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Market Chain Analysis of Live Cattle in South Omo Zone, Southern Ethiopia

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Abstract

The research was conducted in South Ari and Bena-tsemay districts of South Omo Zone of southern Ethiopia. The Zone is known for its live cattle production and supply for internal or domestic and external or international markets, but still, now the benefits they get from the sector isunsatisfactory. This study, therefore, conducted to identify market chain actors and their function in the market, analyze the structure conduct and performance of live cattle in South Ari and Bena-tsemay districts of South Omo Zone. Both primary and secondary data were used for this study. Primary data were collected from 120 sampled pastoralists and agro-pastoralists and from 27 traders. Before conducting the household survey, key informant interviews and focus group discussions were undertaken in the study area. Descriptive Statistics and qualitative data analysis techniques were used to analyze the cattle market structure, conduct, and performance. Regarding the market structure of the live cattle, the market is known to be dominated by a few traders. Although the degree of competition varies, the cattle market structure varies from loose oligopoly to tight oligopoly. This shows that only a few traders have the majority of market share and earn an abnormal profit. Besides, the cattle market is characterized by entry barriers, distant market points, and high trucking costs. Also, market structure varies with the type of cattle. Thus, linking producers to the market and its benefits, establishing cooperatives and development of infrastructure could play a significant role in optimization of the sector.

Keywords: - Live Cattle, market margin, structure, conduct, and performance.

Introduction

Ethiopia is a home, excluding some non-sedentary area of country such as pastoral areas of Afar and Somali regions, to approximately 56.71 million of cattle, 29.33 million of sheep, 29.11 million of goats, 1.16 million of camels, 56.87 million of chickens, 2.03 million of horses, 7.43 million od donkey and 0.40 million of mules (CSA, 2015). In Ethiopia, the livestock sector has been contributed 19% to the total Gross Domestic Product (GDP) and 16-19% to the foreign exchange earnings of the country with an agricultural share of the GDP ranging 35-49% (IGAD, 2013). Moreover, livestock serves as a source of food, traction, manure, raw materials, investment, cash income, and social and cultural identity. Despite these roles, the productivity has been generated from the livestock is in general low (Duguma et.al, 2012). The supply originates in small numbers from highly dispersed small producers that supply non- homogenous products to local markets. Due to the low productivity of the animals and the absence of market-oriented production systems, the volume of the marketed surplus is very low. In addition, the different live animals supplied to the market by pastoralists and farmers do not meet the quality attributes required by diverse markets. This is because of the poor linkage between producers and other actors in the market chain of live cattle to the critical support services. Some of the problems related to the support services include; absence of commercial animal health services, non-existence of appropriate trucking equipment, lack of sufficient air-cargo capacity, underdeveloped feed industry, and lack of commercial fattening and holding facilities (Adina S and Elizabeth F, 2006).

However, various alternative options are initiated by different actors (private sector, governments, and international organizations). These initiatives are often regional encompassing more than one country in East Africa and attempt to find sound solutions to overcome barriers to trade so that Ethiopia and other countries could effectively use their rich livestock resources for the improvement of the livelihood of their populations (MOI, 2005). The marketing system and its information in the pastoral areas are outdated, unreliable and it couldn't able to provide the real figure of the economic contribution of the pastoralist sector for the national economy of the country and the community who engaged in the sector. Moreover these, the main problem for the cattle marketing sector is formulating appropriate policies and procedures for the purpose of increasing marketing efficiency in the sector. For the pastoralist community to undertake research on market chain analysis of live cattle is believed to enhance its productivity by locating economical cattle marketing routes. Available evidence shows that limited numbers of investigations have been made on local and regional cattle markets in the pastoralist area and the market chain is dominated by many brokers at primary, secondary and terminal markets. (Ayele S, et.al, 2003). Most studies of the market chain tend to focus on the market chain of the cattle at the aggregate level than dealing with the market chain of individual cattle types. The

present studies try to link this gap by disaggregating the cattle into various types to see the market chain opportunities and problems for each type of cattle separately. Therefore, this study provides relevant information with respect to the market chain of various cattle types based on the following general and specific objectives.

