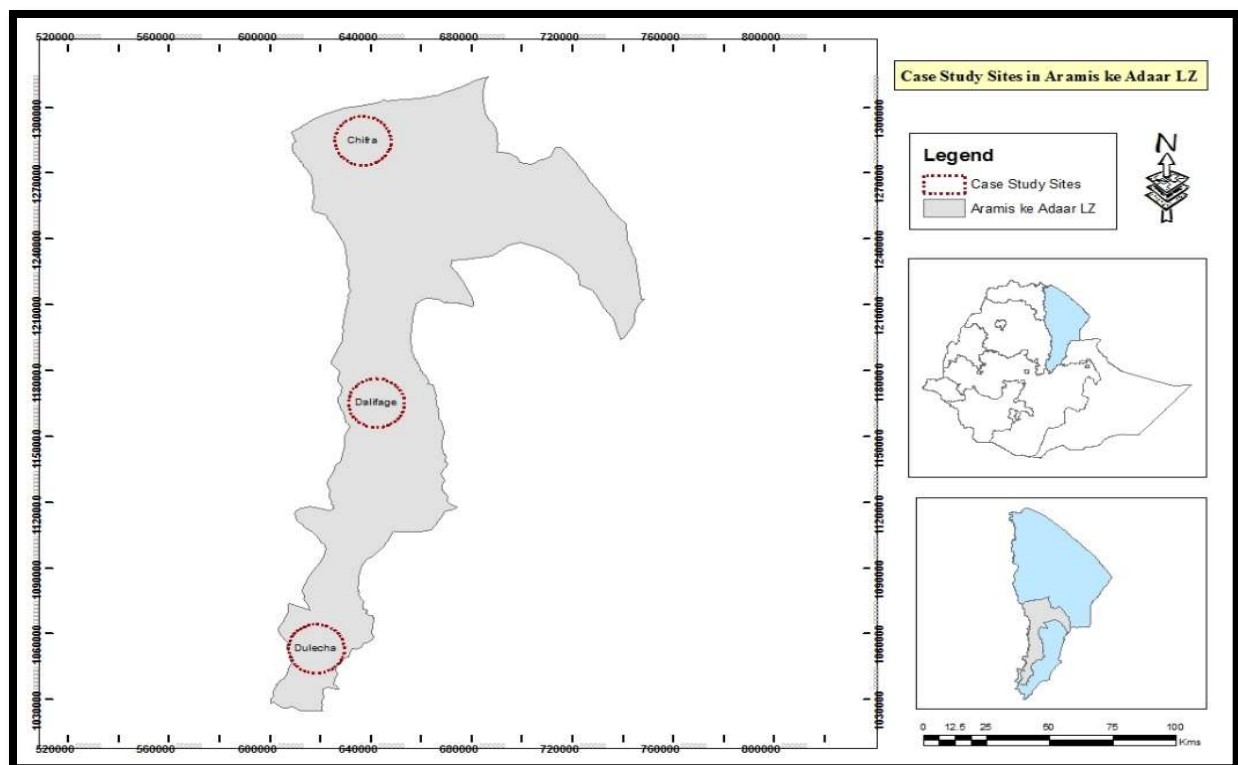


Figure 3.2: The location of three study sites (circles) in *Aramis-Adaar* pastoral livelihood zone in *Afar*, northeastern Ethiopia; adapted from Livelihoods Integration Unit (LIU)/Ethiopian Ministry of Agriculture and Rural Development (MoARD, 2010)

### 3.3.2. Research design

The purpose of this study is to analyze the link between pastoralists' culture and their articulation to marketing practices, highlighting the trade-offs between market articulation among pastoralists and their ability to maintain their social, cultural, and consumptive needs. Thus, qualitative insights

are crucial in highlighting local narratives, views and perspectives towards seeking new insights into the likely alignment or mismatch that may exist between marketing and cultural practices of pastoralists. Qualitative case study design (Yin, 2018) was considered a better technique to get a deeper understanding of issues by raising ‘what’, ‘how’, and ‘why’ questions using a case study protocol (See Table 3.1). In order to maximize the validity of evidences, the study employed qualitative based inductive method involving a mix of (triangulated) field evidences from multiple sources: personal observations through market place visits and engaging in social gatherings with pastoralists, individual in-depth interviews with pastoral household heads, key-informant interviews (*KII*) with clan leaders, experts working in the *Afar* region, and livestock traders, and focus group discussions (*FGD*) with pastoralists.

**Table 3.1 Case study concepts and protocol**

<i>Key case study issues</i>	<i>Representative references</i>	<i>Key (representative) questions</i>
Pastoralist cultural norms	Casciarri (2009); Getachew (2001); Marx (1977); Mcpeak (2006); Quam (1978); Reda (2011)	<ul style="list-style-type: none"> <li>a) What dominant cultural practices do the <i>Afar</i> pastoralists commonly hold to? Why and how are such cultural elements valued by the community?</li> <li>b) What roles (e.g., decisions on herd mobility, livestock sales) do clan leaders/elders have in the community? What relations do individual pastoralist have with the respective clan leaders?</li> <li>c) Whose property are livestock in the community?</li> <li>d) How is wealth status measured in the community? Which pastoral resources (e.g., livestock, rangeland) are considered sign of wealth/status? For what purposes are livestock raised by the pastoralists?</li> <li>e) What social support networks (e.g., livestock transfer) do pastoralists practice during drought and funerals?</li> </ul>
Pastoralist marketing practices	Aklilu et al. (2013); Barrett et al. (2004); Casciarri (2009); Little and McPeak (2006); Nunow (2000); Tessema et al. (2019)	<ul style="list-style-type: none"> <li>a) What are the major livestock marketing practices by pastoralists? How do pastoralists practice their marketing? What livestock types are commonly marketed by pastoralists? Why do pastoralists involve in livestock marketing?</li> <li>b) What social-cultural practices influence livestock marketing practices by pastoralists? In what ways do the specific pastoral cultural aspects (e.g., clan norms, rituals) relate to livestock marketing practices of the pastoralists (encouraging/ discouraging)?</li> <li>c) In what conditions is market an important element for pastoralists’ livelihood? To what extent are pastoralists dependent on livestock marketing for their food needs?</li> </ul>

First, to understand pastoralists’ livestock marketing practices and related norms, six market places were visited on major market days and engaged in village social gatherings to witness major market participants (actors), the types and sizes of market, livestock types traded, modes of

livestock transportation, and practices of price negotiations employed in price setting. Second, pastoralists and clan leaders were interviewed on what cultural practices they hold to and why and how valued, which ones encourage (discourage) livestock marketing practices, and what roles clan leaders play in relation to decisions pertaining to livestock marketing (See also Table 3.1: case study concepts and protocol). In addition, livestock marketing and culture experts from the zone were approached to reflect on the major pastoralist cultural elements and their alignment with the livestock marketing practices of pastoralists. Finally, livestock traders were asked to discuss the nature of their marketing interactions with pastoralists, and their experiences of pastoralist norms constraining livestock marketing practices.

### **3.3.3. Selection of case participants and data collection**

#### ***3.3.3.1. Selection of case participants***

Case participants included pastoralists, clan leaders, livestock traders and experts. Selection of participants was guided by pastoralist rural development experts working in the three research sites (Figure 3.1). As is common in qualitative research (Creswell, 2007) in-depth interview and *FGD* participants were purposively selected based on their experience of livestock raising and marketing (pastoralists), cultural values of pastoralists (clan elders), livestock marketing (traders), and experience on pastoralist contexts (experts).

#### ***3.3.3.2. Data collection***

Data was collected using in-depth interviews with pastoralists, clan-leaders, experts, and livestock traders. In addition, to triangulate the information obtained from individual interviews, *FGDs* were also conducted. Three *FGDs*, each containing twelve pastoralist participants, were conducted in the three sites providing in-depth analyses on cultural norms and marketing practices of pastoralists (Stewart and Shamdasani, 1990). A total of 30 *KII* were conducted with purposively selected clan-leaders, pastoralists, livestock traders and experts (Table 3.2). The lead author administered all the interviews and discussions between April and June 2018, with three research assistants (one from each district) who served as guide, translator as well as records keeper (written scripts and digital voice recorder). During interviews and discussions, participants were asked about existing cultural practices, and why such practices are still valued. The discussions were conducted using the *Afar* language, with *Amharic* translations in between. The discussion sessions were audio-recorded and notes taken intensively. Each individual interviews lasted approximately 47 to 75 minutes (Yin,

2018). The recordings were transcribed into *Amharic* and then translated into English. For triangulation and validation, *KIIs* were also conducted with different experts comprising livestock marketing, livestock production, and culture and tourism. In order to take notes and compile information for further analysis, discussions with interviewers followed each day at the end of each discussion and interview sessions. The *FGD* and in-depth interview evidences were supported by notes and memos taken from informal conversations carried out at social gatherings, during meals, and among ‘*khat*’ (stimulant leaf) chewing groups of elders and youngsters who gather in large numbers every afternoon. This provided good opportunity to socialize with elders and get deeper insights into understanding the social contexts of pastoralists. Personal observations were also made in villages and market centers, guided by observation checklists. Six market centers, three in case study spots (*Chefra*, *Dalifage*, and *Dulecha*) and three market centers outside the research site (*Bati*, *Werer*, and *Awash*), were visited on market days. During those visits notes, pictures, and videos were taken. The evidences gathered from different sources were sorted and coded to reflect the interview questions based on broad themes and research objective, and prepared for thematic analysis.

**Table 3.2: Number of FGDs and KIIs conducted**

<i>FGDs and KIIs</i>	<i>North</i>	<i>Central</i>	<i>South</i>	<i>Total</i>
<i>FGD</i> consisting of pastoralists <sup>8</sup>	1 (12)	1 (12)	1 (12)	3 (36)
In-depth <i>KII</i> with pastoralists	5	4	6	15
In-depth <i>KII</i> with clan-leaders	1	1	1	3
<i>KII</i> with experts	3	3	3	9
<i>KII</i> with livestock traders	1	1	1	3
<b><i>Total</i></b>				<b>33 (66)</b>

Based on discussions with marketing extension workers we found out that livestock products (e.g., milk) marketing is not practiced by pastoralists around *Aramis-Adaar* for cultural reasons (for instance, it is a taboo to sell camel milk in their tradition). Hence, evidence for the case study is limited to live animal marketing practices. Cognizant of *Aramis-Adaar* culture, which does not allow us to talk to a married woman, we only engaged men pastoralists as case participants for the interviews. Women were also not part of the social gatherings encountered during village visits.

<sup>8</sup> The pastoralists were chosen in such a way that the young, middle-aged, and elderly were all represented. As a result, participants' ages ranged from 26 to 89, ensuring that both young and old pastoral household heads were included as sources of case study information.

#### **3.3.4. Data analysis**

The preparation of transcripts involved a combination of translation and transcription of *FGDs* and *KIIs* evidence due to the use of *Afar* and *Amharic* languages. This adequately captured the meanings emerging from the *FGDs* and *KIIs* while ensuring reliability. Individual *KII* and *FGD* were audio recorded. Notes were taken during all interviews and all the interviews and discussions were transcribed. A total of 33 primary documents was entered into *ATLAS.ti7* for analysis and transcripts provided data for contents analysis (Miles and Huberman, 1994). While reading through each script, we generated initial codes, subsequently searched for themes among codes then reviewed and named the themes. A thematic coding scheme was developed with eight categories relating to the interest of the study: livestock marketing practices, cultural influences, clanship, culture of sharing, herd accumulation, mass serving, herd mobility and food consumption needs. The data were then sorted, assigned categories for coding where each category further contains sub-codes (Saldaña, 2013). This coding framework was applied to transcripts revealing patterns in the data using *ATLAS.ti7* that allows sorting by code and by attributes. Thematic analysis of notes and audio-recorded transcripts were conducted to examine and record patterns across the data sets, since themes would be important in describing the culture norms in contrast to livestock marketing practices. Analysis of case data involved describing data and interpreting emerging themes. Guided by literature (Casciarri, 2009), the codes, categories, themes and quotations were grouped into concepts that represent existing specific *Aramis-Adaar* cultural norms related to livestock management. Subsequent discussions were made on what emerges from developed concepts. In reporting results, representative direct quotations from case participants corresponding to each theme are included using codes to identify sources of the evidences anonymously. Thematic description was used to present and capture the in-depth trade-offs that appear between culture orientations and livestock marketing practices of pastoralists.

#### **3.3.5. Validity and reliability**

The study used a qualitative inductive method that included a mix of (triangulated) field evidences from multiple sources, such as personal observations through market place visits and engagements in social gatherings with pastoralists, individual in-depth interviews with pastoral household heads of varying ages, key-informant interviews with clan leaders, and with pastoralists. These ensure the validity and reliability of evidences used in the analysis.

### 3.4.Results

This section presents results extracted from case evidences. In the process of organizing the case evidences, 69 codes, 8 categories, and 1,159 quotations came-up; from which five themes/concepts were emerged. The five themes/concepts include *'tribalism'*, *'communalism'*, *'accumulationism'*, *'ritualism'* and *'mobility'*. First, the main reasons why pastoralists engage in livestock marketing practices are illustrated. Secondly, the underlying pastoral cultural practices are described and the alignment/misalignment between marketing and cultural norms are discussed. Finally, conclusions are drawn from the discussion and the implications for policy and practice are forwarded.

#### 3.4.1. *Marketing practices of pastoralists*

##### 3.4.1.1. *Why pastoralists involve in livestock marketing practices?*

In this study, 'livestock marketing practice' is used to regard supply of pastoral products, primarily livestock<sup>9</sup>, for sale in order to meet cash needs for the purchase of non-pastoral products. Thus, participation in marketing means market engagements by pastoralists to sell livestock of different species, for different purposes to buy cereal foods and livestock. But, selling livestock is identified as the dominant marketing practice while buying in livestock is rare among the pastoralists in *Aramis-Adaar*. Often sheep and goats are marketable stock while selling camel and cattle is a rare practice for cultural reasons. The livestock marketing practice also designates livestock in terms of their sex, age, size, or body conditions. In *Afar* tradition, it is a *taboo* to sell female animals because they are meant for reproducing purpose. The small stocks (goats and sheep) are often subject for sale. Hence, the small stocks are regarded as cash stock, followed by cattle, and male camel depending on the cash needs the pastoralists face. Large-stock (cattle and camels) are preserved as status indicators of the household, and hence, not meant for sale (For representative quotes, see Table 3.3). Thus, selective selling behavior prevails in the case of *Aramis-Adaar*. The major forces that make pastoralists sell their livestock are household food needs, shortage of feed for livestock in times of drought, a need for covering costs (related to medication, clothing, social obligations such as wedding), and restocking of important animals. Smoking cigarettes and consuming *'khat'* by pastoralists are also recently observed behaviors contributing to increased

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<sup>9</sup> Pastoralists in the *Aramis-Adaar* do not market livestock products (such as milk) mainly for cultural reasons. In their tradition, it is forbidden (a taboo) to sell camel milk. As a result, the case study's evidence is limited to live animal marketing practices.

household expenses which call for livestock sales. The type of livestock species to be sold varies with the level and severity of the problem that pastoralists face. For instance, goats are sold to buy cereals for food whereas camels are sold to settle higher level payments (e.g., compensation of a victim’s family during cases of murder). Pastoralists involvement in livestock marketing is often need-based rather than in response to market factors such as prices. The conversion of livestock wealth into cash becomes important when milk is not sufficient for household food requirements during drought. Thus, savings in cash seems of less value than savings in live animals. The participation in livestock marketing is situational and market-orientation is low. Pastoralists rarely buy in livestock to increase their herd size, improve the breed types, and restock herds lost to drought. In limited instances, they buy livestock for fattening to resell at a higher price.

**Table 3.3: Reasons for livestock selling by pastoralists**

<i>Quotations</i>	<i>Sources<sup>10</sup></i>
<i>I sell livestock to support my livelihood. Particularly, at times of difficulty, I am forced to sell. When there is drought also [...] the obligation to feed the family forces me to sell my goats.</i>	Pastoralist, DUL03
<i>I do not have any farm to grow crops. Since we do not have any other means of income [...] it becomes a must to sell [livestock]. If I get [food] ... I do not sell everything ... what I sell depends on the extent of the problem I face. I choose the good ones like bulls... also goats... Unless the problem is serious I do not sell female animals. ... we do not sell camels ... the culture does not allow us.</i>	Pastoralist, DUL05
<i>Health and food expenses are the reasons we sell livestock. And when there are social events such as weddings, we sell livestock to cover expenses for the ceremonies. Unless we sell livestock, we cannot cover the costs. We also buy clothes with that money. ... When livestock get sick, we sell healthy ones to cover treatment costs for the sick.</i>	FGD, DAL
<i>Unless we are facing problem, whatever goats cost, often we do not want to sell. We do not focus on prices [amount of money we get]. Our sales depend on problems we have ... we do not tend to sell unless we are challenged.</i>	FGD, DUL
<i>If there is enough rain, there will be enough milk so we do not sell [livestock] ... rain may stay for a bit longer ... otherwise selling becomes a must ... we buy food using the money we got from selling [livestock] otherwise life would become difficult to sustain.</i>	Pastoralist, DAL02
<i>Though herders are not mentioning that they do trade livestock for purchasing 'khat', they [actually] do it ... You can observe them chewing [in groups] all day. ... Even youngsters smoke cigarettes, ... These days, young boys engage in animals' robbery and appear in market with stolen animals in which case traders need witnesses to deal.</i>	Expert, CHIF01

<sup>10</sup> In this case, sources refer to whether the information was obtained through in-depth interviews/key informant interviews with clan elders, pastoral household heads, experts, or livestock traders, or through focus group discussions with pastoralists. The codes with block letters (for example, CHIF) and numbers (for example, 01), respectively, designate the names of the three case study sites (Chefra, Dulecha, and Dalifage), and the arbitrary orders assigned to the individual participants.

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*We also consume other cereals as additional food by selling goats. For ordinary needs, we do not sell camels, and cattle, neither. ... Goats or sheep suffice to cover expenses to buy cereals. We do not sell female animals ... we keep for milk and their offspring ... camels and cattle are source of wealth. We mainly sell goats ..., we take goats and sheep for sale [in the market].*

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Pastoralist,  
CHIF08

### **3.4.1.2. Pastoralists' dependence on livestock marketing**

Pastoralists mainly depend on meat, milk and milk products as food sources. But, unlike milk, meat is not used in their daily diet. Apart from consumption of meat in few occasions such as social events, it is often considered a luxury and a reserve for emergencies, such as during mobility, treatment of heavy injuries or when women give birth. In recent years, due to recurrent droughts, getting enough milk for household consumption is becoming a challenge. Thus, shifting to purchase of cereals for food has necessitated the sale of livestock by pastoralists. Consequently, the market exchange becomes a defining edge in determining household food needs through livestock selling (Table 3.4 for representative quotes).

**Table 3.4: Dependence on livestock selling for food by pastoralists**

<b>Quotations</b>	<b>Sources</b>
<i>They [pastoralists] consume cereals as complementary food by selling their cattle, goats or sheep ... They sell goats and sheep for the sake of covering daily consumption costs ... through selling livestock they fulfill household demands</i>	Expert, CHIF
<i>I am not a merchant. But I sell when I need to buy food .... When I need [food], I sell [livestock]. I sell bigger cattle and buy another smaller kitten with half of the money, and fulfill household consumption by the remaining half ... it is for food that I sell my livestock.</i>	Pastoralist, CHIF09
<i>Yes, [selling] depends on the need by the time. I sell to cover expenses for food, and other needs ... I buy everything such as edible oil, sugar, cereals using the money. Now days livestock products are not sufficient enough for the family [to feed].</i>	Pastoralist, DUL02
<i>We are not able to feed our family without selling [livestock]. If there is no drought and if our livestock are not sick we can survive without selling ... but, now ... these days, there is no rain. [So] ... we cannot sustain life unless we sell.</i>	FGD, DAL01
<i>The main reason for selling livestock is a need to buy food. Because we do not farm, we do not harvest grains. So, we sell what we have [livestock], ... to buy [grains] from market.</i>	FGD, CHIF01

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### **3.4.1.3. Bargaining power of pastoralists in livestock marketing**

The bargaining power of pastoralists is affected by two forms of power relations: shifting dominance and decision-making power by owners and buyers, and dependency on market situations. The owner pastoralist situation is dictated by factors including household problems that

require cash, the grazing conditions, seasons of the year, and mobility periods. The bargaining power of pastoralists in the market depends on the problem they face and on the season of the year. During prolonged drought periods, they would sell with the price they are given in order to purchase cereals. In this case buyers dominate and assume the market power. Pastoralists accept a price which is not in their preference as they cannot keep livestock longer due to insufficient grazing to feed their herd. During rainy seasons with good grazing conditions and enough pastoral food produces, pastoralists do not intend to sell. If they do, they usually set higher prices by dominating the bargaining power in the market. Representative quotations in Table 3.5 present pastoralists' bargaining experiences.

**Table 3.5: Pastoralists' bargaining power during livestock selling**

<i>Quotations</i>	<i>Sources</i>
<i>If I make 'dague'<sup>11</sup> and get information on the price [of livestock in the market] in advance that it is not good, I can decide not to sell ... because the price has gone down, I can keep the animal with me ... but, this is only when I have something enough to feed my children</i>	Pastoralist, CHIF07
<i>During rainy seasons, pastoralists can influence the market. They can make deals that a merchant has less power to decide. The situations force merchants to buy whatever they get though not satisfied. Pastoralists have power to fix price as they have choices to sell or not.</i>	Expert, CHIF01
<i>Because of drought we do not get prices we intended to get ... The merchants decide the price. If the price of animals in the previous weeks was good and if the number of goats [in the market] is small, merchants give 'good' price. Merchants have power to decide. ... but since we do not have alternative choices, we sell our animals for low price instead of getting hungry....</i>	Pastoralist, DAL04
<i>It depends on the problem I face ... if the problem is severe, I sell with the price I get; and if not intense, I wait.</i>	Pastoralist, DUL05

### **3.4.2. Cultural practices of pastoralists**

#### **3.4.2.1. Communal practices**

Communalism is manifested through livestock transfers, use of resources, traditional support networks, collective decision-making and shared responsibilities, and giving gifts. Such practices are expressed in their culture and have a central place in explaining solidarity in the community. Collective ownership makes the core of the tradition of pastoral production systems. Since livestock in the community is considered as 'Gifts of God', they are the property of the entire clan members. The owner of camels, for instance, has an ownership right to sell and exchange with the

<sup>11</sup> An institution of traditional information exchange system among the *Afar* pastoralists; for details, also see Reda (2011)

consent of clan chiefs. The clan leaders serve a watch-dogging role in protecting their community's livestock wealth not to be depleted through selling. Goats and sheep are sold by the owner's individual decisions without the consent of the clan leaders. The decisions to sell camels are often made in group at a clan level. Clan chiefs stated that livestock serve as social insurance systems for their community in times of crises such as drought. In this respect, individual livestock holding is subject for appropriation among all clan members during severe drought periods. Such collective ownership practice is expressed in their proverbs and folk tales. If one proclaims that he lost a camel and asks someone to help him in searching, he replies as follows:

*When the camel gives birth in the future  
[Its] milk is [also] yours.* (Expert, DUL01)

That means the camel is not lost, but in the clan community. It is going to give birth and the owner will also share milk. Communal ownership of livestock is best evidenced by the fact that camels are marked by clan signs or tags around ears. Table 3.6 shows some of the representative quotes on communal practices of pastoralists.

**Table 3.6: Communal practices**

<i>Quotation</i>	<i>Sources</i>
<i>Everything is communal ... we do not hide [what we have] in 'holes' and eat [alone]. We want all the people live around to eat [share]. We do not hide in 'holes' like the 'Argoba'<sup>12</sup> and 'Habesha' [do].</i>	Clan Chief, DUL
<i>Here, amongst us, both 'rich' and 'poor' satisfy and starve equally and together. They do not have any difference based on food and their life is 'equal' because of the culture of helping one another and sharing what is owned.</i>	Pastoralist, DAL04
<i>[Livestock] belong to the community as well as to the beasts. ... a beast may appear tonight and snatch a goat away. There is nothing with you, there is no reason beasts may appear around you ... but the goat. ... if you have, what you have is of the community ... it is a communal life that we lead; let alone the human beings, animals and the beasts also share the things we have, it is common ...</i>	Pastoralist, CHIF09
<i>Each clan's holding [camels] has a unique sign [tag] that earmarks that it belongs to a certain clan; and not to an individual pastoralist.</i>	FGD, DUL

*Afar* pastoralists believe that whatever level one gets rich, he should make the wealth in common with his clan members. There is a culture of the preference to wealth of the community over the wealth of individuals, a 'collectivist' than 'individualist' tendency. The same goes as with rich clan than rich individual. A clan with a large wealth of cattle/camels is highly respected in

<sup>12</sup> The *Afar* pastoralists use the terms 'Argoba' and 'Habesha' to refer to the non-*Afar* neighboring Muslim sedentary ethnic group and the other Ethiopian Christian highlanders, respectively (Rettberg, 2013).

their culture. Cattle/camels of the same clan bear the same marks on them so that everyone identifies them as the property of a particular clan. They express it in their songs.

*Oh, my camel;*

*How would it be great if my clan owns you [than I]?*

*Camel, better to see you on the hands of the clan [than in my hand],*

*Than to see you on my own like other good things.*

*Let [all] good things be in the hands of [my] clan than [in] individuals (Pastoralist, DAL04).*

Similarly, marriage, funerals, and rituals are shared responsibilities of all members of the clan. Whatever good or bad happens to an individual pastoralist, members of the clan share the burden that comes with it, often in the form of livestock contribution. Such social support networks are good manifestations of communal practices (Table 3.6). The reasons for support may vary from misfortunes, economic problems, or livestock losses due to diseases, raids and droughts. Helping one another is a typical culture that typifies a strong social bond and high-level of trust that pastoralists have in their community. The support network is particularly linked to family and kinships, inter-cousin marriage relations, and may also extend to neighbors and other clans as also documented in Davies (2006). They insist there is no as such ‘poor’ and ‘rich’; all are ‘equal’ as the strong support network balances the differences in wealth.

#### **3.4.2.2. Herd mobility**

Seasonal mobility<sup>13</sup> (known as ‘guro’ in *Afar*) is a tradition, which is also typical of most pastoral communities, where they move along with their livestock in search of pasture and water. In the case study area, ‘guro’ is practiced as part of husbandry like as what plowing, sowing, and harvesting is for farming. Although ‘guro’ is done as a coping mechanism in hardship times, the *Afar* pastoralists usually do periodic migrations even when no drought forces them. ‘Guro’ is thus a traditional practice that is considered good for livestock health by *Afar* pastoralists. They practice ‘guro’ to produce better and generate income. However, the *Afar* pastoralists indicated that mobility is increasingly constrained by market access and safety related issues. Local and regional market centers are generally set closer to pastoralists’ villages, but distant from ‘guro’ terminus.

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<sup>13</sup> Mobility is essentially a time-tested strategy used by pastoralists to maintain a dynamic balance between human population, livestock, and natural resources (Turner and Schlecht, 2019). It enables the most efficient use of resources dispersed across time and space, saving the group from an ecological disaster. Mobility, thus, is a traditional copying strategy, and it makes up pastoralism as a peculiar cultural element.

During ‘guro’, pastoralists move far away along with their livestock, and little or no remains for the market at their permanent settlements. In effect, they are obliged to sell with minimum prices at ‘guro’ terminus, where no market facilities are available. Resource conflicts (for pasture and water) and livestock raiding are likely to occur during herd mobility that threatens the safety of pastoralists and their livestock.

**Table 3.7: Herd mobility**

<i>Quotations</i>	<i>Sources</i>
<i>Sales while on moves (‘guro’) are only for settling urgent cases. Otherwise, they do not get the price they expect to sell with. It is just like throwing out for immediate family issue; whereas, in villages they would have a chance to sell with better prices.</i>	Expert, CHIF
<i>The marketplace when we are not moving is more important than when we move. We sell with the intended price in our common market and we can take the cattle back home when the price is low. But this is unthinkable during ‘guro’ where we have no choice but selling with a price which the buyer proposes.</i>	Pastoralist, DAL04
<i>[yes] They move ... you do not find them [pastoralists] here [in times of drought], [they] totally disappear, and neither their livestock here. Markets are without livestock the whole [market] day ... no camels ... no cattle ... appearing in the market.</i>	Expert, DUL

### **3.4.2.3. Herd accumulation**

Livestock accumulation is regarded as store of wealth, source of security and prestige among the pastoralist communities in *Afar*. Pastoralist culture encourages them to maximize their herd size. Pastoralists insist that they do not have the tradition of accumulating money. Rather increases in the number of livestock is what they consider as savings in a bank. This indicates that the main purpose of raising livestock is still not to sell in the market, but to keep them as a sign of wealth and insurance against asset shocks. In this respect, livestock especially camels and cattle are highly treasured, and hence not usually traded, but kept as wealth of the clan community. Thus, selling livestock (specially for camels and cattle) is not appreciated by the clan elders. Because the social status in the community is measured based on the number of livestock that the clan members possess. Table 3.8 shows the representative quotes regarding herd accumulation by pastoralists.

