ADDIS ABABA UNIVERSITY

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Center for Rural Development

Cross Border Livestock Marketing and Pastoral households' income: The Case of Harshin Woreda, Somali Regional State.

By

Mohamed Abdi Mahamoud

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Advisor: Ali Hassen (PhD)

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APPROVAL SHEET

ADDIS ABABA UNIVERSITY
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As thesis research advisor, I hereby certify that I have read and evaluated this thesis prepared, under my guidance, by **Mohamed Abdi**, entitled with: **Cross Border Livestock Marketing and Pastoral Households' Income, The Case of Harshin woreda Ethiopian Somali Regional State**, I recommend that it can be submitted as fulfillment of the Thesis requirement.

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I, **Mohamed Abdi**, hereby declare that this thesis work entitled **Cross-Border Livestock Marketing and Pastoral Households' Income, The Case of Harshin woreda Ethiopian Somali Regional State**, Submitted by me in partial fulfillment of the requirements for the award of the degree of Master of Art in (Rural Livelihood and Development) to the College of Development studies, Addis-Ababa University is original work carried out by myself. The matter embodied in this thesis work has not been submitted earlier for award of any degree or diploma to the best of my knowledge and belief. Where other sources of information have been used, they have been duly acknowledged.

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Date: _____

CERTIFICATION

This is to certify that this Thesis work entitled **Cross-Border Livestock Marketing and Pastoral Households' Income, The Case of Harshin woreda, Somali Regional State** in partial fulfillment of the requirement for the award of the degree of Master of Art in Rural Livelihood and Development to the College of Development Studies, Addis-Ababa University, done by Mohamed Abdi I.D No GSR/3503/10 is an original work carried out by him. The matter embodied in this Thesis work has not been submitted earlier for award of any degree or diploma to the best of my knowledge and belief. Where other sources of information have been used, they have been duly acknowledged.

Advisor: Ali Hassen (PhD)

Signature: _____ Date: _____

DEDICATION

Every challenging work needs self-efforts as well as guidance of elders especially those very close to our heart. My humble effort of this thesis I dedicate to my sweet and loving father (**Abdi Mahamoud**) and mother (**Hali Abdi**), whose affection, love, encouragement and prays of day and night make me able to finish.

STATEMENT OF THE AUTHOR

First, I declare that this thesis is the result of my work and that all sources of materials used for this thesis have been appropriately acknowledged and I have fallowed all ethical and technical principles of research in the preparation, data collection, data analysis and compilation of this. This thesis has been submitted in partial fulfillment of the requirements for an MA degree at the Addis Ababa University and is deposited at the University Library to be made available to borrowers under rules of the Library. I confidently declare that this thesis is not submitted to any other institution in anywhere for the award of any academic degree, diploma, or certificate.

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LIST OFABBREVIATIONS

CBLT:	Cross Border Livestock Trade
CBT:	Cross-border trader
COMESA:	Common Market for Eastern and Southern Africa
CSA:	Central Statistical Agency
EAC:	East African community
FEWS NET:	Famine Early Warning System Network
FGD:	Focus Group Discussion
GDP:	Gross Domestic Product
HDAO:	Harshin District Agricultural Office
HOA:	Horn of Africa
ICBT:	Informal cross border trade
ICPALD:	Center for Pastoral Areas and Livestock Development
IGAD:	Inter-Governmental Authority for Development
KII:	Key Informant Interview
MS:	Member States
RISP:	Regional Integration Support Program
SPS-LMM:	Ethiopia Sanitary & Phytosanitary Standards and Livestock & Meat Marketing Program
SRS:	Somali Regional State
STR:	Simplified Trade Regime
USAID:	United States Agency for International Development

ABSTRACT

Cross-border trade is a strategy undertaken by people as a coping mechanism to escape poverty. This study examines cross-border livestock marketing and pastoral household income in Harshin district by using primary and secondary data that were collected through structured questionnaire, focus group discussions and key informant interviews with cross-border market participant, (77) and non-participant (78) sampled households. Both descriptive and inferential statistics specially Propensity Score Matching were used to assess the linkage between cross-border market participation and household income in the study area. The study revealed that four among ten model variables, influence the cross-border market participation decision which are educational level, family size, number of livestock owned by the household, and distance to nearest border market place The finding of the study also shows that, broker plays dominant role in marketing channel which is 80% of the chains engaged by the broker for mediating process. Thus, the cross-border livestock marketing had positive and highly significant effect on household income in which 3689.6Birr increment was found due to the cross-border market participation. Generally, the finding of the study suggests that there is a need to scale up the education intervention programs to improve livestock marketing and enhance community awareness towards diversifying their income through cross-border livestock market participation without undermining the role of the government. Shortening the length of the market chain to minimize transaction cost institutional arrangements, policy support and adopting legalized channel against illegal rout is needed.

Keywords: Cross-border trade, Household Income, Livestock marketing, Pastoralists, Harshin.

CHAPTER ONE: INTRODUCTION

1.1.Background of the study

Cross-border trade is a strategy undertaken by people as a livelihood diversification and coping mechanism to escape poverty (Muzvidziwa, 2007:3). Households impoverishment or poverty in relation to material, economic and social deprivation pushes people into engaging in alternative livelihood activities. Cross-border trade is one of these alternative livelihood activities in order to give for their households and extended families at least to lead a decent life. Individuals engage in cross-border trade because of a being unemployment, poor economic conditions and poverty (Chani, 2008:25; Jawando, Adeyemi & Oguntola-Laguda2012:29; Kachere, 2011:10).

Regional cross-border trading networks, supports about 17-million peoples in the horn of Africa (HoA), including livestock producers and traders, trekkers, fodder traders, brokers and middlemen; who directly or indirectly derive their entitlements from livestock production and trade (USAID, 2012; FSNWG,2010). In particular, however, the value of Ethiopia, CBT by ETB from 1998-2014 has reached over an estimate of 61.07 billion, of which live livestock trade contributes about 25.56 per cent (15.6 billion birr) traded across Kenyan, Somalian and Djibouti borderlands (Habtamu H, et al,2014). More explicitly, the studies were revealed that, the annual value of Cross Border Livestock Trade (CBLT) with Ethiopia has estimated approximately at US$25, US$9.00, US$16 and US$10.5 million with Somalia, Kenya, Sudan and Puntland respectively (Little, 2005, Mahmoud,2003; COMESA, 2009).

Ethiopians have been occupied in livestock production and trade for centuries. Ethiopia has achieved considerable economic growth over the past five years, driven mainly by exports of agricultural products. Livestock is essential to the Ethiopian economy, contributing 20% of the GDP, supporting the livelihoods of 70 % of the population and generating about 11% of annual export earnings (SPS-LMM, 2010). Another hand livestock trader complying with these trade regulations are generally profiled as formal traders. Furthermore, formal cross border trade is characterized as being mostly carried out by large-scale traders who, in most cases, have significant trading capital, expertise and support systems to easily access the required trade documents (Ogalo 2010).

Moreover, Ethiopia's potential of being huge livestock resource, is playing a significant role to CBLT in the region; traded throughout its several border crossing routes. The cross-border trade is sustained through complex social networks that cross geo-political boundaries, whereby the interior rangelands are enter-connected with ports through a series of clan-based corridors (Abdurehman.2014). Unsurprisingly, most of the cross-border lands of Ethiopia, are characterized by arid pastoral and semi-arid agro-pastoral ecologies, were livestock plays a dominant role in the household income particular and livelihoods of the society generally through creating a conducive environment for trance-border livestock trade (Little.2001).

The idea of people involves cross border trade through buying and coming to sell goods is not new in African contexts (Muzvidziwa, 2007:10). Barnett and Sparks (2010:1) highlight that cross-border trade is an entrepreneurial activity which excites economic growth and job creation that existed prior to colonialism. The continued involvement of people in cross-border trade is manifest of the benefits accumulated from such type of trade. This development requires a significant number of people to engage in cross-border trade as a social development mechanism to improve household income and entire livelihoods of the society and way of life (Muzvidziwa, 2007:7).

Furthermore, cross-border trade as an economic activity, is common in developing countries, both at individual and household levels (Smallbone & Welter, 2012:96). Peberdy and Crush (2001:122) in their study of cross-border trade, found that cross-border trade is an automobile for the upliftment, employment creation and survival of small-scale cross-border trade entrepreneurs, pastoralists and their families. Lesser and Moisé-Leeman (2009:5) identify cross-border trade as a business activity that contributes to food security and that enhances people's incomes especially in poor households. Such positive implications for cross-border trade have got massive developmental effects on the economies of developing Sub-Saharan African countries.

The Ethiopian government has long considered the informal cross-border livestock trade to be illegal. However, due to the long border between the Somali Region and neighboring Somali territories, it has been very difficult for the Ethiopian Customs and Revenue Authority (ECRA) to strictly police and controls this trade. Furthermore, the focus of the Customs Authority has always been on imported commodities rather than on livestock or other goods exported informally from the Somali Region to neighboring areas. Yet in recent years the Customs Authority has sought to more closely regulate the export of live animals, as it realized that most of the animals being exported from the Somaliland port of Berbera and Bossaso Port in Puntland originate from Somali Region. Furthermore, given the volume and increasing size of the trade through these ports and the value of the livestock exported, the Ethiopian government has an interest in regulating the trade to generate seriously needed foreign exchange (Abdurhman, 2014).

1.2.Statement of the problem

In Africa, cross-border trade (CBT) has expanded since the 1990s as a result of regional integration processes (Yang and Gupta 2007; FAO 2003). Indeed, intra-regional trade is expected to generate momentous economic and social revenues for different population groups including women, poor smallholder farmers, and pastoralists living in rural areas. These groups constitute a strong driving force in the production, consumption and trading of local commodities across borders (Tran-Nguyen A-N and Zampetti 2004; Ackello-Ogutu and Echessah 1997).

Despite, the ideas regarding the ultimate future of cross border trade particularly informal CBT are not agreed among scholars. Little (2007) argued that ICBT should be encouraged on the ground that it is a normal market response to regional price disparities and inefficient export regulations. Moreover, ICBT is a source of regional food security when the domestic production and market fails to meet food demands. Similarly, Abdurhman (2014) on his analysis of cross-border trade along the Ethiopian Somali borders, argues that restrictions imposed by the Ethiopian government to halt ICBT benefits only large cattle traders and has detrimental effects on the livelihood of herders and small traders. Contrarily, Lesser and Moisé-Leeman (2009) contended the prevalent practice of informal cross-border trade in sub-Saharan Africa, despite its short run importance for poverty alleviation, on the following grounds: in the longer run, it is likely to have negative economic and developmental effects, which might further marginalize

Sub-Saharan African economies. First, informal cross-border trade generates *unfair competition* vis-à-vis formal traders, decreases the incentives to invest in the formal economy and lowers business opportunities in regional and global markets, which reduces the prospects for private sector (and overall economic) development in Sub-Saharan Africa.

Estimates of the size and price of cross-border livestock exports vary by source. For example, estimates from 2009 for the annual cross-border livestock exports from Ethiopia to Djibouti, Somaliland, Somalia, and Kenya are 350,000 cattle, 1,100,000 small ruminants and 125,000 camels, with an estimated value of between US$250 million and US$300 million (SPS-LMM, 2009). Most of these cross-border livestock trades were directed to Somaliland, and were sourced wholly from the Somali Region of Ethiopia. The region is also the major supplier of livestock to Djibouti, while contributing less to the cross-border trade into Kenya compared to the Borans (Yacob and Catley, 2010).

According to (Vector O.2010), as a result of the missed data of ICBLT, led to the formulation of wrong policy; which could have a long-term devastating effect on economic contribution of the sector. Unfortunately, Ethiopian government considered and perceived the informal cross-border livestock trade as an illegal activity which is harmful to national development goals, while the pastoralist's perception also regarding this trade is their main livelihood strategy and survival way of finding their household income particularly (Desta et al., 2011). Thus, further research requires to assure that perception related of this activity.

Although, many studies and policy debates conducted the economic importance of cross border trade in the region and some others contradicted that issue as indicated. Cross-border market suppliers(producers) flow different marketing channels either formal or informal channel which influence the income of the household there is no policy debates or study conducted to find out its importance. Moreover, different policies developed by the government of Ethiopia to encourage legalization of informal cross-border livestock marketing but failed to give consideration perception of the pastoralists about cross-border market participation which they believe is only way to increase their household income. Also lack of empirical evidence on the pastoral household income and its linkage to the cross-border livestock marketing is among the gaps in the previous studies. Generally, these tell us the necessity for more research of cross-

border livestock marketing and household income to come up strong policy implication of the impact of cross border livestock trade on the country's economy goals and poverty alleviation generally and pastoral livelihood improvements particularly.

1.3. Objectives of the study

1.3.1. General objective

- To examine association between cross-border livestock marketing and pastoral household income, in the study area.

1.3.2. Specific objectives

- To assess pastoralist's perception ofcross-border livestock marketing in the Study Area.
- To examine the cross-border livestock marketing channel in the Study Area
- To investigate the link between participation in cross border livestock trade and household income in the study area.

1.4. Research questions

- How pastoralists perceive the cross-border livestock marketing?
- What is the main cross-border livestock marketing channels in the study area?
- To what extent does participation in cross border livestock trade linked to household income?

1.5. Significance of the study

The study was supposed to generate useful information for pastoralists, traders, brokers and service providers involved in the cross-border livestock marketing in the area towards both challenges and opportunities of local and cross-border livestock market and importance of coordination between marketing channel actors. It also helps development planners and policymakers in designing appropriate policies that enhance the efficiency of cross-border livestock marketing especially informal cross-border trade which significantly plays a vital role for pastoral household income. Moreover, the information can be provided for potential investors and small and medium enterprises interested in that business. Researchers who want to undertake a further investigation in the sector will also benefit from the findings.

1.6. Scope and limitation of the study

This study was conducted in Harshin district of Somali Region, Eastern Ethiopia. Hence, the investigation was limited spatially to one district among several districts in the zone. Besides, the study was based on data drawn from one cross-sectional survey at one particular point of time which may be difficult to reflect the nature of the cross-border livestock marketing in the study area. Moreover, the study was also limited to the investigation of cross-border livestock marketing while livestock marketing is broad. Since this study conducted to investigate the perception, marketing channel, and factors influence participation decision in cross-border market of the pastoralists may not present well for the entire image of both cross-border trade and pastoral livelihood but this limited to see the linkage between this trade and pastoralist's household income status.