General Objective

To assess the Market structure, conduct, performance, their actors and function and channels of Live Cattle trade in South Omo Zone of Southern Ethiopia

Specific Objectives

To overview the Structure, Conduct, and Performance of Cattle trade in the study area

To sort out major live cattle marketing actors and their functions in the market

To identify the major market channels of cattle trade in the study area.

2.Methodology

2.1. Description of the study area

South Omo zone, which is one of the 14 administrative zones found in the Southern Nations, Nationalities, and People's Regional State in Ethiopia. It is located at 4° 27'- 6° 26' north and 34º 57'–37º 49' east bordering Gamogofa and Keffa zones; Konta and Besketo special districts to the north; Konso and Derashe special districts to the east; Borana zone to the southeast; Kenya to the south; Sudan to the southwest, and Bench Maji zone to the west. The total land area of the zone is 22,360.76 km2 and lies at an altitude ranging from 380 to 3,300 m.a.s.l. (DAO, 2003).The study was implemented in the major agro-pastoralist and agriculturalist areas of Bena Tsemay and South Ari districts in South Omo Zone of SNNPR. From each District, three kebeles were selected according to statistical criteria and secondary update data gathered from the respective District animal and fishery and trade and industry offices. BenaTsemay is one of the Districts in South Omo Zone of Southern Nations, Nationalities, and Peoples' Region of Ethiopia. It is named after Banna and Tsamai people who are living in this District. Part of the South Omo Zone, BenaTsemay is bordered on the south by Hamer, on the west by Selamago, on the north by Bako Gazer and Malle, on the northeast by the Dirashe District, on the east by the Konso District, and on the southeast by the Oromia Region; the Weito River separates it from Konso zone and Oromia Region. The western part of this District is included in the Mago National Park. (Kutoya K, et.al, 2018). The administrative center is Key Afer, which is located 739 km from the capital city of Ethiopia, Addis Ababa. The District has a huge livestock population with 490,739 cattle, 174786 sheep, 443179 goats, 94,056 poultry, 29,240 donkeys and 249 camels. Whereas South Ari is among one of eight districts in South Omo Zone. The district is bordering with Semen Ari district in the north, Mago national park in the south, Salamago district in the west, Malle district in east and Bena Tsemay district in the southeast. The administrative center is Gather, which is located 798 km from the capital city of Ethiopia, Addis Ababa. The district has an animal resource with an

estimate of about 202,018 cattle, 108,167 sheep, 52,160 goats, 14,113 equines, 117,519 chickens and more than 15,000 bee families. (Bizuayehu A, et.al, 2016).

2.2. Data Type and Source

This study was conducted in two districts of AGP II supporting such as South Ari and Bena-tsemay of the south Omo zone. In this study, both secondary and primary data were used from different sources. The major data collecting instruments used in the investigation periods include; individual household interviews, group discussion, and key informant interviews. A preliminary assessment was conducted to collect basic information about the district in order to select representative kebele and the major cattle marketing centers. First of all, major market chain actors operating at the district level were identified in consultation with district Trade and Industry Office and undertaking pre-survey field visits and assessments. A survey questionnaire was prepared and pre-tested for each chain actor operating within the study area starting from production up to exporting.

2.3. Sampling techniques and sample size The study used a multistage sampling technique; first, the study districts were selected purposively based on AGP-2 mandated districts of South Omo Zone. Also, the study kebeles from each district were selected purposively in relation to their number of live cattle, access, and supply to the market. Then the number of sample household respondents from each kebele selected proportionally to the total number of households in each kebele. The sample size determination techniques employed was Rule of Thumb Techniques (Yount R, 2006). Finally, each sample household was selected by simple random sampling. A total of 120 sample households were covered during the survey and 27 traders. In this study, the numbers of traders were based on their availability.

2.4. Data analysis

Simple descriptive statistics such as mean and percentage and Std. deviation was used to analyze data. Data were analyzed using Statistical Software (SPSS Verstion.16). Key informant interviews and observations were also used to support the primary data gathered.