**Table 3.8: Herd accumulation of pastoralists**

<i>Quotation</i>	<i>Sources</i>
<i>... we want not to sell even to cover health costs when we are sick ... we do not sell for joy ... livestock are wealth indicators ... [so], we do not trade [livestock] ... for a reason that they cost a good deal [of money] ... but ... when we face serious problem [distress] ... for food shortages ... we trade in livestock.</i>	FGD, DAL
<i>When all the cattle give birth ... we used to say ... 'let you take that much for yourself, let the other also takes two or three' ... to all the clan members ... to all the relatives, kinship lines, and to all who do not have any ... this is how status is measured and symbolized.</i>	FGD DUL
<i>He [who regularly engages in selling camels] will be punished [by the community] for as he tried to eliminate the population of camels [for the clan].</i>	Clan, CHIF

#### **3.4.2.4. Mass services: ritualization and sanctions**

Ritualization in the *Afar* tradition is predominant wherein the entire societal fabric is tied up with such festivities. Large number of livestock are often sacrificed to serve the mass participating in the cultural ceremonials typical of their tradition such as ‘*andoyta*’, ‘*digib*’, ‘*daska*’, ‘*erena*’, ‘*akkam*’, ‘*sedi*’ and more others (see Table 3.9 and 3.10 for representative quotations).

**Table 3.9: Types of mass services rituals practiced by the *Afar* pastoralists**

<i>Rituals</i>	<i>Typical characteristics</i>	<i>Participant groups</i>
<i>Andoyta</i>	<i>It is circumcision ritual done every two or three years in a pastoral village. Young boys of roughly same age (coevals) circumcised in mass. Parents and villagers gather to celebrate and feast, in which case, livestock are slaughtered in large numbers to serve the mass.</i>	Elders, men, women, boys
<i>Digib</i>	<i>It is wedding ritual. Mass celebrate traditional marriage ceremony. Livestock are slaughtered in large numbers to serve the mass.</i>	Elders, men, women, children
<i>Erena</i>	<i>It is sanction execution and peace making among the <i>Afar</i>. Once a member of a clan is found guilty of violating customary norms sanction is imposed up on him that he would pay livestock to be slaughtered. Number of livestock varies depending on type and severity of the crimes (e.g., maximum for murder cases).</i>	Clan elders
<i>Daska/akkam</i>	<i>Young boys gather periodically in a bush away from village, slaughter camels to their number, turn by turn and they feast together till the end turn to get their body grown stronger.</i>	Young boys
<i>Sedi</i>	<i>Everyone is predetermined to marry his/her fiancé (traditionally arranged inter-cousin marriage). When someone in the society inappropriately (violating the tradition) marries someone else’ fiancé – called <i>absuma</i><sup>14</sup>, he would be penalized and made to pay twelve cattle and slaughter one to serve the mass gathered to execute the sanction.</i>	Clan elders

<sup>14</sup> Cross-cousin marriage in *Afar* (Davies, 2006; Reda, 2011); for details on the institution of *absuma*, see Getachew (2001)

Mass slaughtering is also practiced in times of punishment, called, ‘*ereña*’. If a clan member violates any customary norms, his livestock are subject for slaughtering during the mass services to amend for his wrongdoings. The number of livestock decided to be slaughtered as punishment for offenses would go up to hundreds. The offender has no say on the types and number to be ‘slaughtered’ as the clan elders are the ones to decide. The most loved animals including milking cows or camels could be chosen and slaughtered in public so that the offender feels the pain and abstain from similar actions in the future. This practice also conveys lessons to other clan members. Thus, pastoralists attach more importance to their livestock for ritual uses.

**Table 3.10: Mass services and sanctions**

<i>Quotations</i>	<i>Sources</i>
<i>If one commits murder his one hundred one cattle will be taken [for his crime]; we [clan elders] take his cattle. The members of his clan [would be made to] pay [contribute].</i>	Clan, DAL01
<i>If a person touches my wife [involves in adultery], we will get into dispute. In this time, cattle are slaughtered from both of us. In the other case if a person of my clan commits theft without my recognition, his cattle will be slaughtered in return to his wrongdoing ...</i>	Pastoralist, CHIF10
<i>In times of wedding we slaughter cattle, camels ... we pick the fatten ones and slaughter ... when someone gets married, all his relatives give him livestock as gift. Some gives a camel; others give cattle or goats. ... [his] parents serve two, three or up to ten cattle for the guests ... the one [camel] with big hump will be slaughtered to express respect</i>	Pastoralist, DUL01

#### **3.4.2.5. Clanship**

All matters pertinent to pastoralists’ decisions are centered and executed at clan level. The roles of the clan leaders include peacemaking rituals, livestock sales control, executing sanctions, and communal resources management (grazing pasture and water). Clan decisions would go to the extent that an individual pastoralist does not have the right to decide on selling his livestock holding (especially camels) on his own interests. All important decisions that concern clan members are made collectively by clan elders. Thus, decisions on large stock (cattle and camels) sales are clan matters rather than individual affairs. The clan chiefs intervene in the selling decisions and they prohibit livestock sales if the motive is unjustified. If a pastoralist is forced to sell a milking cow or a camel, the clan leader orders other clan members to contribute to a pastoralist who is in need of cash. In doing so, they believe that the productive animal is saved from being sold and reserved as an asset for the clan members (See quotations in Table 3.11).

**Table 3.11: Clanship among the *Afar* pastoralists**

<i>Quotations</i>	<i>Sources</i>
<i>I [clan chief] am the one who controls [selling] ... when I come to know that the case is true [owner sold out camels] ... I call the community to gather ... when this man [owner] finishes selling all his livestock, he is going to steal from his neighbors [...] We do not wait for him till he finishes [his] livestock ... we punish him when he starts [to sell] ... we would accuse of selling [without a reason] which he [might have] inherited from his forefathers ... [on our controls and impositions] he swears not to do [not to sell] ... he stops selling.</i>	Clan, DUL
<i>Yes, he [the chief] does ask [why selling]; the clan master comes to know [the reason to sell] ... also everyone in the kinship lineage ... comes to know about the sale ... the reason for sale ... he [clan leader] does have role [on decision to sell] ... he participates, yes [indeed] ...</i>	FGD, DAL

### **3.5. Discussions, conclusion and implications for policy and practice**

#### ***3.5.1. Linking pastoralist cultural and marketing practices***

Traditionally pastoralists are dependent on pastoral products for their food consumptions. However, due to the recurring drought and a diminishing herd size and shortage of pastoral foods, livestock marketing practice is increasingly becoming a norm in order to purchase non-pastoral food grains to smoothen their food consumption deficits from milk and milk products. This has brought about a lifestyle change as pastoralists increasingly move from self-sufficiency (through milk and milk products) to market dependence (cereals based food) (see also Tessema et al., 2019 for more on lifestyle changes of pastoralists). In effect, non-pastoral foods that are obtained from market exchanges are not only supplementing consumptions but becoming major components of everyday meals for pastoralists. Thus, livestock marketing practice is increasingly becoming a complement to pastoralism. Nevertheless, livestock marketing practice by pastoralists is not inherent in their traditional practices. Rather pastoralists are practicing marketing (through livestock selling) due to food deficits because of drought stresses. Consequently, livestock marketing practice by pastoralists is food deficit driven, which is characterized by distress sale as their price negotiation power during drought is low (Tessema et al., 2019). As pastoralists are stressed by immediate food needs, they trade livestock with given prices by traders. Pastoralists prefer to accumulate livestock as an insurance mechanism for smoothing bad events or dedicate for rituals than exchanging in markets.

Pastoralists in the study area are confronted with two competing interests: 1) the inherent cultural practices, and 2) the induced marketing practices. The former is regarded as ‘social value’

and the later as ‘exchange value’ of pastoralism. From their cultural perspective, pastoralists seem not to have much interest to engage in marketing practices. But from the reality on the ground where they are in, they have to integrate into the market. It is increasingly difficult for pastoralists to remain focused on their cultural practices alone. At the same time, they cannot opt entirely in favor of marketing practices at the expense of their traditional values. Thus, these two countering interests needed to complement each other to sustain pastoralism.

The *Aramis-Adaar* are integrated with their neighboring farming communities and towns, not only for non-pastoral foods but also for other market blessings such as clothes, children’s education, health care, and other services. They are also becoming users of stimulants such as ‘*khat*’ and cigarettes, where cash becomes an important medium to access them. Pastoralists’ need for cash can also be witnessed by increasing incidence of livestock theft which is against pastoralist culture. Behind the unusual livestock theft could be the newly adopted cash based culture of extravagance in using ‘*khat*’. Because of increased incidence of theft, large stocks are not traded in markets without a third party to witness on the right livestock ownership. The cash needs for cereal foods and for stimulants are emerging driving forces for pastoralists to engage in their livestock marketing. Thus, changes in lifestyle of pastoralists (e.g., stimulants consumption) are not only increasing their marketing practices but also determining their marketing behaviors (see also Tessema et al., 2019).

The social setting and cultural fabric on which pastoralism is founded is still limiting livestock marketing practices of pastoralists. In the heart of pastoralism, *inter alia*, are the pastoralist culture of herd accumulation, communal practices, tribal leadership, herd mobility, and rituals. Livestock are still the object of pastoralist cultural practices among pastoralists. And hence, because of cultural reasons, selling livestock is not encouraged among pastoralists. Hereunder we elaborate as to how and why the decision of pastoralists to involve in livestock marketing practices is influenced by their cultural practices (see also Table 3.12).

First, herd accumulation concerns emanate from the idea between livestock as ‘*social-cultural object*’ and as ‘*market commodity*’. An intention to have more number of livestock as an asset for pastoralists is the ideology prevailing in pastoralism to cope with the challenging periods such as drought (Adriansen, 2008). Pastoralists prefer to accumulate wealth in livestock as a source of pride, and insurance to their clan. There is more respect and honor among the community members for individual pastoralists with a greater number of livestock. Consequently, pastoralists tend to

keep their livestock and only sell in times of cash needs (Næss and Bårdsen, 2013). Pastoralists regard their herd both as food and cash bank in terms of managing risks. The inherent motive behind herd maximization is that it safeguards the pastoralist communities from undue circumstances such as drought (Mulder et al., 2010). But such an intention stands at odd with their marketing needs. Embedded in the pastoral tradition of herding is social and physical satisfaction of owning a larger size of stock, where livestock are considered manifestations of wealth, prestige, and insurance to their clan members. In marketing terms, however, it is a kind of ‘hiding’ (limiting market supply of livestock) readily available for sale in the market. Thus, pastoral production ends with herd maximization, noted as ‘*accumulationism*’, is not in par with the marketing principles. There is thus incompatibility between the ‘*social-cultural-orientation*’ and ‘*market-orientation*’ of pastoralists. In the former, pastoral wealth is regarded as ‘*social-object*’ in which production is for social obligations, and in the later as ‘*market-commodity*’ where production is for marketing. The social-cultural orientation is still a dominant position in the competition. Thus, livestock commoditization is not currently encouraged to flourish in the pastoral production system.

**Table 3.12: Pastoralists’ cultural practices and their manifestations**

<i>Cultural practices</i>	<i>Manifestations</i>
<b>‘Accumulationism’</b>	<i>It is a kind of ‘hiding’ or ‘store away’ or ‘stocking’ of livestock. As a result, limited supply of animals to market for sale.</i>
<b>‘Communalism’</b>	<i>Livestock are shared with or transferred to those who do not have enough in the community. Volume traded would be reduced as marketable surplus is subject for sharing.</i>
<b>‘Tribalism’</b>	<i>Decisions such as livestock marketing are on clan basis. Individual pastoralists are discouraged to practice in livestock marketing.</i>
<b>‘Mobility’</b>	<i>Livestock are moved away from market centers in search of pasture and water. Immediate produce to be traded in markets are not readily available.</i>
<b>‘Ritualism’</b>	<i>‘Good’ quality livestock are selected and devoted for sacrifices/rituals. Hence, little remains for trading.</i>

Second, pastoral resources sharing and livestock transfers are the other manifestation of pastoral culture where pastoralists use such networks for various purposes including risk management strategies (Aktipis et al., 2011). The *Afar* people adopt traditional social responsibilities that assist disadvantaged groups through the kinship networks of reciprocity. Among *Aramis-Adaar*, livestock are used for social transactions that bind their societal interactions. There are occasions and obligations for some social relations when a pastoralist is socially obliged to donate personal holdings to clan members. Hence, livestock are considered the

assets of everyone in the community where large stock (camels and cattle) are communal assets not to be sold. Clan elders restrict excessive sales to ensure they are reserved for the entire group. Livestock are used to create and strengthen social relationships and establish trust through gifts, loans, and transfers. Hence, *communalism* is a persisting manifestation of pastoral culture. Exchanging livestock through traditional institutions creates obligations that serve as social insurance. This influences their attitude towards commercial uses of livestock. Thus, communal practices (*communalism*) which are still dominant in the social-life of pastoralists, limit their livestock marketing practices.

Contrary to the principles of pastoral production, market production entails competitive showcasing towards market demand thereby to achieve greater market share (e.g., Kohli and Jaworski, 1990). In the ideals of pastoral production are collective decisions – hence, *collectivism* and *communalism* – and commands over resources, resources sharing among members of a clan, and communally use of livestock resources. Command over livestock resources is group-based, in which *egalitarianism* takes a considerable space in the pastoralist mode of production (Mulder et al., 2010). Whereas competition in using available resources might prevail in the market economy where *individualism* is the dominate perspective in decision making. Here comes a contradiction with market ideals that promotes the ‘*individualistic*’ essence of competition to win maximum market share. But in the sense of pastoralism all parties win. As livestock are subject to be shared with/transferred to those who do not have enough, the volume traded is reduced. Thus, there is conflict between persisting communal practices of pastoralism and progressing marketing practices (Casciarri, 2009) to the extent of resulting in a lack of adequate supply of livestock to the market.

Third, the *Afar* pastoralists are known for their traditional institutions. Clanship, regarded as ‘*tribalism*’ (Casciarri, 2009), is dominant tradition among the *Afar* pastoralists. All matters of herding are decided by clan chiefs who gain legitimacy from local tradition. The individual pastoralist needs to get consent of his clan if he wants to sell one from his herd. As also documented by Casciarri (2009) clan elders often forbid excessive sales of livestock during drought to ensure that they are reserved for community members. It is demonstrated that the owner is not allowed to sell his holdings particularly female animals and large-stock in his interest but needs the consent of clan master. Individual pastoralists are discouraged to involve in marketing practices as marketing decisions of large stock are decided at clan level. As a result, participation of pastoralists

in marketing practices is limited. *Tribalism* thus plays a central role in societal decisions and stands as a discouraging norm in terms of livestock marketing practices.

Fourth, the men and young boys in *Afar* move along with the livestock in search of pasture leaving the remaining family members in the villages. *Mobility* is therefore a characteristic feature of pastoralism, where it is practiced to find a better grazing pasture and water for livestock. *Mobility* is an adaptation mechanism and coping strategy during severe drought (Dwyer and Istomin, 2008; Sonneveld et al., 2009) to balance resource variability and ensure that livestock are in good conditions (Adriansen, 2008). It is true that *mobility* plays a pivotal role in pastoralist production system. In terms of marketing practices, however, *mobility* acts as a hindrance to the fact that only a few or no livestock (especially large stocks) tend to be exchanged in nearby markets during *mobility*. As a result, village markets suffer from inadequacy of livestock supply, as readily available marketable goods (livestock) are shifted to new grazing areas away from villages. During *mobility*, pastoralists are forced to deal with informal buyers with low prices. In this context, there appears to be a contradiction between *mobility* and marketing where *mobility* contradicts with the frequent marketing practices of pastoralists. Hence, there is a conflict between *mobility* and successful livestock marketing practices by pastoralists. Owing to the prevalent circumstances perplexing pastoralism, both *mobility* and marketing are still 'must do' activities to sustain the livelihood of pastoralists.

Fifth, presenting livestock for sacrifice and impositions with a large number are traditions for pastoralists. Mass slaughters and mass services (to meal in large groups) are typical cultural practices among the *Afar* pastoralist tradition. Pastoralists attach more importance to livestock for ritual uses and sanction payments. This reduces marketable livestock surplus from pastoralists, resulting in lower livestock market off-takes. Livestock that would perform well in markets would be chosen to be slaughtered as an obligation. Consequently, the market suffers from lack of 'good' quality products. Thus, whenever a pastoralist commits wrong-deeds and when his cattle are taken to be slaughtered, he would not have more livestock spared for sale. As a result, marketable surpluses of the pastoralists would decrease. The need for *ritualism*, reduces the livestock population that otherwise would suffice demand in the market, and hence it stands contradicting to market participation by pastoralists. In sum, pastoralists' cultural practices are epitomized with concepts of communalism, tribalism, accumulationism, ritualism and mobility, which endure among pastoralists and explain importance of solidarity against individually based sedentary life.

### **3.5.2. Conclusion**

This study aimed to analyze the pastoralists' cultural and marketing practices to uncover the links (and mismatches) between commoditization ideals of market production and cultural epitomes of socially oriented pastoralism. The findings showed that there is a conflict (competition) between individualistic marketing needs and communalist pastoralist traditional practices. The findings also showed that present form of pastoralism is shaped by the combination of communal orientation practices and the need based marketing practices of pastoralists. Though pastoralists are inherently indifferent to marketing practice, it is becoming an opportunity that they have to increasingly engage into it to enhance their livelihoods. Market is an externally induced practice that is becoming important to complement the livelihood of pastoralists. Though *Aramis-Adaar* pastoralists are engaged in livestock marketing practices, they are still constrained from exercising the ideals of market based livestock production. This is because their livestock production and market participation objective are not profit oriented (lacks market-orientation). The cultural orientation of pastoralists still discourages livestock market exchanges for cash. Devotion of livestock and livestock products to cultural obligations and home consumptions are playing central role in their production decision. Socio-cultural elements of pastoralists thus govern their livestock production system rather than competitive market norms. In the competing interests between consumption versus socio-cultural elements, livestock marketing practice is not a choice, but a must, which becomes a necessity to complement the livelihood of pastoralists. Therefore, there remains scope for improving market integration of pastoralists with due considerations to their socio-cultural elements. The way forward is not changing the pastoralists' tradition in the sense of transformation, but rather to work towards fine tuning marketing practices with cultural elements. Thus, adapting marketing practices within the rationale of pastoralism is crucial to accommodate the three competing values (consumptive, social and exchange values) to sustain the livelihoods of pastoralists.

### **3.5.3. Implications for policy and practice**

This case study identified *Aramis-Adaar* operate under two competing systems of institutions – culture (customary) and market norms (formal), both of which regulate pastoral production and marketing systems. Customary institutions (e.g., *mobility and communalism*) which use to enforce compliance with norms and values dictate sustainable use of the drylands and serve as coping

strategies against environment and other risks. Livestock exchange for monetary income is also (equally) playing important role to sustain the livelihood of pastoralists. Livestock marketing is important to supplement consumption, destock during drought, and restock afterwards. However, policy intervention is required to accommodate consumptive, social, and exchange needs of pastoralists. This can be done by designing policies that can balance and align marketing practices of pastoralists within their pastoral production system. Therefore, first and foremost, the policymaking process must address the uniqueness of pastoralism and the need to recognize and acknowledge the role of customary institutions within the livelihood of pastoralists. Second, markets should be built around existing *Aramis-Adaar* culture norms. This means that policy makers must make necessary alignments to mediate and reconcile the two institutions. This calls for the need to emphasize on the multiple uses of pastoralism where all the roles should be pursued simultaneously by pastoralists. Furthermore, market expansion opportunities of pastoralists need to be accompanied by creating essential infrastructure and access to market facilities. This can be sought by applying existing pastoralists' knowledge and expertise to serve as the foundation that drives market production. In this respect, training and graduating the clan-based local groups into formal producer cooperatives could serve as livestock market collection and distribution centers. This further enables them to employ local networks (e.g., *dague*) and clan leadership to access market information and mediate with traders. Policy interventions that aim at enhancing market incentive systems to increase production and sufficiently align production to the market requirements are also crucial. In this respect, policy should focus on building mobile market facilities near and around mobility routes, facilitate trainings on destocking and restocking to balance herd size between social and market needs.

## CHAPTER IV

### CULTURAL ORIENTATION, MARKET EXCHANGE PRACTICES AND FOOD (IN)SECURITY AMONG (AGRO-)PASTORAL COMMUNITIES IN NORTHEASTERN ETHIOPIA

#### *Abstract*

*Many pastoralist communities around the world rely heavily on the traditional livestock farming sub-sector for their livelihoods and ensure food consumption needs. However, food insecurity is a rising concern for these communities, and the reasons for which need to be understood for appropriate policy measures toward improved food security. With this in mind, this study explores the association between social-cultural-economic characteristics and food (in)security based on data from Aramis-Adaar and Asale (agro-)pastoralist groups in Afar, Ethiopia. HFIAS and ordered-logistic-regression, respectively, were used to measure the severity of food insecurity and assess the associations. Our results show that food insecurity in the study area is persistent where improvement in food security is significantly constrained by cultural orientation. It also appears that market exchange practices by (agro-)pastoralists and the centuries old practice of 'guro' (livestock mobility as a traditional coping strategy) play role in reducing food insecurity. These findings contribute to our understanding of food insecurity in the (agro-)pastoralist context thereby adding to the 'move-up' or 'move-out' debate on pastoral development policy. The results therefore suggest that there is a need for a combination of approaches that combine pastoral production services, market-production-orientations, and capitalizing on (agro-)pastoralist traditions, such as mobility, is required to promote sustainable (agro-)pastoral livelihoods and the 'move-up' pastoral production system.*

*Key words: Food (in)security; Pastoralist-cultural-orientation; Livestock; Market-exchange practices; (Agro-)pastoralists; northeastern Ethiopia*

This chapter is based on Benti, D.W., Birru, W.T., Tessema, W.K., and Tefera, M.M. (submitted). Cultural Orientation, Market Exchange Practices and Food (in)security among (Agro-)pastoral Communities in Northeastern Ethiopia.

#### ***4.1.Introduction***

At the heart of developing countries' development goals comes achievement of food security, which commonly is perceived as a state in which everyone has access to adequate, safe and nutritious food at all times for a healthy and active life (FAO, 1996). Food security encompasses sufficiency, access, security, and sustainability, and is related to both the physical and economic access to food that meets dietary needs and preferences of people (Keenan et al., 2001; Maxwell, 1996). Food security is therefore a complex phenomenon that can be applied at the individual, household, community, and national levels, and achieved through three consecutive pathways: availability, accessibility, and utilization (Barrett, 2010; Scanlan, 2001). The stability of these three pillars (often considered as forth pillar), which is mainly influenced by the dynamic interactions between agro-ecology and socio-economy, determines food security (Scanlan, 2001). Food insecurity, on the other hand, is a condition in which people have limited or lack reliable physical and economic access to safe, sufficient, and nutritious food to meet their dietary needs or food preferences in order to live a productive, healthy, and active life (FAO, 1996). According to FAO (2019:5), severely food-insecure people are ‘those who have likely run out of food, experienced hunger and, at the most extreme, gone for days without eating, putting their health and well-being at grave risk’. Although such severe level of food insecurity has the greatest impacts on people's lives around the world, it is increasingly concentrated among the drought-prone regions in developing countries such as sub-Saharan Africa (FAO, 2019). Thus, there is a need to discuss how to increase the resilience of vulnerable groups to raise understanding about food insecurity. Consequently, food insecurity has currently attracted the attention of academia and policies that provide better risk management and support for those people who are considered vulnerable to food insecurity (Ibok et al., 2019; Maxwell et al., 2014), and appropriate policies for food security in developing countries (Ballard et al., 2013; Barrett, 2010).

The overall socioeconomic circumstances and well-being of people in the (semi-)arid regions are extensively studied (e.g., Dong et al., 2011; Fenta et al., 2018). Most of these studies on overall well-being, among others, focus on vulnerability (Lemma et al., 2013), resilience (Mekuyie et al., 2018), poverty and income inequality (Jemal et al., 2017; Teka et al., 2019), livelihoods (Tsegaye et al., 2013), and food security (Catley et al., 2016). The studies vary, even within specific focus areas and their methodologies employed while studying the overall well-being of people in the (semi-)arid regions. For instance, in analyzing the status of poverty, Teka et al. (2019) employed

the expenditure approach (calorie intake per adult equivalent), while Jemal et al. (2017) used multidimensional poverty index (capability, economic wellbeing and social exclusion). Furthermore, Kahsay et al. (2019) used the consumption (calorie) approach (*kcal/AE/day*) to measure household food security status among (agro-)pastoralists. While Asenso-Okyere et al. (2013) used availability of food in the household as a proxy for food security. The resilience to food security was explained using measures such as total incomes, per capita expenditure, asset levels, level of education, and social network (Mekuyie et al., 2018).

Three forms of arguments dominate the literature on food (in)security (Rocha, 2007). First, the groups identified as “food-insecure” are often gauged from the food availability component in view that these groups may not have sufficient quantity of food to feed their families mainly due to production failures caused by climate-extreme events (Perez-Escamilla and Segall-Correa, 2008; Rocha, 2007). However, previously, Sen (1981), in his seminal work, had challenged such views of food insecurity from mere availability and introduced food entitlement (accessibility). Accordingly, food insecurity is not only caused by the shortage (supply), but also by a lack of purchasing power and access. For example, according to the FAO report, despite global efforts and gains in food production towards a food-secure world over the decades, today close to 822 million and over 2 billion people are still hungry and experiencing moderate and severe food insecurity, respectively (FAO, 2019). Especially from the (agro-)pastoral context, the availability of food alone cannot tell a true story of food security conditions, as better-off families with resources such as livestock and livestock products may be identified as food-insecure due to constraints to access markets. Pastoralists with livestock might still experience food insecurity because of limited market access to sell their livestock to purchase food items. There is, therefore, a need to measure the access component of food security so that food insecurity can be examined from the point of view of markets and limited purchasing power (FAO, 2016).

Second, existing studies almost invariably employ indirect (proxy) measures such as income, food expenditure, household poverty status, dietary intake, or nutritional and health statuses (Perez-Escamilla and Segall-Correa, 2008). These measures are strongly blamed for not adequately reflecting food access at the household level thereby capturing only the sufficiency element, in household food security analyses (Maxwell, 1996). Thus, food insecurity has to be addressed using direct measures where previous works have only focused on otherwise.

Thirdly, while (agro-)pastoralists are largely dependent on their cultural reciprocities (Reda, 2011) and market exchange practices for their food needs (Davies, 2006; Little et al., 2014), these elements are rarely considered in the food security analyses (Asenso-Okyere et al., 2013; Kahsay et al., 2019). This appears to be a weak link for food security studies of these areas and thus the hypotheses regarding food insecurity determinants appear to be not well-grounded.

To fill these gaps, the current study seeks to understand the causes of (agro-)pastoralist food insecurity from the perspective of food accessibility (access) based on data from the (semi-)arid regions of Ethiopia, which are among the most food-insecure areas of the world (Devereux, 2010; FAO, 2019). The vast majority of people in these areas depend on traditional mobile livestock production for food and livelihoods (Davies, 2006) and mainly due to the recurring droughts, the livestock-based pastoralist production method fails to sustainably support their livelihoods (Aklilu and Catley, 2010; Headey et al., 2014). These areas also commonly suffer from problems such as low productivity, high poverty (Nassef et al., 2009), food shortages (Devereux, 2010), food insecurity (Headey et al., 2014; Rettberg, 2010), and environmental shocks (Megersa et al., 2014). Consequently, quality of life in these areas is endangered and they achieve low welfare outcomes (Negatu, 2011).

In attempting to address such stresses and secure livelihoods in (semi-)arid regions, the pastoral development policies focus on as to how to sedentarize pastoralists (Gebeye, 2016; Levine, 2010). Such policy orientation has given rise to development prescriptions that advocate '*moving pastoralists out of pastoralism*' (Krätli, 2019) and sedentarism evaluations towards food security (Haji and Legesse, 2017). Yet, the existing policy efforts deemed to improve wellbeing have attained limited successes (Gebeye, 2016). Addressing (agro-)pastoralist food (in)security from 'access' pillar using experience-based measures uncovers how the pastoral resources are used to tackle food insecurity and provides a complete picture of the causes of food insecurity in the (semi-)arid regions. Thus, the study contributes to the body of knowledge by especially considering pastoralist culture elements and market exchange practices as determining household food (in)security. Besides, adding to either side of the '*move up*' or '*move out*' diverging policy debate, it serves in informing policy direction.