1.7. Ethical consideration of the study

The study was considered every individual's opinion and his expression as vital and respectful. The study was cared about the moral of individual/household head that struggled to give us time and allowed to interview him/her. The study avoided everything which may hurt or undermine the integrity of the interviewee and considered the status he/she has in the society. Moreover, the researcher was neutral and method of data collections were respondent centers (willingness of the respondents). Finally, the study was free from plagiarism, fewer quality data, and unnecessary outdated data.

CHAPTER TWO: LITERATURE REVIEW

2.1. Definition and concepts

Cross border trade (CBT): is the flow of goods and services across international land borders within a reach of distance specified by law (Kaminski and Mitra 2010).

Market: A physical place where buyers and sellers of ruminants meet together with a view of exchange the small stocks for cash (Onyango, 2013, Kotler, 2002) also marketing as the task of creating, promoting, and delivering goods and services to consumers and businesses.

Marketing channel: Refers to the sequential arrangements of various marketing intermediaries involved in the movement of products from producers to consumers (Adnan et al. 2014).

Market Conduct: is referred to as Firm's pattern of behavior in executing its pricing and promotion strategy, research and development and its response to the realities of the market it serves. It is also defined as the way in which buyers and sellers behave, both amongst themselves, and amongst each other (Johann 2013).

Pastoralism

Pastoralists in the Horn and East Africa region are far from being a homogenous group. The complexity of heterogeneity is characterized by varying aspects of ethnicity and socio-cultural set-ups, production forms and strategies. These include the degree of mobility, key livestock types, engagement and dependence on pastoral activities especially levels of dependence on livestock for food and income management practices, geographical location, engagement with the market or lack thereof, and numerous other factors, all of which contribute to the difficulty of constructing a versatile definition (HPG Commissioned Report, 2010).

Livelihood

Many scholars defined livelihood in different ways but the most popular definition of livelihood is that of Chambers and Conway (1992), "a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks, maintain and enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation;

and which contributes net benefits to other livelihoods at the local and global levels in the long and short term". A livelihood comprises the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or households (Ellis, 2000).

2.2. Livestock Marketing and Cross border Trade

Livestock marketing is the distribution of livestock and the labors to supply to market stocks in order to enhance productivity. Ethiopians have been occupied in livestock production and trade for centuries. Ethiopia has achieved considerable economic growth over the past five years, driven mainly by exports of agricultural products. Livestock is essential to the Ethiopian economy, contributing 20% of the GDP, supporting the livelihoods of 70 % of the population and generating about 11% of annual export earnings (SPS-LMM, 2010). Evidence from ICPALD (2012) that livestock and their products probably constitute a 5th of Ethiopia's exports, but about half of these exports are not recorded or officially recognized because they are exported by the informal cross-border trade in live animals. Pastoral output underpins almost all of Ethiopia's live animal exports.

Livestock marketing is essential for the livelihood system of pastoral and agro-pastoral communities in the Horn of Africa. Cross border livestock trade beyond the region to the Arabian Peninsula has long been a substantial outlet for livestock owners in Ethiopia's Somali Region. This trade has expanded greatly in recent years (Mahmoud 2011; Aklilu and Catley 2010; Majid 2010).

Livestock marketing are dispersed with inaccessible markets lacking price information and the number of animals offered in the local market is usually greater than the number demanded, so there is surplus supply. Livestock are generally traded by 'eye-ball' pricing, and weighing livestock is uncommon. Prices are usually fixed by individual bargaining and depend mainly on supply and demand, which is heavily determined by the season of the year and the incidence of religious and cultural festivals (Kefyalew,2012).

Estimates of the size and price of cross-border livestock exports vary by source. For example, estimates from 2009 for the annual cross-border livestock exports from Ethiopia to Djibouti, Somaliland, Somalia, and Kenya are 350,000 cattle, 1,100,000 small ruminants and 125,000

camels, with an estimated value of between US$250 million and US$300 million (SPS-LMM, 2009). Most of these cross-border livestock trades were directed to Somaliland, and were sourced wholly from the Somali Region of Ethiopia. The region is also the major supplier of livestock to Djibouti, while contributing less to the cross-border trade into Kenya compared to the Borans (Yacob and Catley, 2010).

Finally the value of Ethiopia, Cross border trade by ETB from 1998-2014 has reached over an estimate of 61.07 billion, of which live livestock trade contributes about 25.56 per cent (15.6 billion birr) traded across Kenyan, Somalian and Djibouti borderlands (HabtamuH,et al,2014). More explicitly, the studies were revealed that, the annual value of Cross Border Livestock Trade (CBLT) with Ethiopia has estimated approximately at US$25, US$9.00, US$16 and US$10.5 million with Somalia, Kenya, Sudan and Puntland respectively (LittleP.D, 2005, Mahmoud H.A.2003; COMESA,2009).

2.2.1. Livestock Marketing Channel in Pastoralist Area

COMESA, (2009) pointed out that the five major informal border commerces are Somaliland, Northeastern Kenya, Eastern Sudan, Southern Kenya, and Northern Kenya. About 10% of this commerce passes through the official trade channel. Ethiopia is a main supplier of livestock to Somalia, Djibouti, Kenya, and Sudan. Different channels are employed for bringing livestock from production points to domestic terminal markets and to export points. There are speculations that unwarrantable costs are being incurred somewhere in the transaction. It is proved that there are too many intermediaries in the chain; or transport, taxation, and feed costs are high; or big livestock traders and butchers in big cities are operating as cartels; or the budding export business is encouraging speculators to trek up livestock prices (Yacob,2008).

Cross border livestock trade is high, as an estimated 1.6 million livestock are exported from the country annually although the immense majority of these (approximately 1.4 million) pass through informal channels (Elisabeth,2010). This being the potential for cross border trade, the actual performance has remained very low, leaving most (Kefyalew,2012).

Hailemariam, et.al (2009) identified major marketing channels that bond producers of live animals to end users. These diverse channels represent the full range of available routes through which livestock moves from the different collection points in major livestock producing areas

and finally to the terminal markets to meet end-users needs in foreign markets. These channels are as follows;

- Channel 1: Producers →Big traders →Live animal exporters
- Channel 2: Producers → Collectors → Big traders→ Live animal exporters
- Channel 3: Producers →Small traders →Big traders → Live animal exporters
- Channel 4: Producers→ Small traders→ Feed lot operators→ Live animal exporters
- Channel 5: Producers → Feed lot operators →Live cattle exporters

2.2.2. Forms of Cross Border Trading system

CBT primarily divided into two major forms: *formal and informal systems of trade*. Both trading systems contribute to linking livestock producers and traders with different levels of operation (small, medium and large scale) to national and intra-regional agricultural markets and have an effect on their livelihoods.

2.2.2.1. Formal cross-border trade

According to the (UNECA, 2010), formal CBT refers to cross border trade flows recorded by the relevant national monitoring and control authorities. At the regional level and particularly across EAC countries, varied policy pronouncements and trade agreements is the way that promotes formal trading systems for agriculture to reduce exchange controls while facilitating free commodity movement within the East African common market.

livestock traders complying with these trade regulations are generally profiled as formal traders. Furthermore, formal cross border trade is characterized as being mostly carried out by large-scale traders who, in most cases, have significant trading capital, expertise and support systems to easily access the required trade documents (Ogalo 2010).

However, many barriers still exist to the development of formal systems of trade (COMESA 2008; Haggblade et al. 2008). Challenging process of implementing and monitoring different trade facilitation measures are mainly included that barriers. For STR implementation, key challenges arose from the limited number of commonly traded products between member countries, value threshold for STR (USD 1000 for COMESA and USD 2000 for EAC countries)

and the processing fees charged per transaction (COMESA 2011). Similarly, the most common challenges for regular traders appear to be a lack of awareness combined with poor guidance on the utilization and benefits of trade facilitation provisions (EASSI 2012; Njiwa 2012; Ogalo 2010).

2.2.2.2. Informal cross-border trade

According to the (Pavanello, 2010), more than 95 percent of the trade activities in Eastern Africa are undertaken through unofficial trading systems. In recent years, informal CBT has become a critical sector in Africa and particularly across the EAC and COMESA regions. The sector is dynamic with important implications for employment and income generation for male and female traders (Njiwa 2012; COMESA 2008). Approximations also point out that informal CBT employs about 20 to 75 percent of the labor force in most African countries (UNECA, 2010). Moreover, studies have documented a positive correlation between informal trade exchanges and improved food security because of the making available many food products to consumers at a relatively lower price (Little 2007; Ackello-Ogutu and Echessah 1997).

2.2.3. Major push factors of the cross-border trade

Shortage of income generating activities and poverty are major reasons people engage for cross border trade as various studies indicated (Chani, 2008:48; Kabeer, 2012:17; Kachere, 2011:61).

2.2.3.1. Unemployment

African economies, particularly those in Sub-Saharan Africa are faced with intimidating challenges of lacking employment opportunities (Barnett & Sparks, 2010:3). ILO's point of view (2015:11) sees unemployment as a global crisis. It identifies unemployment as a massive problem that Sub-Saharan Africa will continue to grapple with despite some signs of economic growth. This observation reveals that lack of employment opportunities is a salient feature of African economies; hence well designed social and economic policies are needed to address the worrying levels of unemployment in Africa.

According to Matorova (2008) as cited in Jawando et al. (2012:29) also highlight lack of employment opportunities as a push factor towards informal cross-border trade. This correlates with the view of Kachere (2011:19) that the formal economies in Sub-Saharan African countries are shrinking, retrenching workers and are not able to attract all uneducated people,

therefore school leaving people with little option, but to engage in informal entrepreneurial activities. Cross-border trade thus accumulates benefits due to the decreasing formal economy and hence the reason for continued engagement in cross-border trade (Kachere, 2011:23).

2.2.3.2. poverty

According to Various studies (Jawando et al., 2012:29; Kachere, 2011:10; Smallbone& Welter, 2012:96) show that cross-border trade has risen as a result of confronting poverty circumstances in particular country contexts. Such brittleness in the socio-economic conditions of society force people into private business (Lombard, 2003:156). Kachere (2011:34) contends that and defined concept of poverty, as the inability to achieve the requirements for survival, has transcended various generations and has led to people engaging in cross-border trade in their pursuit for survival. From a gender perspective, Kachere (2011:11) enunciate that women have engaged in cross-border trade to comfort the burden of caring and satisfying families. Such a burden is caused by prevailing deprivation or poverty situations which leaves them with no choice but to make a living through cross-border trade.

According to Titeca (2012:50) his study in Uganda observed that cross-border trade in Uganda is associated with the marginal, economically disempowered sections of society, whose pursuit is to look forsurvival in cross-border trade activities. Furthermore, cross-border trade emerged in Uganda as an indigenous way to provide development and a pillow against poverty in the light of a reluctant and/or an unable national government (Titeca,2012:50). Cross-border trade activity (Smallbone& Welter, 2012) is therefore one such type of entrepreneurial activity which people engage in to protect themselves against such negative effecting socio-economic conditions.

2.2.4. Ethiopian policies for formalization of informal cross border trade

The Ethiopian government has pursued several techniques to control cross-border trade and make it legible for collecting taxes; as follows;

2.2.4.1. Obtaining letter of credit

Government begun to require border traders to acquire letters of credit (LC)from a registered bank, which pushes them to register and license their business. The LC is between the bank of the exporter and that of the importer, and the exporter must show the Ethiopia bank the invoice from the importer and s/he then is given local currency to purchase his animals. The bank, in turn, is paid the full amount in US dollars by the importer's bank once the animals are delivered. The Ethiopian bank then refunds the trader in local currency at the official rate of exchange, which most cross border traders complain is 2–3% below the rate on the private currency market. Through letters of credit the government often expands prices for livestock above market rates, which pushes traders to borrow more local currency at official exchange rates (Little, 2015).

2.2.4.2. Grant Import Licenses to Small-Scale Traders Within 10 Km of The Border

According to (Desta et al.2011), a second recent state intervention for formalizing cross-border trade is to grant import licenses to small-scale traders within 10 km of the border. Under this regulation cross border traders are allowed to import up to 20,000ETH birr of goods (approximately US $1,120) duty free twice per month to markets located within 10kmof the border. Not only is this an unrealistically small amount for many traders, but many key markets are further from the border than 10 km (Desta et al.2011). With this policy the Ethiopian state seemingly recognizes that traders and informal import channels often overlap with the cross-border trade in livestock, particularly along its borders with Somalia. As noted earlier, the business of importing foods often is financed by livestock trade and at times even reached across borders by the same transport after the animals are off-loaded at the port. By gratifying traders and encouraging informal imports into official market channels, the government expectation is that it might tempt traders to also utilize official procedures for cross border of livestock. However, because the value limits and spatial restrictions of the policy 9 jare disliked with traders, it has had little impact on livestock trade.

2.2.4.3. Opening new bank branches at border areas

According to (Little,2015), the Ethiopian government opened bank branches during 2011–2013 in two of the key border markets along the Ethiopia/Somalia border, including Tog-wajale, in the expectation that traders would use them to takeout letters of credit, deposit savings, and exchange currency. The rationale is that if financial services are more expedient and accessible for traders, they might take out LCs to export their livestock. Similar to the strategy mentioned above, this action has readdressed little of the cross-border trade.

2.2.4.4. Tax free import licenses program

Ethiopian government has begun a program of tax-free import licenses for selective large-scale wholesalers in the borderlands (called the Franco Valuta program, Desta et al.2011; FAO 2012b). These licenses are not limited by nearness to the border area or value as is the other import intervention mentioned earlier. The policy allows 27 large merchants in Somali Regional State to import foods and other necessities, which importantly serves a food security function as well as provides a nominal offering of good will to pastoralist communities that depend on these products. Like other government initiatives, the assumption is that if the state can reduce import restrictions, traders would be willing to cross borders with their animals through formal channels. Because of the scale of the import trade of large-scale wholesalers, this measure calls for traders to open letters of credit so they can obtain US dollars to finance their imports but at the government/official exchange rate. However, because the federal government has limited these duty-free import licenses to only 27 traders in the region, it has effectively created local monopolies, driving up food prices rather than reducing them for pastoralist consumers. These unexpected market impacts have incited ill feelings rather than good will among inhabitants of the region and, not astonishingly, has had modest impacts on livestock trade (Desta et al.2011).

Little,2015 argued that the above policy techniques of Ethiopian government are using the common analogy of a “carrot and stick,” the carrots can be considered to encourage informal trade to transition to formal market channels. The Ethiopian government also has employed the stick approach, which are forceful interventions to force informal trade into officially-sanctioned markets.

