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ANALYSIS OF STRUCTURE, CONDUCT AND PERFORMANCE OF LIVE GOATS MARKET: THE CASE OF PASTORALISTS, MOYALE DISTRICT, ETHIOPIA

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Abstract
Goats are important to the socioeconomic wellbeing of the pastoralists in Moyale district in terms of nutrition, income and intangible benefits. However, the development of the subsector faces challenges such as information about market actors, and that of the market structure, conduct and performance. Therefore, this study was aimed to analyze goat market structure, conduct and performance in Moyale district. Primary and secondary data were employed for the study. Primary data were gathered from randomly chosen sample of 196 goat producers and 32 goat traders. The data was analyzed using descriptive method. The result of the study indicated that the major goat market actors in the district are goat producers, cooperatives, collectors, small-scale traders, large-scale traders, hotels and restaurants, and consumers. In the structure-conduct-performance analysis, four firms concentration ratio (CR_4) of goat traders in the district market was 44.72 indicating weak oligopolistic market. Lack of capital is reported as the main barrier to entry particularly for large-scale traders and collectors. Negotiation is the main price setting strategy and the cash on hand is the mode of payment traders are mainly using in the district. Producers' share of the consumers' price was highest when they directly sell to consumers and lowest when they sell to collectors. The study recommends the need to enhance market competitiveness so that to reduce concentration and collusion of existing traders; to overcome the problem of capital barrier, improving the usage of credit facilities is vital; and to develop the skills of pastoralists through training to help them negotiate more effectively in the goat trading business.

Keywords: Actors, Concentration Ratio, Marketing Margin, SCP

INTRODUCTION
Ethiopia is a country with the highest number of livestock in the African continent and the sector remained enhancing the living condition of smallholder farmers CSA [1]. Ethiopia has the highest number of small-ruminants in Africa as well Abebe et al. [2], and Ethiopia's estimated goat population is accounted for 7.2% and 2.6% of the African and global goat population, respectively FAOSTAT [3]. The livestock sub-sector contributes 42% of agricultural GDP, about

16% of total GDP and 62% of the household income on average Birara and Zemen [4]. Even though goat meat demand in local and foreign market rises generally, its supply to the markets is inadvertent as the production is not focused on the market Legese et al. [5].

Moyale market supplies significant number of live goats destined to North of Moyale district (central markets) and to South (Nairobi markets). There is a limitation of information about who are potential goat buyers in the district; and the nature of the goat market is unknown. This information gap continues to hamper competence of live goat market. To seal these gaps and develop a workable guide on marketing of live goats for the pastoralists that rears huge number of goats, undertaking research on goat market structure, conduct and performance is assumed to improve its marketing by offering updated evidence and description of goat marketing. The objective of the study is (1) to identify goat market chain actors and their roles and (2) to examine the structure, conduct and performance of goat market in the district.

2. Research Methodology

2.1. Descriptions of the Study Area

Moyale district is one of the thirteen district in Borena zone and lies about 770km South of the capital Addis Ababa, total area coverage of the districts is about 15,575km^2 and the district has 19 kebeles, Desta et al. [6]. Moyale Town encompasses two nations (Ethiopia and Kenya) and includes two of Ethiopia's regions (Oromia and Somali). Ethiopia's Oromia and Somali regions cover a larger portion while Kenya covers a lesser portion. It is an eventful marketplace for both formal and informal trade of foodstuff supplies and livestock FAO [7]. The total number of goats in Borana Zone was projected to be 868,571 goats [1] and that of

Moyale District was estimated to be 58,792 goats MDPDO [8].

2.2. Data Types, Sources and Methods of Collection

The study employed both primary and secondary data. Secondary data were gathered from different records of district offices, Moyale district finance bureau, Moyale district bureau of agriculture and natural resources, Moyale district pastoralist development office, Central Statistical Agency (CSA), web sites and other relevant sources. To collect primary data, structured questionnaires were used. The questionnaire were pre-tested and amended based on feedbacks from the pre-test. Personal observations and group discussions with community members were also done for triangulation. The data were gathered by employing two different questionnaires, the first for goat producer households and the second one for goat traders. Trained enumerators were used to gather data under the direction of the principal investigator. Enumerators were given training by the researcher on data collection, interview techniques and on how to approach respondents.