## ***4.2. Background understanding on social norms, marketing practices, and food security issues of pastoralists***

### ***4.2.1. Cultural and social norms of pastoralists***

Today, with the encroachment of urban centers into rural areas and the influences of the neighboring farming communities' practices, strong pastoral beliefs are partly changing (Ikeya and Fratkin, 2005; Namgay et al., 2014). However, several pastoral groups (e.g., *Afar* in Ethiopia) still have maintained their cultural identity and have continued to abide by the age-old practices and traditions of pastoralism (Davies, 2006; Reda, 2011). In Ethiopia and elsewhere around the globe, pastoralism remains as a production system that operates in an often changing environment (Hauck and Rubenstein, 2017) in which cultural norms play a central role (Getachew, 2001). Pastoralists value traditional institutions that are fundamental to their lives and affect their entire livelihood (Chege et al., 2015). Various cultural strategies such as accumulation of herds, reciprocity, and mobility have allowed them to survive for centuries in uncertain environments while maintaining their resource base and cultural identity (Fernandez-gimenez and Febre, 2006). Pastoralists practice communal systems of livestock farming and rely on livestock products for food (Reda, 2012). The conventional pastoral production model emphasizes relying on a buffer strategy of building up herds (Næss and Bårdsen, 2013); the intention to increase and retain surplus stocks is to compensate for loss caused by recurrent droughts (Mcpeak, 2006). Pastoralists also traditionally consider large-stock size as indicators of wealth and supporting livelihood. The accumulation of herd by pastoralists can be transformed into a network of social connections through the redistribution of the surpluses to ensure social status, which in turn is used as an adaptation strategy in the face of environmental shocks (Mckune et al., 2015) and help to fulfil food consumption needs. Through the development of diverse but productive traditional social support institutions (e.g., livestock transfers), pastoralists have adapted to and are only able to take advantage of the environment (Krätli, 2019). This greatly contributes to the pastoralists' resilience by allowing them for aftershock herd rebuilding (Moritz, 2013a); pastoralists consider internal livestock exchange as a traditional mechanism for accruing insurance during food shortages (Davies, 2006). Thus, reciprocity among pastoral households of clan lineage is a means of social security (Fernandez-gimenez and Febre, 2006) by which strong social ties are further formed, providing a form of protection against outright destitution (Davies, 2006). Such practices therefore help to connect herders of varying herd size and social status together, respond to uncertainties and encourage

individual and collective growth, thereby sustaining pastoralism (Mulder et al., 2010). Herd mobility is another cultural element that makes up pastoralism where mobility remains essential in the pastoral production system to serve as a coping strategy against climate uncertainties (Turner and Schlecht, 2019). In times of drought, pastoralists disperse herds or move them to new grazing areas. Rarely do agrarian societies have such choices. In the same scenario, farmers experience crop failure and serious food shortages. Through herd mobility, however, a pastoral subsistence pattern reduces the risk in times of irregular climatic patterns. Pastoralists migrate over large areas and can easily pass on when grass and water are exhausted. In addition to adapting their livelihoods to ecological niches at varying environmental conditions, pastoralists have often used resources sustainably while synchronizing their social cultural practices.

#### ***4.2.2. Marketing practices of (ago-)pastoralists***

Pastoralists' integration into market has become more important to support livelihoods (Aklilu et al., 2013; Little and McPeak, 2006). Pastoralists are increasingly engaged with the markets and towns for using the surplus produce to sell in the market, buying grain and trading other commodities when livestock products are inadequate for their subsistence (Devereux, 2010). The income generated from the integration into the market enables pastoralists to access consumer goods (e.g., grain) and promote long-term investments outside pastoralism (Adriansen, 2006). Market integration also facilitates pastoralists to diversify their livelihood activities (Bollig, 2016). This greatly contributes to the improvements in their quality of life (Headey et al., 2014). For instance, survey based study by Tessema (2012) has found that increased market integration of pastoralists improved their livelihood through saving money in a bank and availing adequate food to family. Proponents of market integration (e.g., Little and McPeak, 2006) further argue that, given the vulnerability among pastoralists, livestock marketing is seen as a way out of poverty and economic relations. In support of this view, Galaty (2008) also argues that by improving and promoting the marketing of livestock, poverty and food insecurity can be mitigated. In the same vein, Negatu (2011) argued that a strategy to address the underlying sources of pastoralist vulnerability should include, among others, support for livestock marketing. Aklilu et al. (2013) also add that viable pastoralism will continue to exist as markets function effectively and market exchange incomes are sufficient to purchase food. Furthermore, integrating pastoralists into the market allows pastoralists to respond to environmental factors through improved livestock

management practices (Little et al., 2008). In periods of drought, for instance, pastoralists destock (and restock afterwards) in which case the market uses to balance herd size to available range resources to help improve adaptive capacity to natural conditions (Tessema et al., 2019). In addition, pastoralists use to manage their herds (e.g., change herd structure) to adapt to environmental conditions and respond to market opportunities thereby access foods other than animal origin. Thus, marketing practices of pastoralists help to improve livelihoods and adapt to climate events through the increased incomes and enhanced adaptive capacities, respectively.

### ***4.2.3. (Agro-)pastoralist food (in)security and vulnerability***

#### ***4.2.3.1. Food (in)security in the (agro-)pastoral contexts***

Food security in rural communities, often measured by the absence of hunger or the low prevalence of food insecurity (Keenan et al., 2001), is regarded as the rural peoples' state in which they have secured access to food for a healthy life at all times (FAO, 1996). While the reverse, a state in which people experience a lack of or a limited access to nutritious food to meet their dietary needs for active life, constitutes food insecurity (Ramakrishna and Demeke, 2002). Furthermore, food insecurity occurs when households lack or face inadequacy of resources to obtain enough food to meet nutritionally adequate and safe foods in a socially acceptable way (Keenan et al., 2001). In the most extreme cases, food-insecure groups may last for days without eating anything, or in its modest state, they may have likely run out of food or go hungry endangering their health and well-being (FAO, 2019). Therefore, when it comes to conceptual development and research, food-security and food insecurity are inseparable. While the former is used to refer to 'sufficiency', the later refers to 'inadequacy' or 'lack' of resources to command over food. Besides, due to the recent food crises and increases in the number of vulnerable populations at both regional and global levels, there seems to be a growing interest in food-insecurity (Ibok et al., 2019).

There is a high degree of vulnerability to food insecurity among the (agro-)pastoral communities around the world (Amwata et al., 2015; Dong et al., 2011). To this respect, food insecurity is widespread and remains a major development problem for Ethiopia's pastoralist communities as well (Ambelu et al., 2017). Because of this, high level of malnutrition is often a feature among pastoralist communities of these regions (Catley et al., 2016). Studies widely report that a significant proportion of (agro-)pastoralists are vulnerable to climate-induced shocks and stresses, often leading to production failures (Ambelu et al., 2017; Fenta et al., 2018). This, in turn,

leads to the depletion of pastoral resources, leading to food shortages. Thus, food-security among the (agro-)pastoralist communities largely depends on their capacity to produce and/or purchase non-pastoral food grains (Teka et al., 1999) where livestock sales are the main source of income (Roba et al., 2017). In response to extreme environmental events, pastoralists are heavily engaged with markets and towns to sell livestock and buy grains (Mcpeak, 2006). Some studies even consider that (agro-)pastoralist communities are becoming more dependent on markets than crop farmers (e.g., Devereux, 2010; Mcpeak, 2006). An anthropological study of the *Afar* (agro-)pastoralist communities in Ethiopia showed that pastoralists increasingly turn to the market to meet basic household needs (Reda, 2011).

Studies have identified a range of social, cultural and economic causes contributing to the higher incidence of food-insecurity among the (agro-)pastoral communities (Lemma et al., 2013). An empirical study conducted to identify determinants of food-security at household level among the agro-pastoral communities found that climate and climate change induced hazards (e.g., drought) are the main causes of food insecurity, followed by market and service problems (e.g., poor transport facilities), and human factors (e.g., mobility restrictions) (Lemma et al., 2013). Mayanja et al. (2015) found that livelihood system, livestock holdings, involvement in social networks, and land holding used to explain food (in)security among the (agro-)pastoral communities. Siraje and Bekele (2013) on the other hand found that herd size, income from livestock production and non-farm incomes were positively associated with the food-security level of pastoralists. Yet another study identified livestock ownership (herd size), sex, family size (adult equivalent) and mothers' time constraint as significant factors determining food-insecurity (Kahsay et al., 2019). In addition to the size of resources owned such as farm land, and livestock, peace and security also influences food-security among the (agro-)pastoralist communities (Asenso-Okyere et al., 2013). Yet, cultural elements and market exchange practices appeared a loose link in understanding food (in)security in these regions.

#### ***4.2.3.2. Approaches to and measurement of food (in)security***

To address food insecurity, research efforts so far have developed models based on supply, demand and market failure theories indicating that the failures are caused by the vulnerability factors (Alemu, 2007). Hence, food-insecurity can be explained from both availability (supply side – represented by Food Availability Decline models referring to the decline in per capita food

availability) and accessibility (demand side – known as Food Entitlement Decline models) directions (Sen, 1981). In this explanation, food availability and entitlement, respectively, are used to refer the supply of food and the household's/individual's command over food. Thus, the focus of attention has shifted to the lack of access by households/individuals to food because of low incomes (entitlements) or lack of purchasing power as cause of food insecurity (Sen, 1981; Staatz et al., 1990). Adequate supply of food at the national level may not in itself guarantee household level food-security (Staatz et al., 1990). Ensuring enough food is not a sufficient condition for food-security unless access to food is guaranteed (Moltedo et al., 2014; Ruane and Sonnino, 2011). It follows from this that it is important to examine the access to available food in order to understand persistence of food insecurity in vulnerable communities (Scanlan, 2001). Accessibility to food is ensured when households have adequate resources to obtain appropriate food for a nutritional diet (World Bank, 1986). Food access at the household level is determined by the income available to the household and its distribution within the household, as well as food prices. Thus, concerns about insufficient food access have resulted in a greater policy focus on incomes, markets and prices in addressing food-insecurity objectives.

There are different measures commonly used to assess food-insecurity (Perez-Escamilla and Segall-Correa, 2008). The measures are broadly identified as indirect or derivative measures (e.g., dietary intake, per capita expenditure on food) (Asenso-Okyere et al., 2013; Kahsay et al., 2019) and a fundamental or direct measure (e.g., experience-based food insecurity scales) (Smith et al., 2017). The latter is advantageous in capturing the physical as well as the psycho-social dimensions of food security as it uses scales based on the experience perceived by the affected individuals (Perez-Escamilla and Segall-Correa, 2008).

Given the food insecurity vulnerability context of (agro-)pastoralist communities (Catley et al., 2016), this study used a direct measure of food access developed based on coping strategies (Maxwell, 1996). This method is recommended to use with vulnerable communities (Ballard et al., 2013). Thus, a nine-item food insecurity scale, a widely used welfare index called household food-insecurity access scale (*HFIAS*), developed by *USAID's FANTA Project* (Coates et al., 2007), that has been tested in Ethiopia (Maxwell et al., 2014) was used to measure food (in)security. The measure relies on direct responses to the nine-item questions on (in)secure access to adequate food for the members of the household at a point in time (previous one month) (Coates et al., 2007). The measurement instrument follows a progression that begins with anxiety about food supplies

either from own production or markets (item 1), followed by a decrease in the quality of consumed food (items 2 – 4), a decrease in the quantity of food (items 5 – 7), and finally going to sleep hungry (item 8) and going all day and night without eating anything (item 9) (Coates et al., 2007; Knueppel et al., 2009) (See Appendix). The maximum score is 27 when a household responds ‘often’ to all the nine questions, and minimum 0 when the household does not experience any occurrence in the past four weeks, hence, within the range of 0 – 27. The higher the score, the more food insecure the household is. The final scores in the *HFIAS* scale are assessed using a scoring algorithm to determine whether the household fits into one of four different categories of household food access, ordered as severely, moderately, and mildly food insecure, or food secure access. Following Coates et al. (2007) and Knueppel et al. (2009), the assessment and grouping was done as follows:

- a) Food secure – experience none of the food insecurity conditions, or just worry, but ‘rarely’;
- b) Mildly food insecure – worry about not having enough food ‘sometimes’ or ‘often’, and/or unable to eat preferred foods, and/or eat a more monotonous diet than desired, and/or some foods considered ‘undesirable’, but only ‘rarely’. But, do not cut-back on quantity nor experience any of the three most severe conditions (running out of food, going to bed hungry, or going whole day and night without eating);
- c) Moderately food insecure – sacrifice quality more frequently, by eating a monotonous diet or undesirable foods ‘sometimes’ or ‘often’, and/or started to cut-back on quantity by reducing the size or number of meals, ‘rarely’ or ‘sometimes’. But, do not experience any of the three most severe conditions;
- d) Severely food insecure – graduated to cutting back on meal size or number ‘often’, and/or experience any of the three most severe conditions, even as infrequently as ‘rarely’.

### **4.3. Materials and methods**

#### ***4.3.1. Study area description***

The *Afar* region is one of the dominantly pastoral regions of Ethiopia. It is estimated that 90% of the region’s population depends on pastoralism – herding camels, cattle, sheep, and goats. The area is a sparsely populated dryland region with low and erratic rainfall and agricultural potential along the *Awash* river valley. Half of the region is made up of semi-arid and arid rangeland, which

can only support mobile livestock production, and even higher rainfall areas are unable to support reliable rain-fed agriculture (Helland, 2015). The region is divided into five administrative zones, namely, *Awsi-Rasu*, *Kilbeti-Rasu*, *Gebi-Rasu*, *Fenti-Rasu* and *Hari-Rasu* and constitutes eight livelihood zones.

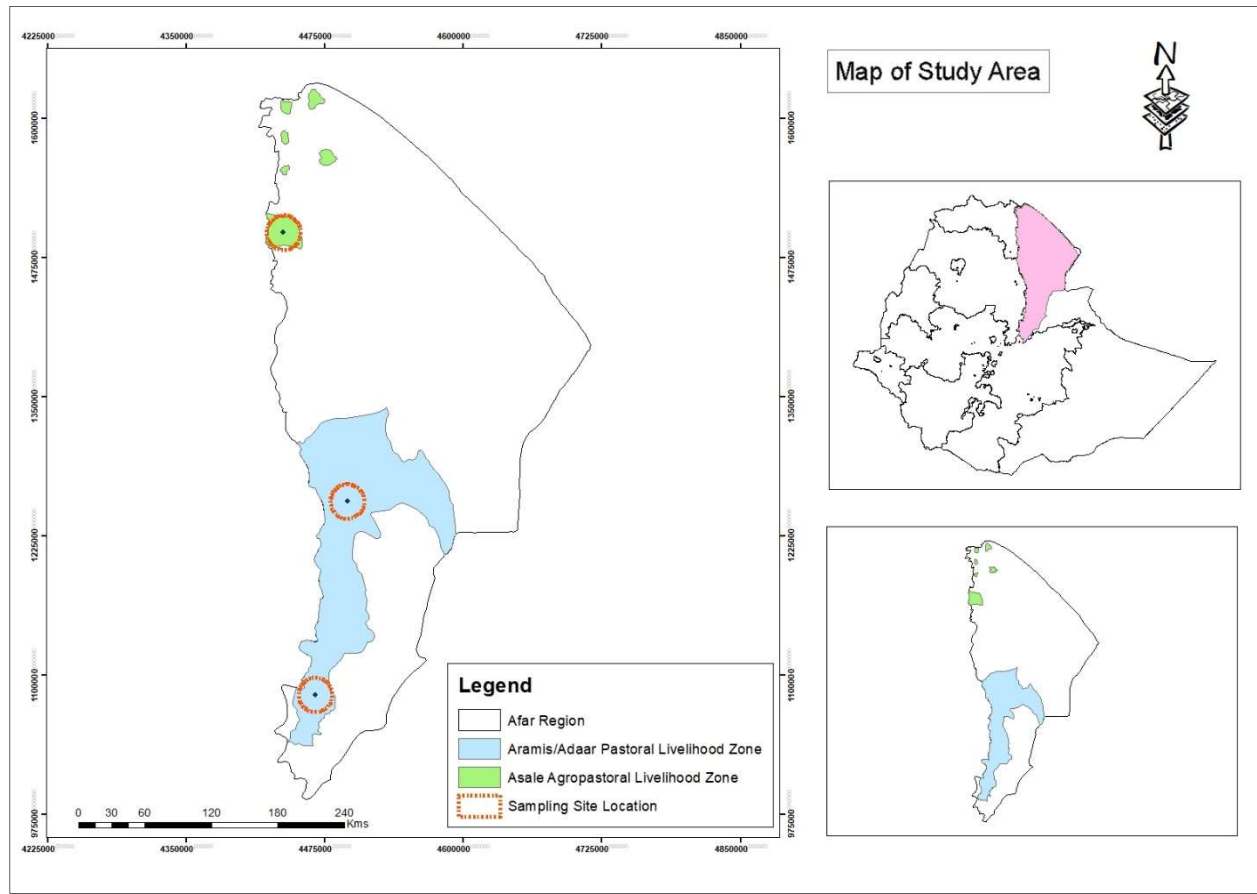


Figure 4.1: the location of three study sites (circles) in *Aramis-Adaar* pastoral and *Asale* agro-pastoral zones in *Afar*, northeastern Ethiopia; adapted from Livelihoods Integration Unit (LIU)/Ethiopian Ministry of Agriculture and Rural Development (MoARD, 2010)

For this study, two livelihood zones, *Aramis-Adaar* pastoral and *Asale* agro-pastoral, mainly to address cultural variations, were purposively selected (see also Figure 4.1). *Aramis-Adaar* pastoral zone is located within the *Awash* drainage system in the southwestern quadrant of the region. Its altitude ranges from 500-600m above mean sea level (*amsl*) in the east to 600-1000m *amsl* in the west. The climate is generally dry with an annual average temperature in excess of 30°C and a total annual rainfall of 250-400mm. It is selected for the study because pastoralism is the main livelihood in this zone. Larger part of the zone is adjacent to the neighboring *Amhara* region and largely dependent on its markets to sell livestock and to purchase grains for food. Hence, it has an access to major markets (*Bati*, *Kemissie*, *Sembete*) outside the zone. Livestock

sales plays dominant role for household cash needs. Food sources are predominantly purchases of cereals (e.g., maize, wheat and sorghum) in addition to livestock products. They spend most of their income on food. *Aramis-Adaar* is the most populated livelihood zone in *Afar* with estimated 2017 population 426,108, constituting more than half of regional rural population (CSA, 2013).

*Asale* agro-pastoral zone, on the other hand, is located in the northwest of *Afar*, and consists of a number of non-contiguous areas within the larger geography of the *Asale* pastoral livelihood zone. It comprised of areas along the escarpment and in the foothills of east-west *Tigray* highlands and areas in the arid and semi-arid lowlands. Average annual rainfall is less than 250mm but crop production is based on flood waters harvested from the *Tigray* escarpment. Crop production, mainly maize and sorghum, and livestock raising, mainly cattle and small ruminants is the main livelihood. This zone is defined by its relationship with and connections to the highlands of *Tigray*. The *kremt* rains in *Tigray* is important indicator of agricultural production in this zone. The main markets in *Tigray* than in *Afar* are vital for the zone. The estimated 2017 population of *Asale* agro-pastoral zone is 77,973 (CSA, 2013).

#### **4.3.2. Research design**

The aim of this study was to analyze the roles that pastoralist culture norms and market exchange practices can play in determining pastoralist households' food security positions. Identifying the social, cultural, and economic factors linked to food (in)security in pastoralist contexts requires a quantitative approach (cross-sectional by design) that seeks to process and scrutinize quantitative (survey) data. A survey strategy was used to address the "what" and "how much" or "how many" questions, and to propose potential explanations for specific relationships between variables used in the study by employing structured questionnaire based interrogative technique (Saunders et al., 2009). The survey involved collecting information on various social-cultural-economic aspects, including livestock marketing practices and pastoralist social capital and culture norms.

#### **4.3.3. Sampling techniques**

Multi-stage purposive and random sampling procedures were employed to select study settings and sample households, respectively. First, *Aramis-Adaar* pastoral and *Asale* agro-pastoral livelihood zones were purposively selected. Purposive sampling was applied because both livelihood zones are relatively better integrated into livestock markets due to their proximity to the neighboring *Amhara* and *Tigray* regions. Three districts were chosen at random from the two

livelihood zones (two from *Aramis-Adaar* and one from *Asale*). Following that, a random selection of *kebeles* proportional to the number of *kebeles* in the chosen districts was made, yielding 13 *kebeles* for the study. Finally, households were selected at random, proportionate to the size of the households in each *kebele*.

#### **4.3.4. Sample size determination**

Determining appropriate sample size for a study usually takes account of factors such as purpose of the study, population size from which sample taken, level of precision, and confidence level or risk and degree of variability in the attributes being measured (Saunders et al., 2009). Given these, Cochran (1963) proposed a useable formula to yield representative sample for proportion in cases of large populations:  $n_0 = \frac{Z^2 pq}{e^2}$ ; where  $n_0$  is sample size,  $Z^2$  is the abscissa of the normal curve that cuts off an area  $\alpha$  at the tails ( $1 - \alpha$  equals the desired confidence level),  $e$  is the desired level of precision,  $p$  denotes the estimated proportion of an attribute in the population and  $q$  is  $1 - p$ . However, this formula does not consider the population from which sample is taken. Hence, accounting for population size it can be adjusted using:  $n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$ ; where  $n$  is adjusted sample size and  $N$  the population. However, in populations of a considerable degree of homogeneity, such as (agro-)pastoralists, it is wise to rely on smaller sample sizes than the one scientifically determined (Lenth, 2001). Thus, in this study actual size is adjusted to be 341 (though the formula yielded approximately 384).

#### **4.3.5. Data type and data collection**

This study examines association between social-cultural-economic characteristics and level of food (in)security (which are numerically measured and analyzed using a range of statistical techniques), and hence, quantitative (cross-sectional research design) was used to collect data from randomly selected households using a pre-tested survey questionnaire. A survey questionnaire was first prepared, pre-tested on a sample of 11 households, revised based on comments received, and then used as a guiding survey instrument to collect data (Fink, 2003). The data were collected, among others, on households' socio-economic variables, livestock holdings and herd characteristics, livestock sales participation, cultural practices and food availability (Appendix A). Besides, the nine-items standard *HFIAS* questions were used to collect information on the severity of food insecurity (Coates et al., 2007). Enumerators fluent in the respective local languages were

recruited, trained, and used to collect data from 341<sup>15</sup> randomly selected (agro-)pastoral household heads<sup>16</sup> through personal interviews. The survey was conducted between April and May, 2019.

#### 4.3.6. Operationalization and measurement of variables

The operationalization and measurement of variables used in this study are shown in Table 4.1.

**Table 4.1. Operationalization and measurement of variables**

<i>Variables</i>	<i>Definition</i>	<i>Measurement</i>	<i>A priori expectation</i>	<i>Sources</i>
Livelihood	Livelihood zone	1= <i>Aramis-Adaar</i> , 0= <i>Asale</i>	(+)	Asenso-Okyere et al. (2013);
Age	Age of household head	Number of years	(+)	Vaitla et al.
Family-size	Family size	Number	(-)	(2017); Siraje and Bekele
Livestock-wealth	Herd size	TLU	(+)	(2013);
Accumulations	Livestock accumulation	1=no; 2=yes	(-)	Mayanja et al. (2015);
Slaughters	Livestock slaughters	TLU	(-)	Maxwell et al. (2014); Lemma et al. (2013);
Livestock sales	Livestock sales volume/income	TLU/ETB	(+)	Kahsay et al. (2019);
Livestock-consumption	Livestock consumption	TLU	(+)	Coates et al. (2007);
Non-livestock-incomes	Non livestock income	ETB	(+)	
Market-access	Walking times to the nearest market	1=1/2hr or less; 2=up to 1hr; 3=up to 1hr & ½; 4=2hr & more	(-)	
Extension	Frequency of visits by extension agent	1=once; 2=twice; 3=3 times; 4=more than 3x	(+)	
Credit	Credit services	1=no; 2=yes	(+)	
<i>Guro</i> /mobility	Moving along with livestock	1=no; 2=yes	(-)	
Clan consent	Clan consent to sell livestock	1=no; 2=yes	(-)	
Sanction payments	Sanction pays in livestock	1=no; 2=yes	(-)	
Livestock sharing	Livestock sharing	1=no; 2=yes	(-)	
Conflict	Occurrence of conflict	1=no; 2=yes	(-)	
Food purchases	Food coping through food purchases	1=no; 2=yes	(+)	
Food sharing/borrowing	Food coping through food sharing/borrowing	1=no; 2=yes	(+)	

<sup>15</sup> Out of a total of 341 households surveyed, 319 were used for the final analysis; some 22 recklessly filled and incomplete questionnaires were dropped.

<sup>16</sup> The *Afar* culture does not allow talking married women unless husbands are part of the discussion; hence, almost all the respondents (above 97%) interviewed were married men with their spouses around. Wives were made part in the discussions mainly to get information related to food preparations. There were few cases corresponding to widowed or divorced women (less than 3%) interviewed. During interviews husbands may at times ask wives when in need of additional information to convey. The enumerators talked to men and the women were used to supplement to what the men said, invited by husbands.

#### 4.3.7. Method of data analysis

Household food insecurity is explained in either of anxiety about food supply or reduced quality or quantity of food consumed. It was measured using *HFIAS* (See section 4.2.3.2). Ordered logit model was employed to predict associations between food (in)security and the social, cultural, and economic factors. The objective of applying ordered logistic regression was to estimate the odds of being at or below the given category and identifying factors associated with increased likelihood of being in the highest levels of food security. The model is more applicable in the situations where the outcome variable is qualitative in nature and has more than two ordinal levels (Fullerton, 2009). The outcome variable in this study satisfies the condition that the measured severity level of household food insecurity falls under four ordered categories of severely food-insecure-access, mildly food-insecure-access, moderately food-insecure-access, and food-secure-access. The actual values taken on by outcome variable as 0, 1, 2 and 3, are irrelevant. But, larger values (value 3) are assumed to correspond to ‘higher’ outcomes (food-secure-access) and smaller values (value 0) designate ‘lower’ levels (severely food-insecure-access).

Assuming that there are ‘n’ independent observations with ‘p’ predictor variables, the response variable falls into ‘K’ ordered categories (1, 2, ..., k) (Grilli and Rampichini, 2014). Letting ‘Y’ to denote the response variable, the cumulative distribution for ‘Y’ would likely be:

$$F_j(x_i) = \Pr(Y \leq j \parallel X_i = x_{i1}, \dots, X_p = x_{ip}); j = 1, 2, \dots, (k - 1)$$

The cumulative odds model predicts the odds and probability of an observation being at or below a specific outcome level based on a set of explanatory variables (Liu, 2014). Because there are ‘K’ possible ordinal outcomes, the model makes ‘K-1’ predictions, each of which corresponds to the accumulation of probability across successive categories. If we let  $\pi(Y \leq j \parallel x_1, x_2, \dots, x_p) = \pi_j(x)$  represent the probability that a response falls in a category less than or equal to the  $j^{\text{th}}$  category ( $j = 1, 2, \dots, K - 1$ ), then we would have a collection of cumulative probabilities for each case (Grilli and Rampichini, 2014). The final category has a cumulative probability of 1.0. With an extension from the general logistic regression model, the predictions are logits for the cumulative probabilities which relate to cumulative logit:

$$\ln(Y'j) = \ln\left(\frac{\pi_j(x)}{1 - \pi_j(x)}\right) = \alpha_j + (\beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p)$$

The cumulative logits associated with being at or below a particular category ‘j’ can be exponentiated to arrive at the estimated cumulative odds which used to find the estimated

cumulative probabilities associated with being at or below category ‘j’. Hence, the regression equation for the proportional odds model is given as:

$$L_j(x_i) = \log \left( \frac{F_j(x_i)}{1 - F_j(x_i)} \right) = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_p x_{pi}$$

Where,  $j = 1, 2, \dots, k$  categories;  $x_{i1}, \dots, x_{ip}$  are the values of the  $p$  predictor variables for the  $i^{\text{th}}$  observation;  $\beta_0$ , is the intercept/constant;  $\beta_1, \dots, \beta_p$  are the coefficients

#### **4.3.8. Reliability and validity of the data**

Two livelihood zones, namely, *Aramis-Adaar* Pastoral and *Asale* Agro-pastoral (See Figure 4.1) were included in this study because it was assumed that considering different livelihood zones would optimize variations and ensure equal representation of study participants. This helps the data to be more generalizable and reliable by using representative groups of pastoralists and agro-pastoralists (Creswell, 2009). Besides, the decision on which livelihood zones to include as target population was made after consulting with pastoralism experts from the regional bureau of pastoral development, who confirmed that the two zones chosen were fairly representative.

#### **4.3.9. Ethical considerations**

Basic research ethical issues have been taken into consideration in this study. Official letters were written from Center for Rural Development, Addis Ababa University, to the regional (*Afar*) Bureau of Pastoral Development. To avoid biases in the selection of study kebeles, the kebeles were first coded as ‘road-side,’ ‘mid-distance,’ and ‘distant’ based on their proximity to major roads and various service centers, in consultation with the enumerators. The study *kebeles* were chosen at random from the three groups. Permission from local authorities and respective clan elders obtained through local guides to enter interview sites. Then, households were randomly picked for the interview. Prior to the commencement of the interview, respective interviewers *dague*<sup>17</sup> with each interview participant on the purpose of the study. Through the *dague*, in order to ensure their privacy, participants were pre-informed about the voluntary nature of participation in the interview and that they can skip to answer questions that they do not want to answer or withdraw freely from participation (Saunders et al., 2009).