2.3. Cross Border Trade and Household income

According to (Peberdy& Crush, 2001:115), the role and resultant income generating of informal cross-border trade has largely been invisible to policy makers. This is despite a strong link between cross-border trade and poverty reduction in many African communities.

Cross-border trade as an economic activity, is common in developing countries, both at individual and household levels (Smallbone& Welter, 2012:96). Peberdy and Crush (2001:122) in their study of cross-border trade, found that cross-border trade is an automobile for the upliftment, employment opportunity and survival of small-scale cross-border trader and their families. Lesser and Moisé-Leeman (2009:5) identify cross-border trade as a business activity that contributes to food security and that increases people's incomes especially in poor households.

According to the study carried out by Peberdy and Crush (2001) found that considerable households have been supported by cross-border trade and thereby meeting their nutritional requirements, and other basic necessities(income) needed for at least average survival in difficult economic times.

Chani (2008:38) argued that households are disintegrating in difficult economic circumstances and depend on cross-border trade for survival. This view resounds with the observance by Mwilima (2006:63) that the informal economy has sustained many African economies. Similarly, Lesser and Moisé-Leeman (2009:43) approve that cross-border trading has hugely assisted many people due to the household income realized from participating in it.

2.4. Nature of cross-border pastoral livestock trading system and actors

According to the (Umar &Baulch, 2007; Mahmoud, 2010; Majid, 2010), the arid and semi-arid Ethiopia-Kenya border areas are populated by mobile herder societies where seasonal cross-border livestock movement, as a rule, is an integral part of the pastoralist production and trading systems. The organization of the pastoral trading system in peripheral areas is often characterized by i) a complex chain of several stages, ii) a set of market corridors and trading routes, iii) multiple actors and iv) elaborate indigenous networks of various informal support institutions. In-depth accounts of this wonderful traditional cross-border trading arrangements are found in

some expounding studies of the animated trans-boundary traded animal movements in Ethiopia-Somalia borderlands in the Horn of Africa.

2.4.1. Market arrangements of pastoral livestock trading system

Bush markets are so-called where traded animals are offered by pastoral households for sell to small traders or collectors and the meeting points of market actors right on the doorsteps of pastoralist village encampments in the multifaceted processes of price formations in the pastoral livestock trading system. ***primary markets*** *also are the* next points of convergence which are supplied by small traders collecting animals from bush (village) markets sprinkled in the rangelands, and primary producers themselves, for sale to livestock traders, local butchers and breeders. ***The secondary market*** *is a* very important transit point in the supply chain. Secondary markets often serve as sieving points for classes of livestock of assured required characteristics which are either coned to ***terminal markets*** on the formal channel operated by big traders or to the *informal* routes which feed the cross-border supply chain (Wassie. 2015).

2.4.2. Major actors of pastoral livestock trading system

According to (Gor, 2012) different actors participate in the pastoral livestock informal cross-border supply chain but the major actors are producers, traders, brokers, and trekkers. Hired trekkers, in particular, help in moving traded animals between rangeland livestock markets and across the national frontier in border areas. They especially play vital roles in the often-required special arrangements of trans-clan territorial border crossings in Ethiopia-Somalia border areas where the indigenous clan-based institutional network is comparatively directed to make easy the whole conduct of the livestock trading operations in the area. This instrument of clan-based institutional networking of ICBT operations is less rife in Ethiopia-Kenya border areas where the indigenous social organization is typically different from that of Ethiopia-Somalia borderlands. Typically, the ICBT business is largely financed by informal credit institutions and financial transfer networks of kinships and related local affiliations and is often crucially facilitated by vibrant *informal* foreign exchange markets in border areas.

According to the Various studies like (FEWSNET, 2010, David K. Leonard (2007), Abdurehman Eid, 2014, & UNOCHA, 2007), have identified the main market actors in the Horn of Africa as:follows;

- Livestock producers;
- Brokers, who mediate between buyers and sellers;
- Small-scale local traders who collect livestock from bush markets and bring them to larger markets, or buy and sell at a profit within one market or neighboring markets;
- Exporters' agents, who gather livestock for export, and may fatten them and/or provide credit to pastoralists;
- Micro-traders/micro-brokers, who for small ruminants are largely women and collect small numbers of livestock (3-5 per week) directly from small ruminant producers (frequently women) and sell them in local markets9;
- Exporters, including powerful Somali elites and Gulf firms: large-scale companies who ship animals abroad, or at a slightly lower level, the large-scale traders who use letters of credit to move livestock across the border from Ethiopia to Somalia legally,
- Veterinary departments and port authorities.

2.5. Challenges of the Livestock Market System for Pastoralists

According to Different studies carried out by different researchers (Aklilu et al 2013, Aklilu and Catley 2009 p.4) found that poor conditions of sale, lack of alternative opportunities, poor access to markets, and problematic government regulation major challenges faced by livestock keepers, especially those operating on a small *scale*.

Official policies in some Horn of Africa countries, notably Ethiopia, have tended effectively to criminalize the very bulky cross-border trade in livestock, including through random and punitive confiscations (Aklilu et al 2013).

Cross-border activities and economic exchanges are also drastically constrained by the lack of a common institutional framework to enable the harmonization, regulation and promotion of cross-border issues in the region. For example, the principally one-way flow of informal livestock trade from southern Ethiopia to northern Kenya that Kenya has benefited from considerable livestock imports and generation of local revenues without the corresponding payments of

foreign exchange (Aklilu, 2008). In contrast, Ethiopia considers this trade as illegal and unofficial, citing tax evasion and consequent loss of local and foreign exchange revenues among the main reasons (Umar and Baulch ,2007).

2.6. Role of Cross-border Trade for Pastoral income Improvement

Cross-border trade plays vital economic, political and social roles for pastoralists of southern horn of Africa, including Ethiopia, Kenya, and Somalia. It is a critical source of livelihood for pastoralists of the horn (Mahmoud, 2010). The cross-border trade network of the horn of Africa supports more than 17 million people in the region including livestock producers, traders, trekkers, fodder produces and traders, brokers and other marketing service providers who earn their livelihood directly or indirectly from the trade (USAID, 2012).

According to Yacob and Catley (2010), analyzing the relationship between the livestock marketing behavior and wealth among Somali and Borena pastoralists of Ethiopia, supplied interesting analysis of the interaction between livelihood status of pastoral households and livestock market engagement. According to the study, pastoralists, in general, are reluctant to sell livestock unless they are forced to do so with immediate cash need or drought. This is because "livestock provides more rate of return than any other alternative livelihood activity. Moreover, poor households- have a smaller stock of livestock- tend to diversify their livelihood activities than wealthier households because the wealthier households can wholly rely on the sale of livestock to generate adequate cash but the poor households have few livestock to sale. The study further found that while over 90% of all pastoral households participated in marketing activity at least once during the period 2000-2002, there is a clear inverse correlation between the number of marketing activities and wealth. This implies poor households depend on the market more than we'll off households and hence cross-border trade significantly impacts on the livelihood of a poor household in Ethiopia.

Little *et al, (*2001) argued that cross-border trade improves food security through at least in two mechanisms (The first is through the supply of grain and other food items from surplus areas to deficit areas which makes food available and its price stable and affordable for the poor in the food deficit areas. Second, cross-border trade assists traders to sell their products at relatively higher prices in the international market and generate more income. It also maintains prices of domestic products up and incentivizes domestic producers produce more and generates more

income. Cross-border trade benefits not only producers and traders linked with the value chain but also creates business opportunities for marketing service providers such as processors, transporters, storage facility providers, and market facilitators such as product graders and marketing information collectors and disseminators (WB, 2007). Moreover, cross-border trade generates employment and business opportunities for ancillary services providers such as hotels, restaurants, cafeterias, livestock drug vendors, commodity sellers, chat traders, holding ground and loading ramp providers, among others (Yacob and Catley, 2010). The income from cross-border trade can also be an important source of saving and capital to establish or strengthen alternative livelihood activities which supply more income, employment and security for the household.

Moreover, the CBT, particularly formal cross-border trade, is a source of revenue for public authorities through customs duty and charges, and hence a source of fund for infrastructural investment. However, African governments harvest only a small proportion of the tax revenue from what they could potentially get from CBT (Golub, 2014). Though the government could not directly tap tax revenue from ICBT, CBT indirectly increases tax revenue by expanding tax base through its effect on the development of business and employment opportunities in related and subsidiary activities. It also creates employment opportunities for local authorities or self-appointed officials, tax collectors, movement.

2.7. Conceptual Framework

Due to Various reason people engage cross border livestock trade as livelihood strategy, the major factors pushes / pulls pastoralists to participate cross border livestock trade are; ownership of large amount of livestock, (small ruminant, and camel), types of herds own by HH, awareness of cross border market prices, proximity to the border, education of household head, being extended household head, lacking business support service, marital status of the HHH, poor relation to social organizations, lack of alternative source of income, and poor local market condition. Thus, as mentioned all that factors stimulate or influence pastoralist's decision to use cross border livestock trade as livelihood strategy and which directly proportional to household income improvements. Therefore, by arguing that this study used the framework that demonstrates interconnection between factors influencing pastoralist's decision for using cross border livestock trade as a livelihood strategy and pastoral household income as indicates below;