2.3. Sampling Technique and Sample Size

2.3.1. Producers

Goats producing *kebeles* and sample respondents were selected by utilizing a two-stage sampling procedure. From 19 kebeles in the district 10 goat producing *kebeles* were purposively selected. At the first stage, three representative *kebeles* namely Kabanawa, Mado Migo and Chamuk were selected randomly from selected 10 goat producing *kebeles*. In the second stage, from three randomly selected *kebeles*, 196 sample households head were randomly selected based on the probability proportional to size. Sample size of goat producers were determined by using Cochran [9] formula which is developed to

calculate a representative sample for proportions by considering the 95% confidence level and 7% level of precision. The formula is:

$$n = z^2 pq/e^2 \qquad (1)$$

Where, 'n' is the sample size of goat producer households 'z' is the selected critical value of desired confidence level (z =1.96) and e is the desired precision level (e = 0.07), p is the expected proportion of market participants from population of the goat producers p=0.5and q=p -1=0.5. Hence, the sample size is:

$$n = \frac{1.96^2 \times 0.5(0.5)}{0.07^2} = 196$$

2.3.2. Traders

Sampling of traders was difficult because of deficiency of complete information on the total number of goat traders. A total of 32 traders (8 large-scale traders, 14 small-scale traders and 10 collectors) were taken based on the number of goats marketed in order to include the top largest traders in the analysis.

Discussions were also made with key informants (brokers, cooperative members, hotels and restaurant owners, and livestock extension experts from Moyale District Pastoralist Development Office), for validating the survey end result and regulating the consistency of the replies.

2.4. Methods of Data Analysis

Market concentration ratio, qualitative report of barriers to entry, traders pricing strategies and mode of exchange, and marketing margin were used to analyze market structure, conduct and performance of goats market in the study area.

2.4.1. Market Structure

Concentration ratio: Is about the number and comparative dispersal proportion of purchasers and suppliers in the market. It is one of the mainly used measures of market structure.
It is given by:

$$C = \sum_{i=1}^{r} S_i \; i = 1,2,3,4. \qquad (2)$$

Where, S_i is the percentage market share of the ith firm and r is the number of relatively larger firms for which the ratio is going to be calculated. According to Kohls and Uhl [10], the rule of thumb for the four biggest enterprises' concentration ratio is that the concentration ratio of 50% or more indicates a strongly oligopolistic firm, while the ratio between 33-50% indicates a weak oligopoly and the ratio less than 33% indicates a competitive firm. The random selection of the number of enterprises that are used to compare the ratio (r) is the limitation allied with this guide.

Barriers to entry: The existence of barriers to entry, the more it will deter new entrants and long-standing firms use their power to their advantage. As all traders are already in the goat trading business, questioning them about market entry barriers might be challenging. Therefore, what can be considered are the observation of the age and sex of the traders, workers of diverse sizes of firms and degree to which fluxes in the number of active traders makes increases and decreases in profitability Scarborough and Kydd [11].

2.4.2. Market Conduct

Pricing strategies is widely used evaluation method of market conduct which is actions intended at finding an optimal price of goods; including general marketing objectives, economic trends, quality of products, rivals pricing and consumer demand. There are several pricing strategies; the basic four are: Premium pricing,

penetration pricing, economy pricing and skimmed strategy Bennett [12].