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<sup>17</sup> An institution of traditional information exchange system among the *Afar* (for details, see Reda (2011))

Participants were asked for their consent in writing<sup>18</sup>, assured of confidentiality of the information they shared with the researcher, and anonymity, and responsibility in the analysis of the data and reporting of findings maintained. Furthermore, the sources of ideas, opinions, or information used in any form in producing the manuscript duly mentioned (properly cited inside text and listed in the references).

#### **4.4.Results**

##### **4.4.1. Descriptive results**

###### **4.4.1.1. Household characteristics and human capital**

Table 4.2 presents the social, cultural, and economic characteristics of the sampled households. As shown in the table, the average age of the respondents (heads) is 48.6 years. The average available family labor – age between 15 and 64 – is 2.8, indicating that each household has at least two and at most three labor forces supporting the household. The average numbers of persons under 5, 6-14, and above 64 years old are 1.4, 2.1 and 0.089, respectively, indicating that there are more dependents (3.589, approximately four) than the available family labor (2.8, approximately three) in each household. Nevertheless, unlike in the highlands, (agro-)pastoralist children aged 6-14 serve herding small-stock near homestead. Therefore, dependents are families under 5 and above 64. The average household size is 6.4. In addition, the data show that 87.8% of the respondents cannot read or write.

###### **4.4.1.2. Livestock wealth, herd characteristics, and purpose of husbandry**

The *TLUs* were aggregated for each household to constitute the measure of livestock wealth. The average herd size for the entire sample is 12.52 (15.1 for pastoralists and 10.5 for agro-pastoralists). The sizes of small-stock (sheep and goats) relative to large-stock (camels and cattle) and male-stock compared to female-stock are smaller; as they are more likely to be sold. The main purpose for which herders devote livestock is food (milk and dairy products and meat) where majority of them (77.1%) most like to use livestock for food purposes, either directly consuming livestock and/or livestock products, or selling livestock to purchase food grains. Wealth accumulations in

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<sup>18</sup> On the first page of the survey questionnaire, a short code of ethics (consent statement which includes anonymity, confidentiality, right to privacy, and data protection) has been issued and duly explained to each interview participant (See Appendix A: Survey instrument).

livestock, keeping number as big as they wish as a sign of wealth, is another reason why they like to keep livestock.

#### ***4.4.1.3. Livestock marketing practices***

All respondents participated in selling a minimum number of their holding, so there were no records of non-market participants. They sell livestock all year round, but the seasons with the highest sales are the driest seasons between October and January and between May and June, locally called '*gilaal*' and '*hagai*', respectively. The average *TLU* of livestock sold and the average income generated from sales were 2.02 and 18,134.2 *ETB*, respectively. The reasons they sell range from grain purchases, transportation fees, family clothing, medical costs to social commitments. The largest expenditure was spent on consumption as assured by food purchase costs, averaging *ETB* 4,158.00. The results also show that households buy livestock and replace depleted animals with the money left over after they pay for food-grains. However, it is minimal and rare a case with average purchases 0.06 *TLU*, less of a sheep or a goat. Marketing costs incurred in the sale of livestock include transportation, taxes, brokerage/witnesses, and information (mobile phone charges), with an average of *ETB* 216.3. Regarding access to the market, the majority (88.4%) walk for more than an hour time to the main road and district town to access livestock or grain markets. They access market information through walking to market center, *dagueing* (the *Afar's* traditional information exchange) or using their mobile phones. About 57% of them prefer to go to a nearby market rather than *dagueing* or making cell phone calls to access market information. In terms of frequency and earnestness of accessing information, *dagueing* is a more reliable tool (45%) than others because it is used on a daily basis and makes-up their tradition. The data also revealed that accessible households were visited more often by extension workers who reside at district towns who frequently move to the easily accessible villages using motorbikes. Close to 80% of them were visited three or more times a year for counseling. Yet, some villages are too far from the center and not easily accessible, they were visited less frequently (once or twice a year). About 83% of respondents do not receive credit for any purpose mainly due to a range of reason such as 'no access to credit' (42%), 'no need of credit' (29%) to 'fear of or no money for down payment' (30%). From those who received credit (16.6%) reported that they received the credit from their relatives and neighbors (unofficial sources) and used it primarily to purchase grain and cereals. Among the sampled respondents, only 14% are members in local pastoral cooperatives.

**Table 4.2: Social, cultural, and economic characteristics of sample households**

<i>Household characteristics</i>	<i>Mean or %</i>	<i>SD or n</i>	<i>Minimum</i>	<i>Maximum</i>
Livelihood-zone	<i>Aramis-Adaar</i> (pastoral) 154(48.3)		<i>Asale</i> (agro-pastoral) 165(51.7)	
Age-head	48.59	8.50	30	80
Family-size	6.44	1.58	2	11
Available-family-labor	2.81	1.155	1	8
Dependency-ratio	0.239	0.133	0	0.6
Literacy-level	Unable-to-read-and-write 280(87.77)		Able-to-read-and-write 39(12.23)	
Livestock-wealth (herd size), TLU	12.52	9.75	0.70	57.9
Large-stock	9.61	8.92	0	52
Small-stock	2.91	2.24	0	15.2
Female-stock	9.95	8.37	0.5	52
Male-stock	2.57	2.48	0.1	27.5
Purpose-of-husbandry	Own-consumption 191(59.9)		Accumulations 73(22.9)	Marketing (for sale) 55(17.2)
Livestock-sales-volume, TLU	2.02	1.58	0.2	7.8
Livestock-sales-income, ETB	18134.17	16184.85	900	86800
Livestock-marketing-costs	216.30	148.13	10	850
Livestock-consumption, TLU	0.42	0.52	0	3.6
Livestock-purchases, TLU	0.06	0.22	0	1.4
Livestock given out, TLU	0.13	0.52	0	6.2
Livestock received, TLU	0.093	0.301	0	2
Non-livestock-incomes	974.26	2275.82	0	19500
Consumption expenditure	4158.1	2719.1	1000	12900
Walking times (nearest market)	Half an hour or less 37(11.6)	Up to an hour 134(42.0)	Up to 1 hour and half 42(13.2)	2 hours and more 106(33.2)
Market information access/sources			Percent users	Percent reliability
Visiting nearby market			57.4	34.17
<i>Dagueing</i>			29.5	45.45
Mobile phone			13.2	20.38
Season LS sold	<i>Gilaal</i> 266(83.65)	<i>Hagai</i> 27(8.49)	<i>Sugum</i> 21(6.29)	<i>Karma</i> 5(1.57)
Extension visit frequencies	Once 17(5.33)	Twice 52(16.30)	Three times 147(46.08)	More than 3 times 103(32.29)
Reasons for not receiving credits	No access to credit 132(41.38)	No need of credit 92(28.84)	Fear of repayment 53(16.61)	No money to repay 42(13.17)
Credit services (no/yes)				53(16.6)
Memberships in coops (no/yes)				45(14.11)
<i>Guro</i> (mobility) (no/yes)				98(30.7)
Clan consent to sell LS (no/yes)				192(60.2)
Sanction payments in LS (no/yes)				31(9.7)
Livestock sharing (no/yes)				106(33.2)
Conflict occurrences (no/yes)				57(17.9)
LS deaths due to drought/diseases (no/yes)				107(33.5)
Food self-sufficiency (availability)				21(6.58)
Food coping strategies	Purchases 203(63.64)		Aids 104(32.60)	Sharing/borrowing 12(3.76)
Meals a day	Once 71(22.3)	Twice 101(31.7)	3 times and more 131(41.1)	As obtained 16(5.0)
Food insecurity prevalence	Severely 85(26.65)	Moderately 132(41.38)	Mildly 79(24.76)	Food secure 23(7.21)

TLU = Tropical Livestock Unit equivalent to 250 kg of live animal weight, where 1 TLU = 10 heads of sheep/goats = 0.7 cattle = 1 camel (Schwartz et al., 1991); LS = Livestock; Numbers in parenthesis = %; ETB = Ethiopian currency

#### ***4.4.1.4. Pastoralist social norms***

More than 60% of households in the sample said that their clan chiefs decide on their sales plans and it is common for livestock to be subject to restrictions in the event of a breach. Sanctions paying in times of offenses in livestock terms is customary. They also have a tradition to give or receive cattle in the form of gifts or loans. The communal nature of the community is used to balance the wealth gap through exchanging resources; and in turn their social ties are strengthened. Those who do not have enough to sustain their lives receive livestock from those who have enough. The practice of sharing livestock goes in different forms. It takes the form of giving/receiving as gifts or loans, where, in the latter case, the loaner uses milk of the loaned animal. Loaner is also given the right to sell or breed the offspring of the loaned animals but has to return the parent stocks to the owner. The data indicated that 33% of the households involved in livestock transfers (sharing); they have either given-out or received-in livestock of different species in the year before the survey. In *TLU* terms, a maximum of 6.2 is given as a gift or loan, equivalent to 6 camels or 62 goats/sheep. Another traditional custom for them is to move with along cattle (called '*guro*' in *Afar*) in search of pasture and water. It defines their system of husbandry often practiced in times of drought as coping strategy.

#### ***4.4.1.5. Production risk factors and coping strategies***

Conflict between clans and within clans (18%) commonly occurs due to competition for limited resources in pasture and water supplies, resulting in loss of animals and lives, assaults on livestock, and physical damage. About 34% witnessed that they experienced livestock death due to drought/diseases, which in turn led to production failures and food shortages. While only for a few (less than 7%) what they produced is sufficient for consumption, the vast majority suffer from insufficiencies. In addition, with regard to the frequency of daily meals, almost 60% of households reported that they are meal served once or twice a day or eat as they get, attributed to a lack of food or resources to obtain food. Their long experience and tradition of pastoralism helps them develop coping mechanisms such as mobility (69.3%) and food sharing (3.76%). Livestock sales (63.64%) also serve as a coping strategy. Furthermore, food aids for about 33% of sampled

households serve another scheme with which they smoothen the food deficit seasons, especially the prolonged dry periods. Moreover, non-pastoral activities, crop farming (for agro-pastoral groups), also serve risk minimizing practices.

#### ***4.4.1.6. Prevalence of food insecurity: HFIAS results***

According to the responses to the nine *HFIAS* questions, the items that indicate less severe food insecurity have been reported affirmatively ('rarely', 'sometimes' or 'often') by the majority of the respondents, while the items indicating more severe food insecurity were reported affirmatively by a small number of respondents. Affirmative responses to the items range from 22.3% to 97.2%. The item that received the most affirmative responses was: 'how often did you worry that your household would not have enough food?', while the item that received the fewest affirmative responses was: 'how often did you or any household member go a whole day and night without eating anything?' Thus, a month before the survey period, nearly all of the respondents (97.2%) worried that their households would not have enough food to eat due to a lack of resources to make food access. But, a few (22.3%) responded that at least a member in the household experienced going the whole day and night without food. This means that nearly all of them have experienced anxiety about whether their household would have enough food. Because of a lack of resources to command over food, more than 90% of households had to forego preferred foods and eat foods of lower quality that they did not prefer to eat. Nearly 70% had to reduce the amount of foods that they ate or cut the number of meals due to economic constraints to obtain food to eat. Again, 27% mentioned that there was at least one time within the last thirty days where there was no food to serve the family. For about 24% of the households surveyed, hunger was reported a daily experience as at least one (adult) member of the household has gone to sleep at night hungry or gone the whole day and night without eating anything. Accordingly, the households said to experience all the food insecurity signals – from anxiety about the supply of food to consuming less preferred (quality) and quantity and pass a day and night without eating anything. Besides, the *HFIAS* result indicates that more than ninety percent of households fall under the food insecure category, i.e., either mildly (24.76%), moderately (41.38%) or severely (26.65%) food insecure category. While only 7.21% of them fall under food secure access category.

Table 4.3: Distribution of affirmative responses ('rarely', 'sometimes' or 'often') to HFIAS items

<i>Because of a lack of food or resources to obtain food, in the past four weeks ...</i>	<i>Affirmative responses (%)</i>
<i>How often you worry that your household would not have enough food?</i>	97.2
<i>How often you or any household member not able to eat the kinds of foods you preferred?</i>	92.8
<i>How often you or any household member have to eat a limited variety of foods?</i>	90.9
<i>How often you/any member have to eat some foods that you really didn't want to eat?</i>	86.8
<i>How often you/any household member have to eat smaller meal than you felt you needed?</i>	69.0
<i>How often you or any other household member have to eat fewer meals in a day?</i>	67.7
<i>How often there ever no food to eat of any kind in your household?</i>	27.3
<i>How often you or any household member go to sleep at night hungry?</i>	25.4
<i>How often you or any household member go a whole day/night without eating anything?</i>	22.3

#### **4.4.2. Econometrics model results: Ordered logistic regression**

Table 4.4 presents the results of ordered logistic regression model results. Social, cultural, and economic characteristics that are found to predict food (in)security are livestock wealth and sales volumes (values), pastoral development workers' visits, markets inaccessibility, livestock slaughters for rituals (ritualization), *guro* (mobility), occurrences of inter- and intra-clan conflicts, non-livestock incomes and livelihood zone effects. Some culture variables (such as sanction paying) found not predicting food (in)security. This might be because that such elements are rare a case where less than ten percent of sampled households responded affirmatively to variables in concern (e.g., sanction payments in livestock, Table 4.2). Due to the heavy impositions for violations of customary norms, members of the study community tended to obey customary rules and refrain from activities deemed 'wrong' in the community. But, excluding the other socio-economic characteristics from the model, culture orientation and market inaccessibility alone exert significant effects on food-security where all the variables but one (*guro*) are significant (Table 4.5).

##### **4.4.2.1. Livelihood strategy**

Results from the econometrics analysis show that the state of food insecurity markedly varies between pastoralists and agro-pastoralists. Noticeably, pastoralists have about 37% chance of being severely food insecure as compared to agro-pastoralists. The result further confirms that the probability of pastoralists to be food secure is only 6%, which means that food insecurity among the pastoralists is more severe than it is in the agro-pastoralists. Unlike pastoralists, agro-pastoral

groups engage in non-pastoral activities such as growing crops which helps diversify income to ensure food security. In this regard, the result corresponding to non-pastoral activities confirms that crop income contributes significantly to food security (p-value = 0.000).

Similarly, livestock wealth and food security show a positive link. Increasing herd size can cause a transition from lower levels of food security to higher levels. A *TLU* increase in herd size reduces the probability of being severely food insecure by 0.44% and increases the probability of food secure access by 0.07%. Livestock serve as the main source of animal source foods to support consumption and can be converted into cash to facilitate access to non-pastoral food grains. The results confirm that there is a positive relationship between food security and livestock sales, which is expressed as sales volume (*TLU*) or sales revenue (cash value). The results of the model show that a unit increase in sales volume or total revenue from sales reduces the probability of severity of food insecurity by 4.1%.

**Table 4.4: Results from ordered logit model**

<i>Variables</i>	<i>Coefficients</i>	<i>P&gt; z </i>	<i>Marginal effects (level of food security)</i>			
			<i>Severely</i>	<i>Moderately</i>	<i>Mildly</i>	<i>Secure</i>
LS-sales	0.317***	0.002	-0.0410026**	-0.0116073	0.0459582**	0.0066516*
LS-wealth	0.034**	0.031	-0.0044085*	-0.001248	0.0049413*	0.0007152*
Livelihood	2.893***	0.000	-0.373585**	-0.105757	0.4187374**	0.0606046**
Age	-0.013	0.383	0.0016167	0.0004577	-0.001812	0.0606046
Family-size	-0.098	0.206	-0.0127377	-0.0036059	0.0142772	0.0020664
LS-consumption	-0.152	0.639	0.0193956	0.005965	-0.0221332	-0.0032274
LS-accumulation	0.180	0.700	-0.022523	-0.0082233	0.0267804	0.0039658
LS-slaughters	-1.045***	0.000	0.1349084**	0.0381908	-0.1512137**	-0.0218854*
Extension	0.401***	0.007	-0.0518158**	-0.0146684	0.0580783**	0.0084058*
Market-inaccessibility	-0.475***	0.000	0.0614067**	0.0173834	-0.0688284**	-0.0099617**
Coping-sharing	0.324	0.656	-0.0376239	-0.0206544	0.0504248	0.0078535
Coping-purchase	-0.185	0.468	0.0235329	0.00764	-0.0271885	-0.0039844
LS-sharing	0.448*	0.089	-0.0550396	-0.022479	0.0673513	0.0101673
Sanctions	-0.071	0.861	0.0093919	0.0022243	-0.0101629	-0.0014533
Conflicts	-0.787**	0.027	0.12036*	-0.0084779	-0.0986528*	-0.0132293*
Mobility ( <i>guro</i> )	0.706*	0.042	-0.08334*	-0.0428275	0.1090015	0.017166
Clan-consent	-0.065	0.849	0.0082857	0.0024346	-0.0093613	-0.001359
Non-LS-income	0.002***	0.001	-0.0000244**	-6.90e-06	0.0000273**	3.95e-06**
Credit-access	-0.202	0.466	0.03668	0.0067209	-0.028966	-0.0041681

Obs.=319, LR  $\chi^2(19)=213.50$ , Prob. >  $\chi^2=0.000$ , Log likelihood=-292.88569, Pseudo R<sup>2</sup>=0.2671

\*\*\*, \*\*, \* significant at 0.1, 0.05, 0.01 level of significant, respectively

#### 4.4.2.2. Access to market and extension services

The association between market inaccessibility and food security is found to be inverse indicating that as pastoralists and (agro)pastoralists walk farther to reach to the nearest market to trade with pastoral or non-pastoral products, their level of food security significantly reduces. Specifically

speaking, an hour increase in the walking distances to market centers causes the likelihood of food security to decrease by 1%. Furthermore, a significant positive association is found between the frequency of extension services and food security suggesting that as the number of visits by extension workers increases the tendency for households to improve their food security increases by a factor of 0.4.

#### ***4.4.2.3. Conflict – a risk factor***

An increase in the likelihood of conflict worsens food insecurity by 12.04%. As inhabitants are more exposed to inter- and intra-clan conflicts, they suffer from damage such as livestock raids, loss of life and physical damages to the available labor force. This in turn results in a decline in stock. As the level of yield and income derived from livestock is a function of the level of stock (herd size), the overall result is thus to assume production and income levels less than the actual potential limiting its contribution towards food security.

#### ***4.4.2.4. Mobility (guro) – a coping strategy***

The mobility of livestock, which is often viewed as a coping strategy, has a positive effect on food security at a significance level of less than 0.05 (p-value = 0.042). For herders moving along with their livestock in search of better pasture and water, a unit increase in the likelihood of mobility leads to a reduction in the severity of food insecurity by 8.3 percentage points.

#### ***4.4.2.5. Ritualization – a culture orientation***

As can be seen from Table 4.4, a *TLU* increase in livestock slaughters for rituals (ritualization) leads to 13.5 percentage points increases in the probability of severe food insecure access, and 2.2% decreases in the probability of food secure access. More appreciably, when treated separately, cultural elements (except *guro*) and market inaccessibility are positively and significantly associated with severe food insecurity levels. The cultural variables cause the severity levels (in probability terms) of food insecurity to increase by 10 – 30 percentage points (Table 4.5).

**Table 4.5: Culture and market inaccessibility variables on food insecurity: an ordered logit**

<i>Variables</i>	<i>Coefficients</i>	<i>P&gt; z </i>	<i>Marginal effect</i>
Livestock accumulations	0.5479312*	0.096	0.0990574
Livestock slaughters (ritualization)	1.177119***	0.000	0.196275
Livestock sharing	0.335985**	0.041	0.2891918
Sanctions paying in livestock	0.6487281*	0.090	0.1239526
Livestock mobility ( <i>guro</i> )	-0.080485	0.788	-0.0133001
Clan consent for selling livestock	1.374176***	0.000	0.2117139
Market inaccessibility	0.3494806***	0.001	0.0582731

\*, \*\*, \*\*\* significant at 0.1, 0.05, 0.01 level of significant, respectively

#### **4.5. Discussions**

Pastoralists entirely and agro-pastoralists partly are culture-oriented in the sense that the purpose of raising their livestock is more for accumulation or rituals. For example, for the ritual, large-scale slaughter is practiced, in which a large number of villagers gather in groups for celebrations and meals. This happens occasionally and may not help to smoothening a person's daily consumption; rather depletes livestock resources. They dedicate livestock to rituals, which means they have less supply to use livestock products as food or for exchange in the market to command over food. This suggests that such a culture-orientation greatly exacerbates the severity of food insecurity in the study area to a considerable degree. In addition, pastoral communities are vulnerable to and live under various production risk factors such as drought, conflict and animal disease. Conflict, for example, is a major risk factor for (agro-)pastoralist production. Due to these risk factors, livestock deaths and raids are common which erode pastoral resources (livestock) and thereby weakening consumptions. Market inaccessibility is another issue that constrains (agro-)pastoralist food security. The long travel period for entry into the market means that herders would be discouraged to trade with their produces where it in turn constrains them to trade in non-pastoral foods for consumption. Therefore, it emerges from the findings that cultural orientation, production risk factors, and poor marketing infrastructures are aggravating food insecurity among (agro-)pastoralists. Conversely, the externally induced and infrastructure constrained market exchange practices by (agro-)pastoralists and their long lived tradition of '*guro*' contribute to improving food-security.

##### **4.5.1. (Agro-)pastoralist market exchange practices and food (in)security**

In fact, households with more number of livestock resources of different species are advantageous in terms of consumption smoothening. They are affluent with animal source foods, and with

marketable surplus of livestock and livestock products. In the first case, they directly consume animal products for food. In the latter case, they sell livestock and products in the market for income and buy non-livestock food to complement or supplement consumption. The non-livestock foods use to complement consumption in times of drought where the animal source foods are scarce. In times of affluence, however, purchased grains are used as supplementary food sources. In either cases, market exchange makes a considerable share of consumption of (agro-)pastoralists. The implication of livestock wealth and sales participation (incomes) to food security is presumably immense as it appears that (agro-)pastoralists are dependent on livestock selling to fulfill consumption. In the face of recurring drought, they sell livestock and in return purchase food grains and other consumption requirements to supplement their food needs as livestock products are not sufficient enough to smooth consumption. Therefore, surplus pastoral production is not sufficient to bring about food security improvements. Marketing practices, mainly selling-out livestock and purchasing in non-pastoral food items, make-up major component of accessing food in the (agro-)pastoralist context. While (agro-)pastoralists have enough food available in their vicinity or in the market, they may be food insecure because they cannot access it. Hence, equally important is market exchange for building purchasing powers, and marketing infrastructure (accessibility) to sufficiently engage in markets for food security. In this regard, Rocha (2007) contends that lack of participation in markets is the most prevalent cause of food insecurity as economic accessibility to food is intimately related to income security. Therefore, market accessibility is an important element of food-security at the household level in the (agro-)pastoralist context. It is the degree to which (agro-)pastoralists obtain markets necessary for their exchange needs, or the opportunity, the capacity and ability that they have to engage in selling their products. Nevertheless, while an improved market access plays part in determining food security, our results suggest that (agro-)pastoralists' lack of market orientation (mainly due to their culture orientation, see section 4.5.2) and market inaccessibility are hindering food security. (Agro-)pastoralists walk for long hours to get into market centers where market inaccessibility puts an impediment to them participating in the market, leading to deteriorated food security levels. Neither their use of marketing technologies (e.g., mobile phones to access marketing information) that reduce marketing transaction costs, availability of marketing infrastructures, or availability of and memberships in a formal local groups is that dependable. Thus, in terms of time and cost, use of innovations and memberships in cooperatives to achieve food security, access to market for

them remains challenging. Consequently, increased transaction costs are barriers that increasingly put impediments to them in accessing markets. Therefore, in dealing with market accessibility and participation, expansion and adoption of technologies that ameliorate market inaccessibility by reducing the problems created by transaction costs is needed (Muto and Yamano, 2009) as the divide between improved and constrained access to markets for food security is the use of innovations to reduce transactions costs (Rueff and Rahim, 2016). Rural infrastructure in the context of access to market uses to ease market participation for better food security outcomes. Jacoby (2000), in this regard, stressed that rural roads and transport infrastructures are particularly important forms of rural infrastructure, providing cheap access to both inputs and output markets. Market accessibility in terms of reduced distances and walking times to roads, services, towns, and market outlets are important to improve food security (Kruseman et al., 2006). Besides, the extent to which pastoralists bargain in the market depends on their ability to take collective actions (Nunow, 2000) where the actions enable them to take advantage of new value chains (Tessema et al., 2014), marketing costs can be shared by many producers making market participation feasible (Rocha, 2007), and deal with existing market imperfections (Markelova and Mwangi, 2010) for better food security. Thus, it emerges that pastoral/livestock development services – improved techniques of production and marketing through extension services – are typically important for (agro-)pastoralists for improvements in production and marketing sustainably for food security goals. In terms of frequency of extension visits, it has been noted that (agro-)pastoralists in the study area are visited by development workers more often. Yet, the type, timeliness and quality are of priority concern in terms of effectiveness of the services for desired livelihood goals. Hence, frequent visits with quality and timely extension services with proper service packages have paramount importance to improvements in market participation for better food security achievements.

#### ***4.5.2. (Agro-)pastoralist cultural orientations and food (in)security***

Livestock are the central element defining pastoralism as a production system. In the face of recurrent droughts, large herd size matters not only in determining the amount of food available for consumption but also to sustain pastoralism as a viable system. Pastoralists often prefer to adopt traditional accumulation strategy to reduce risks associated with herd loss due to risk factors, such as drought (Næss and Bårdsen, 2013). Their orientation towards livestock accumulation

serves them a traditional insurance risk coping strategy to overcome natural or man-made calamities (Gebru and Mcpeak, 2004). With this rationale, pastoralists and agro-pastoralists raise different species of livestock mainly as a traditional way to make a living. They use to raise livestock (especially large stock – camels and cattle) for milk and prestige showing social statuses and as wealth indicators, keeping the number as large as they wish with all costs. The inherent motive behind herd maximization is that it safeguards the community from undue circumstances (Mulder et al., 2010). Besides, livestock are subject of social relations in the community such that they are shared to those who do not have enough. They are considered as common assets and shared among the members of a particular clan. Livestock are also subject to be slaughtered in large numbers or given to another party as amends for owners' wrongdoings (e.g., violating customary norms) and compensations to the victims in times of intra- and inter-clan conflicts. Large number of livestock often are sacrificed to serve cultural ceremonials and for rituals typical of their tradition and sanction paid to the victims. Thus, cultural orientation in *Afar* tradition is predominant wherein the entire societal fabric is tied up with livestock accumulations and sharing, slaughters (ritualization and festivities), and sanctions paying (in livestock). The social setting and cultural fabric on which pastoralism founded is encouraging accumulations at all costs and excessive uses of livestock for cultural purposes such as mass slaughtering. This endures among themselves and explain the importance of solidarity against the individually based sedentary mode of lifestyle. Added to the natural or induced risk factors (e.g., droughts, conflicts, diseases), these practices put pressure on the pastoral assets. Consequently, the drought remnant livestock resource gets depleted as is accumulated to be shared used, sanction paid and sacrificed. Thus, it ends up falling short to sufficiently support consumption leading to sever food insecurity.

Furthermore, such a cultural orientation is not in the direction of engaging in marketing practices to supplement consumption for food security. Livestock are the object of pastoralist cultural practices. Selling is not encouraged mainly for cultural reasons. Thus, pastoralists attach more importance to their livestock for cultural uses than trading for cash to support consumptions. Due to cultural obligations, they are not ready to provide pastoral produce to market for exchange. As also documented in Tessema et al. (2019), cultural orientations stand at odds with markets orientations. (Agro-)pastoralist cultural orientation stands to constrain pastoralism against improved livelihoods in terms of food security. Hence, the more households engage in cultural practices such as rituals, the worse would be their food insecurity as herds are subject to be

accumulated in large numbers and mass slaughtered for ritualization and festivities, shared and paid to others for sanctions. Thus, selling livestock is not appreciated, because the social status, social power, and social authority of an individual in the community are measured based on the number of livestock that one possesses. Conflict between the persisting culture orientation such as communal practices of pastoralism and market ideals is real (Casciarri, 2009), resulting in a lack of adequate supply to trade. This leads to low off-takes for (agro-)pastoralists who are presumed to consume cereals which would be availed from livestock sales.

