Analysis of G ender Role in Cattle Value Chain in Dugda Dawa District, Borena Zone, Ethiopia.

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Abstract

This study was conducted to examine the gender roles in cattle value chain in Dugda Dawa district, Borena zone, with specific objectives of identifying gender roles in cattle value chain; examine the performance of actors in the chain; identifying the determinants of cattle supply to the market and assessing the major constraints and opportunities in cattle value chain. The data were collected from both primary and secondary sources. The primary were collected from 194 pastoralists, 14 traders, five feed lot operators, 4 butchers and 4 hotel and restaurants. The study result showed that women were highly marginalized from economic benefit while they are burdened with work load in both production and reproduction role. The value chain map of the cattle consists of major actors such as input suppliers, producers, small traders, cooperatives, larger traders, and brokers, feed lot operators, exporters, butchers, hotel and restaurant owners and consumers. Large traders, feed lot operators, hotel and restaurants, butchers, and small scale traders share 24.28%, 18.37%, 16.11%, 13.4% and 14.28% profit margin respectively. While, producers doing all the work of producing cattle and bearing the associated risks, took only 13.50% of the profit margin. As market channels become long the profit that goes to producers tend to decline. The result of the Multiple linear regression models indicates that marketable supply of cattle is significantly affected by, number of extension contact, being cooperative member ship and sex of house hold head, positively and significantly at 1% and 10% of significant level respectively. Marketable supply of cattle was affected negatively and significantly by family size and woreda distance at 1% significant level. Some of the major constraints are identified to be lack of equality and equity, market, infrastructure, disease and health care, environmental degradation, lack of market forum and market oriented pastoral organization, and informal cattle trade. Therefore, policy aiming at promoting and ensuring gender equality and resource ownership, establishing market oriented pastoral organization to improve the benefit share

of producers, promoting extension coverage, strengthen cooperative, health care and quality standard, developing and improving infrastructure, controlling informal cross border trade , pasture land rehabilitation and use, investment in abattoirs and beef in pastoralist area, and traceability, are recommended to accelerate the chain's development.

Key words*: Actors, Cattle Value chain, Gender roles, Pastoralist, Multiple linear regression models.*

INTRODUCTION

The livestock subsector has an enormous contribution to Ethiopia's national economy and livelihoods of many Ethiopians. Livestock plays vital role in generating income to farmers, creating job opportunities, ensuring food security, providing services, contributing to asset, cultural and environmental values, and sustain livelihoods. The livestock sector, which is largely concentrated in arid and semi-arid lowland (ASAL) regions, contributes 12–16% of Ethiopia's gross domestic product (GDP) and 30–35% of the agricultural GDP (CSA, 2014).It also contributes 15% of export earnings and 30% of agricultural employment (Behnek, 2010).

According to research study by Leta and Mesele 2014. Export trade in live animals sourced mainly from pastoral areas rose from USD 27.3 million in 2005–2006 to USD 147.9 million in 2010–2011, and exports of chilled meat increased during the same period from 7,717 metric tons (MT) to 16,877MT. In general livestock plays an important role in improving food security and reducing poverty in Ethiopia. Any shocks that affect livestock will have adverse effects on the overall economy, as well as on household welfare. Conversely, accelerated growth in the livestock sector has the potential to have significant positive effects on overall economic growth and poverty reduction (FAO 2015).

Many aspects of livestock keeping, including knowledge, labor, ownership, and user rights are gendered, that is men and women have different knowledge about livestock, are in charge of different livestock-related tasks, own different types of livestock, and have different rights to the products of livestock. This pertains especially to pastoralist societies, with their long traditions of livestock keeping. However, while gender roles may be deeply embedded in a community's social fabric, they are not written in stone (FAO, 2012). In particular, women tend to take over male tasks if there is no suitable male available to perform urgent work such as taking animals for grazing. Men are said to be more reluctant to take up tasks that are traditionally performed by women (FAO, 2012). Task wise, women are generally, but not always, in charge of milking and taking care of young and sick livestock, while men take the animals for herding and deal with the outside world, including selling animals and their products and arranging access to grazing (FAO, 2012).

It is known that women's work often takes place in least valued parts of a value chain such as home-based workers or informal workers more generally.
In agricultural settings women are often not visible while they do a large part of the farm-activities. Moreover, it is well-documented that women-owned rural businesses tend to face many

more constraints and receive far fewer services and support than those owned by men (Mayoux, 2010).

Inequality is not only about inequality in incomes but also about inequality in opportunity. Gender inequality is integral to other forms of social inequality and therefore poses particular constraints to economic growth: opening up opportunities for women represents a significant force for change (World Bank, 2006).

As study done by Cathy Watson, (2010), the Borana's pastoralists, like pastoralists the world over, remain at the margins of national economic and political life. However pastoral women are 'doubly marginalized' since they experience the discrimination and marginalization, while also living in remote, under-serviced areas, leading a lifestyle that is misunderstood by many decision makers

Access to financial services is especially critical for women in terms of enhancing their ability to participate in value chains beyond producer roles.

For example, the ability to add value to agricultural produce (Mutua, *et al.*, 2014), power asymmetries across various levels of value chains influence value chain governance and the roles and voice of different actors within the chain. These power asymmetries can determine the positioning of people within the chain (who is allocated or who plays what role in the chain), and who makes decisions and has most information about different aspects of the chain.

According to Berhanu *et al.*, (2007) a number of fundamental constraints affect the participation of women in live-stock value chain. These outcomes, include traditional technologies, limited supply of inputs (feed, breeding stock, artificial insemination and water), poor or non-existent extension service, high disease prevalence, poor marketing infrastructure, lack of marketing support services and limited credit services, absence of effective producers' organizations at the grass roots levels, and natural resources degradation.

For progressive development of the livestock production sector, then households' income generation and transformation the small-scale and subsistence producers to commercial operators, investigation of cattle value chain needs to be carried out, as there was not done such research in this area. Therefore, in line with the market-oriented production strategy of the country's policy this paper aims to identifying gender role in cattle value chain and examining the performance of actors in the chain; specifically identifying gaps and critical constraints for cattle producers in the district.

Objectives of the Study

The general objective of the study is to examine the gender role in cattle value chain in Dugda Dawa District, Borena zone, in Ethiopia.

Specific Objective.

    1)   To assess the gender roles in cattle value chain.

    2)   To map cattle value chain and examine the performance of actors in the chain;

3)   To identify the determinants of cattle supply to the market.

4)   To assess the major constraints and opportunities in cattle value chain.

METHODOLOGY

Description of the Study Areas

Dugda Dawa Woreda is one of the 13 Woredas in Borena zone of Oromiya Regional state, Southern Ethiopia. The capital city of Dugda Dawa wored is Finchawa town. It lies N 05°24.070' and E038°16.414' (Direct GPS reading) in Southern Oromia, 502 km away from Addis Ababa. The district has 13 kebeles. These kebeles have a total livestock population of 841,408 constituting cattle 342,822, sheep 108,190, goat 237,077, donkey 31,539, mule 2,169, camel 35992, Horse 208 and poultry 83,411 (Dugda Dawa Pastoralist Development office 2016).

Sampling Methods

In order to conduct the study in a representative way and to increase its reliability and validity a three stage sampling procedure was employed. The stages involved in sampling procedure were;

  First stage: - Dugda dawa district, was selected purposely among 10 pastoralist woredas in the zone based on; Production potential & accessibility.

  Second stage: - Once the district was selected as a study area, sample kebeles were selected purposively depending on number of cattle.

  Third stage: - The next step was selection of the sample households, which was undertaken by employing simple random sampling technique according to proportional size of these kebeles' population.

Sample Size Determination

Producers sampling

Household heads were selected by using the simple random selection method. Yamane (1967) provides a simplified formula to calculate sample sizes. This formula was used to calculate the sample sizes in with 95 % confidence level.

$$n = \frac{N}{1+N(e)^2} \hspace{3cm} (1)$$

Where:

n= actual sample size;

N= total number of HHs in the four kebeles;

e = margin of errors at 7% (Modified by researcher), the desired level of precision, e= 0.07

Therefore, the sample size that would be necessary for the above given combinations of precision, confidence levels and 4124 households in the four selected kebeles of Dugda Dawa district, is computed as follows.

$$n = \frac{4124}{1+4124(0.07)^2} = 194 \text{ households}$$

Accordingly, total sample size was **194** household head pastoralists**,** out of which **64** were selected from Boko Goro balli, **68** Chame Kura, **31** Deru Denfile and the remaining **31** were from Jigessa

Nanessa. Once sample size determined proportion of male and female house hold was decided by researcher to ensure equal participation of male and female.

Traders and Brokers sampling

The formal cattle traders were selected purposely, the interview was intended to be held with 25 traders existed in the woreda but the only eight small and six large traders those existed in the place during this survey were interviewed based on their presence and willingness. Small and traders were determined by the volume of cattle purchased per market specifically small traders those purchased less than six cattle per market, while large trader purchased more than six cattle per market. As there were no formal brokers five non-formal market intermediaries (Brokers) were interviewed based on their willingness.