3. Results and Discussion

3.1. Socio-economic characteristics of Sample Respondents

Table. 1 Sex, Educational Level and Marital Status of Sample Respondents

Variables		Respondents (N=120)	Percentage
Sex	Male	116	96.7
	Female	4	3.3
Educational level	Illiterate	42	35.0
	First cycle	29	24.2
	Primary school	35	29.2
	Secondary school	8	6.7
	Diploma and above	5	5.0
Marital Status	Married	118	98.3
	Single	2	1.7

Source: Survey Data Result, 2011

In the table above data were collected based on the demographic characteristics of the sample survey households to provide information on some of the key variables for the study area. The variables examined in this section were household heads' sex, education level, and marital status. The results of the study in the table indicate that 96.7% of sample households were male headed households. The remaining 3.3% were female-headed households. In terms of marital status, 98.3% of sample households were married and only 1.7% of households were single. The education of the sample respondents was believed to be an important feature that determines the readiness of respondents to accept new ideas and innovations. More educated farmers are expected to adopt new technologies than less educated in order to improve cattle production. Based on education categories the data indicated that 35.0% of the sample respondents were illiterate, 24.2% first cycle, 29.2% primary school, while 6.7% of the respondents were attained secondary education and the remaining 5.0% were diploma and above respectively.

Table.2 Age category, Family size and Cattle ownership of sample respondents

Variables		Respondents (N=120)	Percent
Age of respondents	< 25	12	10
	25-35	59	49.2
	36-45	38	31.7
	46-55	7	5.8
	> 55	4	3.3
Family size	≤ 5	42	35.1
	6-10	61	50.8
	> 10	17	14.1
Cattle ownership	1-10	80	66.7
	11-20	24	20.0
	21-30	5	4.2
	31-40	6	5.0
	41-50	1	0.8
	51-60	1	0.8
	61 and above	3	2.5

Source: Survey Data Result, 2011

As depicted in Table 2 above, the age of sample respondents categorized into five intervals, these intervals are respondents of age < 25 accounts 10% of the total respondents, those with age between 25-35, 36-45 46-55 and >55 were 49.2%, 31.7%, and 5.8% respectively. While the age of respondents > 55 was 3.3% of the total respondents. According to family size, 35.1% of the respondents have a family size of ≤ 5 and 450.8% were those having family size between 6-10 while, 14.1% have family size of > 10. According to cattle ownership of the respondents, they were classified into seven levels. From this levels 66.7% of respondents have cattle size between 1-10, 20.0% between 11-20, 4.2%

between 21-30, 5% between 31-40, 0.8% were those between 41-50, while 0.8% were between 51-60 and the rest 2.5% were between 61 and above.

Table 3. **Socioeconomic characteristics of traders**

Variables		**Respondents (N=27)**	**Percent**
Sex	Male	26	96.3
	Female	1	3.7
Age	≤ 30	10	37.0
	31-45	15	55.6
	46 and above	2	7.4
Education level	Illiterate	3	11.1
	Frist cycle (1-4)	5	18.5
	Primary (5-8)	14	51.9
	Secondary and Preparatory (9-12)	5	18.5
Family size	≤ 5	14	51.9
	6-10	10	37.0
	>10	3	11.1
Trading experience	1-5	19	70.4
	6-10	6	22.2
	11-15	1	3.7
	16-20	1	3.7

Source: Survey Data Result, 2011

In Table 4 above the socioeconomic profile of cattle, traders show that 96.3% of them were male and the other 3.7% were female. The age traders classified into three categories this means ≤ 30 with 37.0%, 31-45 having a 55.6% and the final 46 and above with 7.4% respectively. The proportion of the traders who attended formal education was 18.5% attained first cycle education (1-4), 51.9% attained primary education (5-8) and 18.5% attained secondary and preparatory education (9-12) respectively, while 11.1% of traders were illiterate. This implies that in live cattle trading, the importance of education can be over-emphasized, for it determines information dissemination among the traders themselves, to the producers and also important for technology adoption among traders in diverse socio-economic, socio-cultural and biophysical environment. According to their trading experience, the majority of the traders (70.4%) were with trading experience of 1-5 years, the others 22.2%, 3.7%, and 3.7% have trading experience of 6-10, 11-15 and 16-20 years respectively. The result also revealed that 51.9% of traders have family size ≤ 5, 37.0% have a family size between 6-10 and the others 11.1% have family size of > 10% respectively.