Framework of the study

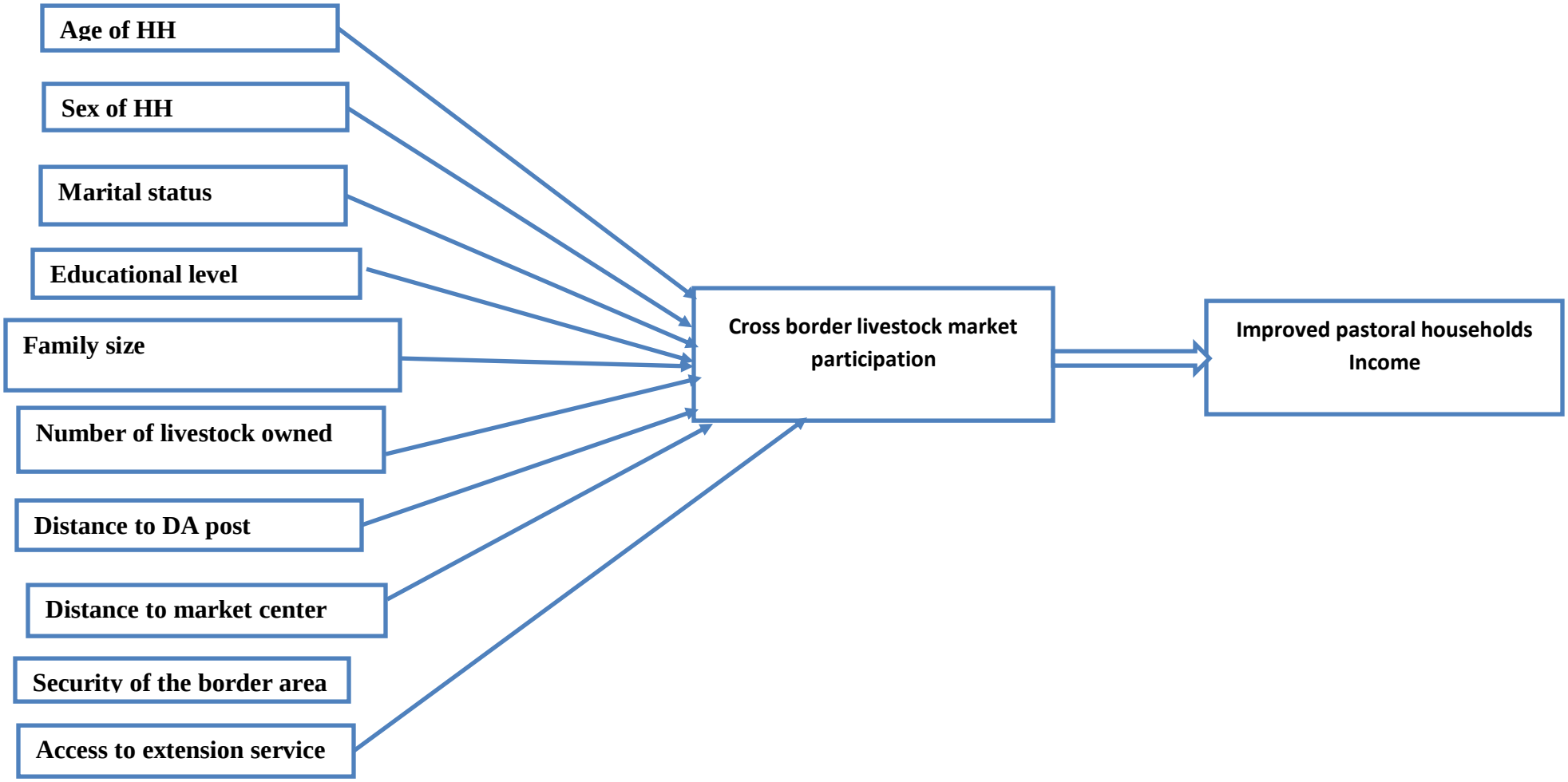


Figure 2.1. framework of the study

CHAPTER THREE: RESEARCH METHODS

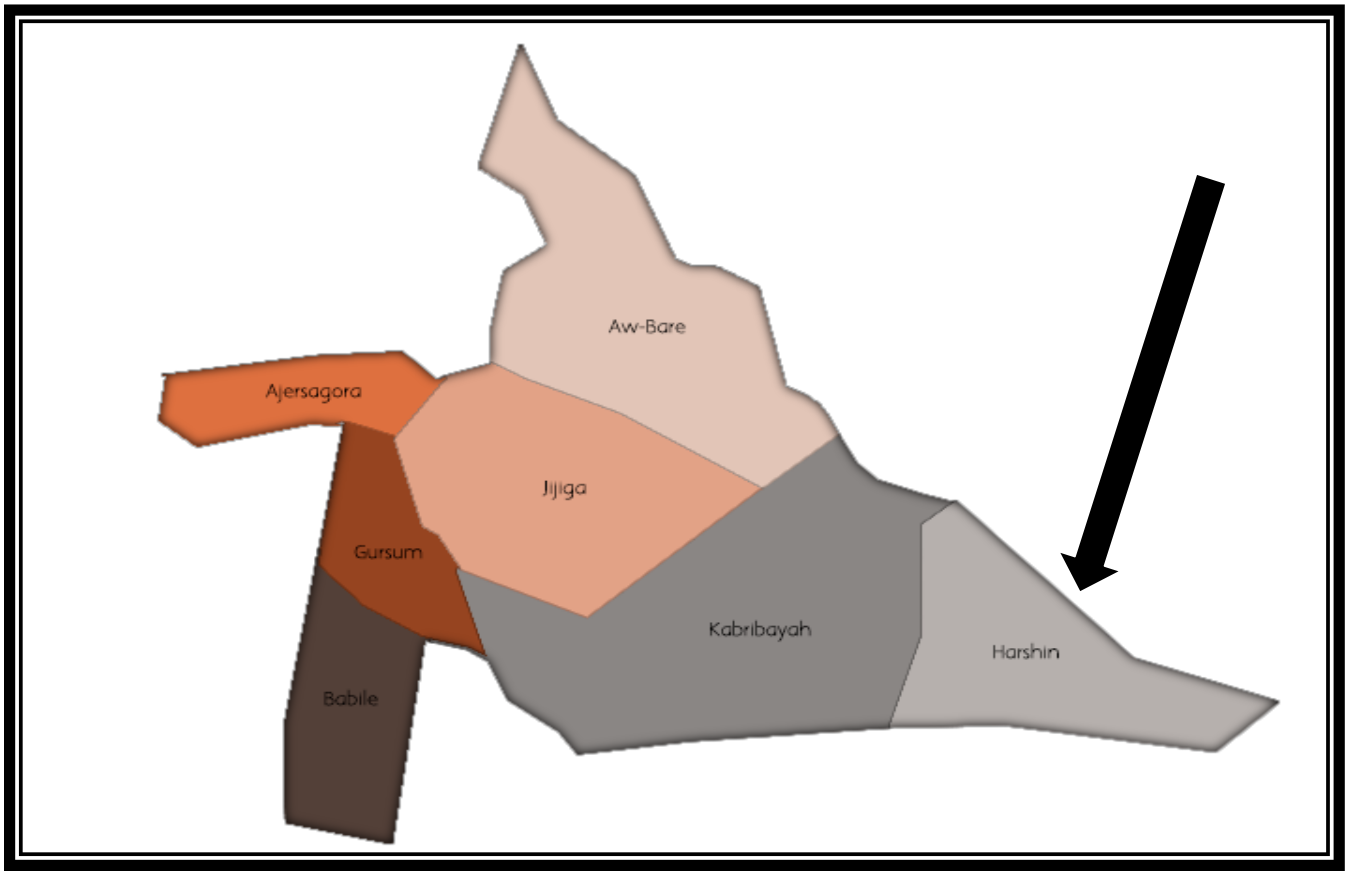
3.1. Description of the study area

Harshin district is located in the south-east of Jijiga zone in Somali Regional State (SRS). About 90% of the population of the woreda is pastoralist, with the remainder agro-pastoralist and urban (CSA.2008). The study area consists of 14 *kebele* administration. Out of these 11 of the *kebeles* are pastoralists, which entirely depend on livestock production. The remaining 3 *kebeles* are agro- pastoralists practicing both farming and extensive livestock rearing. The total land of the pastoralists is 135,070.5 ha with transhumant and nomadic pastoralism. The major cultivated crops are maize. But vegetables, fruits, oil crops, root crops and even khat (chat) are also cultivated in a limited range as a source of food and income (HDAO, 2012). Live animals, especially cattle, goats, sheep,and camels are the main marketable output of the pastoralists.

According to CSA (2007), the population in Harshin district is estimated at 80,244 (43,869 male and 36375 female). The pastoralist population is approximately 72,194 people while 8,226 are urban inhabitants and agro-pastoralists. The majority of the population in Harshin is mainly from Somali tribe, Muslim in religion and of a pastoralist's way of living. The pastoralist population of Harshin woreda is part of a much larger livelihood zone, which extends from Harshin in the north through the eastern half of Degahbur and Korahe zones and all of Warder zone. Concerning household size, a rural household has an average size of 6.5 while the urban one has 5.5. The average household size in Harshin district is 6, less than the average of the region, which is 6.6 (JZA, 2013).

According to Talasan Consultancy PLI (TCC), 2009 estimated that 80% of pasture lands in Harshin are enclosed. Most of the rangeland in Harshin is already permanently divided and enclosed by individuals.

In some cases, this was to reserve dry season grazing for an individual's own livestock, and in an others, to earn an income by selling pasture/ hay to others. Oxfam GB worked with two commun ities in Harshin which had seen that land division elsewhere had led to some people obtaining hu ge areas of land and others none or little. land enclosing has effects on livestock productivity due to difficulty of everyone to have access to enclosed land



Source: SReAd, fafan zone, (2015) Figure3.1: location map of the study area

3.2 Research Design

In this study, mixed research design was employed. Researchers incorporate methods of collecting or analyzing data not only numerical data, which is customary for the quantitative research, but also narrative data, which is the norm for qualitative research in order to address the research questions defined for a particular research study. The purpose for investigators using the mixed methods approach is to draw from the strengths and minimize the weaknesses of the quantitative and qualitative research approaches (Carrie, 2007).

Furthermore, mixed research design is supposed to alleviate the limitations of quantitative and qualitative approaches, based on pragmatic knowledge claims. Pragmatists contend that knowledge claims arise out of actions, situations, and consequences rather than antecedent conditions. There is a concern with applications and solutions to problems. Instead of methods

being important, the problem is most important, and researchers use all (mixed method) approaches to understanding the problems (Creswell, 2003).

3.3 Source and Types of Data

The study was mainly a survey research; therefore, the high focus was based on primary data. Primary data collected from the sample household respondents, key informants, small traders, and medium traders. The questionnaire was administered by the enumerators to collect data from respondents. Furthermore, along with the questionnaire, in-depth interviews and focus group discussions with participants were important methods to gather data. The purpose of using such instruments is to collect data regarding the trends of cross-border livestock trade, how this trade has a contribution to their income status and livelihood, the challenges they have faced since they are engaging this activity, major actors participated and how they perceive this trade.

Even-though the study depended on the primary data, secondary data were required from a secondary source such as; different studies, journals, thesis, books, as well as internet sources. Similarly, secondary data were also be assembled from office files and both published and unpublished reports prepared by different organizations.

3.4 Methods of data collection

To generate the required data, the study employed structured interview questionnaire to collect quantitative primary data from the sample household respondents and traders about the amount of livestock they rear, herds type, the difference between selling the livestock in the domestic and cross-border market, price fluctuation and how affects them. The questionnaire prepared first in English language and then translated into the local language (Af-Somali) since most of the respondents were illiterate and need to understand for the clarity and convenience of the purposes of the study.

The in-depth interview was used in this study as a research method, the interview is a conversation carried out with the definite aim of obtaining certain information about intended objectives of the study. It was designed to gather valid and reliable information through the responses of the interviewee. interview conducted to (6) six persons of the key informants who have the knowledge and experience of the issues, their views about existing of cross-border

livestock marketing, and its contribution of the pastoral household income those key informants, were lived and worked long years in the selected kebele administration, and ECRA officials.

Focus group discussions (FGD) were also conducted to supplement the quantitative data with some qualitative information about their experience, attitudes, and knowledge towards cross-border livestock trade and its contribution on their income, how they perceive such activities, who are the major actors, and their attitude related avoiding or sustaining this. Six FGDs were organized from pastoralists, brokers small traders and medium traders with the appointment's day. The total participants were thirty-six (36) persons from six sampled kebeles. Each group contained six persons **(*3peoples from pastoralist,1 person from brokers1 person from small traders and 1person from medium traders of each sampled kebeles and total 6 from sampled kebele)***. The purpose of mixing those people was since they are actors in the market chain but has weak coordination, sometimes become a victim of situations caused by policy and price fluctuation. The focus group discussion was held with the help of FGD guide and involvement of the researcher himself.

3.5 Sampling design and sample size

Three sampling techniques were employed, in the sampling process, first, Fafan zone was selected purposively due to the high availability of cross-border activities and being major routes of cross-border livestock marketing. secondly, Harshin district was selected purposively because of its pastoralist are highly engaged cross-border livestock marketing coupled with no previous studies about this issue conducted in the woreda. Harshin district contains 14 kebele administrations and were categorized into two using stratified sampling methods, means categorizing kebeles into strata based on the involvements of cross-border market and domestic market during selling their livestock, (participants and non-participants on cross-border market). Lastly, six kebele administration were selected using simple random sampling (3 from cross-border market participants and 3 from non-participants).

There are several formulas to determine the sample size. However, appropriate sample size depends on various factors relating to the subject under investigations like the time aspect, the cost aspect and the degree of accuracy as noted by (Gupta, 2002).

In order to determine the sample size, the simplified formula provided by Yamane (1967) was used. at 95% confidence level, 0.05 degree of variability and 8% level of precision.

$$n = \frac{N}{1+N(e^2)}$$

$$\mathbf{n}\ \frac{\mathbf{13{,}374}}{\mathbf{1+13{,}374(0.08)2}}\quad \mathbf{n=155}$$

Where **n** is the sample size, **N** is the total population (total household live in Harshin district which is 13,374) and **e** is the level of precision.

Based on the computation using the above formula 155 households were selected from six kebeles through simple random sampling technique. However, probability proportional to sample size was employed to select a sample size from the six kebeles.

Table: 3. 1.Sample size from cross-border market non-participant's administrative kebeles

Kebele	Total number of households	Sampled households
Bali-Ase	650	25
Afuflay	850	33
Gumarta	500	20
Total	**2000**	**78**

Table: 3. 2.Sample size from cross-border market participant's administrative kebeles

Kebelle Name	**Number of Households**	**Sample per administrative village**
Kudha-Ramale	920	27
Bali-Gubadle	860	26
Bali-Abane	800	24
Total	**2580**	**77**

3.6. Data analysis

After the data collected, data processing was carried out. The raw data were also converted into a suitable form for analysis and interpretation. This was achieved through arrangements of activities including editing, coding, entry, and tabulation. The objectives were to check the

completeness and consistency of the answers to each of the questions. Statistical analysis was also carried out using SPSS Software (v.20).

Descriptive statistics were used to obtain for the main variables of concern which are comprised of the contribution of the cross-border livestock marketing. For instance, a measure of central tendencies such as mean, median, mode and measures of dispersion such as standard deviation, variance, range, and standard errors were used. Inferential statistics were applied to examine the factors affecting cross-border livestock market participation decision and entirely effects of cross-border livestock marketing on pastoralists' income. Propensity score match model was used to examine factors affecting cross-border livestock market participation decision and examine the linkage between cross-border livestock marketing participation and pastoralist's livelihood outcome (more income).

3.7. Definition of variables and model specification Propensity Score Matching (PSM) Method

In the current program impact evaluation, PSM is one of the most commonly used methods when there is a lack of baseline survey and random assignment of treatments to subject is not feasible. PSM refers to the pairing of treatment and control groups with similar values on the propensity score, and possibly other covariates (Rubin, D.B., 2001).

The dependent variable of interest for this study was cross-border market participation which has binary nature by taking a value of 1 and 0. Assessing the impact of any intervention requires making an inference about the outcomes that would have been observed for participants if they had not participated in the program. The appropriate evaluation of the impact of the program requires identifying the average treatment effect on the treated (ATTs) defined as the difference in the outcome variables between the treated households and their counterfactual. According to Rosenbaum, P. R., (2002) counterfactual refers to what would have happened to the outcome of program participants if they had not participated in the treatment.

In case of binary treatment of the program the treatment Indicator $\mathbf{D_i}$ equals one If individual **i** receives treatment and zero otherwise. The potential outcomes are then defined as: **Yi** ($\mathbf{D_i}$) For each individual **i**, where **i** = 1, 2,3…n, then

the treatment effect of individual **i** can be articulated as:

1). $Ti = Yi(1) - Yi(0)$

Estimating individual treatment effect **Ti** is not possible. Therefore, Average (population) treatment effect on the treated (ATT) is developed which specified as

2). $\boldsymbol{T_{ATT=E(T\backslash D=1)=E[Y(1)\backslash D=1]-E[Y(0)\backslash D=1}}$

generally, PSM model specified as a fallow:

$\boldsymbol{T_{ATT=Ep(x)\backslash D=1\{E[Y(1)\backslash D=1,p(x)]-E[Y(0)\backslash D=0,p(x)]\}}}$

Therefore, ATTs is simply the mean difference in outcomes over the common support; appropriate weighted by the propensity score distribution of participants.

Table 3.3. Description of Hypothetical Variables of the model

Variable	Description	Unit analysis	Hypothesized sign
AGEHH	Age of the household	Age in years	(+/-)
GENHH	Gender of the household head	(1=Male,0=Female)	(+/-)
MRTL	Marital status of household head	(1= Married 0= Single)	(+/-)
EDUHH	Education of the household head	(1=literate, 0= illiterate	(+)
FSHH	Family size of the household	Number of household member	(+/-)
NoShou-own	Number of livestock owned	Numbers owned	(+)
DAnHC	Distance to animal health center	In kilo-meter	(+)
DnMC	Distance to nearest market	In kilo-meter	(+)
Arescrty	Security of the border area	(1= secure, 0=unsecure)	(+/-)
AExSe	Access to extension service	(1= Yes, 0= No	(+)

The dependent variable: the dependent variable of the study is cross-border market participation. It is dummy/discrete variable whether the pastoralists participate cross-border market or not (1 if yes 0, otherwise).

Outcome variable: Household income which is continuous variable and measured by source of income and household expenditure with consideration of independent variables.

Independent variables of the model: the independent variables of the study are those which are hypothesized to have an association with the cross-border market participation decision. The potential independent variables which were hypothesized to have affected the dependent variable are mentioned below.

Age of the household head (AGEHH): Age is a continuous explanatory variable referring to the age of the household head measured in years. Aged pastoralists are unable to work hard for the survival of their family members and as the age of household head increases, the probability that the household head decision to participation of cross-border market decreases.

Gender of the household head (GENHH): A dummy variable which shows us the gender of the household being male or a female has an effect on the cross-border market participation which indicates that the probability of male household head to take part in the cross-border market was expected to be more than that of female.

Marital status of the household head (MRTLSTS): it is categorical variable which shows the status of household head being married, single, divorced, and widowed. It's obvious that married households are more matured and responsible for social values and propabilty to participate cross-border market is high**.**

Educational status of household head (EDUHH). This is dummy variable taking the value of 1 if the household head is literate and 0 otherwise, the better the educational level of the household head, the higher the probability of that family has desirability to participate cross-border market to diversify their income because literate households' heads can easily adopt different livelihood strategies.

family size of the household (FSHH): A categorical variable which indicates that the total number of members living in a particular household which the researcher assumed that the more household size increases, there is probability household head participates in cross-border market to diversify livelihood.