#### ***4.5.3. Production risk factors and traditional coping strategy***

Climate factors, livestock deaths due to disease or conflict, and other production risk factors impede production and market orientation, exacerbating food insecurity among (agro-)pastoralists. For instance, inter- and intra-clan conflicts are very common in the study area causing loss of livestock and lives, physical damages, mobility restrictions, and the probability of commercial orientation to decline thereby impeding food-security efforts. Moreover, the climate induced factors are increasingly challenging (agro-)pastoralist production and regarded the most important causes of food insecurity in these areas (Lemma et al. 2013). Pastoralists and agro-pastoralists, from their long experiences of living with environmental uncertainties, develop a traditional coping strategy that helped them cope with these challenges. Among which is mobility, a tradition practiced to escape unfavorable circumstances arising from climate variabilities. Seasonal mobility, known as *guro* in *Afar*, is a tradition, of moving along with livestock, in search of better pasture and water for the moving stock. It is their main practice, part of tradition, and livelihood, and they think good for the health of livestock. In the pastoralist setting it is a common practice to move along with animals where mobility enables them to use yet unexploited pastures and water sources (Bollig and Göbel, 1997). It remains fundamental as a key pastoral risk management strategy for coping with unpredictable rainfall and livestock diseases (Fre and Tesfageris, 2013). Even during the erratic climatic events, livestock mobility allows a low risk of loss of livestock. This helps them to escape exhausted resources in their permanent base villages and take advantage of opportunities of resource abundance elsewhere. Moving herders can also get better access to and interactions with buyers along the moving routes as it might be easy and inexpensive to trade livestock over the long distances. This could attract them toward market, which in turn promotes market production for better food security. However, while mobility is risk managing and coping

strategy, market facilities across the moving routes and *guro* terminus hardly exist. Mobility is constrained by market access and safety issues as resource conflicts and livestock raids are likely to occur (Rettberg, 2010). Both local and terminal markets respectively are set near villages and at regional towns distant from '*guro*' terminus, where buyers often visit these sites. During *guro* hence, pastoralists move far away along with their livestock and little or no remains for the market at their permanent settlements. They moved farther away from base villages often means that the value of livestock falls fetching poor prices to them. In effect, they are obliged to sell with minimum prices at *guro* terminus. Moreover, costs and risks associated with *guro*, such as inter- and intra-clan conflicts, animal theft and raids, long hours of trekking (labor) costs and uncertainties are persistent (Turner and Schlecht, 2019). Therefore, our result that demonstrates positive relationship between mobility and food-security holds under better market access along the moving routes and *guro* terminus and no or reduced risks and costs constraining mobility. Hence, sustainable conflicts management led by elders need to be promoted so that *guro* sufficiently serves traditional coping strategy to enhance food-security.

#### **4.6. Conclusion**

In conclusion, while the (agro-)pastoral production is intertwined with an array of pressures resulting in severe food insecurity, poor infrastructure constrained market exchange practices play rescuing role. Besides, the centuries old practice of *guro*, although restricted by conflicts, serves a traditional coping strategy contributing to a reduced food insecurity levels. Thus, food (in)security in the context of (agro-)pastoral settings cannot be understood only in the terms of inefficiency in the management of risks, production and distribution. It requires a multifaceted approach that puts it not only within the networks of food production, distribution, and consumption but also within the wider environs of cultural relations and social networks in which households inevitably seek to secure their food needs and reproduce livelihoods. In understanding food security in (agro-)pastoral setting, hence, due emphasis should be given to pastoral culture orientation and the exchange practices, as well. Therefore, a mix of approaches that combine livestock production services, market-production-orientation, and infrastructure development remains vital to '*move-up*' pastoralism. Besides, to capitalize on *mobility* to serve as a traditional coping strategy helps to further sustain pastoralism.

## CHAPTER V

### THE EFFECTS OF COMMERCIAL-ORIENTATION ON (AGRO-)PASTORALISTS' HOUSEHOLD FOOD SECURITY: EVIDENCE FROM (AGRO-)PASTORAL COMMUNITIES OF AFAR IN NORTHEASTERN ETHIOPIA

#### *Abstract*

*Commercialization has been increasingly promoted for (agro-)pastoral communities as an intervention to improve their incomes and food accesses. Using households from rural Afar this study examines the food security effects of livestock commercial-orientation of (agro-)pastoralists by employing propensity score matching (PSM) procedures. Results show that despite (agro-)pastoralists' market production is stressed by a broad range of factors identified as cultural, infrastructure, and production risks, livestock sales participation significantly decreases the severity of food insecurity in both HFIAS and rCSI measures. But, the results failed to find consistently significant effects by per-capita consumption expenditure measure, in which case, the 'subsistence' and 'commercial' oriented groups are alike. Yet, given market production depressing factors properly addressed with policy measures, income generated from livestock sales improves the welfare of (agro-)pastoralists at least by some (HFIAS and rCSI) livelihood indicators. This necessitates the importance of combining market infrastructure investments with culturally sensitive policy measures to continue the traditional livestock husbandry.*

*Key words: (agro-)pastoralists; livestock marketing; commercialization; food security; Afar; Ethiopia*

This chapter is based on Benti, D.W., Birru, W.T. and Tessema, W.K. (submitted). The effects of commercial-orientation on (agro-)pastoralists' household food security: Evidence from (agro-)pastoral communities of *Afar* in northeastern Ethiopia.

### ***5.1.Introduction***

Pastoralism as a mode of production contributes significantly to households' energy requirements directly through consumptions of pastoral produce (animal source foods) and, indirectly through marketing of pastoral products to command over non-pastoral foods (Smith et al., 2013). In the latter case, economic/market interactions between pastoralists and their neighboring farming communities becomes inevitable (Ikeya and Fratkin, 2005); whereby pastoralists sell livestock at times of cash needs to purchase food and other necessities to complement their food consumptions (Devereux, 2010). This means that the improvement of pastoralists' livelihoods is dependent on a system of markets where they can bring their livestock and livestock products to sell and buy non-pastoral foods such as cereals, tea, and sugar, in return (Davies, 2006; Little et al., 2014). As a result, pastoralists develop market exchange interdependence and economic interactions with cultivators and highland systems (Negatu, 2011), requiring the pastoral economy to be economically indistinguishable from settled agriculturalists (Mulder et al., 2010).

Food security in the pastoral setting involves availability of livestock and livestock products for their own consumption, and pastoralists' capacity to buy grains for food (Greenough, 2010; Teka and Azeze, 2002). Pastoralists rely heavily on livestock sales to finance their food purchases, so their market participation has an impact on their food security (Davies, 2006; Little et al., 2014). This means that the exchange value of livestock is as important as the consumptive value for pastoralists. Thus, livestock marketing is critical for understanding food security among pastoralists because it is the main source of income to subsidize grain consumption, and food grain purchases make the largest expenditure item for herders (Little, 1996). Besides, livestock sale becomes an induced inescapable function in the pastoral and agro-pastoral production, and increases in response to drought, pasture scarcity and weather shocks (Aklilu and Catley, 2010; Krätli et al., 2013).

Nevertheless, food insecurity, which is commonly perceived as a condition in which people lack reliable physical and economic access to safe, sufficient, and nutritious food to meet their dietary needs or food preferences in order to live a productive, healthy, and active life (FAO, 1996), remains a growing concern among pastoralist communities around the world (Headey et al., 2014; Rettberg, 2010). The problem of hunger and food insecurity among the pastoralists rather shows an increase in terms of the number of people affected and vast area coverage (Stringer et al., 2017). Pastoral regions and most pastoralist groups are drought prone (Mulder et al., 2010) which has

adversely affected their livelihoods (Megersa et al., 2014; Negatu, 2011). The recurrent droughts usually result in loss of herd (Barrett et al., 2004; Megersa et al., 2014) and severe food shortages (Megersa et al., 2014). The regions are largely known for high and increased levels of poverty and destitution (Nassef et al., 2009), chronic food insecurity (Headey et al., 2014; Rettberg, 2010) and relief dependence (Devereux, 2010). They are politically, economically and socially marginalized (Levine, 2010; Little et al., 2015), and estranged from the central government (Stockton, 2012).

The vulnerability context and low welfare levels in the arid and semi-arid lands (Catley et al., 2016) necessitate a compelling justification for alternative livelihoods and ways-out (Megersa et al., 2014), which begs governments for policy measures. One of the policy efforts is to integrate (agro-)pastoralists into the market in order to support their livelihoods. The existing literature in this regard documented the attempts made and other related issues as points of departure. First, it has been boldly stressed in the pastoral literature that in attempting to address the stresses in these areas and thus secure livelihoods, the respective governments and donor agencies responded strategically with policy terms. Consequently, the pre-1990's pastoral development policies focused on as to how to sedentarize pastoralists, favoring sedentary lifestyle (Gebeye, 2016; Levine, 2010). As a result, governments have been encouraged to plan and implement sedentarization as a means of reorienting the centuries-old pastoralism toward the market (Catley et al., 2016) and addressing the fundamental issues that plague pastoral and agro-pastoral areas (Schmidt and Pearson, 2016; Tache and Oba, 2010), thus promoting commercialization of the sector and bringing about economic diversification (Headey et al., 2014; Krätli et al., 2013). Such policy orientation gave rise to development prescriptions that advocate '*moving pastoralists out of pastoralism*' (Krätli, 2019). Following the policy orientation, studies have also been conducted focusing on the processes and impacts of the sedentarization policy on livelihoods (Gebeye, 2016; Haji and Legesse, 2017). Nevertheless, the evaluation studies indicated that the effects of market interactions called-for by sedentism that deemed to improve wellbeing have attained limited successes. Evidently, sedentary farming is blamed for impacting pastoralism itself (Krätli et al., 2013), and failed to bring about desirable results (Gebeye, 2016). It does not provide equal marketing opportunities, nor appears to be correlated with commoditization (Fratkin et al., 1999); supported less adaptation compared to mobile pastoralism (Pedersen and Benjaminsen, 2008); and worsening food security (Haji and Legesse, 2017; Levine, 2010). Furthermore, the settlement schemes depleted traditional risk management strategies and socio-economic exchange networks

(Bollig and Göbel, 1997), aggravated rangeland degradation (Beyene, 2014), and weakened traditional conflicts handling (Tafere, 2013), thereby exacerbating food insecurity. Whereas market economy stands as a way-out and remains one of the adaptation strategies (Negatu, 2011; Tessema et al., 2014), where it does not always hold (Fratkin et al., 1999), program impacts parallel market effects. In previous studies, because market is associated with sedentism, failure in the sedentarization scheme has been associated with the market's adverse effects (Krätli et al., 2013; Pedersen and Benjaminsen, 2008). This suggests that little is known about the likely links between commercial-orientation of (agro-)pastoralists and their food security positions, as the previous studies are limited to policy evaluations.

Second, existing literature widely focused on consumption of pastoral produce for food (direct) relations to food security (Asenso-Okyere et al., 2013; Krätli et al., 2013), hence seemed to be limited to addressing food self-sufficiency, and the availability component of food security. The 'marketing – food security' link has been barely addressed in food security analyses concerning (agro-)pastoralists, emphasizing food availability more than food accessibility. In Asenso-Okyere et al. (2013) and Kahsay et al. (2019), for instance, livestock marketing indicators are not included as determining food security. Yet, in both of the cases, linking pastoralists to markets thereby to increase incomes through commercialization (sale of livestock and livestock products) is promoted as among the efforts to enhance food security. Other attempts have also been made in relation to specific issues such as cross-border trade and regional integration (Teka and Azeze, 2002) and livestock commercialization (Nunow, 2000) to account for marketing's effects on food security. Studies (e.g., Nunow, 2000; Little, 1996; Teka and Azeze, 2002) approached pastoral marketing and food security relations from caloric terms-of-trade (between grain and livestock and livestock products) perspective and commodity price changes over time. This, however, lacks to properly measure food security; as it is only a proxy indicator. Furthermore, other studies where the issues of livestock marketing practices are barely considered include Megersa et al. (2014) whose study indicates that households practicing livestock diversification had significantly higher average off-take in the form of livestock sales, the higher off-takes leading to improvements in access to food. In sum, not all these studies investigate adequately the livestock marketing issue and food security relations in the (agro-)pastoralists' contexts. This issue is important particularly among the pastoral groups who inhabit the marginal areas and whose food security is highly exchange dependent.

Third, prior studies conducted on the effects of market focused more on settled upland agrarian societies rather than pastoralists (Abdullah et al., 2017; Gebru et al., 2019)<sup>19</sup>. Empirical evidence on the food security effects of market in the context of (agro-)pastoralists is lacking. Yet, considerable differences essentially appear among the pastoral and sedentary agriculturalist settings (Negatu, 2011). In terms of access to market, for example, pastoralists inhabit inhospitable marginal lands at distant from roads and market outlets, thus, accessing markets for them is difficult (Watson and Binsbergen, 2008). Adding to it, market's functionality in these areas is hindered by high transactions costs, and poor market infrastructures (Aboud et al., 2012; Hauck and Rubenstein, 2017). This suggests that evidence as to how market contributes towards secured food needs of (agro-)pastoralists, in particular, is needed.

Given that previous marketing studies: a) are masked by sedentarism and policy evaluations; b) limited to address food self-sufficiency and emphasized food availability more than food accessibility (focused on the direct consumptions of pastoral produce for food); and c) focused more on settled agriculturalist societies; there is little empirical evidence as to what extent market may contribute to combat low welfare levels in the (agro-)pastoralist contexts. As a result, the roles that markets may play in achieving food security of (agro-)pastoralists are overlooked. Therefore, to take account of food security effects of market and fill the gaps in this regard, the current study seeks to understand effects of livestock marketing practices<sup>20</sup>, where it measures extent to which production is oriented towards market (von Braun, 1995)) on household food security based on cross-sectional data from the (semi-)arid regions of Ethiopia where sedentarization continues to be promoted by the government (Fratkin, 2014). The study tests whether improved access to and participation in livestock marketing practices improve household disposable income and hence exert positive effect on food security position of households or not.

### ***5.2. Commercialization and food security in the (agro-)pastoral settings***

Rural communities' food security is a state in which rural peoples have a secured access to food for a healthy life at all times (FAO, 1996). Food security is often measured by the absence of hunger or the low prevalence of food insecurity (Keenan et al., 2001). Recently, there is a growing interest in food security analyses as food crises and number of vulnerable populations (e.g.,

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<sup>19</sup> Details in Chapter 2

<sup>20</sup> Livestock marketing practices are regarded in this study as livestock '*commercial-orientation*', measured as proportion of total *TLU* sold to total owned (Leavy and Poulton, 2006).

pastoralists) at global levels are escalating (Ibok et al., 2019). There is a high degree of vulnerability to food insecurity among the (agro-)pastoral communities all over the world (Amwata et al., 2015; Dong et al., 2011). In Ethiopia's pastoralist communities, too, food insecurity is widespread, and it has remained a major development concern of the government (Ambelu et al., 2017). Because of this, high level of malnutrition is often a feature among pastoral communities of these regions (Catley et al., 2016). Studies documented that a significant proportion of (agro-)pastoralists are vulnerable to climate-induced shocks and stresses, often resulting in production failures that leads to the depletion of pastoral resources, ultimately causing food shortages (Ambelu et al., 2017; Fenta et al., 2018).

The overall development of (semi-)arid regions requires to ensure that (agro-)pastoralists are well integrated into the market (Davies, 2006; Little et al., 2014). First, as an adaptation strategy against undue circumstances mystifying (agro-)pastoral production, commercialization of the subsistence production system is indispensable. Commercialization – transition of production practices that from highly subsistence towards highly market-oriented level – is becoming inevitable phenomenon as it is externally induced by changes in production strategies (Zaal, 1999), rises in rural populations and incomes, and urbanization (Pingali, 1997). It is also evident that (agro-)pastoral communities are going through a serious self-generated and externally driven irreversible evolving processes that necessitate commercialization of the sector. The commercialization process, which necessitates the development of market infrastructure in (agro-)pastoral areas is benefiting herders through offering direct income from market participation. The direct income from commercialization further triggers indirect benefits through forward and backward linkages, investing in other income generating activities, and buying consumer goods for food and other purposes, altogether contribute to improvements in food security (Bekele et al., 2010; Zaal, 1999). Commercialization, thus, serves as a possible driver of economic transition in rural areas and stimulator of the rural economic growth process (von Braun, 1995). Second, at global level, the demand for animal source food is growing rapidly, which calls for the transformation of the livestock sector to increase production and efficiency. The arid and semi-arid lands with vast area coverage and the majority of the world's livestock population (Aboud et al., 2012) have immense potential to increase livestock production and help meet the world's demand for animal source foods. Thus, due to climate induced forces and the ever increasing global level demands for animal protein, reorientation of (agro-)pastoral production system from

subsistence towards more commercially oriented production seems inescapable (Fre and Tesfagergis, 2013).

Commercialization remains a widely pursued approach to improve food security in developing low-income regions including the arid and semi-arid lands. Theoretically it appears that the ability of rural farming households to obtain income to purchase variety of foods that they do not produce depends on the functioning of market where the income helps to stabilize consumption against seasonality (Staatz et al., 1990; Timmer, 1997). Thus, it can be implied that given household's desire for consumption bundle, it can undertake the production of such goods for auto-consumption and/or specialize in the production of those goods in which it is relatively skilled – consuming some portion and trading surplus for other goods and services it desires (Barrett, 2008). In light of this, pastoralists and agro-pastoralists are exchange dependent for their food, where trade in livestock in order to purchase cereals has become an integral part of livelihoods (Davies, 2006; Little et al., 2014). As a result, they develop market reliance and economic interactions with cultivators and highland systems (Ikeya and Fratkin, 2005; Negatu, 2011). This symbiosis leads them to become economically indistinguishable from settled neighbors (Mulder et al., 2010). Hence, the improvement of (agro-)pastoralists' livelihoods is dependent on a system of markets (Lu, 2007) where they can bring their produce (e.g., livestock) to sell and buy non-pastoral foods (Rueff and Rahim, 2016; Rahim et al., 2014).

Studies widely indicate that, in response to the extreme environmental events, (agro-)pastoralist are engaged with markets and towns to sell livestock and purchase grains (Mcpeak, 2006). Pastoralists cannot subsist exclusively on animal source foods that are generated from herd (Bollig and Göbel, 1997). They smoothen consumptions through the market as they have to obtain cereals to maintain a healthy diet. It is also evident that pastoralists are stressed by shocks and as a result pure pastoralism that subsist exclusively on milk and animal blood is hardly existing (Dutilly-Diane, 2007; Schmidt and Pearson, 2016). Consequently, they are largely supported by non-pastoral products. In this regard, Devereux (2010) contends that pastoralists are engaged with markets and towns for selling livestock and buying grains. Similarly, Nunow (2000) stressed the importance of market such that trade and exchange have enabled the pastoral system to survive and flourish for thousands of years. In an anthropological study, Reda (2011) further emphasized that pastoralists are drawn into the market to satisfy basic household requirements. Thus, food security among the (agro-)pastoralist communities is reliant on their ability to produce and/or

purchase non-pastoral food grains (Teka et al., 1999) where livestock sales are the main source of income (Roba et al., 2017). Studies, in this regard, consider that (agro-)pastoralist communities are becoming more dependent on markets than crop farmers (e.g., Devereux, 2010; Mcpeak, 2006), emphasizing that (agro-)pastoralists are increasingly turn to the market to meet basic household needs (Reda, 2011). Therefore, ensuring enough food is not a sufficient condition for food unless access to it is guaranteed (Moltedo et al., 2014; Ruane and Sonnino, 2011). Such an access to food is facilitated by the connections that both producers and consumers have to the markets (Ntakyo and van den Berg, 2019). This is where food security is theoretically linked to market, whereby herders secure their food needs not only through own production but the connection they would have with the market (Teka and Azeze, 2002). Pastoralism produces pastoral produce (e.g., milk) for household consumption, as well as offspring for sale, which they use for purchasing non-pastoral products (Catley et al., 2016). Since non-pastoral food grains are not produced by pastoralists, they are subject to purchase from grain markets with the money earned mainly from sale of pastoral outputs (Devereux et al., 2004; Roba et al., 2017). Hence engaging in marketing practices becomes vital. Participating in the marketing practices increases household income and thus increases the consumption of the composite category of non-pastoral foods, which results in a higher dietary diversity and food secured status. Hence, the relationship between market and food security is hypothesized as that integration into market influences food security in at least a couple of ways: first, it opens demand for pastoral produce and second, it builds purchasing power thereby adding to the total incomes. Since herders' food security, in a given period, is a function of both own production (animal proteins) and exchange (food grains) (Teka and Azeze, 2002), livestock sales income would help them to purchase non-pastoral products through the increased income resulting in improved food security. Yet, the effect analysis and 'commercial-orientation – food security' relationship is a complex construct in that marketing of pastoral outputs is a function of a range of social-cultural, infrastructural, and production risk factors (Catley et al., 2016; Tessema et al., 2019).

### ***5.3. Materials and method***

#### ***5.3.1. Study area description***

The *Afar* region is one of the dominantly pastoral regions of Ethiopia. An estimated 90% of the region's population depends on pastoralism, herding cattle, sheep, goats and camels (Helland,

2015). The climate in the region is arid and semi-arid, with low and erratic rainfall. It is a large, sparsely populated dryland region with agricultural potential along *Awash* river valley. Approximately half the region consists of (semi-)arid rangeland that can only sustain mobile livestock production. Even the higher rainfall areas of the region do not support reliable rain-fed agriculture (Helland, 2015). The region is constituted in eight livelihood zones.

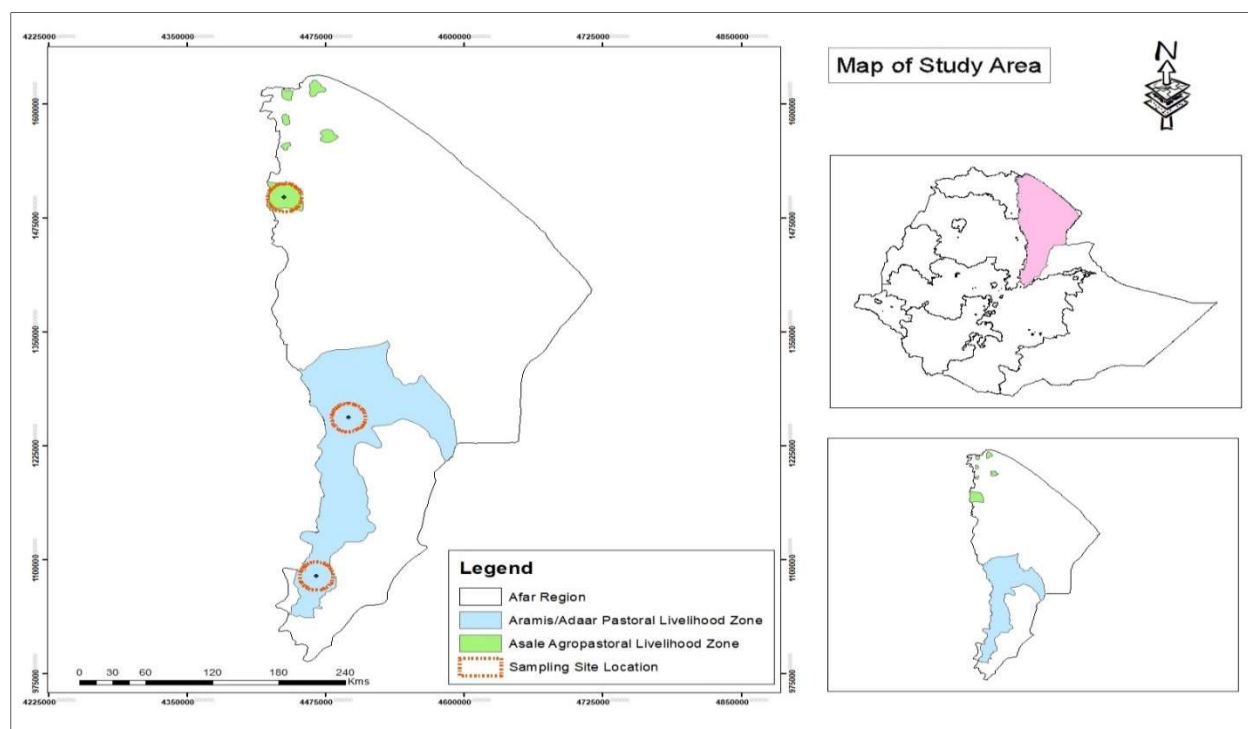


Figure 5.1: the location of three study sites (circles) in *Aramis-Adaar* pastoral and *Asale* agro-pastoral zones in *Afar*, northeastern Ethiopia; adapted from Livelihoods Integration Unit (LIU)/Ethiopian Ministry of Agriculture and Rural Development (MoARD, 2010)

For this study, two livelihood zones, namely *Aramis-Adaar* pastoral and *Asale* agro-pastoral were purposively selected (Figure 5.1). This is due mainly to their adjacency to neighboring *Amhara* and *Tigray* regions, thereby better accessed with the market, and cultural variations between them. *Aramis-Adaar* is located within the *Awash* drainage system in the southwestern quadrant of the region. Camels, cattle, sheep, and goats are the mainstay of the economy. It is the most populated livelihood zone in *Afar* with estimated 2017 population 426,108 (CSA, 2013), constituting more than half of regional rural population. Larger part of it is adjacent to the neighboring *Amhara* region and depends on its markets for selling livestock and purchasing grains, thereby accessed to major markets (e.g., *Bati*, *Kemissie*, *Sembete*) in *Amhara* region. In this zone

market (livestock sale) plays dominant role for cash needs, where food sources for all wealth groups are purchased cereals, in addition to livestock products from own sources.

The second site, *Asale* agro-pastoral livelihood zone located in the northwest of *Afar*, consists of a number of noncontiguous areas within the larger geography of the *Asale* pastoral livelihood zone. Rare practices of agricultural crops production, mainly maize and sorghum and livestock husbandry, mainly cattle, sheep and goats is the main livelihood strategy. This zone is defined by its relationship with and connections to the highlands of *Tigray*. The main markets in *Tigray* than in *Afar* are accessible for selling livestock and purchasing grains for this livelihood zone. The estimated 2017 population was 77,973 (CSA, 2013).

### **5.3.2. Research design**

The aim of this study was to analyze the effects that livestock commercial-orientation would have on agro-(pastoral) households' food security positions. Identifying the social, cultural, and economic factors linked to both food security and commercial-orientation in the agro-(pastoral) context and the effects analysis require a quantitative approach (a cross-sectional design) that seeks to process and scrutinize quantitative (survey) data. A survey strategy was used to address and propose potential explanations for specific relationships between variables used in the study by employing structured questionnaire based interrogative technique; such questions are useful on issues where the interrogator expects a specific range of known responses (Saunders et al., 2009). The survey involved collecting information on various social-cultural-economic aspects, including livestock marketing practices in relation to food security achievements.

### **5.3.3. Data and sampling**

A structured questionnaire was used to collect quantitative data from two livelihood zones in *Afar*, Ethiopia. Data were collected on various social-cultural-economic characteristics thought to affect participation in livestock marketing practices and food security. To ensure the questionnaire's face validity, it was pilot-tested on a sample of 11 cases and the revised version was used as a guiding protocol (Fink, 2003). Data gathering was assisted by graduate pastoral development workers who are fluent in *Afar* and *Tigrigna*. The enumerators were selected and trained for the purpose. A multi-stage purposive and random sampling procedure was employed to select study setting and sample households. In the first stage, *Aramis-Adaar* pastoral and *Asale* agro-pastoral livelihood zones were purposively selected, for their adjacency to and high market interactions with the

neighboring *Amhara* and *Tigray* regions, respectively. It followed random selection of two study sites from northern and southern tips of *Aramis-Adaar* (that match parts of *Chefra* and *Dulecha* districts) and purposive selection of one spot (matching to *Aba'ala* district) from *Asale* (Figure 3.1). *Aba'ala* was purposively selected following discussion with development workers who informed that it is a representative predominantly agro-pastoral district of *Asale* agro-pastoral livelihood zone. Then, followed random selection of *kebeles* proportional to number in the sites, bearing total of 13 *kebeles* for the study. Finally, it followed random selection of 341 households, proportional to size of households in each *kebele*. We used Yamane (1967) formula to calculate appropriate sample size for the study adjusting actual size to 341. The decision to rely on adjusted smaller sample size than one scientifically determined was taken due to the scattered settlements and considerable degree of homogeneity in (agro-)pastoral characteristics (Lenth, 2001).

#### **5.3.4. Variables and measurement**

##### **5.3.4.1. Outcome variables**

The level of severity of food insecurity, measured using household food insecurity access scale (*HFIAS*) (Coates et al., 2007) and reduced coping strategy index (*rCSI*) that uses the five most common behavioral changes in response to food shortages (Maxwell et al., 2008) were used in the analysis. *HFIAS* and *rCSI* were used in this study to measure the household stresses (Maxwell and Caldwell, 2008) and reveal indicators of access component of food security (Coates et al., 2007) in terms of quantity, quality and preference. These tools are proven to be correlated with the other food security measures (e.g., dietary diversity, caloric intake, or nutritional outcomes) as well as with the determinants of food security (e.g., income, food budgets/consumption expenditures, and asset data) (Maxwell et al., 2014). *HFIAS*, as a measurement instrument, follows a progression that begins with anxiety about food supply, followed by a decrease in the quality and quantity of food, and finally going to sleep hungry and going all day and night without eating (Coates et al., 2007). The instrument is composed of a nine Likert scale questions (0 to 3 scale, with 0 = none of the time and 3 = often) about various characteristics associated with food access within the previous four weeks. The maximum score is 27 when household responds 'often' to all questions, and minimum 0 when household does not experience the occurrence, hence, with in the range of 0 – 27. The higher the score, the more food insecure the household is in terms of access.

On the other hand, rCSI measures about how households manage shortfalls in food consumptions (Maxwell et al., 2008). It is an indicator of household food security behavior that asks single question: '*What do you do when you do not have enough food, and do not have enough money to buy food?*' (Maxwell, 1996). It is composed of five Likert scale questions<sup>21</sup> (with varying weights 1, 2, 3 or 4, where 1 and 4 indicating the least and most severe categories, respectively, and 2 and 3 intermediate) about behaviors associated with food coping in the previous week. It results in discrete scores depending on household's responses to all five questions (1 to 7 scale, with 1 = never and 7 = always) (Maxwell and Caldwell, 2008). The higher the weighted sum scores, the greater the adoption of coping, and the higher food insecurity level. We also used 'per capita consumption expenditures' to check for consistency in the effects.