Processers sampling

Four butchers who existed in the study area were interviewed, among three hotels and seven restaurants owner four of themwere selected by simple random selection and interviewed.

Feed lot operators sampling

Five feed lot operators those out of the study area were visited and interviewed purposely. The selection was based on two criteria, first by the asking the traders their final destination to whom they sell the cattle, second based on feed lot scale (small scale, medium and large) this confirmed by Adema woreda Trade and industry development office, investment office and Livestock marketing and rural development office.

Data Type, Sources, and Methods of Data Collection

Data type and source

Both quantitative and qualitative data on gender role, major determinants of market quantity supplied, and value chain actor performance and major constraint and opportunities were collected from sample respondents.

The main source of data for the study was primary data (pastoralists) which focused on data related to socioeconomic and demographic characteristics of the respondents, and other related information that were essential for the research purpose. Secondary data sources were collected from woreda pastoralist development office, Trade and Industry office, and different publications and unpublished materials etc., which have data relevant to the study.

Methods of Data Collection

Primary data was collected through the Semi-structure interviews involve only household producers who are living in selected kebeles and selected for sampling purpose.

Methods of Data processing and Analysis

Descriptive statistics and econometric analysis were used to analyze the data collected from cattle producers, traders and consumers; SPSS 20 and STATA 13 software were used. Harvard analytical framework tools one and two (Activity, Access, Control profile and influencing factors) were included to identify their role in all aspect (management, value addition, and marketing), and

service provision. Finally, the results were presented using tables.

Descriptive methods

These methods of data analysis refer to the use of percentages, means, and standard deviations in the process of examining and describing marketing functions, facilities, services, and household characteristics.

Estimates of the marketing margins are the best tools to analyze performance of market. Marketing margin was calculated by taking the difference between producers and retail prices. The producers' share is the commonly employed ratio calculated mathematically as, the ratio of producers' price to consumers' price. Mathematically, producers' share can be expressed as:

$$PS = \frac{Pp}{Cp} \quad = 1 - \frac{MM}{Cp} \tag{2}$$

Where: PS= Producer's share

Pp= Producer's price

Cp = Consumer price

MM = marketing margin

The above equation tells us that a higher marketing margin, diminishes producers share and vice versa. It also provides an indication of welfare distribution among production and marketing agents.

Calculating the total marketing margin was done by using the following formula. Computing the Total Gross Marketing Margin (TGMM) is always related to the final price paid by the end buyer and is expressed as a percentage (Mendoza, 1995)

$$TGMM = \frac{Consumer\ price - Producer\ price}{Consumer\ price} X100 \tag{3}$$

Where, TGMM=Total gross marketing margin.

Net Marketing Margin (NMM) is the percentage over the final price earned by the intermediary as his net income once his marketing costs are deducted. The equation tells us that a higher marketing margin diminishes the producer's share and vice-versa. It also provides an indication of welfare distribution among production and marketing agents.

$$NMM = \frac{Gross\ marketing\ margin - Marketing\ cost}{Consumer\ price} X100 \tag{4}$$

From this measure, it is possible to see the allocate efficiency of markets. Higher NMM or profit of the marketing intermediaries reflects reduced downward and unfair income distribution, which depresses market participation of smallholders. An efficient marketing system is where the net margin is near to reasonable profit.

To find the benefit share of each actor the same concept was applied with some adjustments. In analyzing margins, first the Total Gross Marketing Margin (TGMM) was calculated. This is the difference between producer's (farmer's) price and consumer's price (price paid by final consumer) i.e.

TGMM = Consumer's price – Farmer's price   (5)

Then, marketing margin at a given stage 'i' (GMMi) was computed as:

GMMi = $\frac{SPi - PPi}{TGMM} X 100$ (6)

Where, SPi is selling price at ith link and PPi is purchase price at ith link.

Total gross profit margin also computed as:

TGPM=TGMM-TOE   (7)

Where, TGPM is total gross profit margin, TGMM is total gross marketing margin and TOE is total operating expense. Finally, the results were presented using tables.

Econometric analysis

Market supply model

To analyze factors affecting pastoralist level cattle supply to the market in the study areas, data collected were analyzed using appropriate descriptive statistics like mean, percentage, frequency and standard deviation. Moreover, correlation and t-test were used to test association of independent variable with dependent variables for dummy and continuous variables respectively. Multiple linear regression models was used to analyze factors affecting pastoralist level cattle supply to the market in the study areas with the help of SPSS version 20 and STATA version 13 because of all cattle producers participate in the market. Econometric model specification in matrix notation is the following.

Y= $X'\beta + U$ (8)

Where: Y = quantity of Cattle supplied to market

X '= a vector of explanatory variables

β= a vector of parameters to be estimated

U = disturbance term

RESULTS AND DISCUTION

Demographic Characteristics of actors and middle men

Table 1 Frequency and percentages of traders, feed lot operators, brokers, hotel and restaurant Owners and butchers

Actors		Large Traders (n=6)		Small traders (n=8)		Feed lot operators (n=5)		Brokers (n=5)		Butchers (n=4)		Hotel& restaurant owners (n=4)	
		No	%	No	%	No	%	No	%	No	%	No	%
Variable													
Sex	Male	6	100	8	100	5	100	5	100	4	100	3	75

	Female	-	-	-	-	-	-	-	-	-	-	1	25
Religion	Wakefeta			2	25	-	-	2	40				
	Protestant	2	33	4	50	1	20	2	40	1	25	2	50
	Orthodox	3	50	2	25	3	60	-	-	3	75	1	25
	Muslim	1	17	-	-	1	20	1	20	-	-	1	25
Marital status	Married	6	100	8	100	5	100	5	100	4	100	4	100
	Single	-	-	-	-	-	-	-	-	-	-	-	-
	Divorced	-	-	-	-	-	-	-	-	-	-	-	-
	Widowed	-	-	-	-	-	-	-	-	-	-	-	-

It can be observer that there is no participation of women in the channel except in case of Hotel & Restaurant, where 25% actors are women.

Gender Role in Cattle Value Chain.

Table 2 Time spent on household and cattle related activities on a daily basis.

| Responsibilities	% of women and men identifying the activity as their Responsibility		Time (average hour/day)	
	Men	Women	Men	Women
Herding	100%		8	
Marketing				
Preparing food		100%		3
Feeding and care child		100%		3
Feeding weaken animal &calves	10%	90%	0.4	3.6
Collecting fire wood		100%		2.5
Fetching water		100%		3
Milking cows		100%		1

|				
Collecting palatable grass for calves		100%		2
Total			8.4hrs	18.1hrs

Source; Focus group discussion result with men and women respondents, 2016

There are several unmentioned role which concern both male and female. The mentioned production and reproduction activities are those on regular basis, the estimated time may vary from time to time specially based on weather fluctuation, there is the case that they used to spend so many nights around water point and were under attack by wild beats and suffered much. Moreover, women spend longer hours on household chores than men even during normal time. Also, because they have more responsibilities at home, they have limited mobility and capacity to leave the house for an extended period of time, for example to attend ceremony, village meetings or others. Obviously there are no women who spend less than 16 hrs per day on related activities in all cases, the younger girl share the burden of their mothers but in the absence of adult girl in the house hold the mothers are mandated to cover all activities alone (Vishwanathan1989, cited in Rangnekar 1992). UNCCD 2007 reflected the same opinion that in times of scarcity of natural resources, while stress and hardship rise for everyone, it is women who are most burdened with the increased workload as they struggle to compensate. Moreover, their ability to respond to economic opportunities is often constrained by traditional beliefs about gender roles in pastoral societies. In general, women lack time, financial resources and the networks necessary to take advantage of any such opportunities.