Number of shoats owned (NoShou-own): Total size of shoats a respondent owned, continuous variable, taken as another independent variable assumed to influence cross-border market participation decision. The more shoats owned by a given household, the more the probability to decide and participate in cross-border market.

Distance to animal health center (DAnHC): This variable was one of continuous variable that is assumed to affect positively the cross-border market participation decision. Its expected sign was positive. This indicated that the more health center nearest to pastoralist, the more become the cross-border market participants and that make better informed, owned market competent livestock, understood the animal condition and hence have productive livestock.

Distance to nearest market (DnMC): This variable is the distance between household's resident area and the nearest market center that they usually make transactions. In this regard, access to market center eases households to get income generating opportunities and sell their livestock with better price. This indicated that the more distance of market place nearest to pastoralist, the more cross-border market participation increases.

Security of the Border Area (Arescrty): This is dummy variable which shows us either border area is secure from any abuse and fear or not has an effect on the cross-border market participation decision.

Access to Extension Service (AExSe): This is dummy variable taking the value of 1 if the household have access to extension service and 0 otherwise. Farmers who have access to extension service have better access on information on technology to supply market competent healthy livestock. Thus, it is indicated that the more pastoralists access to extension services, the more cross-border market participation increases.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

This chapter presents the results obtained from the survey and also the discussions resulting from the findings. These results and discussions were based on responses obtained from cross-border market participant and non-participant households i.e. one hundred fifty-five (155) respondents. The data of the study were analyzed using descriptive and inferential statistics.

4.1. Socio- Demographic Characteristics of Sample Households and Their Members

Table 4.1: Distribution of respondents by Characteristics

Variables	Category	Cross border participants		Non- participants	
		Frequency	%	Frequency	%
Age of the respondents	Below 30	6	7.8	2	2.6
	30-45	41	53.2	39	50.0
	45-63	20	26.0	25	32.1
	Above 63	10	13.0	12	15.4
Sex of the respondents	Male	46	59.7	45	57.7
	Female	31	40.3	33	42.3
Marital status of the HH	Married	39	50.0	69	88.5
	Unmarried	14	18.2	2	2.6
	Divorced	9	11.7	2	2.6
	Widowed	15	19.5	5	6.4
Education level of HH	Can't read and write	45	58.4	61	78.2
	Can read and write	24	31.2	16	20.5
	Primary school	8	10.4	1	1.3
Family size	2-5	32	41.6	28	35.9
	5-8	40	51.9	43	55.1
	Above 8	5	6.5	7	9.0

Source: Household Survey, 2019

Age of household head: The age structure of a given population indicates the number of productive and unproductive age group; the household head is economically active and supports the rest of the family members. Therefore, the majority of the household head's age ranged between 30-45 with 41 (53.2%) for participants, and 39(50%) for non-participants respectively, but household heads whose age are above 63 has the least portion in the age category, which is almost 10% for participants and 12% for non-participants. This indicates that majority of the respondents were in the productive age, which allowed them to engage in the market (cross-border and domestic market) and sell their products.

Sex of household head: Sex of the respondent determines their role in their day to day activity and decision making, whether to involve an indoor activity and outdoor activity. Due to cultural barriers, most of the time men take the major share in day to day decision making and involvement in the outdoor activities. Therefore, as the result of the study has shown, majority of the respondents both cross border market participants and non-participants were males 46(59.7%), and 45(57.7%) respectively, whereas 31(40.3%), and 33(42.3%) respectively were females. This indicated that a nearly equal number of female household heads have participated in both domestic and cross border market for the finding income to achieve household needs.

Marital status: Among the total sampled household heads, the majority of the respondents 39(50%), and 69(88.5%) respectively were married. The divorced accounted for 9(11.7%), and 2(2.6%) of the respondent's groups respectively. This implies that the population who participate in different markets (Cross-border and Domestic) are those in the married status because it seems that being household head and a parent of children have a probability of selling livestock to feed kids and cover household need than the rest of the marital status categories.

Educational level: Majority of the respondents 45(58.4%), and 61(78.2%) of the respondent groups respectively were illiterate, whereas, a few people 8(10.4%), and 1(1.3%) of each group respectively completed primary school. This finding indicates that the majority of the household heads were illiterate, which may make difficult for them to find alternative opportunities to overcome shocks and deficiency of income.

Family size: This enforces and pushes household heads to decide either they participate in the market to sell their livestock or searching for some opportunity elsewhere to cover household needs. Thus, knowing the family size also has the advantage of getting better knowledge about which household is large, medium, or small. Therefore, as respondents reported the majority of the respondents, i.e. 40(51.9%), and 43(55.1%) of the respondent groups respectively had a family size of 5-8 members in both, whereas, 5(6.5%), and 7(9.0%) of the respondent groups had above 8 members in the household respectively.

4.2. Availability of Infrastructure service

Table 4.2: Availability of Infrastructure service

Variables	Category	Cross border participants		Non-participants	
		Frequency	%	Frequency	%
Distance from the border	Below 85km	77	100	0	0
	Above 85Km	0	0	78	100
The border security	Yes	77	100.0	78	100.
	No	0	0.0	0	0.0
Presence of Human health facility	Yes	77	100.0	78	100
	No	0	100.0	0	0
Accessibility of clean drinking water	Yes	4	5.2	15	19.2
	No	73	94.8	63	80.8
Source of drinking water	Birka	68	88.3	55	70.5
	ponds	4	5.2	8	10.3
	Borehole	5	6.5	15	19.2
Distance to fetch water for the family	Below 1km	77	100	78	100
	Above 1km	0	0	0	0
Distance to fetch water for livestock	Below 4Km	76	98.7	78	100
	Above 4Km	1	1.3	0	0
Functionality of formal school	Yes	77	100.0	78	100
	No	0	0	0	0
Distance traveled to the school	Below 1km	64	83.1	40	51.3
	Above 1km	13	16.9	38	48.7
Accessibility of roads	Yes	77	100.0	78	100
	No	0	0	0	0
Type of road you do have access	all weather roads	52	67.5	56	71.8
	road used only dry season	25	32.5	22	28.2
	Asphalt	0	0	0	0

Source: Household Survey, 2019

Distance from the border: the intention of knowing the distance from the border was the more a given area is far away from the border, the more they like to participate in domestic market rather than crossing the border. Therefore, as we can see in Table 4.3. all of the respondents 77(100%), who cross the border to sell their livestock travel below 85km, whereas, their counterparts (non-participant households) 78(100%), are far away from the border i.e. (more than 85km). This indicates that the domestic market is nearer to those settled far away from the

border, whereas, border market is preferable to those settled around the border than the domestic market.

Border security: All of the respondents both who attended in cross border market and who did not i.e. 77(100%), and 78(100%) respectively reported that border area is secure from clan conflict which is major problem can cause fear to move along the border. This finding indicates that everyone can sell his livestock by crossing the border without a security problem.

Human health facility: As shown in Table 4.3 all of the respondents i.e. 155(100%) often agreed, that there is a clinic in their locality and it is functional, being evaluated its service as Good. This indicates the households in the study area have the opportunity to sustain their health status thereby their household members be economically active.

Accessibility of clean drinking and source of water: As can be seen from table 4.3 the majority of the categories of the respondents i.e. 73(94.8%), and 63(80.8%) respectively reported that they did not have access clean drinking water, whereas, only 4(5.2%), and 5(19.2%), respectively reported that they have access to clean drinking water. According to this result, majority of the categories of the respondents i.e. 68(88.3%), for participants and 55(70.5%) for non-participants reported that their source of water is Birka, followed by boreholes 5 (6.5%), and 15(19.2%). This indicates that in the study area birka is the main source of water which serve both people and livestock.

Availability of water for the household and livestock drinking: As shown in Table 4.3, all of the respondents i.e. 77(100%), of the cross-border market participants fetch water for the household consumption traveling for less than one-kilometer (1km) and traveling less than four kilometers (4km) for the livestock watering. Those who are not participants i.e. 78(100%) fetch water for both household and livestock purpose by traveling the same distance, i.e. less than 1km and 4km respectively. This finding indicates the sources of the water near to their homes, but the variation of distance for fetching water is caused by the seasonal variation as confirmed during the FGD.

4.2.1. Major challenges of water

As respondents also reported the water related problems in the study area were distance, scarcity and sanitation which influence the livestock productivity and marketing in the study area. As the survey result revealed, majority of the respondents (52.30%) complained that water shortage, 29.70% distance of water sources and 18.10% sanitation and lack of hygiene of water.

Water scarcity was the most series factor for both livestock production and marketing as per the majority of the respondents' opinion. It is a critical problem during the short rainy/dry season due to the fact that most of the family members became busy for searching water for their livestock and their home consumption. So, the pastoralist community as well the livestock supposed to move far distance to search and access to water, this result is in line with the previous literature report of (Wilson, 1998).

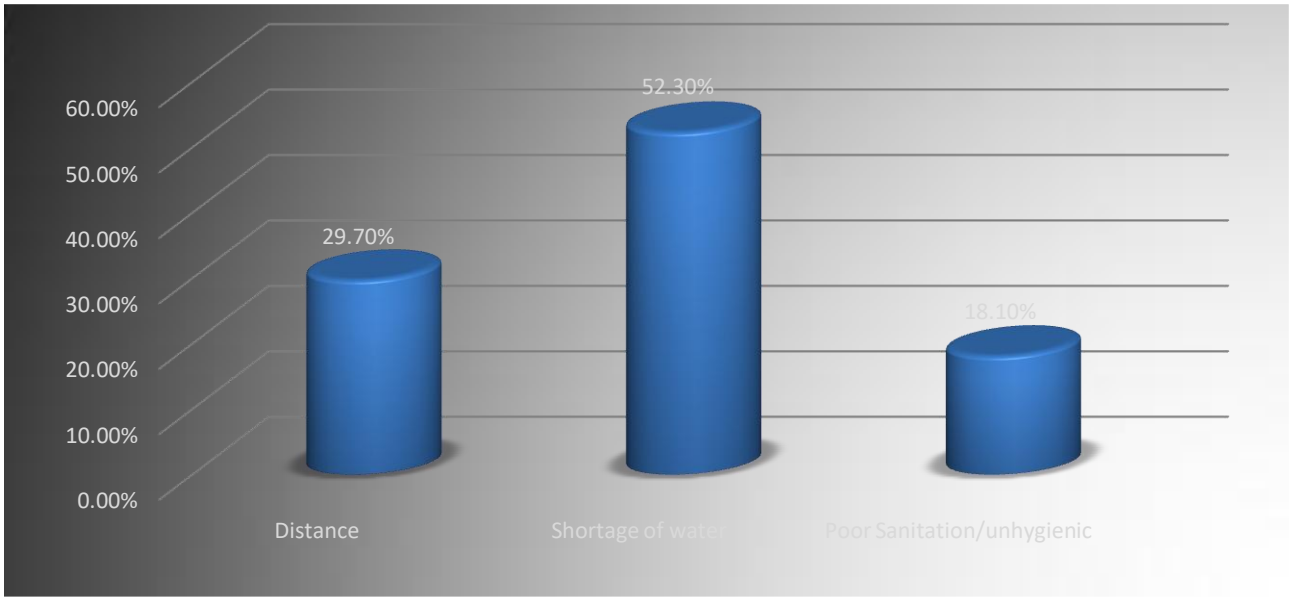


Figure 4.1: Water related problems

One of the Bali-Ase Kebele elders, during the key informant interview explained how the shortage of water is a serious problem beyond everything else and stated as follows;

> *"Water scarcity is the most serious problem in our area. We walk about 45Km away from our homes early of the morning without taking such energy, today morning even I missed a water for ablution in Masjid to pray. Our children and wives suffer from this problem. In addition to that water scarcity is not only the problem, but also lack of cleanness and poor sanitation of water, therefore we are requesting the government and any other institutions and organization which is involved water sector or affair to help us and dig underground water" (***KII from Bali-Ase elder).**

Accessibility of roads and the kind of road: Road infrastructures play a vital role in the rural-urban linkages. Rural roads allow rural people (pastoralists), who are isolated from urban areas, to sell their products to urban and access to roads minimize transaction costs. As shown in Table 4.3, majority of the respondents 52(67.5%) of those participated in border market and 56(71.8%) non- participants reported that they have access to all weather roads whereas, all respondent groups (155) had no access asphalt road 155(100%). This indicates pastoralist's area is challenged by access to road infrastructures which leads to a shortage of transportation and makes difficult the pastoralists to sell their products to earn income and cover household needs.

4.3. Livestock Ownership and Selling

Table 4.3. Livestock ownership, Livestock Sell and Total Income Earned in the last 6month

	Cross border participants					Non-participants				
Types of LV	No. owners	No.LV	Mean ±SD	No. sold LV	Total Amount received from the LV (in Birr)	No. owners	No.LV	Mean ±SD	No. sold LV	Total Amount received from the LV (in Birr)
Cattle	48	130	2.7±0.06	3	25,700	55	148	2.7±0.04	2	16,000
Camel	69	725	10.5±5.2	2	95,500	59	1,219	20.7±11.8	4	187,000
Shoats	77	5635	73.2±23.9	282	456,160	78	5535	71±31.2	258	312,890
Poultry	5	26	5.2±0.83	0	0	3	11	3.7±1.16	0	0
Donkey	34	28	1.2±0.38	0	0	30	28	1.08±0.3	0	0

Source: Household Survey, 2019

As can be seen in Table 4.4, firstly shoats (goats and sheep) are the majority types of livestock owned by all of the households (i.e. 155), and also shoats were also the dominant livestock, sold by the households in large number within the last 6 month where 282, and 258 were sold by cross-border market participants and non-participants respectively. The total income earned from the sale of livestock, small ruminants become the major source of cash income to the cross-border market participants who earned 456,160Birr whereas, their counterparts earned 312,890Birr from selling small ruminants. Moreover, cattle and camel can fetch better income but the majority of the household owned them do not tend to sell and earn income from them as shown in table 4.4. because only 3 cattle were sold by the participants who earned 25,000Birr, whereas two (2) camel were sold for 95,000Birr. Donkeys and poultry were not used for the commercial purpose, rather they are used for the household purpose. This finding indicates that shoats are the dominant livestock types held by the sampled households of respondent groups. This shows us, the importance of small ruminant production in the study area. This is because shoats are more liquid in restocking or destocking rather than other large ruminants. This gave flexible options for households to rely on them for livelihood engagements as a source of food as well as traditional and religious values. Moreover, small-ruminants are most vulnerable for drought and disease which affects their selling price. The result of this study goes with a study carried out by Mahamed (2015) which revealed the importance of small ruminants in the pastoral area compared to other categories of livestock.