#### ***5.3.4.2. Treatment variable***

Farm producers may take-part in markets in different ways and forms. They used to sell farm produce (e.g., food grains, livestock, livestock products), different types of goods and services (e.g., wage labor, land rents) and also rely on credits with outsiders, to smoothen consumptions and cash needs (Godoy, 2001). In such a case different market regimes (net seller, net buyer and autarkic) could appear (Barrett, 2008). This study, however, faces a scenario where the data suggesting that all sample households engage in selling at least a portion of production (livestock) for fulfilling cash needs; consequently, no observed non-participant groups, or no nonzero sales. Participating in marketing practices in this case is initiated to supplement the subsistence production by selling-out at least a minimum portion of their produce for cash incomes. Thus, it turns to refer to the intensity of sales with either sales volumes or sales value. Following Strasberg et al. (1999) and Govereh and Jayne (1999), given that all the households engage in selling at least portion of production, it requires to develop a proxy which captures the wide variation in terms of intensity of commercial-orientation across the sample. To address the shortcoming that the data do not fit into participant-non-participant dichotomy therefore, it resorts to the concept of commercial-orientation, in which case households can be segregated between commercial ('high') and subsistence-oriented ('less'), based on the intensity of sales participation, where cases would lay somewhere in the 'commercial-subsistence' continuum. Livestock commercial-orientation was

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<sup>21</sup> The original form *CSI* questions were reduced to and contextualized as: 1. Eating less preferred foods; 2. Borrowing food/money from friends/relatives; 3. Limiting portions at meal times; 4. Limiting adult intakes; 5. Reducing number of meals per day. *rCSI* has been identified as a more universal sub-set of coping behaviors (Maxwell et al., 2008).

measured in terms of scale adopted from Bekele et al. (2010), Strasberg et al. (1999), Govereh and Jayne (1999), and von Braun (1995). To measure the effects, thus, we turn to defining household livestock commercialization<sup>22</sup> index (*HCI*) – an index measured as proportion of total herd size sold to total owned. The larger the index the higher the degree of commercialization. However, comparison here is not between pure market-oriented and subsistence but between households with ‘less’ or ‘high’ market-orientation, in the sense that ‘pure’ ‘market-orientation’ and ‘subsistence’ are not the cases in the study area, as the data suggest. Thus, participation in livestock marketing practices, measured using degree of commercial-orientation, was used as treatment variable to estimate food security effects of market.

#### **5.3.4.3. Covariates**

A range of variables determine marketing of pastoral outputs and (agro-)pastoral food security. Studies have identified a range of social, cultural and economic causes contributing to the lower levels of food security among the (agro-)pastoral communities (Lemma et al., 2013). For example, an empirical study conducted to identify determinants of food security among the agro-pastoral communities found that climate and climate change induced hazards are the main causes of food insecurity, followed by market and service problems, and human factors (Lemma et al., 2013). Mayanja et al. (2015) on the other hand found that livelihood system, livestock holdings, involvement in social networks, and land holding used to explain food security among the (agro-)pastoral communities. Similarly, Siraje and Bekele (2013) found that herd size, income from livestock production and non-farm incomes were positively associated with food security levels. Still another study identified livestock ownership (herd size), sex, family size (adult equivalent) and mothers’ time constraint as significant factors determining food insecurity (Kahsay et al., 2019). In addition to the size of resources owned such as farm land and livestock, peace and security also influence food security among the (agro-)pastoralist communities (Asenso-Okyere et al., 2013). With regards to the determinants of (agro-)pastoralist commercialization, on the other

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<sup>22</sup> Commercialization of the pastoral economy could take several forms, including an inclination of production toward cash-stock (small-stock), where small-stock outnumber large-stock, resulting in production with an increased marketed surplus, increased use of purchased livestock production inputs such as purchased feed and veterinary medicine, or the extent of involvement in non-pastoral employments (e.g., petty trade) (Zaal, 1999). However, the survey data indicated that no evidence on the latter two types of commercialization was obtained. As a result, this study defines livestock commercial-orientation as the level of production that is devoted for sale or the proportion of sales to consumption.

hand, Babu (2014), Catley et al. (2016), Rueff and Rahim (2016) and Tessema et al. (2019), among others, are mentioned foremost; and have identified market discouraging norms, household characteristics, and rural infrastructures, among others, as determining (agro-)pastoralist commercial orientations. Drawing on a myriad of empirical evidences, thus, this study relied on groups of social, cultural, economic, infrastructural, and production risk factors as covariates determining both the outcome and treatment variables (See Table 5.1).

#### 5.3.4.4. Operationalization and measurement of variables

The operationalization and measurement of variables used in this study are shown in Table 5.1.

**Table 5.1. Operationalization and measurement of variables**

<i>Variables</i>	<i>Definition</i>	<i>Measurement</i>	<i>A priori expectation</i>	<i>Sources</i>
Livelihood	Livelihood zone	1= <i>Asale</i> , 0= <i>Aramis-Adaar</i>		(Asenso-Okyere et al., 2013; Babu, 2014; Catley et al., 2016;
Age	Age of household head	Number of years	(+)	Kahsay et al., 2019; Lemma et al., 2013; Mayanja et al., 2015;
Family-size	Family size	Number	(-)	
Livestock-wealth	Herd size in the household	TLU	(+)	Rueff and Rahim, 2016; Siraje and Bekele, 2013; Tessema et al., 2019)
LS purpose, accumulation	Keeping LS for the purpose of accumulation	1=yes; 2=no	(-)	
LS purpose, consumption	Keeping LS for the purpose of consumption	1=yes; 2=no	(-)	
Livestock slaughters	# LS slaughtered for rituals	TLU	(-)	
Marketing costs	Costs incurred during LS marketing practices	ETB	(-)	
Distance, town/market/road	Walking times to the nearest town/market/road	1=1hr or more, 0= less than 1hr	(-)	
Extension	Frequency of visits by extension agent	1=3 times or more, 0=once or twice	(+)	
Credit accesses	Credit services	1=yes; 2=no	(+)	
<i>Guro</i> /mobility	Moving along with LS	1=yes; 2=no	(-)	
Clan consent	Clan consent to sell LS	1=yes; 2=no	(-)	
Sanction paying	Sanction pays in livestock	1=yes; 2=no	(-)	
Livestock sharing	Livestock sharing	1=yes; 2=no	(-)	
Food purchases	Food coping through food purchases	1=yes; 2=no	(+)	
Food sharing/borrowing	Food coping through food sharing/borrowing	1=yes; 2=no	(+)	
Non-livestock incomes	Incomes obtained from non-pastoral activities	ETB	(+)	
<i>Dagueing</i>	<i>Dagueing</i> as info source	1=yes; 2=no	(+)	
Market visiting	Market visits as info source	1=yes; 2=no	(+)	
Livestock deaths	Occurrences of LS deaths	1=yes; 2=no	(-)	
Conflicts	Occurrence of conflict	1=yes; 2=no	(-)	

### 5.3.5. *Data analysis techniques*

The analysis used both descriptive and econometric methods. Percentages, means, frequency distributions, and standard deviations are used to describe characteristics. Chi-square and t-statistics tests were used to make covariate comparisons. The propensity score matching (*PSM*) technique was used to estimate the effects of market to increase the efficiency of estimates and control for potentially remaining differences in observable characteristics (Blundell and Dias, 2000). The goal of using *PSM* is to find subsistence-oriented households that are similar to commercial-oriented ones in all relevant baseline characteristics, so that they can serve as valid substitutes for missing counterfactuals. *PSM* assumes that after controlling for all subsistence households and baseline characteristics associated with commercial-orientations and outcome variables, commercial-oriented households would have the same average outcomes as subsistence households had they been commercialized. This does not imply that differences in outcomes between the control ('subsistence') and treatment ('commercial') groups can be attributed to baseline characteristics, but only to treatment, i.e., commercial orientation. In other words, it aids in appropriately matching subjects based on a single-index balancing score (by identifying matching partners) rather than baseline characteristics as in traditional evaluation techniques, and it is preferred over parametric models for relaxing randomization (Rosenbaum and Rubin, 1983). Thus, the analysis followed that randomly selected commercial-orientated households (so-called treatment groups) are matched with similar 'subsistence' counterparts (control groups), and the difference in the mean outcome indicators is statistically evaluated in a step-wise procedure: propensity scores estimation, choosing best matching algorithm, checking for overlap, matching quality assessment, and treatment effect estimation (Caliendo and Kopeinig, 2008). We used the widely used logit model to calculate propensity scores, which are the conditional probability of a household participating in livestock sales given its observable characteristics, with commercialization degree regressed on the observed baseline characteristics (Rosenbaum and Rubin, 1983). As a result, the propensity scores represent the predicted probability of treatment based on the fitted regression model. The average treatment effect on the treated (*ATT*) was then computed (Caliendo and Kopeinig, 2008). Accordingly, propensity scores were used to match commercial-oriented and 'subsistence' households. These scores were used to choose comparison households using the best matching estimator that produces the best balance (Harder et al., 2010; Ho et al., 2007). The best matching algorithm was chosen in this study based on the after-matching

results of a large matched sample size, a large number of insignificant variables, a small pseudo- $R^2$ , and a small remaining mean standardized bias (Baser, 2006). To select the best matching estimator, widely used matching estimators of nearest neighbor with and without replacement, radius matching with different caliper sizes, and kernel matching with different bandwidths were tested against the set criteria. Standardized bias (*SB*), defined as the difference in sample means between the treated and control subsamples expressed as a percentage of the square root of the average of sub-sample variances for each covariate *X*, was used to assess matching quality (Rosenbaum and Rubin, 1985), guided by 3-5% mean bias as sufficient tolerance level of the remaining bias after matching (Caliendo and Kopeinig, 2008). The data was analyzed using Stata 14 version.

#### ***5.3.6. Reliability and validity of the data***

Two livelihood zones – pastoral and agro-pastoral – were included in this study because it was assumed that considering different livelihood zones would optimize variations and ensure equal representation of study participants. This helps the data to be more generalizable and reliable by using representative groups of pastoralists and agro-pastoralists (Creswell, 2009). Besides, the decision on which livelihood zones to include as target population was made after consulting with experts from the regional bureau of pastoral development, who confirmed that the two zones chosen were fairly representative.

#### ***5.3.7. Ethical considerations***

In this study, the basic research ethical considerations have been taken into account. In order to minimize biases in selecting study *kebeles*, in consultation with the enumerators and the experts, the *kebeles* were first coded as ‘road-side’, ‘mid-distance’, and ‘distant’ based on their access to main roads and different service centers. From the three coded groups, study *kebeles* were random selected. Through the recruited local guides (facilitators), permission from local authorities and respective clan elders received to enter into interview sites. Then, households were randomly picked for the interview. Prior to the commencement of the interview, respective interviewers *dague* with each interview participant on the purpose of the study. Through the *dague*, in order to ensure their privacy, participants were pre-informed about the voluntary nature of participation in the interview and that they can skip to answer questions that they do not want to answer or withdraw freely from participation at any stage of the interview (Saunders et al., 2009).

Participants were asked for their consent in writing, assured of confidentiality of the information they shared with the researcher, and anonymity, and responsibility in the analysis of the data and reporting of findings maintained. Furthermore, the sources of ideas, opinions, or information used in any form in producing the manuscript properly cited inside text and listed in the references.

## **5.4. Results**

### **5.4.1. Descriptive results**

Table 5.2 displays descriptive statistics that compares sample commercial-oriented with subsistence households in terms of baseline characteristics using t-test for continuous and  $\chi^2$ -test for categorical variables. The test statistics results indicate that commercial-oriented households are statistically similar on average to the subsistence households on some variables including family size, livelihood strategies, extension service frequencies, food coping mechanisms (food purchases), conflicts, sanctions paying, credit accesses, and livestock deaths.

However, there appear considerable differences between sample commercial-oriented and subsistence households in terms of severity of food insecurity, coping strategy indices, per-capita consumption expenditures, age, livestock sales volumes and sales incomes, herd size, clan consent for selling livestock, market inaccessibility, slaughtering livestock for ritual purposes, total costs of food purchases, non-livestock incomes, food sharing as coping strategy and intentions to devoting livestock for purpose of accumulation.

It is evident from the results (Table 5.2) that commercial-oriented households had smaller scores/indices in both *HFIAS* and *rCSI*, suggesting that they achieved better records of food security and their use of coping strategies during food shortages were infrequent. A significant difference ( $p < 0.05$ ) between commercial-oriented and subsistence households also seen in terms of per-capita consumption expenditure. Contrary to our expectation, however, commercial-oriented households spent nearly 15% less (than their subsistence counterparts) on non-pastoral food grains. This might be because they have allocated a greater proportion of the sales income on non-food consumptions than food purchases. Subsistence households are wealthier in terms of herd size as they own larger sizes (about 44% bigger) than commercial-oriented households, which might be due to their tendencies to accumulate than selling. They are less likely to convert livestock wealth into cash to support consumption through purchases of non-pastoral food grains and tended to cope food shortages by sharing. The findings also suggest that subsistence households are older

and more oriented to pastoral tradition in that cultural practices such as ritualization (mass slaughtering of livestock for ritual purposes) and adherence to traditional administration (clan consents for selling livestock) holds them back from market production. The sales volume and total livestock sales income for commercially-oriented households are greater (by over 40 and 35%, respectively) than that for the subsistence. Furthermore, commercial-oriented ones are more likely to be at closer distances from market centers, whereby an easy access to market enables them to develop commercial behavior.

**Table 5.2: Baseline characteristics of households by commercial-orientation**

<i>Baseline characteristics</i>	<i>Commercial-orientation</i>		<i>Total</i>	
	<i>Commercial (N = 64)</i>	<i>Subsistence (N = 255)</i>		
<b><i>Continuous variables</i></b>				<b><i>t-value</i></b>
HFIAS (household food insecurity access score)	9.52 (4.99)	10.53 (4.76)	9.72 (4.82)	-1.8*
rCSI (reduced coping strategy index)	10.78 (4.01)	12.76 (3.24)	11.72 (3.40)	-2.05**
Per-capita consumption expenditure	595 (450)	699 (471)	678 (468)	2.6**
Livestock sales volume, TLU	3.03 (1.84)	1.78 (1.40)	2.02 (1.58)	-5.99***
Total livestock sales income	25380 (18042)	16316 (976)	18134 (16485)	-4.05***
Livestock wealth, TLU	7.8 (5.3)	13.9 (11.5)	12.69 (10.84)	4.15***
Age, in years	46.97 (7.4)	49 (8.7)	48.6 (8.5)	1.7*
Family size	6.2 (1.5)	6.5 (1.6)	6.4 (1.6)	1.3
Livestock slaughters, TLU	0.39 (0.56)	0.54 (0.5)	0.42 (0.52)	-2.1**
Total cost of food purchases	4332 (2779)	3466 (2362)	4158 (2719)	2.3**
Non-livestock incomes	420 (1618)	1113 (2395)	974 (2276)	2.3**
<b><i>Dummy variables</i></b>				<b><i>χ<sup>2</sup>-value</i></b>
Livelihood zone ( <i>Asale</i> = 1, <i>Aramis</i> = 0)	0.44	0.54	0.52	2.04
Food coping by sharing (yes = 1, no = 0)	0.02	0.11	0.03	11.4***
Food coping by purchases (yes = 1, no = 0)	0.69	0.62	0.64	0.90
LS purpose for consumption (yes = 1, no = 0)	0.56	0.61	0.60	0.44
LS purpose for accumulation (yes = 1, no = 0)	0.16	0.25	0.23	4.30**
Extension (3x or more = 1, 1 or 2x = 0)	0.22	0.20	0.22	0.08
Market distances (>1hr = 1, 1hr or less = 0)	0.36	0.58	0.54	10.05***
Market visits as info source (yes = 1, no = 0)	0.53	0.58	0.57	0.60
<i>Dagueing</i> as info source (yes = 1, no = 0)	0.36	0.27	0.29	2.50
Conflicts (yes = 1, no = 0)	0.13	0.19	0.18	1.57
Sharing livestock (yes = 1, no = 0)	0.31	0.34	0.33	0.14
Sanctions paying in LS (yes = 1, no = 0)	0.09	0.11	0.10	0.14
<i>Guro</i> /mobility (yes = 1, no = 0)	0.31	0.31	0.31	0.01
Clan consent for selling (yes = 1, no = 0)	0.60	0.63	0.60	3.18***
Access to credits (yes = 1, no = 0)	0.41	0.38	0.41	0.50
Livestock deaths (yes = 1, no = 0)	0.33	0.34	0.34	0.02

Source: Survey data, 2019; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; figures for continuous variables are mean (SD); for dummy are proportion of households assuming value 1; TLU = tropical livestock unit; LS = livestock

## 5.4.2. Econometrics results

### 5.4.2.1. Market production and its determinants

The likelihood ratio in our logit model has a chi-square distribution and is significant at <1% probability level. The goodness of fit is measured by count  $R^2$  and the model result shows that correctly predicted percent of sample households is 82.45%, indicating that the model has predicted the groups fairly correctly (Table 5.3). Variables including livestock wealth measured in *TLU* of herd owned, market inaccessibility measured in walking hours to market/road/town, occurrences of livestock deaths due to either drought, diseases or conflicts, credit accesses, livestock sharing/transfers and slaughters as social and cultural obligations, moving along with livestock (*guro*), and devoting herd for the very purpose of accumulation and own consumption are statistically significant factors associated with intensity of participation in livestock sales. The marginal effect value corresponding to livestock wealth suggests that a *TLU* increase in herd size causes a decrease in the probability of commercial-orientation by about 22%. Similarly, the probability decreases by more than 10 percentage points as a result of owners' tendencies toward own consumptions or accumulations than selling. As also evident from descriptive results, subsistence-oriented groups are holding a larger herd size than the commercial ones (Table 5.2). Households with large size of herd mean that they preferred to accumulate herd as big as they wish to signal honor or devote for own consumption than trading. They believe that livestock are indicators of prestige and wealth in the community.

In terms of distances to town/market/road, the marginal effect value confirms that households 1 walking hour further away from market centers are less likely to become commercially-oriented whereby their probability of commercial-orientation decreases by about 6%. That means the greater the distance apart from the market, the less likely the household's orientation towards market. Proximity to all-weather roads, markets, and towns encourages commercial-orientations because of the effect on reducing marketing costs such as time and transport costs. The distance to markets often influences marketable volumes as well as local market pricing conditions. The households located far away in remote villages experience higher marketing costs than those closer to the markets. The results further reveal that the more households are traditionally-oriented less likely they are tending to be commercially-oriented. This has been attested with the results of market discouraging norms such as herd devoting for purposes of accumulation and/or own consumption, livestock slaughters for ritual purposes and livestock transfers. Evidently, for instance, the likelihood of commercial-orientation declines by 8 and 29% for every additional *TLU* of livestock slaughtered for ritual purposes and shared with neighbors or relatives to fulfill social

and cultural obligations, respectively. Furthermore, production risk factors such as livestock deaths due to either of diseases or conflicts impede commercial-orientation. Result in this regard confirms that livestock death causes the probability of commercial-orientation to decline by as high as 57%.

**Table 5.3: Logit regression for commercialization-degree**

<i>Commercialization</i>	<i>Coefficient</i>	<i>St. Err.</i>	<i>t-value</i>	<i>Marginal effect</i>
Livestock wealth, TLU	-2.15***	0.376	-5.72	-0.220
Livelihood zone	0.117	0.726	0.16	0.012
Extension service	0.195	0.231	0.84	0.020
Age, years	-0.017	0.024	-0.70	-0.002
Family size	-0.082	0.124	-0.66	-0.008
Food coping, sharing	0.383	0.894	0.43	0.045
Food coping, purchase	0.02	0.423	0.05	0.002
Livestock slaughters, TLU	-0.789**	0.341	2.32	-0.080
Livestock purpose, consumption	-1.036**	0.444	-2.33	-0.116
Livestock purpose, accumulation	-1.238*	0.655	-1.89	-0.100
Distance, town/market/road	-0.603***	0.187	3.23	0.061
Sanctions paying	-0.654	0.593	1.10	0.082
Conflicts	-0.801	0.554	-1.45	-0.068
<i>Guro</i> /mobility	0.958*	0.526	1.82	0.114
Clan consent for livestock selling	-0.314	0.524	-0.60	-0.033
Non-livestock incomes	.0002	0.0001	-1.50	-.0001
Sharing livestock	-3.616**	1.624	-2.23	-0.291
Credit accesses	0.99**	0.435	2.28	0.109
Livestock marketing costs	-0.001	0.001	1.12	-0.000
Source info, market visit	0.664	0.593	1.12	0.066
Source info, <i>Dague</i>	0.906	0.708	1.28	0.107
Livestock deaths	-3.717**	1.624	2.29	-0.570
Constant	1.127	1.974	0.57	
Pearson chi-square	90.11***	Log likelihood	-114.85	
% correctly predicted (Count R <sup>2</sup> )	82.45%	Sample size	319	

Source: Survey data, 2019; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; TLU = tropical livestock unit;

Similarly, livestock mobility has a positive and significant impact on livestock marketing practices at a level of significance less than 10%. It is common practice in pastoralist settings to move along with livestock where mobility allows them to use yet unexploited pastures and water sources (Bollig and Göbel, 1997). This allows them to leave their permanent base villages with depleted resources and take advantage of opportunities for resource abundance elsewhere. Moving herders may also benefit from improved access to and interactions with buyers along the moving routes, as trading livestock over long distances may be simple and inexpensive (Bollig and Göbel, 1997). Better access to and interactions with buyers along moving routes may attract pastoralists to the market, promoting market production. However, while mobility is a risk management and coping strategy, market facilities across the moving routes and *guro* terminus hardly exist. They moved further away from base villages, where market centers were established, which often means

that the value of livestock falls, resulting in low prices for them. Furthermore, the costs and risks associated with guro, such as inter- and intra-clan and ethnic conflicts, animal theft and raids, long hours of trekking (labor), and uncertainty, persist (Turner and Schlecht, 2019). Therefore, our finding that there is a positive relationship between mobility and market production assumes better market access along the moving routes and guro termini, as well as no or reduced risks and costs constraining mobility.

#### 5.4.2.2. Propensity score estimation and choosing matching algorithm

The results of covariate balancing test before and after matching using Nearest-Neighbor-Matching (*NNM*) with and without replacement, caliper matching with different radius and Kernel matching with different band width is presented in Table 5.4. The average standardized bias difference for all covariates of 19.6 before matching is reduced to about 7.2 and 7.3 for *NNM* (with and without replacement, respectively); 4.8 for radius 0.06, 4.2 for 0.08 and 3.8 for 0.1; and 4.1, 4.7, 6.9 and 10.7 for Kernel band widths 0.08, 0.1, 0.25 and 0.5, respectively after matching. Similarly, the Pseudo- $R^2$  also dropped significantly from 0.285 before matching to as low as 0.01 for Radius matching with Radius 0.1, after matching. The p-values of the likelihood tests show that the joint significance tests of covariates could not be rejected before matching, but after matching. The low mean standardized bias and insignificant p-values of the likelihood test after matching implies that the proposed specification of the propensity score is successful in balancing the distribution of covariates between the commercial and subsistence-oriented households.

**Table 5.4: Performance of matching estimators**

<i>Matching estimators</i>	<i>Number of insignificant variables after matching</i>	<i>Pseudo-<math>R^2</math> after matching</i>	<i>Matched sample size</i>	<i>Mean SB</i>
<b><i>Nearest neighbor matching</i></b>				
Nearest neighbor with replacement	22	0.021	314	7.2
Nearest neighbor without replacement	22	0.032	314	7.3
<b><i>Caliper matching</i></b>				
Radius 0.06	22	0.014	316	4.8
Radius 0.08	22	0.012	316	4.2
Radius 0.1	22	0.010	317	3.8
<b><i>Kernel matching</i></b>				
Bandwidth 0.08	22	0.014	316	4.7
Bandwidth 0.1	22	0.011	317	4.1
Bandwidth 0.25	22	0.025	319	6.9
Bandwidth 0.5	22	0.078	319	10.2

Source: Computations from survey data, 2019;

Following Caliendo and Kopeinig (2008), the best matching algorithm chosen is that with large matched sample size, large number of insignificant variables after matching, small pseudo- $R^2$  after matching and small mean standardized bias. Results from the performance of matching estimators (Table 5.4) indicate that Radius matching estimator with radius 0.1 is the best matching estimator satisfying the set criteria. Radius matching works by utilizing not only the nearest neighbor within each caliper, but also all of the comparison members within the caliper. This approach has the advantage of using only as many comparison units as are available within the caliper, allowing for the use of extra (fewer) units when good matches are (are not) available. As a result, it eliminates the possibility of bad matches (Dehejia and Wahba, 2002). Moreover, prior to matching, the mean estimated propensity scores for commercial and subsistence households were, respectively, 0.431 and 0.143.

**Table 5.5: Balance between treated and untreated before and after radius matching, radius 0.1**

<i>Confounders</i>	<i>Mean, commercial</i>		<i>Mean, subsistence</i>		<i>Standardized %bias</i>			<i>t-test</i>	
	<i>UM</i>	<i>M</i>	<i>M</i>	<i>UM</i>	<i>UM</i>	<i>M</i>	<i>%reduc</i>	<i>UM</i>	<i>M</i>
Livestock wealth, TLU	1.83	1.87	1.90	2.39	-80.5	-4.8	94.1	-5.72***	-0.24
Livelihood zone	0.44	0.45	0.48	0.54	-20.0	-6.1	69.4	-1.43	-0.34
Extension services	3.06	3.05	3.05	3.05	1.3	-0.4	69.4	0.10	-0.02
Age, year	46.97	47.16	47.68	49.00	-25.1	-6.4	74.4	-1.71*	-0.35
Family size	6.20	6.19	6.17	6.49	-18.9	2.4	87.4	-1.32	0.13
Food coping, sharing	0.11	0.081	0.060	0.02	36.9	8.6	76.7	3.43***	0.45
Food coping, purchase	0.69	0.71	0.71	0.62	13.4	0.0	99.7	0.95	0.00
Livestock slaughters	0.54	0.54	0.53	0.39	28.6	1.7	94.2	2.11**	0.07
LS purpose, consumption	0.56	0.56	0.58	0.61	-9.2	-2.4	73.8	-0.66	-0.13
LS purpose, accumulation	0.16	0.16	0.17	0.25	-22.7	-1.7	92.4	-1.55	-0.10
Market accesses	3.05	3.05	2.95	2.59	44.4	9.6	78.4	3.15***	0.52
Sanctions paying	0.11	0.097	0.113	0.09	5.0	-5.5	-8.7	0.37	-0.30
Conflict	0.13	0.113	0.129	0.19	-18.4	-4.5	75.7	-1.25	-0.28
Mobility	0.313	0.290	0.295	0.305	1.4	-0.9	36.4	0.10	-0.05
Clan consent for selling LS	0.63	0.612	0.594	0.60	5.9	4.0	32.9	0.42	0.22
Non-livestock incomes	420	434	503	1113	-33.9	-3.4	89.9	-2.19**	-0.25
Sharing livestock	0.31	0.323	0.331	0.34	-5.3	-1.7	67.2	-0.37	-0.10
Credit accesses	0.375	0.387	0.416	0.424	-9.9	-5.8	40.8	-0.70	-0.32
LS Marketing costs	237	239	248	211	17.0	-5.8	66.0	1.22	-0.28
Source information, market	0.53	0.533	0.535	0.58	-10.6	-0.6	94.8	-0.77	-0.03
Source information dague	0.375	0.371	0.341	0.275	21.5	6.3	70.7	1.58	0.34
Livestock deaths	0.328	0.339	0.346	0.337	-1.9	-1.5	22.9	-0.14	-0.08

Source: Survey data, 2019; \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

After matching, two commercial-oriented households were dropped from the original sample of 319 due to an inability to find a sufficiently good match. Following matching, there was a negligible difference in mean propensity scores between the two groups, 0.41 for commercial versus 0.40 for the matched control subsistence group, indicating that proper balance was

maintained. The results of the standardized differences show that before matching, the means in commercial and subsistence were different in almost all of the covariates, statistically significantly different in 13 of the 22 cases (Table 5.1). However, after matching (Radius matching, Radius 0.1), the balance is noticeably better on all variables, with no cases of statistical significance after matching, implying that the balance is maintained (Table 5.5). As shown in Table 5.5, while the majority of the covariates are well balanced, the requirement of <5% bias after matching (Rosenbaum and Rubin, 1985) is only partially met. After matching, some variables had a percent bias of more than 5%, but it was not excessively high (all cases <10%). Overall, the matching performance is good: after matching, the average percent bias is 3.8, the t-test is insignificant in all cases, and the percent bias for all covariates is <5% with a few exceptions (showing small imbalance of as high as 9.6 percent). In almost all cases, it is evident that the sample differences in raw data significantly outnumber those in matched case samples. The matching process has caused both the treatment and control samples used in the estimation to have a high degree of covariate balance.