2.4.3. Market Performance

Estimation of the marketing margin is the best method to examine market performance. To calculate marketing margin the amount received by the producer will be deducted from the final price paid by the consumer. Total Gross Marketing Margin (TGMM) is constantly allied to the end-price paid by the final consumer and it is stated in percentage form. TGMM can be computed by the formula given below Mandoza [13].

$$TGMM = \frac{End\ consumer\ price - First\ seller\ price}{End\ consumer\ price} \times 100 \quad (3)$$

Where, TGMM is important for introducing the concept of goat producer's participation, pastoralist's portion, or gross marketing margin of producer's (GMMP) which means the share of producer from the price paid by the consumer. Gross marketing margin of producer's (GMMP) can be computed as:

$$GMMP = \frac{End\ consumer\ price - gross\ marketing\ margin}{End\ consumer\ price} \times 100 \quad (4)$$

Where, GMMP: share of producer from price paid by the consumer

In several agricultural marketing chains it is commonly difficult to determine exact marketing expenses because the costs are mostly cash and credited, the gross but not the net marketing margin can be computed. Thus, this study will deal with gross marketing margin Scott [14].

3. Results and Discussion

This section explains findings of the description of major live goats' market actors and their roles; and the structure, conduct and performance of goat market are presented.

3.1. Goat Market Chain Actors and Their Roles

According to survey result the direct goat market chain actors in Moyale district are identified to be goat producers/pastoralists, collectors, cooperatives, small-scale traders, large-scale traders, hotels and restaurants, and ultimate consumers.

Producers/Pastoralists: Livestock rearing is the main economic activity of pastoralists in study area. They have various functions in marketing processes as the first and one of major market actors in goat market. The main role of producers/pastoralists are supplying goat that is competent in the market. Of all the total sample goat market participants supplied to the market; ultimate consumers purchased (10.6%), cooperatives bought (20.4%), small-scale traders purchased (25.7%), collectors (32.4%) and large-scale traders (10.9%).

Cooperatives: Cooperatives are market actors who collect goat from those producers who are member of cooperatives and purchase goat from non-members to resale it to large-scale traders, and hotels and restaurants, while on the other hand market out of the district. Their role is to improve pastoralists' market participation and increase their market share. As indicated in the Figure 1 cooperatives supplied 19.5% of their total sale to hotels and restaurants, 55.4% to large-scale traders and the remaining 25.1% were traded out of the district.

Collectors: Collectors are village traders who purchase goat at farm gate in purpose of reselling it to small-scale traders, large-scale traders and ultimate consumers. They serve as a bridge in connecting goat producers with small-scale traders and large-

scale traders, while doing this they mainly use traders money and their close relationship with pastoralist producers to purchase goat available at village gate. Of all 32.4% of goat they purchased from pastoral producers 53%, 35.5% and 11.5% was supplied to large-scale traders, small-scale traders and ultimate consumers respectively.

Small-scale traders: Small-scale traders are intermediate traders who use their own limited capital to buy up to average of 18 goats per week in the district. Small-traders are responsible in supplying goat to large-scale traders, hotels and restaurants, and ultimate consumers. According to Figure 1, small-scale traders supplied 44.5% of their sale to large-scale traders, 35.4% to hotels and restaurants and 20.1% to ultimate consumers.

Large-scale traders: As their name indicates large-scale traders are market actors who are financially strong and purchase larger number of goats (up to 46 goats per week on average in the district) than any other market actors. They mainly buy goat from collectors, cooperatives, small-scale traders and pastoral producers. They supply goat to hotels and restaurants and again on the other hand they are permanent transporters of goat out if district through Hawassa-Modjo road to Bishoftu, Adama and capital Addis Ababa using trucks (FSR). As indicated in Figure 1 out of the total goat purchased by large-scale traders 63.6% were traded out of the district, while the remaining 36.4% were supplied to hotels and restaurants.

Hotels and restaurants: It includes hotels and restaurants that purchase live goat to slaughter and sell it to final consumer in the form of meat/meal. During the time of purchase they give greater consideration to the body size/ body condition of goat. Cooperatives, small-scale traders and large-scale traders are the main sources of supply for business slaughterers.