Cattle Value Chain and Performance of Actors in the chain

Value chains can be viewed as a network of different functions or stages from production to consumption, including all ancillary support services (SADC-PRINT, 2006).
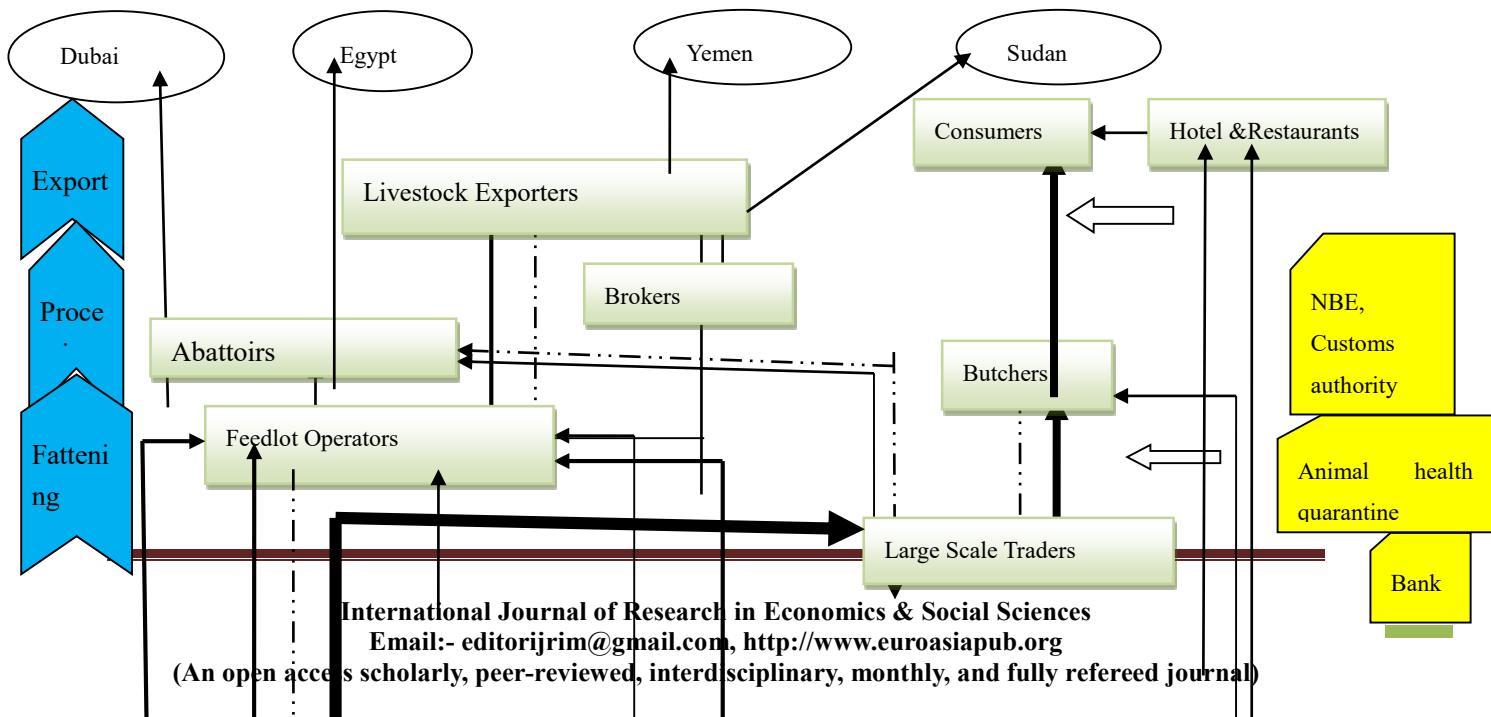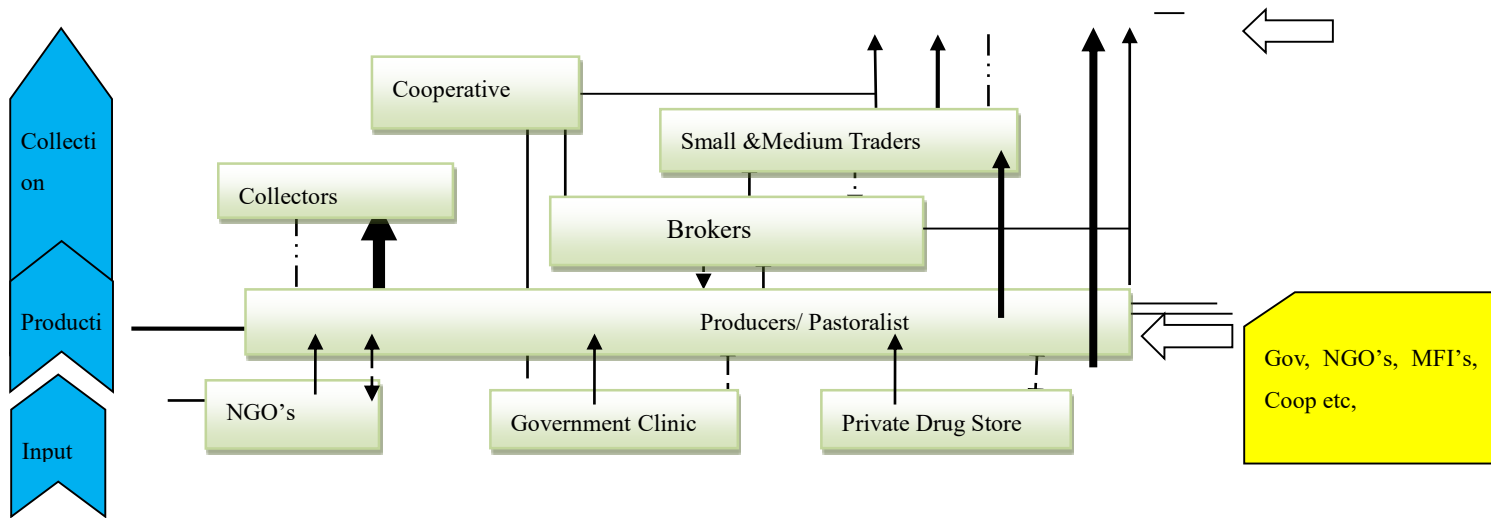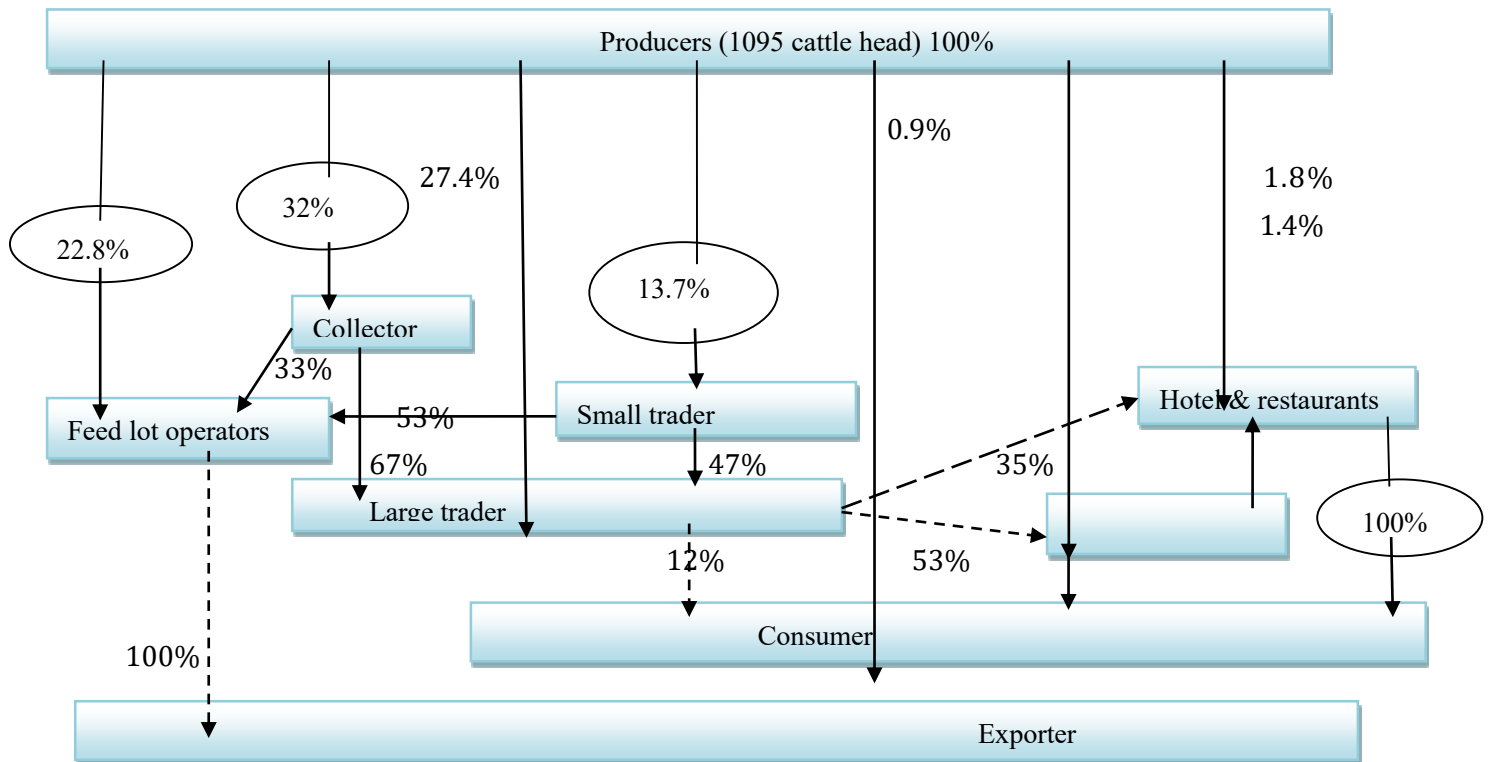
Represents physical flow of inputs and products

◄ - - ►   Represents two way flow of information

- · - · - ►   Represents one way flow of information

━━━━►   Represents the flow of much of products

Figure 1: Cattle Value Chain Map

The value chain map of the cattle consists of major actor such as input suppliers, producers, small traders, cooperatives, larger traders, Collectors, brokers, feed lot operators, Exporters, butchers, hotel and restaurant owners and consumers. These actors of the value chain are involved in their own activities starting from the input supply by the input suppliers to the final consumption by the end consumers as detailed activities are described below. A map that depicts the cattle value chain is provided as follows.