Table 4.4. Accessibility to Veterinary Service

Variables	Category	Cross border participants		Non-participants	
		Frequency	%	Frequency	%
Household access to veterinary service	Have access	34	44.2	37	47.4
	Have not	43	55.8	41	52.6
	Total	77	100	78	100

Source: Household Survey, 2019

Veterinary infrastructure gives substantial relief for pastoralists as the people's livelihood mainly depends on the livestock and livestock products for their food, income, and draught power. As the scarcity of pasture become a dominant feature in the study area, pastoralists adapt periodic movement to the neighboring Somalia where they become fairly at risk to trans-boundary animal diseases from the flocks around. As shown in table 4.5, the majority of the respondents i.e. 43(55.8%) participants and 41(52.6%) non-participants have not accessed the veterinary service. This indicated that veterinary service is the main concern in the study area to provide marketable healthy livestock. This situation was also detected in the study conducted by Ahmed. (2017).

Table 4.5. reasons for decreasing the livestock for the last five years

Reason	category	Cross border participants		Non-participants	
		Frequency	%	Frequency	%
Drought	Yes	77	100.0	78	100.0
	No	0	0	0	0
Disease	Yes	77	100.0	65	83.3
	No	0	0	0	0
Sold for food	Yes	21	27.3	17	21.8
	No	56	72.7	61	78.2
Stolen	Yes	0	0	0	0
	No	77	100	78	100
Eaten by wild animals	Yes	1	1.3	6	7.7
	No	76	98.7	72	92.3

Source: Household Survey, 2019

As can be seen in Table 4.6, the major reasons that caused to decrease of livestock in the last five years in the study area were drought and disease as replied by 155(100%) of respondents. The other reasons are minor or have fewer portions comparing to drought and disease. This result implies that drought repeatedly occurred in the study area and livestock become vulnerable to disease and any negative situations, which in turn decreased livestock owned by the households.

Also, this implies and drought has an impact on the livestock price which pastoralists complained there is low demand in dry season.

4.4.Access to credit

Credit is crucial for pastoralist for purchasing livestock inputs like feed, animal drug, watering and to participate marketing. In the study area there was no access to formal credit, because credit services did not reach, but as respondents stated during the focus group discussion, they said that there is no formal credit service

Table 4.6: Distribution of respondent's access to credit

Variables	Category	Cross border participants		Non-participants	
		Frequency	%	Frequency	%
Household access to credit service	Have access	14	25.4	16	28.3
	Have not	63	74.6	62	71.7
	Total	77	100	78	100

Source: Survey result, 2019

The survey result revealed that, majority 116(72.8%) of the sample respondents had no access to credit service, whereas 39(25.2%) of the respondents had an access to credit. Those who access to credit is almost all from informal credit as respondents stated during the focus group discussion. Sources of credit in the area include informal sources like friends, and relatives, whereas, the formal sources such as micro-finance institutions like Somali microfinance institution (SMI), and Banks were not found in the district and in the Kebeles which means in the sample kebeles there were no formal credit institutions.

4.5.Perception of Pastoralists for the Cross-Border Livestock Marketing

In general, the questions related to perception contained 13 questions which were asked about cross-border livestock marketing. So, in order to get their overall perception, researcher calculated the average and interpreted the main questions as given in table 4.7.

Table: 4. 7 Mean of Perception computed from all questions

Cross-border market participant's perception	N	Minimum	Maximum	Mean	Std. Deviation
	77	2.62	4.23	3.7	.33

Source: Household Survey, 2019

The average participants' answers were computed at 3.7. This indicated that the average response of the respondents was between "Neutral" and "Agree" which indicates the average participants 'responses of the survey were positive among perception related questions. Where the minimum response of respondents was 2.62 which is between "disagree" and "neutral", the maximum response of the respondents was 4.23 which is between agree and strongly agree. But there is no average which is between disagreed and strongly disagreed. Overall the result has shown that the averages mean of respondents is "agreed" response.

People's perception plays a vital role in the decision of doing something or not. As reported the sampled households (the cross-border participants) reflected their attitude regarding the crossing the border and selling their livestock on the outside of the country, the majority of the respondents 24(31.2%), and 37(48.1%) respectively agreed and strongly agreed that selling livestock out of the country makes them happy because of better price they got from livestock sale outside of the country than selling at domestic market. The combination of agree and strongly agree responses gave by the respondents accounted 79.3% which is more than half of total respondents. This was also confirmed during FGD and by the interview with 48 years old, key informant, who stated as follows,

> *"our livestock are comfortable for international markets (cross-border market) where, a lot of buyers and sellers meet and try to challenge each other. If you disagreed with someone for the sake of livestock price, you will get for someone else, who is ready to buy even more than what was expected, and it is advantageous for us, whereas, in the local market you may not get someone who, even buy your livestock sometimes and then, when you look back for the long distance you come from and the buyer pushes you to sell this livestock without option even with cheaper price than what you expected before and our bargaining power is lesser in local market than cross-border market" (***KII from Bali-Gubadle elder)**

Also, majority of the respondents 33(42.9%) strongly agreed that they face abuse like harassment and confiscation from the border government of Ethiopian bodies (police) when crossing the border to search pasture and sometimes who move from one place to another to search water and pasture. The second largest number of respondents 27(35.1%) replied agree to the same statement. This result indicates that there are abuses faced by the pastoralists who cross the border to search water and, because of the border police perceived that livestock as they are ready to sell out of the country.

In the FGD this was also confirmed. Moreover,64 years old religious leaders from the Bali-abane kebele also explained that confiscation and harassments are among the most serious problems for the livestock producers in the study area. He further narrated the situation as follows;

> *"In 2015, there was the worst drought which resulted in dry up of water sources and lack of pasture in our area and then, we decided to move with our livestock through crossing the border to search pasture. Therefore, in the morning, when planned to move, we met the police around the border area, and even if, I didn't understand what they were talking about because of language barriers but they did at the same time talking with me as blackmail and removing the livestock with them they put me on jail around the border with my livestock after three days of investigation finally they released me from the jail and made my case contraband worker. Two goats were lost because of not having pasture" (***KII from Bali-Abane religious leader).**

This study result lends support to study carried out by Desta et al., (2011) cited in Wassie B. (2015) which revealed that informal cross-border livestock is carried out under grave conditions of negative which is vulnerable expressed in terms of army clampdowns, confiscations, harassments and various forms of abuse.

Moreover, majority of the respondents 24(31.2%), and 48(62.3%) respectively agree and strongly agreed that cross-border livestock marketing plays vital role for the household food accessibility and it allows the household to achieve cheap food items because of nearer to the border area.

A 32years old, Afuflay kebele development Agent (DA), who was one among key informants confirmed and stated as follows;

> *"The people, who live near the border area have an opportunity to sell their livestock outside of the country and could buy food and home properties from the border market in cheap price, which means directly purchased from wholesalers while in other areas which are far from the border, purchase things from the small traders who may even be in the third or fourth in marketing channel"***(KII from Afufley DA).**

This finding indicates that household struggled to overcome the shortage of food or food insecurity through crossing the border to sell their livestock which gives them a chance to avoid food shortage in the household and have a choice of food items they need. This result is consistent with the study carried out by Little et al, (2001). which the author stated as follows;

> *…CBT enhances food security through at least in two mechanisms. The first is through the supply of grain and other food items from surplus areas to deficit areas which makes food available and its price stable and affordable for the poor in the food deficit areas. Second, cross border trade helps traders to sell their products at relatively higher prices in the international market and generate more income… (*Little et al.,2001: 12).

Furthermore majority of the respondents i.e. 20(26%), and 23(29.9%) respectively "strongly disagree" and "disagreed" that informal cross-border livestock marketing is tax evasive way, whereas this kind of trade is prohibited by the government and perceived as a way of losing tax, the pastoralists in the other hand perceived it as their way of living and source of income to cover household expenses. This finding indicates that informal cross-border marketing in the pastoralist's point of view is a normal way of income source to survive their livelihood. This finding also is consistent with the study carried out by (Desta et al., 2011 cited in Wassie ,2015: 5) which revealed and stated as follows;

> *… pastoralist perceived or believed that informal cross-border trade as a normal system of transboundary exchange transactions vitally required for viable survival….*

4.6. Cross-border livestock marketing channels in the pastoral areas

As can be seen in Table 4.8, all of the sampled cross -border participants 77(100%) reported that they sell their livestock in Hargeisa town (Somaliland), rather than in Burao and Berbera. This indicates that Hargeisa is the nearest market for the pastoralists in the study area and the livestock marketing rout from harshin directly go to Hargeisa. Moreover, the clan relation plays vital role for the livestock route in this case because there is same clan from Harshin and Hargeisa(Isaak clan).

Table: 4. 8 Marketing places for the livestock of the cross-border participants

Marketing place	Frequency	Percentage
Hargeisa, Somaliland	77	100.0
Burao, Somaliland	0	0
Berbera, Somaliland	0	0

Source: Household Survey, 2019

4.6.1. Livestock marketing channels used by the pastoralists

Marketing channel refers to the sequential arrangements of various marketing intermediaries involved in the movement of livestock from producers (pastoralists) to formal and informal exporters. The livestock marketing channels identified in the study area are formal and informal channels. Since the taxation fee for respective organization in the chain is available, they are referred as formal market channels. But pastoralists that trek livestock from Ethiopia to Somaliland do not paying tax and transport through informal (unknown) routes, thus this specific market chain is defined as informal market channel.

Table 4.9. formal marketing channel

Channels	Cross border participants		Non-participants	
	Frequency	%	Frequency	%
Pastoralists - brokers -festival consumer	55	75.6	58	67.9
Pastoralists - brokers - Butchers	19	20.2	11	14.1
Pastoralists - brokers – Big traders- formal exporters	0	0	5	10.3
Pastoralists - brokers -small traders– Big traders- formal exporters	3	4.2	4	5.1

Source: Household Survey, 2019

Pastoralists - brokers -festival consumer: This channel is one of eldest and informal institutional based channel. Here the pastoralists sell livestock to broker and then to consumer traders, urban dwellers and newcomers from surrounding towns. The purpose of buyers of livestock is for festival consumption. The major festivals in the area were, religious festivals and wedding ceremonies. This indicates that informal institutions have such a significant role in marketing system of cattle. 55(75.6%) for cross-border market participants and 58(67.9%) of non-participants used this channel. Moreover, FGD participants also confirmed this result that the more the channel is short, the more producers are benefitted.

Pastoralists - brokers - Butchers: Here, pastoralists sell livestock to brokers, and brokers in their turn sell to butchers from surrounding towns. This is also referred as newly adopted value addition among the sample respondents i.e. 19(20.2%) of the cross-border market participants and, 11(14.1%) of non-participants respectively reported the existence flow of the livestock through this channel.

Pastoralists - brokers – Big traders- formal exporters: In this channel pastoralists sell livestock to broker and broker to big traders in the district or from surrounding towns and then to formal exporters. It accounts for 5(10.3%) of non-participants, while the cross-border market participants have not used this channel as can be seen in Table 4.12. This indicates that non-participants are active players in this channel.

Pastoralists - brokers -small traders– Big traders- formal exporters: This channel is the longest channel in the study area both formal and informal chain which accounts only 3(4.2%) for participants and 4(5.1%) of non-participants. During FGD, participants reported that long channel is not favorite of the pastoralist.

Table 4.10. informal marketing channel

Channels	**Cross border participants**		**Non-participants**	
	Frequency	%	Frequency	%
Pastoralists - brokers - small trader -informal exporters	24	31.2	53	67.9
Pastoralists - brokers - informal exporters	32	41.6	8	10.3
Pastoralists - brokers - collectors - informal exporters	11	14.3	11	14.1
Pastoralists -collectors - informal exporters	6	7.8	4	5.1
Pastoralists - other pastoralists	4	5.2	2	2.6

Source: Household Survey, 2019

Channel I: Pastoralists ➡ brokers ➡small trader ➡ informal exporters: This livestock market channel is common in the study area. From this channel pastoralists sell their livestock to brokers or with brokers to small traders and then to informal exporters. Among the cross-border market participants 24(31.2%) used this market channel whereas, the majority of the non-participants 53(67.9%) reported this channel. The majority of the livestock that flow to this market channel were shoats. This indicates the majority of the respondents from non-participants used to this channel comparing to their counterparts. District livestock and rural development officer confirmed this small-ruminants trade through this market channel by narrating as follows;

> *"In the district, there are many small traders, who are unable to make the trade for large ruminants. They have not much capital to trade with large stocks. Then they buy shoats from the pastoralists or brokers then add values, and seek to sell to exporters"* **(KII. Harshin LiRD officer**)

Moreover, this result contradicted to the study carried out by Zakarias, (2017) whose study has identified cattle as dominant in the market channel, where the current study found that shoats are dominant.

Channel II: Pastoralists➡ brokers ➡ informal exporters: In This channel also, pastoralists sell livestock to brokers, and brokers sell to informal exporters. As shown in Table 4.11 the channel is short in length but the majority of the participant respondents 32(41.6%) sell livestock outside of the country using this market channel. During the key informant interview (KII), a famous broker in the study area said the following about the importance of the brokers in the channels as follows:

> *"Brokers are the agents of their clans in the market and none of the brokers wants his cousin to loss and brokers carry out the responsibilities of the members of his clan and benefits from the market, which means brokers buy livestock (shoats) from their clan and sell them to exporters" (***KII from chronic broker)**

Channel III: Pastoralists ➡ brokers ➡ collectors ➡ informal exporters: This market channel also exists in the study area and used informally same to the above market channels. Pastoralists sell shoats to brokers and brokers sell to collectors who then resell to informal exporters. Even- though, this market channel existed long time in history, only 28.4% from respondent groups use it and is the third market channel in the study area. This result goes with study carried out by Povanalo, (2010) which revealed that brokers purchase livestock from pastoralist settled areas or bush markets, and resell to primary market or directly to traders. Moreover, the study carried out by Zakarias,(2017) also revealed the same market channel that exists in the study area.

Channel IV: Pastoralists ➡ collectors ➡ informal exporters: This market channel also exists in the study area. This channel shows that pastoralists sell livestock to collectors who then resell to informal exporters. This channel was reported by 12.9% of the respondent groups. In this channel middlemen (brokers) are not used. Collectors purchase from pastoralists (producers) directly, and resell to informal exporters.