Ultimate consumers: Ultimate consumers are the last goat market chain actors purchasing live goat for their household consumption. Ultimate consumers purchase and slaughter live goat for religious festivity and special family events. Pastoral producers, collectors and small-scale traders were the main suppliers of live goat to the ultimate consumers.

3.2. Analysis of Structure, Conduct and Performance of Live Goat Market

The study used structure, conduct and performance approach to measure the level of competition, market actors conduct and performance of live goat market in the district.

3.2.1. Analysis of Live Goat Market Structure

Concentration ratio: The most frequent used measure of market structure is market concentration ratio. In this study, major actors participating in buying and selling activities of live goat market was considered to evaluate the market structure. The degree of market concentration for live goat market was estimated using concentration ratio (CR_4) for four large goat traders which were found to be 44.72%. Which means the market structure for goat market in the study area was weak oligopoly in which four largest traders share lay in the range between 33% and 50%. This finding is parallel with the result of Gebremariam and Yemiru [15] who found that the concentration ratio for goat market in A saita district was 44.81%, which shows a weak oligopoly market.

Table 1. Live goat market concentration ratio.

No of traders	Cumulative frequency of traders	No of goat purchased (in TLU)	Total number of goat purchased (in TLU)	% share of purchase	% of cumulative purchase
1	1	31.62	31.62	12.61	12.61
1	2	28.32	28.32	11.3	23.91
1	3	27.49	27.49	10.97	34.88
1	4	24.68	24.68	9.84	44.72
1	5	15.22	15.22	6.07	50.79
2	7	11.21	22.42	8.94	59.73
3	10	9.54	28.62	11.42	71.15
2	12	7.31	14.62	5.83	76.98
3	15	5.48	16.44	6.56	83.54
4	19	3.06	12.24	4.88	88.42
5	24	2.63	13.15	5.25	93.67
6	30	2.04	12.24	4.88	98.55
2	32	1.82	3.64	1.45	100
			250.7	100	

Source: Own survey result, 2017

Barriers to entry: The existence of barriers to entry reduces potential entrants to the markets and hence increases the market shares of few participants, which in turn increases their market power and eventually decrease efficiency of the market. According to traders' survey result 43.8% of goat traders reported absence of barriers to entry in to goat market. From those traders who reported existence of barriers 31.2% reported lack of working capital as barriers to entry, while 12.5% of goat traders reported that licensing procedure being barrier to entry in to goat market. Lack of sufficient capital was reported one of the major barrier to entry in goat marketing, which limits the demanding participation of large scale traders, collectors, and butchers and hotels in goat marketing. Large-scale traders require relatively large capital as compared to other market actors as they buy large number of goat. According to the survey result, about 50% large scale traders and 40% collectors reported capital as the major entry barriers to goat trading. However 57.1% of small scale traders reported absence of barriers to entry in to goat trading as small scale trading require less initial and working capital to start up and run the business.

There is no license for goat marketing alone but rather for livestock marketing in general. This allows traders to trade different livestock at the same time. In survey result, 12.5% of the total traders stated that licensing procedure is a barrier to entry in goat marketing. More than 50% of small scale traders and collectors were operating without trade licensing so as not to pay tax, however they pay for market place. Business experience is the years of marketing experience in goat marketing. According to survey result, 12.5% of sampled goat traders reported goat trading experience as a barrier to entry in goat trading, but the remaining 87.5% of sampled goat traders did not report goat marketing experience as a barrier to entry. Hence, the survey result approves that experience in goat business looked not to create entry barrier in to goat marketing business.

3.2.2. Analysis of Live Goat Market Conduct

Traders' price setting strategies: The study result directed that 78.1% and 81.3% of the sample traders stated that their purchasing price and selling price respectively was set by negotiation, while the remaining 21.9% and 18.7% of sampled goat traders set purchase price and selling price respectively based on the market force. The result is in line with the findings of Solomon et al. [16] who found that about 75% of the sampled beef cattle traders clarified that beef pricing decision was made by negotiation between farmers and traders. Furthermore, the survey findings revealed that 62.5% of sample traders set price at the time of purchase, while 25% of sample traders set their buying price in the early morning of the market day and 12.5% sample traders set their buying price a day prior to the market day.