3.2. Production of live cattle

As the study was conducted in Agro-pastoral and Agrarian areas of South Omo Zone, in which the more of the time the livelihood of Agro-pastoralists depends on livestock production whereas, the livelihood of Agrarians more of the time depends on crop production. The type of live cattle the respondents owned during the study time in 2010/11 E.C was indicated in the table below.

Table 4. Type of Livecattle respondents owned in the year 2010/11 E.C

Type of Cattle owned	Number of Cattle Owned			
	Mean	Std. Deviation	Minimum	Maximum
Cow	5.05	7.81	1.00	50.00
Ox	3.03	3.13	1.00	20.00
Bull	3.12	2.99	1.00	20.00
Heifer	2.91	2.48	1.00	15.00
Calves	2.00	1.15	1.00	5.00

Source: Survey Data Result, 2011

As shown in Table 4 above the type and number of live cattle the producers owned in the year 2010/11 have listed according to their importance. Based on this the producers have owned a minimum of 1.00 and a maximum of 50.00 with a mean of 5.05 and Std. Deviation ± 7.81 Caws, a minimum of 1.00 and a maximum of 20.00 with a mean of 3.03 and Std. Deviation ± 3.13 Ox, a minimum of 1.00 and a maximum of 20.00 with a mean of 3.12 and Std. Deviation ± 2.99 Bulls, a minimum of 1.00 and a maximum of 15.00 with a mean of 2.91 and Std. Deviation ± 2.48 Heifers and a minimum of 1.00 and a maximum of 5.00 with a mean of 2.00 and Std. Deviation ± 1.15 Calves respectively.

3.3. Marketing and Transportation of live cattle

3.3.1. Marketing

Marketing is selling, merchandising or the exchange of live cattle for an agreed sum of money between the seller and buyer of the live cattle supplied to the market. The type and amount of live cattle sold and bought in the year 2010/11 were indicated in the table below.

Table 5. Type and amount of livecattle respondents sold in the year 2010/11 E.C

Type of livecattle sold	Amount of livecattle sold			
	Mean	Std. Deviation	Minimum	Maximum
Cow	1.79	1.67	1.00	7.00
Ox	1.82	1.37	1.00	8.00

Bull	1.79	1.67	1.00	7.00
Heifer	1.60	0.84	1.00	3.00
Calves	1.40	0.55	1.00	2.00

Source: Survey Data Result, 2011

The results in the table above shows that respondents sold a minimum of 1.00 Cow, Ox, Bull, Heifer and Calve respectively and a maximum of 7.00 Cows, 8.00 Ox, 7.00 Bulls, 3.00 Heifers and 2.00 Calves with a mean of 1.79 Caws, 1.82 Ox, 1.79 Bulls, 1.60 Heifers and 1.40 Calves. From this the Std.deviation for each live cattle is 1.67 for Caws, 1.37 for Ox, 1.67 for Bulls, 0.84 for Heifers and 0.55 for Calves respectively. During the study time a number of markets assessed such as Woyito, Aliduba and Key Afer in Bena-tsemay district whereas Gather and Shishir from South Ari district. The type of cattle marketing were shown as follows in the picture below.

Figure 1. Pictures taken during marketing of Ox's, Bulls and Cows

During the study time the markets assessed from both districts were Woyito, Aliduba and Key Afer from Bena-tsemay district where as Gather and Metseri from South Ari district.

Figure 2. Pictures taken during marketing of Heifers and Calves

3.3.2. Transportation of Live cattle

Traders truck the livecattle by Izuzu and transport, it to the central markets such as Addis Ababa, Debre Zeyit and Mojo

.

Figure 3. Pictures taken during trucking and exporting of livecattle

3.4. Structure, Conduct, and Performance of Cattle Marketing

3.4.1. Market structure of live cattle

Market structure of cattle in Bena-tsemay and South Ari districts of South Omo zone is characterized by different actors including pastoralists and agro-pastoralists, local collectors, brokers, medium-scale