⟶ Represents physical flow of products in the study area

–·–·➛ Represents physical flow of products out of the study area

Figure 2: The flow of product

The above value chain map highlights the involvement of diverse actors who participated directly or indirectly in the cattle value chain of the study area.

According to KIT *et al*. (2006), the direct actors are those involved in commercial activities in the chain (input suppliers, producers, small and big traders, brokers, collectors, abattoirs, Exporters, butchers hotel and restaurant owners, and consumers) and indirect actors are those providing financial or non -financial support services, such as credit agencies (CBE, MFIs), business service providers, government, NGOs, cooperatives, researchers and extension agents.

Each of the cattle value chain actors adds value to the product as the product passes from one actor to another during their performance. In a way, the actors change the form of the product through improving the product by processing or create space and time utility by transporting, fattening, health care, slaughtering, and selling various meals to consumers.

Value chain governance

The study result indicates that the large traders and exporters (foreign buyers) assisted by the brokers are the key value chain governors. Due to the lack of a proper market information system, lack of transparency and minimal bargaining power, producers and small traders are forced to sell their product at the price offered by large traders. Overall, the governance of the cattle value chain is buyer driven with lack of trust between various actors.   Large Traders are always complaining that the health care at producer level is very low that the cause of market ban while producers are blaming the traders and brokers for offering low prices.

Secondary actors (supporters or/and enablers)

Such actors are those who provide supportive services including training and advice, information, credit, veterinary and research services.

  According to Martin *et al*. (2007), access to information or knowledge, technology and finance determines the state of success of value chain actors. MFIs (Oromia Credit and saving Institution), PCDP, cooperative and saving institutions, commercial Bank of Ethiopia, FTC agents, animal and human health experts, NGOs (Save the children, Care Ethiopia) at producer level and NBE, Customs authority, and Animal health quarantine at Exporter and feed lot operators level are the main supporting actors who play a central role in the provision of such services.

Marketing cost and benefit share of the value chain actors

Nine main alternative channels were identified for cattle marketing. It was estimated that 1094 head of cattle were marketed in Finchawa, per week. The main marketing channels identified from the point of production until the product reaches the final consumer through different intermediaries were depicted in Figure 7.

As can be understood from Figure 1 the main receivers from producers were collectors, large traders, feed lot operators and small traders with an estimated percentage share of 32%, 27.4% , 22.8% and 13.7%, respectively.
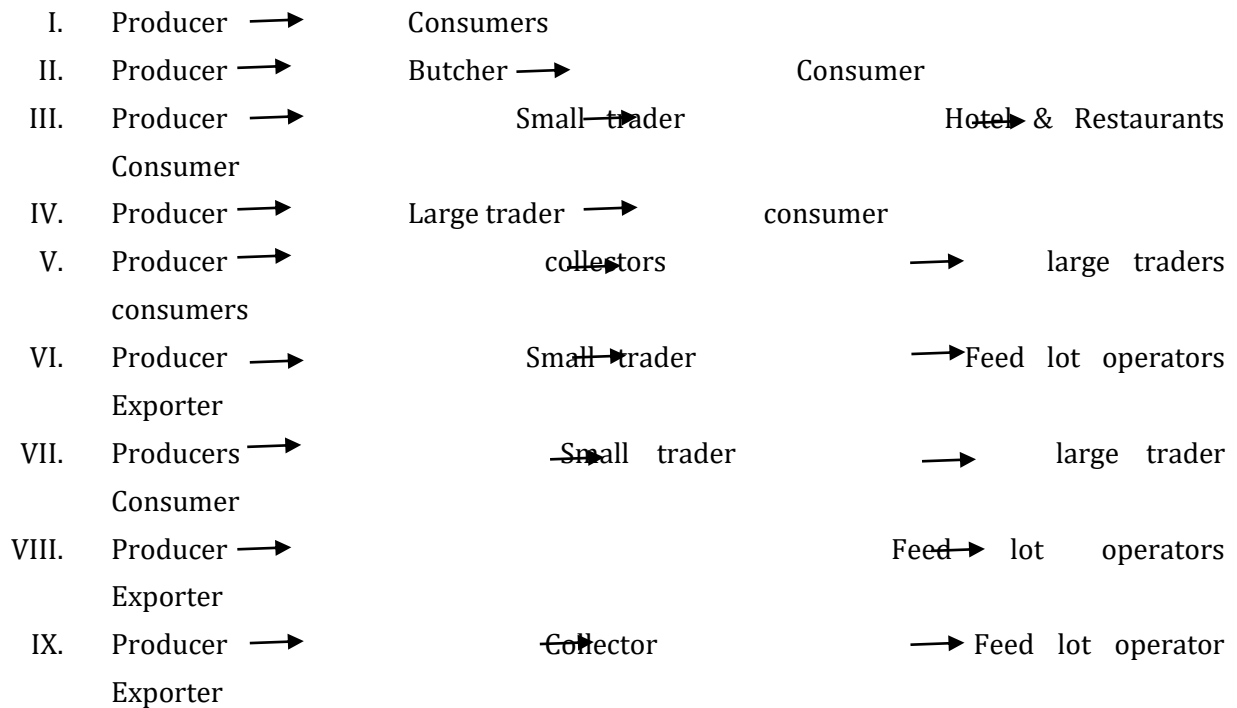
I.   Producer ⟶   Consumers

II.   Producer ⟶   Butcher ⟶   Consumer

III.   Producer ⟶   Small trader   Hotel & Restaurants
       Consumer

IV.   Producer ⟶   Large trader ⟶   consumer

V.   Producer ⟶   collectors   ⟶   large traders
       consumers

VI.   Producer ⟶   Small trader   ⟶ Feed lot operators
       Exporter

VII.   Producers ⟶   Small trader   ⟶   large trader
       Consumer

VIII. Producer ⟶   Feed ⟶ lot   operators
       Exporter

IX.   Producer ⟶   Collector   ⟶ Feed lot operator
       Exporter

Figure 3: Cattle market channel

Table 3 Marketing cost and benefit share of the main actors along the value chain

Items	Producer	Small traders	Large traders	Feed-lot-operators	Butchers	Hotel & Res. owners	Total
Purchase price	-	7000	9800	9800	7000	9800	43400
Production cost							

Feed cost	14.8	-	-	-	-	-	14.8
Veterinary cost	106	-	-	-	-	-	106
Labor cost	4500	-	-	-	-	-	4500
Total production cost	4620.8	-	-	-	-	-	4620.8
Marketing Cost							
Transport	-	40	400	400	30	30	900
Feed	-	-	-	3500	-	-	3500
Labor	-	200	100	600	200	300	1400
Veterinary cost	-	-	-	300	-	-	300
Broker fee	50	50	100	100	50	50	400
Collector fee	-	-	200	400	-	-	600
Tax	50	100	400	800	350	100	1800
Total marketing cost	100	390	1200	6100	630	480	8900
Total Cost	4720.8	7390	11000	15900	7630	10280	12120.8
Selling price	7000	9800	15100	19000	9900	13000	73800
Market margin	**2379.2**	**2800**	**5300**	**9200**	**2900**	**3200**	**25779.2**
% share of margin	9.23%	10.86%	20.56%	35.69%	11.25%	12.41%	100%
Profit margin	**2279.2**	**2410**	**4100**	**3100**	**2270**	**2720**	**16879.2**
% share of profit	13.50%	14.28%	24.29%	18.37%	13.45%	16.11%	**100%**

Note; This market performance based on market channel 2,5,6,7 &9 which various factors involved.

Table 3 above, indicates different types of marketing cost and margin related to the transaction of cattle by producers, butchers, smaller traders, hotel and restaurant owners, larger traders and feed lot operators. Producers in cattle value chain gets lower profit margin relative to other value chain actors. Compared to producers, other actors (large traders, feed lot operators, hotel and restaurant owners and butchers make high profit margin.   Large traders share 24.29% (highest) profit margin simple by buying and transporting without adding significant value. Large traders, feed lot operators, hotel and restaurants, butchers, and small scale traders share   24.29%, 18.37%, 16.11%, 13.45% and 14.28% respectively.   While, producers doing all the work of producing cattle and bearing the associated risks, took only 13.50% of the profit margin.