Visual examination of the graph of standardized differences and density distribution of estimated propensity scores for the two groups after radius matching with radius 0.1 confirms the sufficiency of covariate balance after matching (Figures 5.1 and 5.2). Overall, the results indicate that matched samples were sufficient for effect analysis. As a result, the matching was effective in constructing a reasonably good control group, which was then used to estimate the average treatment effect on the treated (*ATT*) of market participation on the outcome.

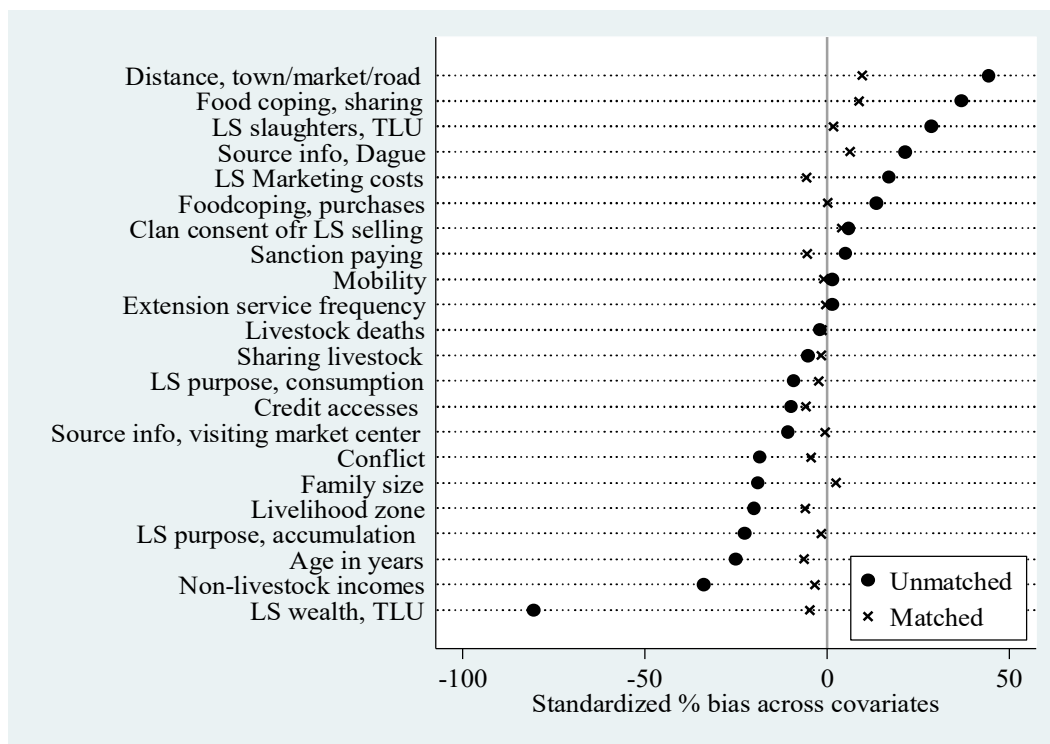
#### ***5.4.2.3. Matching quality***

Verification of the common support is an important step in investigating the validity and performance of *PSM* estimation after calculating a propensity score for each observation. This ensures that the range of propensity scores across treatment and comparison groups overlaps. There can be no inferences about treatment effects for a treated individual who does not have a comparison individual with a similar propensity score.

A graph of propensity scores across treatment and comparison groups is used to subjectively assess common support. Figure 5.2 depicts the overlap in the distribution of propensity scores across treatment and comparison groups. The extent of overlap is found to be satisfactory, and the balancing property is satisfied, as evidenced by the output. The chosen matching algorithm (radius

matching) is then used to ensure that the propensity score and covariates are balanced. The reduction in the mean standardized bias between matched and unmatched households ensures the estimation's balancing power. According to the t-test and chi-square values (Table 5.1), several variables exhibit statistically significant differences before matching, whereas after matching, all 22 covariates are balanced for the selected matching estimator (Table 5.4), indicating that commercial and subsistence-oriented households were significantly different in terms of baseline characteristics. This is due to the fact that comparing the incomparable must be avoided; therefore, only the subset of the comparison group that is comparable to the treatment group should be used in the analysis (Dehejia and Wahba, 2002).

**Figure 5.2: Standardized differences before and after matching**

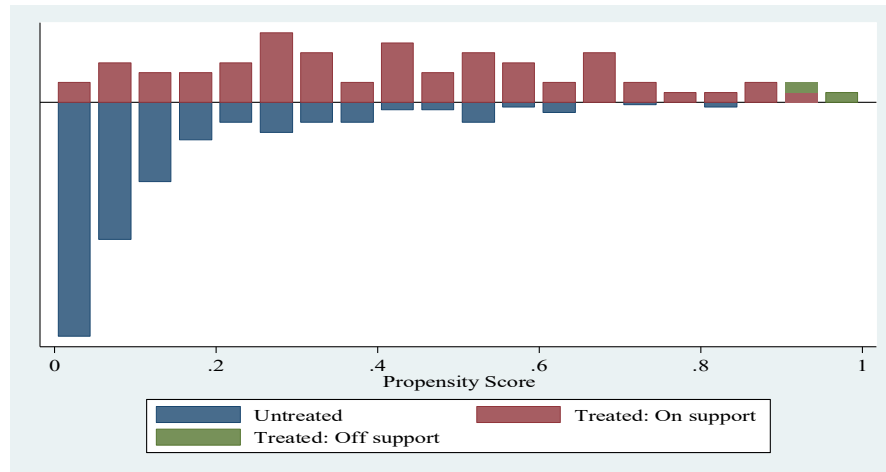


Source: Computations from survey data, 2019

Table 5.5 shows that *SB* was reduced from 19.6 percent before matching to 3.8 percent after matching with an 80.6 percent bias reduction, with the mean bias after matching remaining within the acceptable range of 3-5 percent (Caliendo and Kopeinig, 2008). The number of cases lost due to common support restrictions is 2 (less than 1%), which is quite low (Hujer et al., 2004; Loos and Zeller, 2014). As a result, the exclusion of a few observations, combined with the low

remaining standard bias, low pseudo- $R^2$  after matching, and high reduction rates of the mean  $SB$ , produces good matching results, and the matching quality achieved was fairly good. These findings imply that after matching, all covariates used to generate propensity scores are well balanced.

**Figure 5.3: Distribution of propensity scores across treatment and comparison groups**



Source: Computations from survey data, 2019

**Table 5.6: Summary of matching quality indicators**

	$SB_{Before}$ (%)	$SB_{After}$ (%)	% $ SB $ reduction	Cases lost to CS	Pseudo- $R^2$
Commercial/subsistence	19.6	3.8	80.6	2	0.010

Source: Computations from survey data, 2019

#### 5.4.2.4. Estimating effects of livestock marketing practices

The average treatment effect on the treated ( $ATT$ ) is the estimated average effect of livestock marketing on food security of individuals who are identified as more commercially oriented. According to the estimation (Table 5.6), a significant negative treatment effect on the treated of 0.41 appeared, corresponding to the prevalence of household food insecurity. That is, the prevalence of household food insecurity in commercial-oriented households, as measured by  $HFIAS$ , is 41 percentage points lower than in matched control subsistence-oriented group members. Similarly, in terms of coping strategy, the treatment effect on the treated was found to be negative and significant at the 10% level. In times of food scarcity, commercial-oriented households had lower food coping strategy indices than matched control subsistence groups by 91 percent. The findings suggest that selling livestock for increased purchasing power benefits more commercially oriented households than subsistence-oriented households in terms of food security.

Increased sales income enables the commercially oriented households to purchase food grains to supplement consumption, diversifying their diets and achieving food security. Subsistent groups, on the other hand, typically find it more difficult to maximize the benefits of markets, owing primarily to their orientations toward pastoral traditions, where they tend to devote their holdings to accumulate or use for cultural festivities, resulting in lower sales incomes that fall short of adequately supporting consumption needs. As a result, there is less food security.

**Table 5.7: Effects of livestock commercial orientation**

<i>Outcome Variables</i>	<i>Sample</i>	<i>Treated</i>	<i>Controls</i>	<i>Difference</i>	<i>S.E.</i>	<i>T-stat</i>
Prevalence of HHFI (HFAS score)	Unmatched	10.52	9.52	0.99	0.67	1.48
	ATT	10.39	10.81	-0.41	0.86	-1.87*
Coping strategy index (rCSI)	Unmatched	12.78	12.76	0.02	0.48	0.05
	ATT	12.63	13.54	-0.91	0.64	-1.82*
Per-capita consumption expenditure	Unmatched	595	699	-104	65.24	-1.59
	ATT	598	711	-113	80.74	-1.41

Source: Computations from survey data, 2019; \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Expenditure on food was also used as an indicator to assess whether there is livelihood improvement due to commercial orientation. As can be seen from the estimation outputs, before matching, the average expenditure on food was higher for subsistence than for commercial-oriented (Tables 4.1 and 4.6). The average expenditure on food reported by subsistence-oriented households was *ETB* 699, while that for commercial was *ETB* 595, which was 15% higher than that of commercial-oriented. After controlling for other factors using the *PSM* method, the subsistence-oriented households on average expended on food about 113 *ETB* per person per year more (16% higher) than commercial-oriented households. Nevertheless, no strong statistical evidence obtained supporting the hypothesis that more market production has significant effects on consumption expenditure. Neither there is economic significance as the change is only 113 *ETB* per year per person. The result suggests that commercialization reduces consumption expenditures.

## **5.5. Discussions, conclusion, and policy implication**

### **5.5.1. Discussions**

The analysis demonstrates that participation in livestock marketing practices measured in degree of commercial orientation has the effects of improving food security consistently in measures of household food insecurity access scale and (reduced) coping strategy index. The results of both measures are indicating that households engaged in market oriented livestock production are more

likely to experience low food insecurity indices. This entails that commercial orientation improves food security to a considerable degree. Based on this, the results confirm that the postulated hypothesis of a positive effect of livestock commercial orientation on household food security among *Aramis-Adaar* pastoralists and *Asale* agro-pastoralists held, although does not with respect to per-capita consumption expenditure. The results suggest that households engaged in more market oriented livestock production are more likely to experience low levels of food insecurity as evident from low indices of *HFIAS* and *rCSI*. In this sense, increased market participation serves as a mechanism to support food security through enhancing purchasing power of (agro-)pastoralists. Market production hence positively affects household food security as it generates income that empowers the household to purchase a variety of foods it does not produce. Given the increased livestock sales volume and thereby incomes (Table 5.1) the significant lower records of food insecurity levels and coping strategy indices during food shortages among the more commercial oriented households is thus expected. In this regard, scholars assert that improvements in livestock marketing and better functioning market is needed for the very reasons such as mitigating food insecurity (Little and McPeak, 2006). Similar studies elsewhere corroborate our findings in that market improves quality of pastoralists' life through increased income (Adriansen, 2006; Reda, 2011). Galaty (2008), in the same stance, points-out that by improving and promoting livestock marketing, it would be possible to mitigate food insecurity. In light of this side of the argument, again some more other studies underlie that a strategy to address the underlying sources of pastoralist vulnerability to include, among others, support for livestock marketing (Negatu, 2011; Tessema et al., 2014). Moritz (2013) also complements that the future is for pastoralism and a viable pastoralism will continue to exist as markets would function effectively and local incomes suffice to purchase foods. Other proponents (e.g., Mcpeak, 2006) also add that with poverty among pastoralists and the future viability of pastoralism, livestock marketing is a way-out to decrease poverty and establish economic relationships. Yet, our results indicate that (agro-)pastoralists' market production is discouraged and held back, among others, by pastoralist tradition. Consistent with our result, other studies also found out that cultural orientations evidently stand at odds with markets orientations (Tessema et al., 2019). Pastoralists often prefer to adopt accumulation strategy, as a means to reduce exposure to risks associated with herd loss due to the unwavering risk factors, such as drought, than trading for cash (Næss and Bårdsen, 2013). It serves as traditional insurance risk coping strategy to overcome natural or man-made vagaries (Gebru and

McPeak, 2004). Therefore, provided that markets are functional, it is evident from the findings that the increased sales incomes for the more commercial oriented families would help them access non-pastoral food grains (through food purchases) so as to complement their consumptions thereby achieve diversified diets and secured food needs.

Secondly, contrary to the results of *HFIAS* and *rCSI* measures, the results failed to find significant positive results for effects on per-capita consumption expenditure. Results suggested that more commercial oriented households spent less on food purchases than their less commercial oriented (subsistence) counterparts. It appears descriptively that livestock sales volume and hence sales income for subsistence ones is far less (Table 5.1), but the result does not statistically support the premise that more commercial oriented groups tended to spend the increased sales income exclusively on food thereby leading to improved food security. This could be justified by the fact that these groups of households may spend relatively a reduced proportion of income on other foods, but more on other non-food consumption investments called for by commercial behavior, such as health, children education, stimulants (e.g., *khat*), or savings. A prior qualitative study on the same group of pastoralists corroborates the justification in that pastoralists in the study area have developed a new behavior of extravagance in consuming a stimulant (*khat*) which pushes them to aggressively engage in livestock selling (Benti et al. forthcoming). Men and young boys who often take authority of selling livestock in towns at distant from villages may also be attracted by town life visiting hotels and bar ladies, where they spend greater portion of sales income and smaller remains for grain purchases for the family to support consumption. Another study on Ethiopian pastoralists found that expenditure on such non-food consumptions as alcohol or *khat* of sales incomes which could occur in the expense of pastoralists' tradition is also evident (Tessema et al., 2019). Long before, von Braun (1995), in his seminal work on agricultural commercialization, suspected that if the farm produce's sales returns are controlled by male heads of households and the propensities to consume are inclined toward non-foods, food security effects of commercialization may not be observed, or commercialization may even impact food security adversely. Therefore, income generated by livestock sales for the more commercial groups might be invested in other investments rather than in diet diversification or in increasing quantity and quality of foods. But, the measure does not tell what percent of the income is spent on food. However, this does not mean that the increased sales income is not used to supplement consumption, thereby effect in improved food security. Conversely for subsistence groups, it may

appear that all or a greater portion of sales income may be devoted for food purchases, yet fall short to achieve secured food needs for their family as the total sales volume (income) is less. Nevertheless, this result is inconsistent with other studies which found that more market oriented households are better able to purchase different types of foods through increased incomes and thus have more diverse diet and secured consumptions (Ntakyo and van den Berg, 2019). Thus, given that ‘per-capita consumption expenditure’ is limited neither to inform what proportion of the sales income was spent on food purchases, nor if the money was spent on high-calorie foods, and other non-livestock activities (which might reduce the proportion of money spent on food), it can still be concluded that market production at least partly plays role in improving food security, if not by all measures used in this study. Hence, further study on what proportion of the sales income is devoted to food purchases and on what kinds of foods in particular, is needed for better conclusion and informed policy decisions.

Third, it also appears from the findings that markets inaccessibility, livestock deaths and livestock slaughters for ritual purposes discourage market production while access to production services (e.g., credit accesses) and livestock mobility significantly and positively contribute towards market production. The findings, thus, imply that pastoralist production is under major marketing limitations where market production is affected by a broad range of factors identified in this study as infrastructure, culture and production risks. These in turn limit the overall food security improvements. It is also evident from similar studies elsewhere that pastoral economy in general is largely hindered by significant market imperfections (Hoddinott et al. 2015). It faces high transactions costs, poor market infrastructures, weak backward and forward linkages and interactions (Aboud et al., 2012; Hauck and Rubenstein, 2017). In the same stance, Tessema et al. (2019) found that market discouraging norms stand at odds with market orientation. Hence, the low levels of participation in markets by pastoralists is due mainly to the market production depressing factors as also indicated in Negassa et al. (2014). Thus, the sector’s low market orientation is by and large attributable to range of factors that put pressure in that the welfare outcomes such as food security are at their lower levels in these areas. Consequently, the increased opportunities offered and new markets opened to pastoralists by rapid growth of demand (Alary et al., 2011; Gautier et al., 2016) remain rare to them and limits improvements in livelihoods. Therefore, for better welfare outcomes, it calls for a strategic action that deals with market production depressing factors thereby paves ways for integration into market economy.

### ***5.5.2. Conclusion and policy implication***

In conclusion, it is evident from the key findings that, whereas sufficiently integrating pastoralists into the market could be an important mechanism to overcome the multifarious problems constraining pastoralism, livestock marketing practices are falling short in terms of sufficiently and sustainably supporting pastoralism, mainly due to market production constraining factors. Therefore, pastoralists' commercial orientation is not sufficient to sustainably improve livelihoods, but equally important is that market production constraints addressed. What is needed thus is, a mixed approach that combines policies targeted at market production, production risks management, and market infrastructure development, consistent with pastoralists' tradition. This calls for a need for policy investments towards pastoral culture sensitivity in promoting pastoral market orientation to sustainably improve livelihoods and achieve desired welfare outcomes. Thus, this study applauds pastoral-culture-sensitive market-based policy initiatives for sustainably improving livelihoods. As a result, it is vital to invest in rural market infrastructure in order to promote the pastoral economy's incorporation into markets. This could be achieved by establishing (mobile) markets with needed facilities at strategic locations such as moving routes and temporary settlement camps (*guro terminus*). Besides, interventions aimed at strengthening traditional institutions (e.g., *dague* for market information), facilitating pastoral groups (e.g., *clanship* to bargain in the market), and improving access to services (e.g., credits) could serve central role in stimulating pastoral market production and escape lower welfare levels.

## CHAPTER VI

### SYNTHESIS: GENERAL DISCUSSION, CONCLUSIONS AND IMPLICATION FOR POLICY AND PRACTICE

#### *6.1. Introduction*

The arid and semi-arid regions of Ethiopia, which cover more than 60% of total land area, contribute the lion's share of the country's livestock resource endowments (Fratkin, 2014). Regardless of pastoral resource endowment, these areas are the most impoverished and rely heavily on relief aid. As the main research theme, the present study has put an effort to investigate '*why is this the case?*' Drawing on the debating contention that pastoralists prefer to accumulate and use pastoral produce for cultural purposes rather than trading for cash incomes, this study hypothesized that '*the long-standing pastoralist tradition strongly advocates for the accumulation and direct use of pastoral produce rather than remaining open to the market for exchange, thereby missing out on indirect (exchange) benefits toward food security*'. Following that, the thesis attempted to address three specific objectives ultimately revealing the relationship between '*pastoralism*', '*marketing*', and '*food security*' through a case study and survey data collected from (agro-)pastoral communities of *Afar* in Ethiopia. The study sought to shed light on the contribution of (agro-)pastoral marketing practices to food security by determining the extent to which pastoralists adhere to their traditions and how their orientation to culture norms influences their marketing interests.

The thesis begins by conducting a systematic review of the literature in order to uncover 'rural marketing – rural livelihood' relationships in general. The review findings demanded a better understanding of the conditions under which rural marketing might be useful, as well as the mechanisms by which potential benefits might emerge. Following that, the thesis used data from (agro-)pastoral communities (as representing rural communities that received little attention in the reviewed 'rural marketing – rural livelihood' relationship studies) to empirically test the potential positive/negative relationship between marketing practices and food security (as representing livelihood outcome).

The case study primarily, drew on data from *Aramis-Adaar* pastoral groups and addressed the first research objective of '*understanding the links/mismatches that exist between pastoralists' cultural norms and their marketing needs*'. In doing so, it addressed related research questions

such as, *'How do pastoralist culture norms interact with the pastoralists' market-oriented environment?'* and *'How would the market ideals and the cultural orientation of pastoralists match/mismatch?'* Following the case study, the survey used *Aramis-Adaar* pastoral and *Asale* agro-pastoral groups to further analyze and subsequently answer two additional research questions: a) *'to what extent does pastoral culture orientation influence (agro-)pastoralists' food (in)security?'* and b) *'how do (agro-)pastoralists' livestock marketing practices (their commercial orientation) contribute to their food security?'*, revealing 'the links between pastoral cultural elements and food (in)security', and estimating 'the food security effects of livestock commercial-orientations', respectively.

The study used systematic literature review, content analysis, household food insecurity access scale (*HFIAS*), ordered logistic regression, and propensity score matching (*PSM*) procedure, respectively, to uncover 'rural marketing – rural livelihood' relationships, unveil the misalignment between pastoralists' cultural and marketing practices, measure household level food (in)security statuses, assess food (in)security determining factors, and estimate effects of commercial-orientations.

In light of the research questions and stated objectives, this chapter synthesizes and discusses the findings of the case study and survey. It also discusses the studies' overall contributions to the empirical body of knowledge and policy implications, as well as their strengths and limitations, and proposes a future research topic.

## ***6.2. Main findings***

Based on the results from a systematic literature review, the current study primarily identified 'rural marketing – rural livelihood' relationships. Then, drawing on data from a case study and a household survey, it subsequently addressed the issue of how pastoralism, marketing, and food security are interrelated through three separate studies under three themes a) Linking pastoral culture norms with marketing, b) Linking pastoral culture norms with food (in)security, and c) Estimating food security effects of (agro-)pastoral commercial-orientation. The key findings of the studies are summarized and discussed below.

### ***6.2.1. Mixed effects of rural marketing***

The review results revealed that rural marketing had favorable results at times and unfavorable results at other times, resulting in mixed effects on livelihood. While market interactions may

improve some welfare outcomes, others may be hampered. Rural marketing practices help rural people diversify their incomes and, as a result, improve their livelihoods in terms of some of the livelihood outcomes (but not with all the indicators). The review also identified that rural marketing can deplete natural resources on which rural people rely for a living. The mixed effects could be attributed to a variety of factors, including inconsistencies in conceptualizing/measuring rural marketing and the use of different livelihood outcomes, which makes determining the causal relationship empirically difficult. Thus, determining how to define rural marketing and what livelihood outcomes to consider is critical in determining the market's livelihood effects.

The review's findings also imply that, despite the fact that the vast majority of pastoral communities live in rural areas and constitute the majority of rural settings, and are reliant on market to support their livelihoods, studies on the relationship between "rural marketing" and "rural livelihood" have paid little attention to them. While rural marketing has been somewhat successful among upland crop farming communities, there is little empirical evidence that the same holds true for (agro-)pastoral lowland livestock farming communities, implying that more research on the livelihood effects of rural marketing using data from (agro-)pastoral groups is required.

### ***6.2.2. Misalignment between pastoral cultural norms and marketing practices***

The case study discovered, first and foremost, that *Aramis-Adaar* operate under competing systems of cultural and marketing practices. Pastoralism as a production system is regulated by both of these institutions – culture and market. Through the pastoral traditional practices of clan administration, communal practices, herd accumulation, herd mobility, and rituals, *Aramis-Adaar* have developed mechanisms to mitigate and survive environmental risks, such as drought, over the centuries. Livestock marketing endeavors by *Aramis-Adaar* is equally playing important role to sustain livelihoods; it supplements consumption. Nonetheless, the case study identified a misalignment between *Aramis-Adaar* cultural norms and their livestock marketing interests. The case study identified *Aramis-Adaar* cultural practices that are detrimental to marketing because they discourage *Aramis-Adaar* from engaging in market activities. This means that marketing has remained unwelcome among the *Aramis-Adaar*, who see marketing as a resource depleting agent (for livestock). As a result, while *Aramis-Adaar* produce marketable livestock, their production plan does not follow market signals in the sense that their sales participation is not profit motivated; thus, they lack market orientation. Said differently, the pastoral production system is governed by

social and cultural attachments to pastoralism rather than market norms, and pastoral production is driven by immediate (consumption and social) needs rather than market needs. As a result, the devotion of pastoral produce to home consumptions and cultural obligations plays a critical role in pastoral production decisions. Contrary to such a popular belief, pastoral produce marketing is also used to supplement consumption in these areas. This has required *Aramis-Adaar* to pursue the consumptive, social, and exchange objectives of pastoral production at the same time in order to sustain the pastoral livelihood. To meet the needs of pastoralism and marketing at the same time (balancing pastoral production and marketing needs), future policy must align and level the playing field for market production ('*competition*') and pastoralism ('*cooperation*').

### ***6.2.3. Pastoral culture norms impede food security***

According to the survey results, food insecurity persists in the *Aramis-Adaar* pastoral and *Asale* agro-pastoral groups. Food security improvement in these areas is hampered significantly by cultural orientations through pastoral tradition constrained marketing, where most pastoral culture elements (e.g., herd accumulations) appeared to discourage these groups from marketing pastoral produce. In contrast, it appeared that the centuries-old practice of herd mobility is a traditional coping strategy in these areas, aiding in the reduction of food insecurity. It also appeared that these groups' market exchange practices play a significant role in supporting consumption, thereby contributing to the reduction of food insecurity in these areas. These findings suggested that pastoral culture elements have both a negative (indirectly by severely limiting the marketing of pastoral produce) and a positive (to a lesser extent directly by serving as a coping strategy) impact on food security (Figure 6.1). Thus, in order to comprehend food security in the (agro-)pastoral setting, a focus on pastoral culture orientation as well as exchange practices should be placed. For 'moving-up' pastoralism, a combination of approaches combining livestock production services, market production orientation, and infrastructure development is required. Furthermore, capitalizing on mobility as a traditional coping strategy contributes to the long-term viability of pastoralism.

### ***6.2.4. Commercial-orientation promotes food security***

Participation in livestock sales by the *Aramis-Adaar* pastoral and *Asale* agro-pastoral groups was found to significantly reduce the severity of food insecurity in both the *HFIAS* and *rCSI* measures. However, according to the per-capita consumption expenditure measure, the 'less' commercial and

'more' commercial oriented groups were similar, implying that the survey results failed to find consistently significant effects of commercialization in all food (in)security measures used in this study. The survey results also revealed that the market production of (agro-)pastoralists is stressed by a number of factors identified in the study as cultural, infrastructure, and production risks. Thus, it has been demonstrated that income generated from livestock sales improves the welfare of (agro-)pastoralists, at least in terms of some livelihood indicators, when market production depressing factors are properly addressed through policy measures. Clearly, the more commercially oriented households are, the less likely they are to have higher *HFIAS* scores and to use food coping strategies. Whereas adequately integrating pastoralists into the market could be an important mechanism for overcoming the numerous problems that constrain pastoralism, livestock marketing practices fall short of adequately and sustainably supporting pastoralism, owing primarily to market production constraining factors. While commercialization promotes food security, the commercial orientation of pastoralists is insufficient to sustainably improve livelihoods; it is also critical that market production constraints be addressed. To preserve the traditional livestock husbandry of the *Aramis-Adaar* pastoral and *Asale* agro-pastoral groups, it is critical to combine market infrastructure investments with culturally sensitive policy measures.

### ***6.3. Discussion and conclusion***

The current study is guided by three key concepts: pastoral culture, marketing, and food security. Pastoral culture is present in the daily lives of pastoralists who establish and maintain relationships with one another by employing traditionally valued practices such as herding, clanship, reciprocity, herd mobility, and rituals. These are traditional survival strategies imbedded in their social norms, values, knowledge and institutions that are built up through generational learning, passed down orally through generations, and govern overall life. Pastoral and agro-pastoral communities rely heavily on the traditional livestock farming sub-sector for their livelihoods and to meet their food consumption needs. In the face of recurring droughts, marketing pastoral produce is a widely pursued approach to improve food security, and it has become equally important for supporting livelihoods in these areas.

The link between *Pastoralism* and the *Market* has been first established through pastoral development policy – also called sedentarization. Sedentarization has been promoted in order to reorient centuries old pastoralism towards market, gradually evicting pastoralists from pastoralism

(Krätli, 2019). Successive governments have aggressively promoted the sedentarization policy and market ideology, which have become important institutional foundation for pastoralists. The market system established by the policy created 'new' practices and identities that were linked to the urban system, but not associated with pastoralism. Through sedentarization, pastoralists were deceived to believe that the 'blessings' of the market were a sign of the pastoral economy's progress and that leading a sedentary lifestyle would solve all of their problems. This process has weakened the pastoral traditional institutions (e.g., reciprocity and communal practices). It has also created a primitivism myth, which subjected the logic of local traditions to the power of the market system. However, efforts to achieve desirable changes in the drylands through sedentarization have had limited success (Gebeye, 2016). Sedentarism, according to program evaluation studies, worsens people's lives in terms of various livelihood outcomes, such as food and nutrition security (Haji and Legesse, 2017).

The failure of the sedentarization policy gave rise to the popular '*move-up – move-out*' debate, which resulted in a 'new' pastoral development approach that redefined pastoral development 'within' pastoralism rather than 'outside' of it. The current study argues that it is not the 'market' that has resulted in the adverse livelihood effects, but rather the approach that has masked the positive outcomes of pastoral producers' marketing practices. Believing that the effects of pastoral marketing practices should be viewed through the lens of pastoralism rather than sedentarism, how pastoral tradition, marketing practices, and food security are interlinked remained the core of the analysis in this study. As a result, the study focused on what constitutes (agro-)pastoral food security and what causes (agro-)pastoral communities to become food insecure, which involves a distinction between some categories of food (in)security determining factors. To that respect, the study has distinguished between production and exchange variables that are directly or indirectly related to (agro-)pastoral food (in)security and determining whether these communities thrive or decline in terms of the stated livelihood outcome.