traders large scale traders, butchers, exporters, hotels, and restaurants, so each actor has its own function. Pastoralists and agro-pastoralists are the first actors in the market chain of cattle. Some of major duties and responsibilities of pastoralists' agro-pastoralists include supplying cattle and telling initial selling price cattle. Brokers are actors in the market chain of cattle and they play role in the facilitation of market, price setting, contacting traders and pastoralists or agro pastoralists and acting as delegates of traders such as making an agreement between sellers and buyers. Traders' role is purchasing and providing currency, price setting, giving final market price and controlling marketing process. In this study, both formal and informal cattle marketing channels were identified in the study districts. If actors in the marketing chain pay taxation fees for legal tax collecting organizations in the chain, the cattle traveled to other bordering zones, central Ethiopia and to outside countries are referred to as the formal market channel. While Cattle traders those who trek cattle from the study area to other zones and to Kenya through Dasenech district and do not pay tax and transport through unknown route is defined as an informal market channel. Both of the channels are dominant in relation to the actors willing and the reasons why he/ she supply the cattle. The informal market channel is common in the pastoral and agro-pastoral areas of the study site.

Channel1: Pastoralists/Agro-pastoralists – other Pastoralists/Agro-pastoralists. In this cattle market channel pastoralists sell cattle to other pastoralists and it is known for restocking and usually undertaken around the farm gate. It is an informal type of marketing system in the study area. The major aim of this market chain is replacing the aged cattle. The proportion of pastoralists that depend on this type of cattle market channel amounts to 16.2%. Cattle category marketed in this channel comprised of calves, heifer, and bulls. Pastoralist households undertake marketing activity in this route by friendship, kinship, and neighborhood pattern.

Channel 2: Pastoralists/ Agro pastoralists – Collectors – Small/Big traders –Exporters. This type of channel is the formal way of marketing channels. Frist producers sell to collectors, then collectors to small/big traders finally traders sell to exporters, who export live cattle to central markets of Ethiopia such as Addis Ababa and Mojo. The proportion of pastoralists that depend on this type of cattle marketing channel accounts for 19.8%. Cattle category marketed in this channel comprised of calves, heifer, and bulls.

Channel 3: Pastoralists/ Agro pastoralists – Festivals. This channel is one of the oldest and informal ways of marketing channels. The cattle category marketed in this channel comprised of fattened caws and ox, slaughter and culled for aged oxen and barren cows. The proportion of pastoralists/ agro-pastoralist households take part in this cattle market channel is 7.4% of interviewed pastoralists. The purpose of buyers in live cattle marketing is for festival and holiday consumption.

Channel 4: Pastoralists/ Agro pastoralists – Restaurants/ Hotels – Consumers. This is also referred to as a value addition channel that formed due to the existence of smuggling activity and settlement of peoples from other areas for this activity. The type of cattle category marketed in this channel is similar to that of channel three, which means fattened caws and ox, slaughter and culled for aged oxen and barren cows. Out of interviewed respondents' pastoralists, 10% of the households sell cattle to butchers/hotels and butchers/hotels process into the meat and sell to the consumers.

Channel 5: Pastoralists/ Agro pastoralists – Abattoirs – festival consumers. This channel is one of the informal channels. Here the producers sell cattle to abattoirs, and then the abattoirs resell to festival consumers. The purpose of buyers in the live cattle marketing is for festival consumption. The proportion of pastoralist households take part in this cattle market channel is 5.6% of interviewed pastoralists.

Channel 6: Pastoralists/ Agro-pastoralists – Small/ Big traders – Exporters. These cattle marketing channel is practiced formally by the actors. Here, pastoralists sell to small/big traders, then small/big traders purchase from producers and resale to formal exporters that come from out of South Omo Zone and central Ethiopia cities. This sort of cattle market channel is experienced by about 13% pastoral households and observed as new opportunities. A type of cattle marketed in this channel was ox, bulls and also sometimes caws and heifers.

Channel 7: Pastoralists/ Agro pastoralists – Abattoirs – Restaurants/ hotels – consumers. This cattle market channel is mainly practiced by pastoralists. Here, pastoralists/ agro-pastoralists sell to abattoirs, then abattoirs process it and sell meat to restaurants/hotels, finally, restaurants/ hotels sell raw meat to consumers or process it, the consumers' consume in the form of "Dulet, Tibse, and Misto." This sort of cattle market channel is experienced by about 10% pastoral/agro-pastoral households and observed as new opportunities.