Table 4 Marketing Margin of actors in different Marketing channel of cattle

	Channel									
	TGMM	0	29.29	46.15	47	43.7	63.16	53.64	57.9	63.16
Producer	Mkt margin %	100	9.23	9.23	10.83	9.23	9.23	923	10.83	9.23
	Profit margin %	-	13.5	13.5	15.5	13.50	13.50	13.5	15.5	13.5
Small trader	Mkt margin %	-	-	-	-	-	10.86	-	-	-
	Profit margin %	-	-	-	-	-	14.28	-	-	-
Large	Mkt margin %	-	-	-	23.8	20.56	-	-	-	-

trader	Profit margin %	-	-	-	28.3	24.3	-	-	-	-
Feedlot	Mkt margin %	-	-	-	-	-	35.69	-	36.2	-
operator	Profit margin %	-	-	-	-	-	18.4	-	24	-
Butcher	Mkt margin %	-	11.25	-	-	-	-	-	-	-
	Profit margin %	-	13.45	-	-	-	-	-	-	-
Hotel &	Mkt margin %	-	-	12.41	-	-	-	-	-	-
Restaurant	Profit margin %	-	-	16.11	-	-	-	-	-	-

From the above, the total gross marketing margin (TGMM) is the highest in channel VI & IX which is about 63.16 %. The Producer, Large trader and Feedlot operator have got the highest marketing margin in channel IV and VIII, when large traders and feedlot operator directly purchase from producer without any interference by other actors whereas producers have got the lowest marketing margin in channel V and VI when selling to collectors and small traders respectively.Net profit of producers, large traders and feedlot operators also high in the same channel (IV &VIII).

Determinants of cattle supply to the market in the study Area.

This section discusses descriptive and inferential analysis of the major determinants of cattle supply in the study area. Totally, 11 independent variables were discussed and their association with dependent variable was also checked using chi-square and T-test used to filter significant variable for further econometric analysis.

Sex of Household head

From selected respondents, 86.6% (n=168) were male and the remaining 13.4% (n=26) were female headed households (See table 13). Cross tabulation of surveyed sample indicate that from those who supplied cattle, female accounts 9.05% and male 90.05%.

Table 5: Distribution of Sample Respondents as Sex of household head

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable		Freq	Percentage	T value
Sex	Male	168	86.6	3.912***
	Female	26	13.4%	
		194	**100**	**P = 0.000**

*Significant at <1%

According table 6, male household heads have dominated cattle market and supply and possessed more cattle than female household head. T-test shows statistically significant association between

cattle supply level and sex of household head (**t-value =3.912; P < 0.01**).

Access to market Information

As table 7, about 85.57% (n= 166) of selected respondent does not have an access to market information, the remains 14.43% (n= 28) have an access to market information. The pastoralists who have market information get better price and make dynamic market decision and supply more cattle than those have not market information (table, 6).

T test shows statistically significant association between cattle supply level and access to market information (**t-value =2.680; P < 0.05**).

Table 8: Respondents household head access to market information.

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable		Freq	Percentage	T value
Access to market information.	Accessed	2.7143	14.43	2.680**
	Not accessed	1.7831	85.57	
	Total	**194**	**100**	**p=0.012**

*Significant at <5%

Education Level of respondents

Table 9, Study result shows that 25.77% attended formal education and the remains 74.23 have not any education background that means zero year of schooling. The respondent those have formal education share 36.17% of cattle supply those do not have any formal education share 63.87% of total supply, in other words 1:2 and 1:3 supply ratio for illiterate and literate respectively.

Table 10: Respondent household education level

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable		Freq	Percentage	T-Value
Education	Literate	50	25.8	5.624***
	No formal Education	144	74.2	
				P = 0.000

*Significant at <1%

Credit Access

Survey result shows that 14.43% have an access of credit and the remains 85.57% do not have any credit access (see table 8). T-test shows statistically no significant association between cattle supply and credit access.

Table 11: Credit access of respondents

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable		Freq	Percentage	T value
Credit Access	Accessed	28	14.43	1.183

	Not accessed	166	85.57	
				P = 0.246

Cooperative membership

Majority of the respondent household (84.54%, n=162) does not involve in cooperative as a member, only 16.44%, n= 32 are membership (table 8).

Table 12: Respondents access to being cooperative membership

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable		Freq	Percentage	T value
Cooperative membership.	Member	32	16.44	6.285***
	Not member	162	84.54	
				p=0.000

*Significant at <1%

According to table 13 above, the study result the respondents those involved in livestock cooperative as membership are the better supplier and have awareness about cattle marketing. T-test shows statistically significant association between cattle supply level and cooperative membership (**t -value =6.285; P < 0.01**).

Off farm Income

As of table 14 below, Majority of respondents (76.8%, n=149) do not engage off farm activities, the remains (23.2%, n= 45) have exercised some off farm activities. T-test indicates statistically significant association between cattle supply level and off farm activities. (**t- Value =2.837; P < 0.01**).

Table 15: Off farm Income

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable		Freq	Percentage	**t- value**
Off farm Income	Engage off farm	45	23.2	
	Do not engage off farm	149	76.8	2.837***
	Total	**194**	**100**	**p=0.006**

*Significant at <1%

Number of Extension Contact

As of table 16, the study result indicates those frequently contact with extension agents were the good supplier. T-test shows statistically significant association between level of cattle supply and their respective contact with extension agents (**t value =14.158, P<0.01**)

Table 17: Respondents Extension contact

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable	Max	Min	Mean	Std. Deviation	$R_{s\ (Correlation)}$
Extension contact	8	0	1.64	1.76	

					P= 0.000

* Significant at <1%

Distance from woreda

From table 18, Due to the reason that the market is located in woreda towns, households more farther from woreda may not have required awareness and information about daily market activities. The result of the survey shows that the average distance from woreda center is 27.74 km with min. 8 and max 60 km respectively.T-test shows statistically significant association between level of cattle supply and their respective contact with extension agents (**t value =14.158, P<0.01**)

Table 19: Distance of respondents from woreda center

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable	Max	Min	Mean	Std. Deviation	R_s (*Correlation*)
Woreda distance	60	8	27.74	13.64	**-3.243***
					P=0.001

* Significant at <1%

The result agreed with Gebremedhin *et al.*, (2007) who found that cattle keepers and buyers in Ethiopia who had good roads and better network had access to the market which translated into adequate and continuous demand for livestock and offered more animals for sale in Addis Ababa market.

Table20: Respondents' family size

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable	Max	Min	Mean	Std. Deviation	R_s (*Correlation*)
Family size	16	1	7.46	2.35	2.091**
					P=0.038

* **Significant at <5%**

Age of Household

according to able21, the survey result depicted that in the study area 42.3 is the average age. This implies as the majority of household found on productive age. T test shows statistically no significant association between age and level of cattle supply (t-value=0.406).

Table 22 : Age of respondents house hold

Pastoralists' or producers' cattle supply level in the study area (n= 194)				
Variable	Max	Min	Mean	Std. Deviation	R_s (*Correlation*)
Age	78	24	42.28	9.76	0.406
					P=0.685

Econometrics Analysis of Determinants for cattle supply to the market in the study areas.

This section discusses multicollinearity diagnostics and econometric analysis of significant factors

filtered for econometric analysis.

Multi-Collinearity Diagnostics

There were no multicollinearity problem among both continuous and dummy variables since VIF results show 1.82 which is less than 10

Econometric Model Outputs

Cattles are produced for market and prestige value and are source of cash and food in Dugda Dawa Woreda. Analysis of factors affecting house hold level marketable supply of cattle was found to be important to identify factors constraining cattle supply to market. Multiple linear regression models were employed to identify the factors.

Ten explanatory variables were hypothesized to determine the household level marketable supply of cattle. Number of extension contact, sex of household head, herd size, and cooperative membership affect positively but, woreda distance and, family size affect negatively. The detail of analysis showed in the table below.

Table 23: The result of multiple linear regression models

Variables	Coef.	Std.Err.
Age of house hold	-0.00	0. 01
Sex of house hold head	0. 47***	0. 18
Education of house hold	0. 18	0.14
Worda Distance	-0.01***	0.16
Extension contact	0. 39***	0. 04
Cooperative membership	0.75***	0. 19
Credit access	0.16	0. 17
Family size	-0.05*	0. 03
Market information	0. 29	0. 18
Off Farm income	0. 25	0.16
_cons	1.18***	0. 38
R-squared = 0.61, has no omitted variable,		

Note: Dependent variable is amount of cattle supplied in TLU. *** And * are statistically significant at 1% and 10%, respectively.

According to Table 24: The result of multiple linear regression models described as follows:

Sex of household head: The sex of the household head had a positive and significant at less than 1% significant level. If the household headed by male ceteris paribus, the quantity supply of cattle would increase by 0.5 TLU than those headed by female. This conforms to the field observation where any decision regarding day to day management activities of cattle including selling of any animal had to be referred to the husband or son in case the father had died. Although this reaffirms the gender inequality existing in the pastoral communities most especially with regard to making economic decisions, it is important for cattle commercialization.

Woreda Distance (Wordis):   Woreda distance affect cattle supply significantly and negatively at less than 1% significance level. The result shows that as the distance increased by one kilometer from woreda center the quantity of cattle supplied to the market decreased by 0.01TLU.