Goat traders purchasing and selling strategies: According to survey result 84.4% and 15.6% of sample traders attracted their suppliers by paying better price as compared to others and by offering credit respectively, while 46.9% and 53.1% of sample traders attracted their buyers by giving quality goat and offering lower price as compared to other goat suppliers respectively. Furthermore, the survey result indicated that 68.8% of sample traders purchased goat by their own, while 18.7% and 12.5% sample traders purchase goat using friends/family member and commission agent/broker, respectively. The result again showed that 87.5% of sample traders received cash in hand at the time of sale, while the remaining 12.5% of sampled traders sold their goat on credit. This outcome is in line with the result of Solomon et al. [16] who found that about 92% of beef cattle traders sell their cattle based on cash payment at the time of transaction.

3.2.3. Analysis of Live Goat Market Performance

The Live goat's market performance was evaluated by conducting marketing margin along with channel comparison by taking average auctions prices of various actors along the market chain.

Live Goat Market Channels

The study of market channels was envisioned to deliver organized information about the movement of goats from producers to hotels and restaurants, and final consumers.

Channel I: Producers→Ultimate consumers (26.51TLU)

Channel II: Producers→Collectors→Ultimate consumers (9.37TLU)

Channel III: Producers→Collectors→Large-scale traders→Hotels and restaurants (34.09TLU)

Channel IV: Producers→Collectors→Small-scale traders→Ultimate consumers (18.73TLU)

Channel V: Producers→Collectors→Small-scale traders→Hotels and restaurants (10.08TLU)

Channel VI: Producer→Cooperatives→Hotels and restaurants (9.98TLU)

Channel VII: Producers→Small-scale traders→Hotels and restaurants (22.89TLU)

Channel VIII: Producers→Large-scale traders→Hotels and restaurants (17.02TLU)
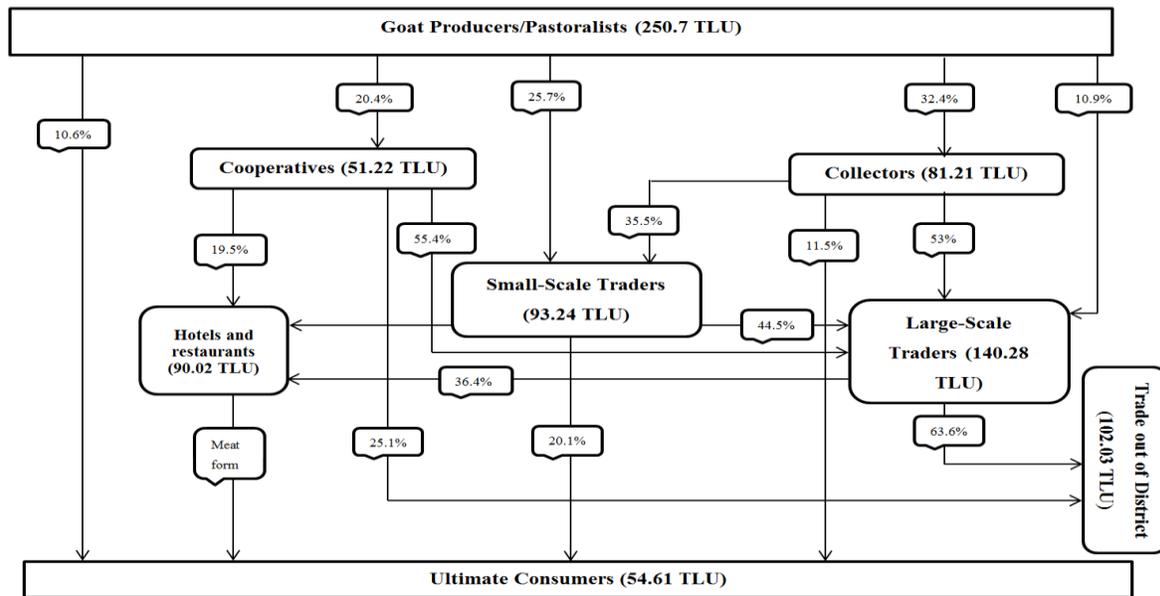
Figure 1. Live goat market channels Source: Own sketch based on survey result, 2017.