Channel V: Pastoralists ➡ Other pastoralists: This market channel is one of the channels usually undertaken around the bush in the pastoralist settlements. In this market channel, pastoralists sell livestock (shoats) to other pastoralists. The proportion of small-ruminants pass through this market channel as reported 7.8% of the respondents. Here, pastoralists undertake marketing activity based on friendship, kinship, and neighborhood. The usual marketing point in this marketing channel was bush market. The major aim of this market chain is for restocking the livestock killed by drought and disease, etc. This result goes with that of (Zakarias,2017) study result which identified this as channel for marketing livestock based on the blood, kin or informal relationship which is similar to the current result. FGD participants also confirmed the informality of purchasing livestock from the other pastoralists and stated as follows;

> *…. In times when livestock are killed by drought, disease and other reason we purchase some livestock from other pastoralists who are better off than us and purchase arrangement is based on the clan, and neighborhood, or on being same social group with no mediator, and tax, value addition or registered agency between us….*

As result, there is no mediators between buyers and sellers.

Generally, formal marketing channels dominated by the informal channel and as FGD confirmed it has short cut to flow pastoralist and market their livestock to get high price. Moreover, this has impact to the household income which respondents claimed that the one who flow informal channel has better chance to sell high price for their livestock than the one flow formal channel with high transaction cost. This indicates that marketing channel play vital role for seeking household income improvement. Moreover, as can be seen livestock marketing channel brokers are active players even-though traders are most powerful in the chain as FGD confirmed but brokers are who play differently in different times and the source of information, and influence the price.

Furthermore, all the actors have share of income in value chain which sometimes lack of effective coordination of the actors results in pastoralists to be loser in the chain and as producers claimed during the discussion short channel is preferable for them.

4.6.3. Reasons for selling livestock in cross-border market and pastoralist's experience

As can be seen in Table 4.11, there were various reasons that cross border market participants involved in this activity. Therefore, the majority of the respondents 33(41.4%) reported cross-border market has better price than local market. FGD participants also confirmed that the goodness of the price in the outside market as fundamental reason of involving this activity. Moreover, the existence of cheap food items and home materials in the border market was also reported by the respondents as second reason of involving cross-border trade.

Table 4.11. Reasons for cross-border market involvement

Reasons	**Cross border participants**	
	Frequency	**%**
Better price than local market	33	41.4
Cheap food items exist	23	29.9
Near to our local area	5	6.5
getting chance of selling our product to international Market	16	22.2
Years involved in cross-border market		
1-5 years	16	20.8
6-10 years	22	28.6
Above 10 years	39	50.6

Source: Household Survey, 2019 **N.B: concerns only for cross-border market participants**

One key informant interviewed confirmed the result (i.e. the availability of cheap food item in the border area) as follows;

> *"Pastoralists can access from the border market, food item, and, home materials with less price and good price for their livestock which enables pastoralists to invest other sectors of their livelihood and improve their income comparing to the local market" (**KII from Bali-Abane kebele leader**).*

Furthermore, as shown in Table 4.11, majority of the respondents 39(50.6%) reported they have been involved in cross-border livestock marketing more than ten years while 16(20.8%) of the respondents have been involved one to five years.

4.7. Sources of Income

Table 4.12. pastoralist's sources of income and it is earning per month except for live animals

Source of income	Cross border participants			Non-participants		
	N (77)	Mean ±SD	Sum	N (78)	Mean ±SD	Sum
Livestock products (milk, hide, butter, cheese)	74	1,456.8±112.36	107,800	64	934.53±154.55	59,810
Charcoal	10	6010 ± 1,119	60,100	28	5211.4±888.1	145,920
Firewood	5	790 ± 124.5	3,950	7	728.57±157.7	5,100
Remittance	73	3,679.45±525.5	268,600	68	2454.4± 722.2	166,900
Petty trade	6	3,083±376.4	18,500	4	2,375±478.7	9500

Source: Household Survey, 2019

As we can see in Table 4.12, pastoralist households earn income from different sources to improve their livelihood and cover household expenses. Therefore, the six (6) sources are briefly described as follows:

Livestock products (milk, hide, butter, and cheese): These are among the sources of income for pastoralists, where majority of the respondents i.e. (74 sampled cross-border market participants and 64 non-participant households) earned their income. The average income received by participants was 1,456.8(SD±112.36), and 934.53(SD±154.55) for non-participants. This finding indicates that more than half of total respondents were engaged this livestock product selling as an alternative source of income. Moreover, cross-border market participant households get more income from this source than their counterparts.

Charcoal: This is a source of income to pastoralists, and 10 out of 77 sampled cross-border market participants and 28 out of 78 nonparticipant households earned income from their charcoal selling. The average incomes received were 6,010 and 2454.4 Birr for the participants and non-participants respectively. This indicates that the number of non-participant households engaged in charcoal selling are more than that of participants. But the income received by non-participant households is less than that of cross-border market participants.

Remittance: As shown in Table 4.12, the majority of the respondents, i.e. 73 out of 77 sampled cross-border market participants and 64 out of 78 non participant received remittance with the average income received were 3,679.45 and, 934.53Birr for participants and non-participants respectively. This result shows that remittance is the second largest source of income to pastoralists in the study area. Moreover, the amount of remittance received by cross-border market participants is larger than that of their counterparts.

Firewood and petty trade: Even though, the number of households engaged in those activities are 6 out of 77 sampled cross-border market participants and 4 out of 78 non participant households that earned income from petty trade, average income earned by these groups was, 3,083 and, 2,375Birr respectively. Moreover, the average income earned from selling firewood was 790 and, 728.57Birr respectively for the participants and non-participants. This result indicates that cross-border market participants are more engaged in petty trade than their counterparts.

4.8. Results of Econometric Model

As can be seen in Table 4.13, the cross-border market participants and non-participants are vary from each other for the household expenditures significantly at 1 percent probability. Monthly, the cross-border market participants spent 5515.84Birr whereas, their counterpart (non-participants spent 7691.03Birr and their difference was 2175.19Birr. This finding indicates that cross-border market participants have access to cheap items along the border market which participation of cross-border livestock trade increases household income.

Table 4.13. Comparison of mean expenditure between participants and non-participants

Do you participate in cross border livestock trade?	N	Mean	Std. Dev	t	p
Yes	77	5515.84	3227.69	-3.686***	0.000
No	78	7691.03	4065.25		
difference		-2175.19			

Source: own survey, 2019

Moreover, there are different activities, which the income of the pastoralists was spent. These are described as follows;

Income expenditure for food: The mean expenditure on food with monthly was 1,831.8 and, 2475.6Birr for the cross-border market participants and non-participants respectively. This indicates that all respondents spent more for food than other expenditures. When comparing the average expenditure of the respondents, cross-border market participants spent less in food than their counterparts.

Educational expenses: When we say educational expenses in this study it is not concerned about private schools but in pastoral schools dispersed into pastoral area. Pastoralist households, who live in a given area collect monthly small amount of money to attract and motivate teachers to cover their daily expenditure because of their salary is small**.** Moreover, the children of the pastoralist also may not have an interest to learn, then parents motivate children and purchase learning materials to the children. Thus, the sample households from cross-border market participants spent 150.1Birr monthly for education whereas, non-participants also spent the same amount to education.

Transportation expenditure: in pastoral area it is obvious the major problem exist is lack of road which leads to shortage of transportation and this also results in high cost for the pastoralists to travel with cars. Average monthly expenditure for transport was 231.3Birr for cross-border market participants, and 244.3Birr for non- participants.

Animal and human health expenditure: Are also other expenditures which pastoralist spend their incomes for various inputs and services. Perhaps where the infrastructures are available in the study area but not equipped well, pastoralist households purchase medicines somewhere else like, private veterinary clinic and pharmacies. The average expenditure on purchasing animal

medicine was 193.25Birr for cross-border market participants and 216.8Birr for non-participants. Moreover, the amount spent on human medicine was 359.7Birr and 216 Birr respectively.

Livestock watering expenditure: Even-though, this is not a permanent expenditure activity, pastoralists have to spend on water during the occurrence of drought. The average expenditure by household to fetch water for livestock was 761.4Birr, for the cross-border market participants whereas, 1,603Birr for non-participants. The finding result indicates that fetching water for livestock costed much and next to food expenditure.

4.8.1. Estimation of Propensity Scores

Binary logit model was used to estimate the propensity scores of respondents which help us to perform matching algorithm between the treated (cross-border market participants) and control groups(non-participants) in the study area. In estimating the propensity scores, data from both groups were organized such that the dependent variable takes a value of 1 if the household was cross-border market participant and 0 otherwise.

The pseudo-R2 value of 0.27 shows that, the estimated model performs well for the intended matching exercise. A low pseudo-R2 value means cross-border market participant households do not have many distinct characteristics from non-participant households and this finding shows that there is good match between the two groups based on pre-determined characteristics. According to table 4.18, among 10 variables included in the model, 4 are statistical significance such educational level of the HH, family size, number of livestock owned by the household, distance from nearest market place at 1 percent, and 5 percent level of significance respectively. However, among explanatory variables included in the model, six variables were found to have no significant influence on pastoral household's income.

Table 4.14 model output of the pre-determined factors of cross-border market participation

Variable	Coefficient.	Standard. Error	Z-value	P>Z
Age	-0.019	0.011	-0.17	0.082
Sex	-0.013	0.25	-0.05	0.958
Marital status	0.119	0.256	0.47	0.642
Educational level	1.528***	0.257	5.92	0.000
Family size	-0.713**	0.360	-1.98	0.048
Number of shoats owned	1.422***	0.281	5.04	0.000
Distance to Animal Health Center	0.276	0.031	0.88	0.378
Distance to nearest market	0.500**	0.242	2.07	0.039
Security of the border area	-0.873	0.493	-1.77	0.077
Access to extension service	-2.550	1.457	-1.75	0.080
LRChi2(8)				75.73
Prob>chi2				0.000
Pseudo				R2 0.25
Log likelihood				-69.56

Note: ** and *** significant at, 5% and 1% probability level

Educational status: is a human capital that enables pastoralist households to diversify their means of income. The result of the model revealed that educational status of the household head and cross-border market participation has positive relationship and significant at 1 percent probability level. The positive sign shows that, increase in the educational status increases the likelihood of the household to participate in cross-border market to improve the household income. The percentage of illiteracy and literacy in cross-border market participants vary from that of non-participants i.e. 61(78.2%) and 53(68.8%) were illiterate from sample respondents respectively, while 17(21.8%) and 24(31.2%) were literate. This mean difference between the

treated (cross-border market participants) and controls group (non-participants) was highly significant (at 1 percent).

Family Size: is another variable that was significant at 5 percent and negatively related to cross-border market participation which means the more the family size is large the more a given household prefer to the local market. The mean family size of sampled households was 5.90 and the mean family size of cross-border market participant households was 5.79 whereas 6.01for non-participant households. The finding of the study shows that difference in mean family size of cross-border market participants and non-participants was highly significant (at 5 percent probability level).

Number of shoats owned: This factor had the assumption of, as the herd size increases, the probability of pastoral household to take part in cross-border market increases. Based on the survey result the mean small-ruminant's size of sampled households was 87. 0, and the mean shoat size of cross-border market participants was 88.96 shoats whereas, 84.99 shoats for non-participant. This statistical analysis for number of small-ruminants owned by the household revealed that there is significant mean difference between participants and non-participants (at 1 percent probability level). This finding is also consistent with studies carried out by (Asfaw and Jabbar, 2008), Barrett B et.al. (2004) that stated the households with larger herd size has higher ability to generate surplus animals and are therefore more likely to sell. In addition to that it implies active markets depend on pastoralists attaining and maintaining sufficiently large herd sizes that they become willing to liquidate animals through the market. As FGD confirmed, it is generally believed that pastoralists sell their animals at least partly in response to demand for cash to meet expenditure needs.

Distance to nearest market place: market plays important role for the pastoral livelihood which is frequently asked to be solved. Pastoralists move long distance to sell their livestock in order to generate income and cover household expenses. Thus, as the distance to nearest market place decreases the more cross-border market participation increases. This factor is also the last variable which was significant at 5 percent probability and has positive relationship with the cross-border market participation. The mean distance for the sampled households to the nearest market place was 44.15 Km where treatment (cross-border market participants) and control group (non-participants) households' time taken to reach nearest market was 42.10 and 46.02

Km respectively. This mean difference between the treated and controls group was highly significant (at 5 percent).

Table 4.15. Estimated Propensity Score Distribution

Group	Observation	Mean	Std.Dev	Min.	Max.
Participants	77	0.615	0.227	0.114	0.975
Non-participants	78	0.316	0.235	0.017	0.913
Total Households	**155**	0.451	0.275	0.017	0.975

Source: Own estimation, 2019.

After running the model and propensity score is estimated as shown in Table 4.19, the cross-border market participant households' propensity score varied between 0.114 and 0.975 with mean propensity score of 0.615, while non-participant households' propensity score varied between 0.017 and 0.913 with the mean of 0.316. Therefore, based on this calculated propensity score common support region (0.114 and 0.913) was developed by using minimum and maximum criteria and any household that has below minimum and above maximum was discarded from the sample.

4.9.1.1. Treatment Effect on the Treated (ATT)

Table 4.16. Results of average treatment effects on treated.

Variable	Treated	Controls	Difference	S.E.	T-stat
Total income Unmatched	13458.6	10578.5	2880.1	1524.6	1.23
ATT	13458.6	9768.96	3689.6	1227.1	3.82***

Source: Household Survey, 2019 *** indicates that variables are significant at 1%

The study results presented in Table 4.20, revealed that the cross-border livestock market participation has enabled the participant households to improve their household income. The study also revealed that the cross-border market participation has positive and highly statistically significant impact on household income. After controlling for pre-determined differences in characteristics of the participant and non-participant households, it was found that, on average, the participation has increased monthly income status of the participating households by

3689.6Birr, and this shows that due to cross-border market participation, the participant household's income increased by more than half (61.96%) as compared to the controlled households and this impact was highly significant(at 1 percent probability level).

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This chapter presents the conclusions regarding cross-border livestock marketing with pastoral household income and pointed out key areas for policy recommendations, and further research based on the findings of the study.

Formal cross-border livestock marketing are highly bureaucratic and inflexible which benefits only to larger traders and discourages livestock producers who are suffering problems caused by market challenges like low bargaining power, distance to market, price fluctuations and lack of bottom up market policy.

Informal cross-border livestock marketing has attractive market channel which helps pastoralists to engage easily, flow and market their livestock with seeking and expecting high price. It allows producers to challenge brokers and traders due to high demand in the cross-border market. Local market is not enough to respond the needs of livestock producers due to low demand exist which pushes pastoralist to sell their livestock outside of the country.