Cooperative membership (Coopmem); Being cooperative member is highly significance at less than 1% significance level.   The result shows being cooperative member increased quantity of sale by 0.8 TLU than those out of cooperative member. This implies, producers who get the chance to be member of cooperative may sell the cattle to cooperative in better price and encouraged to sell more than those out of the member.

Number of extension contact (Frqext): It affected market supply positively and significantly at less than 1% significant level. The result shows that on average, if number of extension contact increased by one unit the quantity of cattle supply increased by 0.5 TLU. This was attributed to extension agents encourage producers to sell their cattle before drought hit and save the money in the banks to adverse the risk that likely happened.

Family size (Famsz): The variable affect negatively and significantly at less than 10% significant level. As family member increased by one the amount of cattle supply also decreased by 0.05 TLU. This implies; that large family size in pastoralists' area increases the probability of being poor.

4.6. Major constraints and opportunities in cattle value chain

A number of challenges, opportunities and entry points for further technological, institutional and organizational innovation for upgrading the value chain in the study area were identified by the different value chain actors during   face-to-face interview and focus group discussion with the sample producer households, traders and feed lot operators those in and out of study area . In this subsection, the major constraints and opportunities are briefly discussed.

Production Constraints:

Table 25: Rank of Major Constraints at producer level

Constraints	%	Rank
Environmental Degradation	23.74	1
Animal disease	15.46	2
Low demand and price	10.31	3
Lack of animal health workers	9.28	4
Lack of input	8.76	5
Asymmetry information	7.73	6
Poor infrastructure	5.67	7
Lack of equality	5.15	8

Marketing constraints:

Almost all cattle producer responded that there were market problems in their area.

The major cattle marketing constraints are related with low demand of market, limited access to market real information, low price of cattle, unfair interference of brokers, and violence of personal agreement that based on mutual trust in the case of credit sale and market distance.

Table 26: Marketing service

Information access		
Source of information	No. of respondents	percentage
Brokers	4	2.1%
Cell phone	9	4.6%
Collectors	22	11.3%
Last market as reference	113	58.3%
Have not access at all	46	23.7%
Demand and price (Evaluated by respondents)		
Low demand	88	45.5%
Medium demand	106	54.5%
Low price	87	45%
Medium price	107	55%

Informal/ illegal cross border trade.

Again all traders and feed-lot-operators engage in cattle value chain confirmed that there is marketing problems in cattle value chain. Cattle which stayed 6 to 9 months in feed-lot were observed during personal observation because the lack of market, cattle would have taken 2 to 3 months to meet export requirement in the normal case. However, the feed lot operators showed abnormal case that the cattle stayed long time while management cost exceed the purchasing price, they would not expect any price to cover the because the body condition of cattle   declined after reached maturity (decreased intake). As they similarly stated informal or illegal trade and market ban are exposed them for extra unnecessary cost, and they are on the last step to leave the market because they do not know even where and when they are going to sell the existed cattle in the feed lot, unless the government facilitate the market

Different literature ensured how the case is serious, Ethiopia Revenue and Customs Authority, 2013 indicated as 94000 head of cattle has exported through normal routes in the year of 2010, and FAO 2015 also clearly reported as 375000 head of cattle has exported illegally or informally in the same year (2010), that means 80% and 20% of cattle are exported informally and formally respectively.

FAO 2015 argued why this much illegal trade has taken place; procedures required to formally export, including export licenses, quarantine, banking clearance for remitting foreign exchange, minimum weight restrictions and informal minimum price requirements.Some of the key reasons that traders opt for informal trade are (i) better prices and more reliable markets across the border; (ii) poor linkage with the domestic formal market (featuring high transportation and transaction costs); (iii) consumer goods (food, clothes and electronics) that can be traded for

livestock and are readily available from across borders; (iv) bans on formal Ethiopian livestock and meat exports; and (v) financial and non-financial advantages to informality, including taxation evasion and black market foreign exchange rates. In general the consequences need policy intervention to benefit all actors in the chain and country which lost huge amount of capital from the sector due to this illegal trade.

Violence of personal agreement

The producers, traders and feed-lot-operators deal in credit based on personal trust. But many times, they lost huge amount of money due to violation of an agreement, the agreement they built has no legal ground even to appeal the case to the court, there were traders and feed lot operators has faced bankruptcy and could not recovered due to its severity, specially the agreement that was failed between traders, feed lot operators and foreign buyers much worried the loser because even difficult to carry out personal negotiation.

Lack of adequate transportation

The majority of animals were sold to small traders and collectors in the primary and bush markets are usually transported to secondary markets by trekking, producers those attend secondary market travel 30 km in average and use of the same method of transportation. Almost all cattle trekking routes in the woreda are traditional and do not have facilities where animals are provided rest, feed and water, and weight loss occurred when cattle arrived market place.

Lack of market Forum and institutional arrangement

All actors and stake holders indicated there was no market forum and common agenda among the actors and stake holders, in the absence of these, it is very difficult to build trust, and closely work to solve common problem together.

Absence grading System

The price of cattle is fixed by eye observation without any quantitative measurement; the producers accused the buyers for they are deliberately minimizing the price to make high profit in costing of producers'.

In a system where animals are collected from the market using visual estimation and sold to the abattoirs by weight scale, traders who collect the animal and supply to the exporters are not certain about their profit margin. They have to negotiate and cut down price in the source market in order to ensure their profit. Producers are the final losers since every trader wants to avert risk. Such system does not encourage pastoralists to supply more animals to the export targeted markets.

Lack of equity and equality

Women do not have right to use cattle as collateral, to sell cattle and control the money after sale,

all these activities are given to men. The woreda trade and marketing development office confirmed as there were no women traders among twenty five licensed traders in the woreda and all butchers exclusive women; even if the policies of the country emphasis on gender balance the women could not be the part of decision maker and asset owner in the study area due to cultural barrier.

Environmental Degradation

The Natural pasture which the pastoralists based on 100% degraded due to large numbers of livestock populations which, has led to the deterioration of range condition and invasive species (bush) worried the community in the study area with the combination of recurrent drought. These all factors put under question the sustainability of production and productivity unless appropriate intervention will be in the place.

Production and marketing opportunity for both men and women

The major opportunities that existed in cattle value chain are the following:

The Existing of Strong culture in managing water point, range land, and conflict resolution, Interventions of PCDP to improve infrastructure, pastoral area received great attention from government, many NGOs working in supporting the pastoralists, high potential of production, enabling environment (good investment policy), peace and stability (feed lot operators) .

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study is aimed to examine gender role in cattle value chain in Dugda Dawa district Borena Zone Oromia Region, Ethiopia. The specific objectives of the study include identifying (1) the gender role in cattle value chain, (2) cattle value chain and examine the performance of actors in the chain, (3) the determinants of cattle supply to the market in the study areas, and (4) assessing the major constraints and opportunities in cattle value chain in the study area. Both primary and secondary data sources were used to meet each objective. Primary data was collected from 194 producers household, 8 small scale traders, 6 larger traders and 5 feed lot operators, 4 butcheries, and 4 hotel and restaurant owners, of the cattle value chain actors. Secondary data was collected form NGO's, women and children affairs office, pastoralist development office of the district and published and unpublished source which relevant with the study. The analysis was made using descriptive statistics and econometric model using SPSS Version 20 and STATA version 13 software. All the sampled households were cattle producers.

Market supply of cattle was found to be important elements in the study of cattle value chain. Therefore, in identifying determinants that affects supplied quantity of cattle, multiple linear regression models were used.

Out of the total cattle sample producers 168 households were male headed and the remaining 26 were female headed which is 86.6% and 13.4%, respectively. Out of the total participant sample

cattle producers 115 were male and 79 were female household respectively. The average age of the sample cattle producers was 42.3 years, and average family size was 7, others value chain actors socio economic characteristics were made accordingly. On average a respondent's house hold owned 9.1 TLU cattle, 1.4 goats, 0.3 sheep, 1.3 camels, 0.25 donkeys and 0.04 chickens TLU, the main sources of income for 71.7%, 16.9% and 3.1% of pastoralists were sales of livestock and/or livestock products and sales of crops, respectively. The remaining 8.3% of income generated from off-farm activities. The livestock feed is mainly obtained from range land/natural pasture grazing and tree and shrubs browsing, temporary surface water, ponds, traditional well *"Ellas",* hand dug wells like hand and solar pumps and bore holes are the main source of water for livestock in the study area.