Channel 8: Pastoralists/ Agro pastoralists – Abattoirs – Cooperatives – Consumers. This is one of the market channels, where producers sell their live cattle to abattoirs then abattoirs slaughter it and sell meat to those cooperatives, finally cooperative process and sell in the form of food to consumers. This sort of cattle market channel is experienced by about 8% pastoral households

Channel 9: Pastoralists/Agro pastoralists – Small/Big trades – Abattoirs – Restaurants/Hotels – Consumers. This one way of live cattle market channel practiced in the study area. Here, pastoralists/ agro-pastoralists sell to traders, traders to abattoirs, then abattoirs slaughter it and sell meat to restaurants/hotels, finally, restaurants/ hotels sell raw meat to consumers or process it, the consumers' consume in the form of "*Dulate, Tibse, and Misto*." This sort of cattle market channel is experienced by about 12% pastoral/agro-pastoral households and observed as new opportunities.

Channel 10: Pastoralists/ Agro pastoralists – Small/Big trades – Abattoirs – Consumers. In this marketing channel pastoralists/agro-pastoralists sell cattle to trades, traders sell to the abattoirs and abattoirs then to ceremonials. This sort of cattle market channel is experienced by about 10% pastoral households.

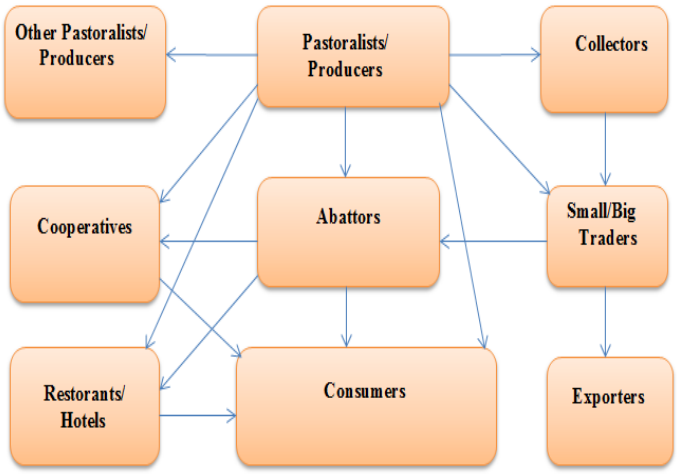

Figure 4.Map of Market chain of live cattle

Source: - survey data result, 2011

3.4.2. Market Structure of Live Cattle

The market concentration ratio of live cattle is presented and discussed below. As was indicated in the table below the market concentration ratio was calculated using two usual techniques. The two techniques employed for estimating the market share of the live cattle market were the Concentration ratio and the Herfindahl Index. The market power of firms is estimated using the Concentration ratio of the top four traders as well as the HI Index. The HH index is the sum of the squares of the market share of live cattle traders.

$$(C = \sum_{i=1}^{r} Si) \quad \text{---------- (1)}$$

Where C is the concentration ratio of cattle traders, Si is the percent share of the top four live cattle traders. The HHI is expressed as: HHI = $(S1)^2 + (S2)^2 + (S3)^2 + (Sn)^2$ (where Sn is the market share of the live cattle of the i^{th} firm). The value of the HI index can also be calculated by the following formula: HI = sum of 1^n (percent share).^{2} when the HHI index is less than 1,000 the market is regarded as competitive. HHI ranges below 1000 it indicates that the market has very low concentration, in the range 1000–1800 implies a moderate concentration, in the range above 1800 implies the marketing system is very highly concentrated, while the value that is equal to 10000 indicates a monopoly marketing system. (Iveta R, 2012).

Table 6. Concentration ratio and market structure for cattle trading.