Pastoral production risk factors (such as drought, conflict, and diseases), pastoral culture norms (manifested in herd accumulation, herd mobility, reciprocity, clan administration, and rituals), pastoral produce marketing practices, and a variety of other socioeconomic factors all contribute to (agro-)pastoral (vulnerability to) food (in)security. This study discovered that these elements interact in various and often complex ways through core variables of pastoral production (*PASTORALISM*), market exchange practices (*MARKETS*), and cultural processes (*Pastoral*

*Culture Norms*) towards fulfilling *CONSUMPTION* needs thereby achieving *FOOD SECURITY*. For the sake of brevity, these elements are depicted as a conceptual framework to demonstrate the likely relationships between them (Figure 6.1). Through three standalone studies, this thesis explained how these variables can help understand how food security is achieved and maintained, as well as how food insecurity can be reduced, by primarily unveiling the basic relationship between pastoralism, marketing, and food security.

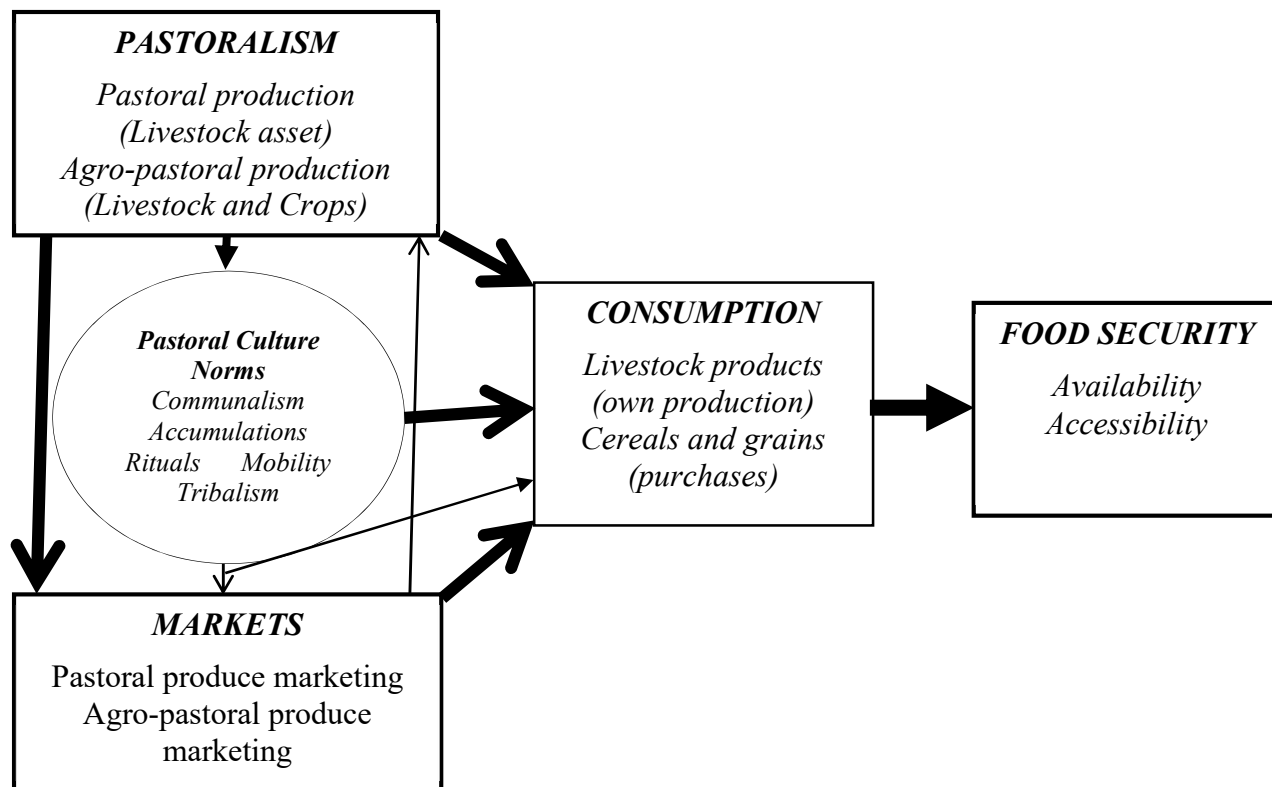


Figure 6.1: A conceptual framework demonstrating the (direct and indirect) links between Pastoralism, Markets, and Food security. The ‘thick’ arrows represent strong positive links, while the ‘thin’ arrows represent a loose or negative links. The oval shape is a representation of new addition to the model hence the study’s contribution to the body of knowledge (literature). Source: Adapted from Swift (1989)<sup>23</sup>

Pastoral and agro-pastoral food security primarily is a function of production. Pastoralism and agro-pastoralism, as production systems, produce foods primarily of animal origin (mainly milk

<sup>23</sup> Swift (1989) discussed ‘production and exchange failures’ as causes of famine in his article "Why are rural people vulnerable to famine?" The current study adapted this model in its reversed form, arguing that ‘efficiency’ in production and market exchange leads to food security. The model is used as a conceptual framework to unveil the relationship between pastoralism, marketing, and food security.

and milk products) and (limited) non-pastoral food sources to meet consumption needs. In Figure 6.1, the 'thick' arrow pointing to the '*CONSUMPTION*' box from the '*PASTORALISM*' box represents the enormous contribution of pastoral production to household consumption, and thus to food security in terms of the availability of food from own production. Pastoralism's pastoral culture norms, which have helped it endure over the centuries, also contribute to consumption. Customary institutions (e.g., mobility and communalism) which use to enforce compliance with norms and values dictate sustainable use of the drylands and serve as coping strategies against environment and other risks. Pastoralists share available resources through communal use of pastoral resources, pastoral traditional networks, and reciprocities, which uses to balance the wealth gap through exchanging resources and strengthen their social ties. They use to keep livestock in large numbers in order to protect the community from food shortages during bad seasons. Wealth accumulations in livestock, keeping number as big as they wish, is the main reason as to why they like to keep livestock. The main purpose for which herders devote livestock is food (milk and dairy products and meat). They also move with their herd on a regular basis in search of better pasture and water for the herd so that animals can be better productive in terms of filling consumption needs of herders and their families. These traditional practices are upheld through ritual festivals and tribal administrations. However, self-sufficiency with own production is now uncommon among these communities. Drought, conflict, and animal disease are all examples of production risk factors that frequently constrain production, resulting in consumption stress and jeopardized the pastoral tradition. Production uncertainty, which is frequently attributed to production risk factors, is the leading cause of severe food insecurity among these groups. Pastoral production activities or endowments may fail as a result of production constraining agents. Climate factors, livestock deaths, and conflicts all impede production, exacerbating food insecurity among (agro-)pastoralists, as discussed in Chapters 4 and 5 of the thesis. This can be mitigated by expanding the market and implementing (alternative) income-generating strategies in these areas.

Because (agro-)pastoral production is intertwined with an array of risks, as indicated earlier in this section, (agro-)pastoral food security is a function of production as well as market exchanges. Market exchange practices by (agro-)pastoral communities play an important role in supporting them by supplementing their consumption (Teka and Azeze, 2002). Food security involves availability of livestock and livestock products for direct consumption of animal proteins, and herders' ability to purchase non-pastoral food-grains (Greenough, 2010). Pastoralists' and agro-

pastoralists' integration into the market is important in order to finance their food purchases towards food security and sustain their livelihoods (Little et al., 2014). These groups rely heavily on market exchanges for a large portion of their subsistence (See also a 'thick' arrow between 'MARKETS' and 'CONSUMPTION' in Figure 6.1). In addition, pastoralists use to manage their herds to adapt to environmental conditions (destocking during drought periods, and restocking after droughts) and respond to market opportunities thereby accessing foods other than animal origin (represented by a 'thin' arrow between 'MARKETS' and 'PASTORALISM'<sup>24</sup>). Nevertheless, market participation by (agro-)pastoralists is influenced by a variety of factors identified by this study as infrastructure and socio-culture related (Chapter 5). These factors contribute to exchange failure, which leads to food insecurity. Failures in exchange or market mechanisms, primarily due to market constraining agents, were identified as a major cause of food insecurity among the study populations. In such a scenario, households may face severe food insecurity not because they lack surplus pastoral produce to trade in the market or because there are no (non-pastoral) foods available, but because they cannot afford to buy food-grains as a result of their failures to trade animals, primarily for cultural reasons. This relates to Sen's (1981) claim of lack of entitlement to food.

The 'thin' arrow pointing to the 'MARKETS' box from the 'Pastoral Culture Norms' circle (oval shape) in Figure 6.1 depicts 'little' positive contributions or negative influences of pastoral culture norms to marketing (only herd mobility promotes exchange practices while all other culture elements discourage marketing, as discussed in Chapters 4 and 5), thus to consumption and food security. In conclusion, pastoral culture norms appeared to have a significant negative impact on marketing, thereby hampering non-pastoral food access for consumption towards achieving food security.

The third chapter of the thesis (a case study) on the links between culture and marketing is devoted to such explanations, providing ample evidence on the subject. The chapter demonstrates that pastoralists' livestock marketing practices are hampered by the social and cultural context in which they operate. Pastoralism is defined by pastoral culture, which includes, among other things,

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<sup>24</sup> The relationship between the 'market' and 'pastoralism' is contentious; there are both supporters (e.g., Aklilu et al., 2013; Galaty, 2008; Little and McPeak, 2006; Negatu, 2011; Tessema et al., 2014) and detractors (e.g., Catley et al., 2016; Krätli et al., 2013). The later argue that the market causes loss of nomad culture in that it threatens the pastoral culture, social institutions and identity, and weakening traditional conflict handling (Gebeye, 2016; Ptackova, 2015; Tafere, 2013).

herd accumulation, communal practices, tribal leadership, herd mobility, and rituals, all of which continue to make livestock a subject of the traditional practices. The results showed that pastoralists are discouraged from selling livestock for cultural reasons, and hence, pastoral culture norms indirectly constrain consumption/food security through discouraging market exchange practices of pastoral communities. Despite the fact that (agro-)pastoral communities' exchange practices contribute significantly to household consumption, they are largely constrained by the enduring pastoral tradition in that pastoral resources are subject to cultural obligation rather than being marketed as commodities.

The main conclusion of the study is that *"the misalignment between pastoral culture norms and marketing practices proves an impediment in food security objectives of (agro-)pastoral communities at large"*. To put it another way, pastoral tradition has an impact on food security through its effects on marketing. The study's major contribution to the body of knowledge (literature) is thus such a novel inclusion of "culture norms" to the analysis influencing the links between market and food security. To achieve desirable results in this regard, the promotion of the market economy and the process of integrating the pastoral economy into the market should make use of pastoralism's knowledge and tradition. As a result, (agro-)pastoral development policy must align the process of livelihood improvements with the existing pastoral traditions.

#### ***6.4.Limitations and suggestions for further research***

The use of mixed methods contributes to the overall strength of the thesis. The thesis used both qualitative (the case study) and quantitative (the survey) research designs sequentially to address the respective objectives of the three standalone studies. The study used a case study methodology to identify specific pastoral culture elements that misalign with marketing practices. The case study findings were used in the subsequent quantitative food (in)security and marketing effect analysis estimation, respectively. This improves the robustness of the findings by compensating for the limitations of using a single method. Furthermore, the thesis has made use of a variety of (multiple) rigorous data analysis tools, which include thematic analysis, *HFIAS*, ordered logistic regression, and the *PSM* procedure. This ensures the validity and reliability of the data used in the study, as well as the empirical evidences that emerged, which are thus applicable to similar studies in Ethiopia and elsewhere. The study also contributes to the existing theoretical understanding of culture, marketing, and food (in)security by either supporting or refuting the main arguments in

these fields. Furthermore, the thesis is a step forward conducting systematic literature review to synthesize the existing evidence and identify priorities for future research. In so doing, the thesis takes a noble advantage to identify, evaluate, and integrate sufficient quality research towards new synthetic insights, which a traditional review often lacks.

Nevertheless, the thesis is not without limitations. The pastoral culture elements identified by the case study, which include *communalism*, *accumulationism*, *tribalism*, *ritualism*, and *guroism* (herd mobility), were used as independent variables in both food (in)security and market effect analyses. Of course, such cultural variables are difficult to numerically quantify, implying that these elements needed to be addressed qualitatively to better capture the links they would have with food (in)security. The conclusion that '*pastoral tradition influences food security through its effects on marketing*' only indirectly states the link between culture and food security. Different results could have been obtained if the question of '*how the specific pastoral culture elements relate to food (in)security?*' had been approached qualitatively. The study also ignores the 'utilization' and 'stability' pillars of food security, which must be addressed through qualitative approaches. As a result, the study's failure to investigate pastoral food security using qualitative approaches is a limitation which calls for further research. Therefore, 'linking pastoral culture norms to food (in)security', which necessitates a qualitative approach, remains a future research agenda. Furthermore, when it comes to livestock commercialization effects analysis, *PSM* may not adequately address some concerns. One source of concern could be the way the treatment variable is constructed. For example, sales volume can vary over time and place; determining the cut-off point, and the values just above and below the cut-off might not be captured by *PSM*. As a result, future research should consider the limitations of this study in the use of *PSM*. In this regard, considering using other techniques (for example, a dose-response function) could be answerable.

### ***6.5. Policy and practical implications***

The current study provides empirical evidence to help understand the effects of pastoral marketing practices on livelihood outcomes as measured by increases in food security of (agro-)pastoral households. To that end, the case study and survey results used *Aramis-Adaar* pastoral and *Asale* agro-pastoral groups to identify the direct and indirect links between pastoralism, market, and food security. The findings of the three studies have significant practical and policy implications for development practitioners (in the areas of pastoralism, market, and food security) who want to

promote pastoralism as an important rural livelihood option in Ethiopia and other developing economies in similar circumstances. Pastoral culture norms, in particular, emerge as policy considerations. The findings imply policy intervention to meet the consumptive, social, and exchange needs of pastoral communities by developing policies that can balance and align pastoral marketing practices within the pastoral production system while emphasizing the multiple uses of pastoralism in which all roles are pursued concurrently. It necessitates a policymaking process that recognizes and acknowledges the role of customary institutions in pastoral livelihoods, as well as the need to build and expand markets around existing pastoral culture norms. Market expansion opportunities, on the other hand, must be accompanied by the development of necessary infrastructure and access to market facilities, which can be sought by leveraging existing pastoralists' knowledge and expertise to serve as the foundation that drives market production. In this regard, training and graduating clan-based local groups into formal producer cooperatives could serve as livestock market collection and distribution centers. This allows them to gain access to market information and mediate with traders by leveraging local networks and clan leadership. Policy interventions aimed at improving market incentive systems in order to increase production and adequately align production to market requirements are also critical. Policy should prioritize the construction of mobile market facilities near and around mobility routes, as well as the facilitation of destocking and restocking trainings, in order to balance herd size between social and market needs.

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## ***Appendix: Survey instrument (Chapters 4 and 5)***

Dear respondent,

The purpose of the study is to examine the effects of pastoralist culture norms and market exchange practices on food security positions of pastoral and agro-pastoral households in *Afar*, northeastern Ethiopia. You are randomly selected for the interview and your cooperation in providing honest response to all questions is highly valuable and very much appreciated. Are you willing to participate in the interview? \_\_\_\_\_

Questionnaire number (Id.) \_\_\_\_\_; Date of interview \_\_\_\_\_

### ***I. Study area information***

1.1. Livelihood Zone 1. *Aramis-Adar* pastoral, 2. *Asale* agro-pastoral

1.2. Name of *Woreda* 1. *Chefra*, 2. *Dulecha*, 3. *Aba'ala*

1.3. Name of *kebele* \_\_\_\_\_

### ***II. Socio-economic characteristics and asset endowments***

2.1. Please explain your current livestock holding, consumption and sales last year.

<b><i>Livestock type</i></b>	<b><i>Current Holding</i></b>	<b><i>Qty. consumed</i></b>	<b><i>Qty. sold</i></b>	<b><i>Unit price</i></b>	<b><i>Sale income</i></b>	<b><i>Qty. bought</i></b>
Calves (he/she)						
Heifers						
Oxen						
Cows						
Camels (he/she)						
Sheep (he/she)						
Goats (he/she)						
Donkeys (he/she)						
Chickens						

2.2. For what purpose you mainly keep livestock? 1. Herd accumulation/sign of prestige, 2.

Marketing, 3. Food/consumption use, 4. Other purposes

2.3. To what purposes you would most like to devote your animals? 1. Ritual uses; 2. Sanction payments, 3. Marketing, 4. Accumulation as sign of prestige, 5. Own consumption/food use (milk or meat); 6. Other services

2.4. For agro-pastoralist households only:

2.4.1. What size of land do you own? \_\_\_ Ha.

2.4.2. For what purpose do you use the land you own? 1. Crop land; 2. Grazing land; 3. Both

2.4.3. What major crops do you grow? 1. Maize; 2. Sorghum; 3. Both; 4. Others

2.4.4. For what purpose you growing crops? 1. Food; 2. Marketing; 3. Feed; 4. Other

2.4.5. Please explain your crops production, consumption and sales last season.

<i>Crop type</i>	<i>Land size</i>	<i>Total production</i>	<i>Qty. consumed</i>	<i>Qty. sold</i>	<i>Sales income (Br.)</i>
Maize					
Sorghum					
Other crops					

**III. Access to different services**

<i>Access to different services</i>	<i>How much time would it take you to reach the nearest service center?</i>			
	<i>Half an hour or less</i>	<i>Up to an hour</i>	<i>An hour and half</i>	<i>2 hr. &amp; more</i>
The main road				
The nearest town				
<i>Woreda</i> town				
Livestock marketing center				
Grain marketing center				
Health post				
Water supply source				
Extension office				

- 3.1. How often did you consult extension agent this production year? 1. Once; 2. Twice; 3. Three times; 4. More than three times
- 3.2. Did you receive credit during the last 12 months? 1. Yes; 2. No
- 3.3. If yes, for what purpose did you receive credit? 1. Farm inputs purchase; 2. Food purchase; 3. Feed purchase; 4. Others
- 3.4. If no, why? 1. No money for down payment; 3. Fear of no money for repayment; 4. No need of credit; 5. Other reason
- 3.5. From where do you get market information? 1. Visiting nearby market 2. Radio 3. Use mobile and ask friend at distance, 4. *Dague* (traditional information exchange);

**IV. Social capital and cultural practices**

- 4.1. What are the indicators for social/wealth status? 1. Livestock size (herd accumulation); 2. Land holding size; 3. Leadership in social structure; 4. Other
- 4.2. What is your leadership status in the community? 1. Clan leader; 2. Member in the clan council; 3. Member in government administration structure, 4. Other
- 4.3. Are you a member of any kind of (producer/marketing) cooperative? 1. Yes; 2. No
- 4.4. How is your relationship with your clan or the tribal line (trust, reciprocity and exchanges in the community)? 1. Improving 2. Deteriorating 3. The same
- 4.5. If deteriorating, why do you think so? 1. Poverty; 2. Market interaction/modernization; 3. Interference by the state structure; 4. Weekend social networks,

- 4.6. Are you ruled by the customary laws (clan or tribal rules)? 1. Yes; 2. No
- 4.7. For what matters you usually need the support of your clan master or tribesmen (tribal identity)? 1. Social commitments, 2. Sanctions payments, 3. Communal resources uses, 4. Herd management, 5. Conflict resolutions, 6. I don't need any; 7. Others
- 4.8. For what matters you usually need the consent of your clan master (tribal identity)? 1. Sales decisions (of large stock), 2. Decisions on 'guro' (mobility), 3. Communal resources uses, 4. I do not need any; 5. Others
- 4.9. In which of the communal practices in particular you engage? 1. Livestock sharing practices or transfers/exchange, 2. Common use of resources, 3. Traditional support networks, 4. Collective decisions, 5. Others
- 4.10. Which of these social-cultural duties and ceremonials are your shared responsibilities as a member in a tribe? 1. Traditional marriage ('digib'), 2. Funeral, 3. Rituals; 4. Others
- 4.11. In the past 12 months in which of the cultural ceremonials you involved? 1. 'andoyta', 2. 'digib', 3. 'daska', 4. 'erena', 5. Others
- 4.12. If you involve in any of the ceremonials what was your role? 1. Contribute in kind (livestock for slaughter), 2. Contribute in cash (money), 3. Leadership role, 4. Other
- 4.13. In the last 12 months did you enter into any kind of sanctions/impositions by the clan for your wrong doings? 1. Yes; 2. No
- 4.14. If yes, what was the punishment acted up on you? 1. Animal slaughter; 2. Paying in kind (animals) as amends/compensation to the victim; 3. Paying money; 4. Others
- 4.15. If you were punished for wrong act in the last 12 months, what was the act you did that deemed wrong by the community and resulted in punishment? 1. Excessive livestock sales; 2. Theft of animals; 3. Beating and killing someone; 4. Other
- 4.16. If you were punished with livestock in the past 12 months for your wrong doing, how many animals were you made to give away for slaughter or pay for amends? 1. Just one; 2. Two to five; 3. Six to ten; 4. More than ten
- 4.17. In the past 12 months were there occasions you might have been obliged to give out personal holdings/herd to another who is in your kinship lineage or tribal line for cultural reasons? 1. Yes; 2. No

4.18. Livestock transfers/shares/exchanges in the last season?

<i>Type</i>	<i>Bought in</i>	<i>Given out (gift/ lent out)</i>	<i>Received (gift/ Borrowed)</i>
Cattle			
Shoat			
Camel			
Others			

4.19. If death happen to your herd last year, what was the reason? 1. Feed shortage due to drought; 2. Disease occurrence; 3. Not known

4.20. In the last year did you involve in *guro* (moving along with your animals)? 1. Yes, 2. No

4.21. If yes, why did you mainly do *guro*? 1. it's a tradition and an obligation to do; 2. Drought and feed shortage, 3. Searching for better market opportunity for the animals; 4. Other

4.22. Were there occasions that conflicts occurred in your village or around you so far since the last year? 1. Yes; 2. No

4.23. If yes, what were major sources of these conflicts? 1. Water point; 2. Grazing land; 3. Competition over limited resources; 4. Farm land; 5. Other

4.24. What damages the conflicts cause to you? 1. Loss of animals; 2. Loss of life (family member); 3. Physical damage; 4. Other

#### **V. Marketing practices**

5.1. What are the sources of income (income generating activities) for your household? 1. Livestock sales; 2. Crop sales; 3. Employment; 4. Remittance; 5. Others

5.2. During the last 12 months for what reason(s) you sold out animals? 1. Food purchases; 2. Clothing; 3. Loan repayment, 4. Social commitment (wedding/funerals expenses), 5. Health expenses, 6. Children education expenses, 7. Transport; 8. Drought/feed shortage; 9. Others

5.3. In which of the month(s) (season) were you sold animals? 1. *Karma* (July – September); 2. *Gilaal* (October – February); 3. *Sugum* (March and April); 4. *Hagai* (May and June)

5.4. Why in this season (particular month) you did sell? 1. Food shortage due to drought; 2. Feed shortage due to drought and unable to carry on all the herd; 3. Wedding, *andoyta* or other ritual time or holydays; 4. Affluence or surplus produce (destocking); 5. Other reasons

5.5. What animals do you mostly sell during prolonged drought times and periods of food shortages? 1. Goats, 2. Sheep, 3. Cattle; 4. Camels, 5. Others

5.6. What animals generally are subject for sale in your area? 1. Large stock (cattle and camels); 2. Small stock (sheep & goats); 3. Male animals; 4. Female animals; 5. All types are for sale

- 5.7. If large stock is not for sale, what is the reason? 1. Reserved as prestige or status indicators; 2. It is taboo to sell large stock; 3. They are tribal communal assets and not for sale; 4. Others
- 5.8. If female animals are not for sale, what is the reason? 1. Reserved for reproducing; 2. It is taboo to sell large stock; 3. They are tribal communal assets and not for sale; 4. Others
- 5.9. What costs did you incur while selling livestock? 1. Transportation fee; 2. Feed/water; 3. Tax payment; 4. Brokers/witnesses; 5. Information; 6. Others
- 5.10. If any marketing costs in the previous month:

<i>Cost items</i>	<i>Transport</i>	<i>Feed/water</i>	<i>Tax</i>	<i>Brokers</i>	<i>Information</i>	<i>Others</i>	<i>Total</i>
<i>Cost (Br.)</i>							

- 5.11. What means of transportation did you use to take animals to market? 1. Trekking 2. Trucking 3. Both means; 4. Other
- 5.12. Which livestock products did you sell in the last 12 months? 1. Cow milk, 2. Camel milk, 3. Butter, 4. Eggs, 5. Others, 6. I do not sell any
- 5.13. Livestock product sales in the previous month (if any)?

<i>Product name</i>	<i>Sales income (Br.)</i>
Milk (cow milk, goat milk, camel milk)	
Milk products (Butter, cheese, etc.)	
Eggs	

- 5.14. If you do not sell any, why? 1. It is a taboo to sell animal products, 2. No surplus, what's produced is just for own consumption 3. Other reason
- 5.15. What livestock production inputs purchases did you make in the past 12 months? 1. Feed, 2. Veterinary medicine, 3. Labour, 4. Others

<i>Purchased inputs</i>	<i>Expenses</i>
Feed	
Veterinary medicine	
Labour	

## **VI. Consumption requirements**

- 6.1. What are your staple foods? 1. Sorghum; 2. Maize; 3. Wheat; 4. Rice; 5. Milk and milk products; 6. Others
- 6.2. Where do you get the food stuffs from? 1. Own production; 2. Purchases; 3. Food aid; 4. Borrowed from or shared with relatives/neighbors; 5. Gift from clan; 6. Other
- 6.3. If you get food from purchases, what sorts of food items you purchase? 1. Grains/cereals; 2. Animal source foods; 3. Oil; 4. Others

6.4. Please tell the kind and quantity purchased for the last month's consumption of your family;

<i>Food item</i>	<i>Quantity purchased (kg or lt.)</i>	<i>Total monthly expenses (Br.)</i>
Grains (maize, wheat sorghum)		
Milk and milk products		
Others (edible oil, sugar, salt, coffee)		

6.5. If you are purchasing food where did you get money for the purchases? 1. Livestock sales; 2.

Crop sales; 3. Wage labor employment; 4. Remittances; 5. Credits; 6. Trade; 7. Other

6.6. Do you think what you produce is enough for your household consumption for the whole year round? 1. Yes; 2. No

6.7. If no, how do you cope up with it? 1. Borrowing/sharing from relatives/neighbors/clan, 2. Purchasing from market; 3. Food aid/assists, 4. Others

6.8. Did you receive food aid in the last 12 months; or are you part of *PSNP*, or any kind of aid or formal support scheme? 1. Yes; 2. No

6.9. If you received how often you received last year? 1. Once; 2. Twice; 3. three times or more

6.10. In what form did you receive? 1. in kind (wheat flour or grains); 2. In cash; 3. in both;

6.11. If you get food aid how do you use the food? 1. Sell some; 2. Sell all; 3. Consume all

6.12. In which of the months/season you received aid last year? 1. *Karma* (July – September); 2. *Gilaal* (October – February); 3. *Sugum* (March and April); 4. *Hagai* (May and June)

6.13. How often per day did adult household members eat food in your family? 1. Once, 2. Twice, 3. Three times and more, 4. As obtained,

6.14. How often per day did your children eat food in your family? 1. Once, 2. Twice, 3. Three times, 4. As obtained, 5. More than three times

## **VII. Food insecurity assessment using *HFIAS*; based on *Coates et al. (2007)***

7.1. Because of a lack of food or resources to obtain food, in the past one month, how often did you worry that your household would not have enough food or about where the next meal would come from? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times) 4. None of the time

7.2. Because of lack of resources or money to buy food, how often were you or any household member not able to eat the kinds of foods you preferred in the past month? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

7.3. In the past month, because you were running out of money to buy food or due to a lack of resources, how often did you or any household member have to eat a limited variety of foods

or rely on only a few kinds of low-cost food? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

7.4. In the past one month, how often did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other sources of food? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

7.5. How often did you or any household member have to eat a smaller meal than you felt you needed or ever eat less than you felt you should because there was not enough food or enough money to buy food, last month? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

7.6. How often did you or any other household member have to eat fewer meals in a day or ever cut the size of meals or skip meals because there was not enough food or limited money to buy food in the past one month? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

7.7. In the last month, because of lack of resources to get food or you couldn't afford enough food in your household, how often was there ever no food to eat of any kind or ever been hungry but did not eat? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

7.8. How often did you or any household member go to sleep at night hungry because there wasn't enough food or not enough money to buy food in the past 4 weeks? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

7.9. In the past 4 weeks, how often did you or any household member go a whole day and night without eating anything because there was not enough food or skipped entire meals (owing shortage of food in the household)? 1. Rarely (once or twice), 2. Sometimes (3 to 10 times), 3. Often (more than 10 times), 4. None of the time

### ***VIII. Demographic information***

8.1. Age of the respondent (in years) \_\_\_\_\_

8.2. Sex of the household head 1. F, 2. M

8.3. Marital status of the household head 1. Single; 2. Married; 3. Divorced; 4. widowed

8.4. Family size \_\_\_\_\_ (number of household members);