Conclusions

The result of Harvard Analytical Framework is also called the Gender Roles Framework or Gender Analysis Framework indicated that different role of men and women in cattle production, marketing and the whole management. Accordingly, women spend longer hours on household chores than men even during normal time. Also, because they have more responsibilities at home, they have limited mobility and capacity to leave the house for an extended period of time, for example to attend ceremony, village meetings or others. Cattle are the central pillar of pastoral society. However, the women are highly segregated from economic part and their decision making power is very limited. The women group asked separately why they could not engage the cattle market, they responded as they beg the men relative or neighbor   to take cattle to market for sale even if they are household head, they do not know for how long this cultural constraint stay with them. Men dominated the economical part of cattle value chain while women are assigned for labor work. The result of study clearly indicated the gap of asset owner ship between male and female house head, in average the female and male house hold head owned 8 and 14 cattle per house hold respectively.

The value chain map of the cattle consists of major actor such as input suppliers, producers, small traders, and cooperatives larger traders, brokers, feed lot operators, collectors, Exporters, butchers, hotel and restaurant owners and consumers. Input supply for the cattle producer in the study area, provision of animal veterinary and advisory services by FTC agents and animal veterinarians.

Producers are one of the main actors in the cattle value chain who are carrying out an activity of producing cattle. The collectors play intermediary role especially between large traders and producers, they collect the cattle from home of producers or/ and bush markets by receiving the money from traders and they are paid 400 to 500ETB per cattle. Larger traders are those participating in the cattle market in the study area purchasing the cattle both from smaller traders and producers, and small traders are traders who purchase cattle from the producers at the farm gate or primary market for next sell.

Brokers serve as mediators between buyers and sellers in the cattle market, the brokerage charge during the survey time was 100 Birr (ETB) per head of cattle marketed (50 ETB from buyer and 50 ETB from seller). Butchers and Hotel and restaurant owners are the other value chain actors identified during the value chain analysis. They purchase cattle and/or dressed raw meat for final use. The study result indicates that the large traders and exporters (foreign buyers) assisted by the brokers are the key value chain governors. Overall, the governance of the cattle value chain is buyer driven with lack of trust between various actors.   There are also governmental and nongovernmental supportive actors who support cattle value chain directly or indirectly. Value chain supporters or enablers provide facilitation tasks like creating awareness, facilitating joint strategy building and action and, the coordination of support. The main supporter of the cattle value chain in the study and out of the study area are MFIs (Oromia Credit and saving Institution), PCDP, cooperative and saving institutions, commercial Bank of Ethiopia, FTC agents, animal and human health experts, NGOs (Save the children, Care Ethiopia) ,NBE, Customs authority, and Animal health quarantine.

Large traders, feed lot operators, hotel and restaurants, butchers, and small scale traders share 24.29%, 18.37%, 16.11%, 13.45% and 14.28% profit margin respectively. As the chain of the market becomes long the profit of producers are declined because all actors tried to transfer their risk to producers. While, producers doing all the work of producing cattle and bearing the associated risks, took only 13.50% of the profit margin. The result of the multiple linear regression models indicated that marketable supply of cattle is significantly and positively affected by Number of extension contact, Total herd size in TLU, Cooperative membership and, negatively by Family size, and woreda distance.

Constraints hindering the development of cattle value chain are found in all the stages of the chain. At the farm-level, the majority of the sample producers indicated water shortage, pasture degradation, diseases privilege, and lack of input supply, lack of effective extension program and skilled animal health workers and veterinary clinic as major constraints of cattle production. On marketing side, low demand of market, limited access to market information, low price of cattle, unfair interference of brokers, and violence of personal agreement that based on mutual trust in the case of credit sale those raised at producers level, on the other hand Informal/ illegal cross border trade, lack of adequate transportation, lack of market Forum and institutional arrangement, grading system**,** Lack of equity and equality identified as general problem.

Recommendation

The recommendations or policy implications to be drawn from this study are based on gender disparity, actor performance, the significant variables in the market determinant, and opportunities and constraints. Norm and culture that discriminate the women to posses asset and minimize their decision making power should be intervened through awareness creation by government, non government and other development actors through existing social structure. So

the two gender groups both men and women should equally involve in both production and reproduction role and have access to resource control and decision making power. The women should be encouraged to engage cattle marketing, fattening and processing.

Secondly, producers doing all the work of producing cattle and bearing the associated risks but receive least profit margin should be encouraged by being paid fair price, the government and other concerned body should work on market facilitation and build trust among actors (win, win relationship) to share equal profit that goes to one party like large trader, brokers and exporters in costing of producers', short market channel is advisable for producers to get fair price as market margin becomes high when passing long market channel.

The Establishment of feed lot operators, processing unit and others in the area should be encouraged to   open the window of opportunity for producer to more benefited from their product than selling to actors who come from long distance and transfer the high transaction cost to producers them self.   Value addition activities should be encouraged along the actors since it was not fully performed by all actors equally.

Thirdly, the results of the study indicate that cattle supply to the market is positively and significantly affected by being cooperative member, and number of extension contact. Therefore, these factors must be promoted in order to increase the amount of cattle marketable. Improving selling center in the nearest should get attention of government to tackle the problem of long travel which hurt the cattle producers and drovers.

Finally the government and others development actor's intervention needed in the following areas to benefit the actors and the country from the sector:

❖ Insufficient in put supply and low health care at producer level cause for the low quality product with the combination of others factor, the government should implement animal health care policy at different level, unless the market ban imposed by different country due to low animal health care and disease privilege highly affect the sector.

❖ Lack of market traceability aggravates the problem to identify the problematic area and give immediate response. Therefore, the government should enforce and make the policy of traceability, the quality standard on the exported cattle and quality certification which provided after quarantine completion also need strong attention and follow up from the government authorities.

❖ Credit selling of cattle in and out of the country without legal base and consent of government should intervene by appropriate trade policy to avoid the loss due to personal agreement violation.

❖ Moreover, market oriented pastoralist organization should be there to propose and take timely market intervention to improve the livelihood of the marginalized pastoralists.

❖ Lastly, the current range land situation and water point in the study area will not support the cattle since it is degraded and deteriorated. Therefore, further research is

recommended how to regenerate the range land, establishing pasture seed locally and persistent removal bush. In general these factors must be considered and intervention area in the near future.

REFERENCES

Behnek R,.2010. The contribution of livestock to the Economies of IGAD Member State.

Belay, D., T. Azage and B.P. Hegde, 2012. Ethiopia. Smallholder livestock production system in Dandi and district, Oromia Regional State, central Ethiopia, 2012.   Global Veterinaria 8:   472-479.

Cramers, L. and W. Jensen,1982. Agricultural economics and agribusiness, 2nd Edition   McGraw Hill Book Company, USA. 222p.

CSA, 2014 Federal Democratic Republic of Ethiopia.

Davies, J. (2006) "Capitalisation, Commoditisation and Obligation among Ethiopia's Afar Pastoralists" *Nomadic Peoples* 10: 29-52

Davies, O.A., Davies, R.M. and Bekibele, D.O. (2008b). Fish Processing Technologies in   Rivers State, Nigeria. *Journal of Engineering and Applied Sciences* 3(7): 548-552.

Dawit Gebregziabher, 2010. Market chain analysis of poultry: The case of Alamata and Atsbi-

Denmark international Development cooperation, Gender and Value Chain Development

May 2010.

Dereje K, 2013. Gender Role in Agricultural Production in Some Parts of Ethiopia.

Evan J 2013. Gender analysis on milk value chain: a case of Tanga city and iringa   Municipality

Eyob E, and Z Abraham, 2016:   Review on live animal and meat export marketing system in Ethiopia: challenges and opportunities

FAO, WB, IFAD, 2008: Gender in Agriculture Sourcebook http://www.gender-in-german- t

 development.ne

FAO, 2012: Invisible Guardians; Women manage livestock diversity.

FAO,.2014. Addressing Gender Gap in Agriculture and the Rural Sector in the Near East and North Africa.

FAO,.2015. Analysis of price incentives for live cattle in Ethiopia or the time period 2005–2012.

Azage, T., A. Lahlou-Kassi and E. Mukassa-Mugrwa, 1995

Getachew L, HailemariamT, Dawit Aand Asfaw N.(2008). Live animal and meat export value chains for selected areas in Ethiopia. Constraints and opportunities for enhancing meat exports. Improving Market. Opportinities.Discussion Paper No.12.

GIZ 2013: Gender and Livestock Production.

Greene, W., 2000. Econometric Analysis. 4th edn. NJ: Prentice Hall, Englewwod Cliffs.

Growth and Transformation Plan (GTP) 2010/11-2014/15. Working paper. Addis Ababa:

  Federal Democratic Republic of Ethiopia, Sept. 2010.

Gryseels, G. n.d. The role of livestock in the generation of smallholder farm income in two Vertisol
        areas of the central Ethiopian highlands.

http://www.ilri.org/InfoServ/Webpub/Fulldocs/X5493e/x5493e14.htm

Hazel Reeves and Sally Baden, "Gender and Development - Concepts and Definitions",

February 2000, in Bridge – Development and Gender Report.

Heffernan, C., Misturelli, F. and Pilling, D. 2003. Livestock and the poor: Findings from Kenya, India
        a Bolivia. Animal Health Programme, Department for International Development,
        London.