Cattle type	CR4	Sum of HI index	Market Structure
Calves	47.43	1024.38	Loose oligopoly
Heifers	48.96	1046.22	Loose oligopoly
Bulls	61.25	1873.52	Tight oligopoly
Caws	48.27	1114.28	Loose oligopoly
Ox	66.67	1933.08	Tight

	oligopoly

Source: Survey Data Result, 2011

The market structure was shown according to the type of cattle marketed between the market agents in the market as shown in Table 4 above. The market structure for oxen and bulls in the study area is tight oligopoly, but it is a loose oligopoly for cows, calves and heifers trade in the area, because heifers, caws, and calves more of the time marketed among the pastoralists for restocking and sometimes by traders in the study area also pastoralists prefer to sell Ox or bulls than caws, heifers, and calves. The market structure for oxen and bulls in the marketing of cattle is a tight oligopoly because pastoralists' preferred to supply bull and oxen to get cash to fulfill their needs, which are usually more demanded by traders and exporters. This implies that tight oligopoly reduces competition and the entire market remains a "few traders game" where created wealth does not flow to all the beneficiaries in equitable ratio. So the concerned body's intervention should be needed to overcome such kind of imbalance trade benefits and enhance productivity through the provision of market entry and enter linkage formation, provision of value addition activities, timely market information provision and producers' cooperative formation.

Entry and exit conditions in the cattle market

The low-quality supply of live cattle to the market illegal and informal training in the study area and lack of access to credit are the main entrance and exit obstacles of the live cattle trade in the study area. The number of live cattle supplied to markets during religious holidays, festivals and wedding occasions are higher than that of others occasion. Therefore, informal trading systems, high market distance, low access to infrastructures and transportation systems, high transaction costs and high capital demand are some of the major barriers for entry and exit of cattle trading in the study area.

3.4.3. Market conduct

Market conduct or behavior refers to the way of acting or controlling the marketing systems in order to fully enjoy the market benefits. Furthermore, it includes mechanisms such as; price setting and terms of payment in the marketing system.

Price setting mechanisms

The market price setting of live cattle in the pastoral and agro-pastoral areas are complicated and carried out by various actors in the market. In this study about 53.4% of pastoralists/ agro-pastoralists confirmed that the price of cattle is set by producers then brokers and traders bargain based on the price set by the producer finally they sell to the price they have reached on the agreement. The proportion of producers recognized the price set by buyers based on central market information, brokers based on the central area information, traders by their own and sellers on their own respectively is 2.5, 10, 8.3 and 25.8%. This implies that the market actors have their own level of influence in the role they played for setting the price in the marketing at various levels. It is observed that primarily the market price

was set by producers then selling takes place upon negotiation.

Terms of payment for producers Based on this study, the terms of payment for producers in the study area show that the cattle marketing system of pastoral/agro-pastoral households has been undertaken in the form of direct cash or hand by hand currency. This is due to the lack of access for institutions such as the commercial banks of Ethiopia serving the pastoralists or agro-pastoralists in the study area. The result of the study shows that 100% of the producers sell their cattle in the form of direct cash payment. This implies that all of the producers in the market sell their cattle in the form of direct cash payment.

3.4.4. Market performance

Market performance is the impact of the market structure and conduct, which is measured in terms of the variables such as market prices, marketing costs, and volume of output. The market margin of the live cattle is the difference between the revenue from the final sales of live cattle and the costs that are incurred during the running of the market operation. The net market margin of live cattle is also the percentage over the final price earned by the marketing actors as his/her net income, once his/her marketing costs are deducted. It is one of the best tools to analyze performance of live cattle marketing. Marketing margin was calculated by using the difference between the live cattle producers and exporters or traders prices. Producers' share can be calculated as: the ratio of Producers Price share to traders' price share. Mathematically it is represented as

$$\text{Ps} = \frac{Pp}{Pt} = 1 - \frac{MM}{Pt} \text{---------- (2)}$$

Whereas Ps = producers price share, Pt = traders price share, and MM = is the marketing margin of actors. It is also possible to calculate the gross marketing margin of live cattle trade as follows, which is equal to the traders Price - pastoralists price/traders price*100.

$$\text{GMM} = \frac{Pt-Pp}{Pt} \; x \; 100 \quad \text{----------(3)}$$

Table 7.Market Margin of Oxen across the marketing channels.