Pastoralists participate in cross-border livestock market to cover household expenditure and this lead increasing the number of livestock supply to cross-border market. Due to positive relationship between cross-border livestock market participation and household income it is found that the household income influenced by cross-border market participation significantly.

Brokers play the biggest role in both formal and informal market channel, more than three fourth of pastoralists (producers) market their livestock by intermediating process of brokers. Out of total sampled respondents only 20% sold livestock directly to traders and other pastoralists. It is concluded that the pastoralists are dependent on brokers for market information.

Cross-border market participation ensures for participants accessibility of cheap food item and home materials exist in the border with less price, high livestock price with high bargaining power. Poor infrastructure and recurrent drought which depleted livestock holding are among the causal factors of lack of sufficient income in the study area.

Furthermore, in the study area the pastoralist's perception towards cross-border livestock marketing reflected positively which indicates that this trade is essential for their household

income and reduces livelihood shocks and stresses caused by drought and imperfection local market.

Finally, many challenges faced by the pastoralists due to cross-border trade exist in the study area such as, harassments and abuse from government bodies are major problems specially during dry season to move their livestock along/crossing the border to search water and pasture.

5.2 RECOMMENDATIONS

Based on the findings of the study, the following recommendations would be possible areas of intervention which might lessen the problem of cross-border livestock marketing if properly addressed in the district.

- Formalizing the informal marketing is not easy which is highly preferable and influenced household income than formal channel in the pastoral area. Thus, policy makers, ECRA officials should develop inclusive policy with participation of pastoralists which minimizes the bureaucratization of formal marketing channel to encourage smallholder producers, small traders than large trader who have more capital and capacity to pass this challenged channel.
- Pastoralists seek high price for their livestock and this caused lack of attractive in local market due to small number of buyers, low bargaining power, and over supply. Thus, this results in pastoralists flow the informal market channel to overcome the problem of income deficiency in the household and cover household needs. Therefore, government collaboration with different market institutions should pay attention to balance supply and demand fluctuations and develop infrastructurally the local market
- Paying attention to cross-border livestock marketing means improving the livelihood of large population who live under harsh and grave condition and depend on livestock for food, clothing and housing. Therefore, based on the finding results policy makers, woreda, regional and federal government bodies should give due consideration this issue rather than totally prohibited the activity which has been existed centuries and researcher should investigate the effects of the trade more.
- Pastoralist do not prefer the long marketing channel due to influence of the brokers and the traders. Policy should be focused to infrastructural development, shortening the

supply chain and thereby solving challenges surrounds in formal marketing channel. In addition to that, institutional arrangements, policy support and adopting legalized channel against illegal rout could play a key role for low proportion of final price share of producers in informal route, brokers' interference, lengthy channels, high transaction costs and traders' market power and dominance.

- As long pastoralists believed this cross-border livestock marketing as normal and inevitable activity while the government believes the majority of cross-border livestock marketing engaged by pastoralists are illegal the gap of misunderstanding will be continuing. Therefore, the woreda administration collaboration with regional and Ethiopian Customs and Revenue Authority (ECRA) officials should hold awareness creation, panel discussions, and debates with the participation of pastoralists to narrow that gap.
- Searching water for the household and livestock during dry season to long distance is the serous challenge causing school drop- out of children and it takes to move more than 40km away from their villages. Thus, the government with the collaboration of non-governmental organizations should enhance water accessibility mechanism in the pastoral area to get even competitive and healthy animals to international market.

Suggested for further studies

- Further research on cross-border livestock marketing sustainability as viable pastoral livelihood strategy
- Study is needed to carryout effects of cross-border livestock marketing on pastoral small-trader's income.
- Similar studies should be carried out in other cross-border engaged woredas of the region to see if the findings are similar so the comprehensive cross-border livestock marketing policies may be formulated to improve the wellbeing of pastoralists in the Somali Regional State and in the country as a whole

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APPENDIX ONE: HOUSEHOLD QUESTIONNAIRE

Dear respondent my name is Mohamed Abdi. I am a post graduate student at Addis Ababa university school of graduate studies, department of Rural livelihood and development. Currently, I am writing my thesis of cross border livestock Marketing and Pastoral Households' income: the case of Harshin district, Fafan zone Somali regional state. The responses you provide me are valuable and will be held in utmost and will be used only for academic purpose.

General information

District: _____ Kebele: _____

Date of interview: _____

Part One

Demographic characteristic of the Household Head

101	102	103	104	105	106
Household ID	Age of the respondent	Sex of HHH	Marital status of HHH	Education level of HHH	HH size
		1: male ☐	1: married ☐	1: Can't read and write	
		2: female ☐	2: single ☐	2: can read and write	
			3: Divorced ☐	3: primary school	
			4: widowed ☐	4: secondary school	
				5: above secondary school	

107. Household profile

s/n	Name of the HH member	Age	Sex **1: male** **2: female**	Education **1: Can't read and write** **2: can read and write** **3: primary school** **4: secondary school** **5: above secondary school**	Occupation 1.Trade 2.Daily labor 3.Others specify
1					
2					
3					
4					
5					
6					
7					
8					

Part Two

Availability of Infrastructure service

201: Do you participate in cross border livestock trade? 1) Yes 2) No

202. how long the border is far away from your locality? _____ Km

203. is the border area secure? 1) Yes 2) No

204. Do you have human health facilities in your area? 1) Yes 2) No

205: If yes for q (*204),* how far do you travel to get the health services? _____Km.

206**:** Do you have access to clean drinking water in your area? 1)Yes 2) No

207: If no, for q (*206)* what is the source of your drinking water?

1)Traditional well 2) Birka 3 Ponds

4) Springs 5) Borehole 6 others(specify)_____

208A**.** How far you travel to fetch water for your family consumption? _____Km

208B. How far you travel to fetch water for your animals? _____Km

209. Can you mention the major challenges you face related to water? 1)Yes 2) No

210. **If yes for q209** what are the major challenges**?**

1. _____ 2. _____

3. _____ 4. _____

209. Is there formal school which is functional in your area? 1)Yes 2) No

210: If yes for q209, distance traveled to get the service. **_____**Km.

211: Do you have access to roads? 1)Yes 2) No

212: If yes q211, indicate the type of road you do have access to it.

1) all weather roads 2) road used only dry season 3) asphalt

Part Three

Livestock Ownership and selling

301. From the following list of Livestock, please indicate how many are owned by the household, types, price of individual livestock sold by the last six months

S/n	**Type of the livestock**	**No owned**	**Unit Price in (Birr)**	**No. of Sold livestock during the last 6 months**
1	Cattle			
2	Camel			
3	Shoats (sheep and goats			
4	Donkeys			
5	Others			

303. What herd types of livestock are you selling in mostly?

1) shoats 2) camel 3) cattle 4) others

304. do you sell your livestock monthly? 1) Yes 2) No

305. are you solely dependent on cross border livestock marketing as source of income?

1) Yes 2) No

306. Is there accessibility of veterinary service in your locality?

1) Yes 2) No

307. If question 306 is yes what animal health facilities are found in your locality

Facilities	Number
Crush	
Dipping path	
Health post	
Vet clinic	
Others, specify	

308: If q307is yes distance traveled to get the service (km) _____?

309. How do you rate the services are provided by the vet facilities in your area?

1) Excellent 2) very good 3) Good 4) satisfactory 5) hardly operational

310. Has the number of livestock owned by your household decreased over the last 5 years?

1). Yes 2). No

311. If question number 310. is yes, then what is/are the reasons? (Circle all that apply)

Reason for decrease	**Yes (1)**	**No (2)**
Conflict		
Died during drought		
Disease		
Sold for food		
Stolen		
Lost		
Eaten by wild animals (e.g. hyena…)		
Gave out for charity (Zakaat)		

Part Four
Credit, Saving and Social Associations Service

401. Have you received any type of credit for the last 12 months? 1) Yes 2) No

402. If yes for Q401. What were the sources of the credit?

1) Relative /friend 2). Traders/merchants 3). NGOs 4). Others (specify)_____

403. if yes for Q401, for what purpose you received the credit

404. Does your household have habit of saving? 1). Yes 2). No

405. If yes for Q404, in what form? 1). for traditional 2). for modern

406. Do the communities or clans in your locality help each other in case a member of them faces a problem (financial etc)? 1). Yes 2). No

Part Five
perception of pastoralists for the cross-border livestock marketing

S/n	Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	The cross-border market is better than local market for the sake of getting fair price					
2	The informal cross border livestock marketing is the way of refusing the government taxes					
3	The sources you get from the information were the most sources you were expecting					
4	The cross-border livestock marketing is the main source of your income					
5	The cross-border livestock marketing is a victim for conflicts					
6	You face confiscation from police and other bodies, at crossing the border with your livestock to search pasture					
7	Cross border livestock marketing is highly cost for the sake of time					
8	Cross border livestock marketing is highly cost for the sake of money					
9	To minimize transportation cost and other expenses using local market is better for livestock marketing than cross border market					
10	Cross border livestock marketing is highly dependent on the social network (clan-relation					
11	Formal cross border trade is highly Bureaucratic and difficult to engage pastoralists and small traders					
12	Cross border livestock marketing plays vital role for the household food accessibility					
13	Informal cross border livestock marketing is a coping mechanism and way of scaping poverty					

Part Six

Market/Marketing channel

601. Where are major marketing places for your livestock?

1) local market 2) cross border market

602. What are the basic sources of market price information?

1). Radio 2). Merchants/traders 3). DAs,

4). Friends /relatives/neighbors 5) others (specify)_____

603. What is average market distance you travelled to nearest market from your home measured in ours of walk? _____ Hours

604. What means of transport do you use to transport your livestock to the market? _____

1) Truck/vehicle 2). walking

3). Others (specify)_____

605. Did you get reasonable price for your livestock at the particular time? A) Yes B) No

606. If no why did you sell at that particular time of lower (unreasonable) price?

1). To settle debt 2). To pay taxes 3). For social obligation

4). To meet family requirement 5). Others (specify)

607. What are the problems in marketing of your livestock?

1). Transportation cost 2). Low price 3). Low bargaining power

4). Too far from market 5) Others (specify)

608. do you use different channels to sell your livestock? 1)? yes 2). No

609. if yes Q608, what channel you use?

1). pastoralists ⟶ brokers ⟶ collectors ⟶ exporters

2). pastoralists ⟶ collectors ⟶ exporters

3). pastoralists ⟶ brokers ⟶ exporters

4). pastoralists ⟶ other pastoralists ⟶ exporters

5). pastoralists ⟶ brokers ⟶ small traders ⟶ exporters F). others, specify___

Part Seven

cross border livestock marketing participation and household income

701. Do you use different source of income? 1). Yes 2). No

702. If yes indicate the main source of your income, amount, in Birr in the last six months (2018)

s/n	Sources of income	Amount generated in ETB
1	Selling livestock	
	Selling livestock products (milk, hide, butter, cheese)	
2	Charcoal	
3	Firewood	
4	Paid job	
5	Remittance	
6	Petty trade	
Total		

706. What are the reasons that led you to engage in cross-border trade?

707. For how long have you been involved in cross-border trade? _____ years

708. Do you think that cross border livestock marketing is major source of income activities for your household? 1). yes 2). No

709. does cross-border trade participation have links to your household needs?

1). yes 2). No

710.If Q709 is yes for which direction?

1) food security 2) access to education,

3) health 4) income 5) asset accumulation

711. What challenges do you face in your cross-border livestock activities?

1) army clampdowns 2) confiscations 3) harassments 4) other abuse

712. What strategies do you use to overcome the challenges that you mentioned?

1) Minimizing the number of livestock, we are going to sell

2) cooperating with different people's livestock 3) finding the schedule of border police

713. In spite of the challenges you face, what motivates you to continue engaging in cross border trading activities?

1) more income than local 2) cheap food items available

3) more demand is available 4) foreign exchange is available

Part Eight

Household Expenditures

8.1. are there any expenses that spent households to different activities? 1). Yes 2). No

8.2. if yes Q8.1. mention the activities and its amount in Birr

Household expenses	**Amount(cost) in Birr**
Food	
Education	
Transportation	
Clothing	
Animal health clinic	
Human Health	
Paying of livestock	
Livestock watering	
Others	

APPENDIX TWO: FGD and KII

FGD checklist

1. how is the availability of formal credit institutions in the area?
2. Do you know the history of cross border livestock trade in your area?
3. Do you believe that cross border trade is a viable livelihood strategy?
4. What is the main reason that you sell your livestock across the border market?
5. Are you comfortable to sell your livestock at cross-border market?
6. Are you benefitted for informality of livestock marketing?
7. What is the linkage between participation of cross border livestock trade and your household income?
8. Do you believe informal cross border trade is a way of refusing taxes?
9. Do you face abuses in the border area with your livestock for searching pasture and water?
10. Is there anybody in your community who benefitted from cross border trade and changed his life through it?
11. Do you suggest continuity of engaging cross border livestock trade?
12. What do you say about the criminalization of this trade from the government?
13. Do you believe cross border livestock trade play more than other sources of income?
14. Why informal cross livestock trade is more than formal one?
15. Is your ownership of large number of livestock determined to your decision for participation of cross border livestock marketing?

KII checklist

1. Is there any problem about infrastructure availability in the area?
2. How do you see cross border livestock trade in your area?
3. What do you suggest pastoralists make cross border trade as a main income generating activity?
4. What is your opinion about cross-border livestock marketing allowing pastoralists to access cheap food items and other materials?
5. What do you believe about pastoralists face harassment, confiscation and other abuses in the border area?
6. Do you think that household needs are the main pushing factor that pastoralists sell livestock with cheap price sometimes?
7. Do you think broker are important agents in livestock marketing chains?
8. Why small ruminants become dominant for livestock marketing places?
9. What do you say about selling livestock across the border instead of domestic market?
10. Is it habit pastoralists to sell their livestock at cross border market or problem exists at local market pushes them?
11. What challenges pastoralists face through cross border livestock trade?
12. Are only pastoralists who are far away from the local market participating at cross border market or others also?
13. What do you say about criminalization of cross border trade from government?
14. How could you see the interlinkage between cross border trade and household income?
15. What is your recommendation about pastoralists to get their benefit from cross border trade and government also to get its tax and foreign exchange?

APPENDIX THREE: SAMPLE PICTURES

during the survey

Bali-Ase push market

fetching water, and schooling children during dry season in pastoral area