Hodgson, D. L., 1999. Pastoralists, Patriarchy and History; Changing Gender Relations among the
        Masai of Tanganyika,1890-1940. Journal of African History. 40: 41-65.

Holloway, G. and S. Ehui, 2002. Expanding market participation among smallholder livestock
        producers: A collection of studies employing gibbs sampling and data from the Ethiopian
        highlands. Socio-economic and Policy Research Working Paper 48. ILRI, Nairobi, Kenya.
        85p.

Humphrey, J. and H. Schmitz, 2002. How does insertion in global value chains affect upgrading in
        industrial clusters? Institute of Development Studies, Brighton.International Food Policy
        Research Institute 2013

ISRC 1998, the focus group, a qualitative research method, Reviewing the theory, and   Providing
        Guidelines to Its Planning.

Jabbar, M.A., and GezahegnAyele. (2003) Livestock Marketing, Food Security and Related Issues in
        Ethiopia, A Paper Prepared for the Workshop on 'Towards Sustainable   Food Security in
        Ethiopia: Integrating the Agri-food Chain' held at Ghion Hotel,   Addis   Ababa, Ethiopia,
        15-16 May 2003.

Kaplinsky, R. and M. Morris, 2000. A handbook for value chain research, IDRC. Ottawa,

Canada.

Kawulich B. 2006. Participant Observation as a Data Collection Method. Social Research journal,
        6(3):pp12-27.

KIT, Faida Mali and IIRR, 2006. Chain empowerment: Supporting African farmers to develop
        market. Royal Tropical Institute, Amsterdam; Faida Market Link, Arusha; and

International Institute of Rural Reconstruction, Nairobi.

Kohls, R., and N. Uhl, 1985. Marketing of agricultural products. 5th Edition. McMillian Publishing Company, NewYork, USA.

Kotler, P. and G. Armstrong, 2003. Principle of marketing, 10th Edition. Hall of India Pvt. Ltd.

New Delhi. pp 5-12   .

Kyeyamwa, H., Verbeke, W., Speelman, S., Opuda-Asibo, J., Van Huylenbroeck, G., 2008. Structure and Dynamics of Livestock Marketing in Rural Uganda: Constraints and Prospects for Research and Development. Journal of International Food   Agribusiness. Marketing in Press.

Laven, A., Eerdewijk, A., Senders A. van Wees, C. and Snelder, R. 2009. Gender in value

chains: Emerging lessons and questions. Arnhem, the Netherlands: Agri-ProFocus.

Leta and Mesele   spatial analyses of cattle and shoat population in Ethiopia: growth trend, distribution and market access.

Marshal Nigussie, 2011. Value chain analysis of sugarcane: The case of Kalu district, South   Wollo zone of Amhara National Regional state, Ethiopia. M.Sc thesis submitted to the School of Graduate Studies, Haramaya University. 83p.

Martin G., O. Boualay and B. Julio, 2007. North Houaphanh bamboo value chain analysis.

Mayoux, L., & Grania Mackie (2008). Making the strongest links: A practical guide to mainstreaming gender analysis in value chain development. Addis Ababa:International Labour Office (LO).

Mendoza, G., 1995. A premier on marketing channel and margins. Lyme Rimer Publishers   Inc., USA.

Ministry of Agriculture and Rural Development. Agricultural Growth Program (AGP), Program Implementation Manual (PIM). Rep. Addis Ababa: Federal Democratic Republic of Ethiopia, 2010.

Ministry of Foreign Affairs of Denmark 2010: Gender and Value Chain Development. United Nations Industrial Development Organization Vienna, 2009.

Mutua, E., Njuki, J. and Waithanji, E. 2014, Review of gender and value chain analysis, development and evaluation toolkits. Nairobi, Kenya: International Livestock Research Institute (ILRI).

Nasir Siraj, Tamiru Amenu, Felekech Lemesa, Kamel Husein,   Dejene Takele, Diriba Mengistu, Abebe Worku, Zewdu Edea, Mohammed Ibrahim 2016. Study on the Role of Gender   in Livestock Production and Its Contribution Towards Household Income Generation:A CaseStudy in Borena Zone, Ethiopia. International Journal of African and Asian Studies ISSN 2409-6938 An International Peer-reviewed Journal Vol.27, 2016

Nkhori, P. A. J., 2004. The Impact of Transaction Costs on the Choice of Cattle Markets in Mahalapye District Botswana. MSc Thesis University of Pretoria, Pretoria South Africa.

Peter D. Little, Roy Behnke, John McPeak, Getachew Gebru   2010. Pastoral Economic Growth and Development Policy Assessment, Ethiopia.

Raikes, P., M. Jensen, and S. Ponte, 2000. Global commodity chain analysis and the   Frencfiliére approach: comparison and critique. Economy and Society, 29 (3): 390- 418.

Reerink, A. 2010. Mainstreaming gender analysis in value chain analysis and development.Women's Entrepreneurship Development and Gender Equality—East Asia.

Riisgaard, L., Fibla, A. and Ponte, S. 2010. Gender and value chain development. Copenhagen, Denmark: Danish Institute for International Studies.

Roba Huka   2016.   An Assessment on the Role of Cooperatives in LivestockMarketing in BoranaZone of Oromia Region, Ethiopia(Report paper).

ROBERT WYROD, 2008 Masculinity and Shifting Discourses of Gender Difference in Urban Uganda, University of California, and San Francisco.

Rubin, D. and Manfre, C. 2012. Applying gender responsive value chain analysis in extension and advisory services.Urbana, Illinois, USA: Modernizing Extension and Advisory Systems (MEAS).

SADC-PRINT (Southern African Development Community). 2006. Public-Private Partnership Workshop Proceedings, 2-3 Nov 2006.

Sambrook-Bishop, C. and Puskur, R. 2007. Toolkit for gender analysis of crop and livestock production. Technologies and service provision. Nairobi, Kenya: ILRI.

Sileshi Mengistu 2016.   Challenges of Livelihood Diversification In Pastoral Lands Of   Ethiopia: Evidence From South Omo Pastoralists. International journal of scientific & technology research volume 5, issue 09, September 2016.

S.J. Patel1*, M.D. Patel,, J.H. Patel1, A.S. Patel, and R.N. Gelani 2016. Role of women gender in livestock sector Journal of Livestock Science (ISSN online 2277-6214) 7: 92-96

SNV 2011, Gender Mainstreaming in Value Chain Development Practical guidelines and tools.

SNV-WCA Taskforce Governance and Empowerment, GFE and Gender: Principles,

 Questions and Indicators, March 2009.

Tanga, F.K., M.A. Jabbar and B.I.Shapiro. 2000. Gender roles and child nutrition in livestock

 production systems in developing countries: A critical review. Socio-economic and Policy Research Working Paper 27. ILRI (International Livestock Research Institute), Nairobi, Kenya. 64p.

Terrillon, J. 2010. Gender mainstreaming in value chain development: Practical guidelines and practical tools to conduct gender based analysis at meso and micro levels. SNV tools.

Teshome Abeta (2016). Indigenous Ecological Knowledge and Pastoralist Perception on Rangeland Management and Degradation in Guji Zone of South Ethiopia.

The   Journal of Sustainable Development Vol. 15, Iss. 1 (2016), Pp. 192-218

Tolera, A. and A. Abebe. 2007. Livestock production in pastoral and agro-pastoral production systems of Southern Ethiopia. Livestock Research for Rural Development 19 (12) http://www.lrrd.org/lrrd19/12tole19177.htm

UN Women. 2014. Beijing Declaration and Platform for Action: Beijing+5 PoliticalDeclarations and Outcome. New York, UN Women.

UNCCD 2007. Women Pastoralists preserving traditional knowledge facing modern   challenges (Bonn, Germany).

UNDP Annual Report, on Ethiopian GDP, 2013

United Nations Industrial Development Organization.   Agri-value Chain Analysis and Development: the UNIDO Approach, Working paper. UNIDO, 2009.

USAID March 31, 2013, Agricultural Growth Project - Livestock Market Development.

USAID 2008, Guide to Focus Group Discussions.

USAID, 2008, Integrating Gender in Agricultural Value Chains (INGIA-VC) in Kenya

Watson, 2010.Gender Issues and Pastoral Economic Growth and Development in Ethiopia

Williamson, O., 1979. Transaction-cost economics: The governance of contractual relations. Journal of Law and Economics, 22: 233-261.

Williamson, O., 2002. The theory of the firm as governance structure: From choice to contract Brookfield, VT. Edward Elgar.

Wurzinger, M., Ndumu, D., Okeyo, A. M., Solkner, J., 2008. Lifestyle and Herding Practices   of Bahima Pastoralists in Uganda. African Journal of Agriculture Research 3   (8):542-548.

Yamane, T., 1967. Statistics, an Introductory Analysis, 2nd ed., New York: Harper and Row

Zekarias and Teshale (2015). Value chain analysis of the cattle trade in Moyale, southern Ethiopia