Market actors and costs	Marketing channels for Oxen							
	Ch 2	**Ch 4**	**Ch 5**	**Ch 6**	**Ch 7**	**Ch 8**	**Ch 9**	**Ch 10**
Producers Price	7,250	10,345	11,420	15,345	10,412	11,280	13,403	12,340
Traders Price	11,315	15,650	15,965	17,870	14,817	16,162	16,915	15,809
Gross Margin	4065	5305	4545	2525	4405	4882	3512	3469

Marketing Cost	1345	720	935	1045	855	855	855	855
Net Market Margin	2720	4585	3610	1480	3550	4027	2657	2614
Producers share	**64.07**	**66.10**	**71.53**	**85.87**	**70.27**	**69.79**	**79.24**	**78.06**

Source: Survey Data Result, 2011

The Gross Market Margin along the different marketing channels is different according to the participants. Ox traders get their highest gross market margin at channel 2, channel 4, channel 5, channel 7 and channel 8. They get the lowest gross market margin at channel 6, channel 9 and channel 10. The marketing cost of traders is higher on channel 2 and channel 6 because of the involvement of intermeddlers and transportation costs. The producers share is higher at channel 6, channel 9 and channel 10 because of producers directly connected with big/small traders as indicated in Table 5 above.

Table 6. Market Margin of Bulls across the marketing channels.

Market actors and costs	Marketing channels for Oxen							
	Ch 2	**Ch 4**	**Ch 5**	**Ch 6**	**Ch 7**	**Ch 8**	**Ch 9**	**Ch 10**
Producers Price	6986	7624	8261	8325	7215	7892	9517	9672
Traders Price	10503	11769	11991	11792	10915	11697	12037	12652
Gross Margin	3517	4145	3730	3467	3700	3805	2520	2980
Marketing Cost	1015	415	617	815	509	750	725	725
Net Market Margin	2502	3730	3113	2652	3191	3055	1795	2255
Producers share	66.51	64.78	68. 89	70.60	66.10	67.47	79.06	76.46

Source: Survey Data Result, 2011

The result in the table above shows that The Gross Market Margin of different participants along different marketing channels is different. Bull traders get their highest gross market margin at channel 2, channel 4, channel 5, channel 6, channel 7 and channel 8. They get the lowest gross market margin on channel 9 and channel 10. The marketing cost of traders is higher on channel 2 and channel 6 because of the involvement of intermediary and transportation costs, which is the same as that of Ox. The producers share is higher on channel 6, channel 9 and channel 10 because producers directly connected with big/small traders as

indicated in table 6 above, which is the same as that of Ox's marketing channel.

In the study area Caws, Heifers, and Calves are traded for restocking purposes. Pastoralists or Agro-pastoralists supply their Caws, Heifers, and Calves to market then sell them to other Pastoralists or Agro-pastoralist for the restocking, their culture also not allow to sell these cattle types. Sometimes aged Caws are sold for neighbors to celebrate festivals in the study area.

4. Conclusion and Recommendations

It is concluded from the market structure measures that the market competition strategies vary across cattle type and also the producers share between the cattle type channels were different. For each cattle types there are different marketing channels and different actors from these producers get attractive prices when they directly contact with traders without the interface of collectors and brokers. As thearea was endowed with huge livestock resources, alternative markets will be needed to make the producers useful. These areas were the major source of live cattle for the supply to the central markets of Ethiopia and the markets need a continuous supply of quality cattle. However, pastoralists or agro-pastoralists cannot continuously supply cattle of required quality because of consecutive drought and traditional production practices due to these reasons the cattle they supply do not fetch attractive prices.Pastoralists are losing most of their animals, either by selling to procure food for their households and feed for their left animals during droughts or due to poor management systems such as feeding, watering, housing, health care systems in the study area etc. In the restocking activities, the pastoralists/agro-pastoralists buy the local breeds from markets or neighboring areas and keep them for reproduction. These problems have resulted in the low productivity of the castles. There is a need to look into a focused intervention to improve the production and marketing practices of the pastoralists, as well as the development of appropriate breeding strategies.

It recommended that Pastoralists can shorten the marketing chain by cutting out the intermediaries and increasing the number of activities they undertake themselves such as rearing, fattening, transportation, and trading. Producers were also strengthened inter and intra-group linkages by organizing into cooperatives rather than acting as individuals, they could have greater control over the supply of live cattle to the markets. Introduction of improved technologies, interventions, timely veterinary service delivery system and dry cattle breed improvement through introducing appropriate strategies to the study area through agricultural research centers, NGOs and concerning bodies of zonal and district livestock and fishery resource offices, breeding of the local cattle with the improved once will also improve the future production and productivity of existing local livestock.

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