Live Goat's Marketing Margin
Goat marketing margin is the variation among prices at two market stages to determine the returns grasped by each marketing actors as goat move from producers to consumers. Margin analysis was conducted for each channel separately by taking average price of goat (both adult and young) for each particular channel.

Table 2. Average marketing margins (in birr) for actors in different market channel of goat.

| Market actors | Marketing measure | Marketing channels | | | | | | | |
		I	II	III	IV	V	VI	VII	VIII
Producers	Selling price	1004.1	927.8	927.8	927.8	927.8	1013.5	1038.1	1125.3
	GMMp (%)	100%	83.2%	58.4%	64.4%	63.2%	74.6%	70.7%	70.9%
Collectors	Marketing cost	-	42.5	42.5	42.5	42.5	-	-	-
	Selling price	-	1114.7	1138.9	1127.4	1127.4	-	-	-
	Gross profit	-	144.4	168.6	157.1	157.1	-	-	-
	GMMcl (%)	-	16.8%	13.3%	13.8%	13.6%	-	-	-
Cooperatives	Marketing cost	-	-	-	-	-	125.9	-	-
	Selling price	-	-	-	-	-	1358.2	-	-
	Gross profit	-	-	-	-	-	218.8	-	-
	GMMcp (%)	-	-	-	-	-	25.4%	-	-
Small scale traders	Marketing cost	-	-	-	106.4	129.5	-	129.5	-
	Selling price	-	-	-	1441.9	1467.3	-	1467.3	-
	Gross profit	-	-	-	208.1	210.4	-	299.7	-
	GMMst (%)	-	-	-	21.8%	23.2%	-	29.3%	-
Large scale traders	Marketing cost	-	-	147.4	-	-	-	-	151.7
	Selling price	-	-	1587.6	-	-	-	-	1587.6
	Gross profit	-	-	301.3	-	-	-	-	310.6
	GMMlt (%)	-	-	28.2%	-	-	-	-	29.1%
TGMM		0	16.8%	43.1%	35.6%	36.8%	25.4%	29.3%	29.1%

Source: Own survey (2017)

The total gross marketing margin (TGMM) was highest in channel III (43.1%) followed by channel V (36.8%). According to survey result producer's share or gross marketing margin of producer (GMMp) was highest in channel I (100%) followed by channel II (83.2%) and lowest in channel III (58.4%) followed by channel V (63.2%). Collectors gross market margin (GMMcl) is highest in channel II (16.8%) while that one of small-scale traders (GMMst) and large-scale traders (GMMlt) are highest in channel VII (29.3%) and channel VIII (29.1%) respectively (Table 2).

Due to difficulty in obtaining data on production and marketing costs of goat producer's, profitability analysis is conducted only for traders. The result indicated that small-scale traders attain highest gross profit in channel VII (299.70 birr) while large-scale traders gain highest gross profit in channel VIII (310.60 birr) when they directly purchase from producers. Large-scale traders attain lowest gross profit in channel III (301.30 birr) when they purchase from collectors (Table 2).

In general the structure, conduct and performance result showed that goat market in the study area is non-competitive in nature. In non-competitive market traders may possibly get-together to lower purchase price so that they grasp a higher profit at the time of resale. Higher market concentration causes traders to collide which in turn cause the traders to grasp a greater portion of the market margin, giving them more control than goat producer households. Therefore, goats market in Moyale district can be concluded to have poor performance.

4. SUMMARY, CONCLUSION AND RECOMMENDATIONS

4.1. Summary and Conclusion

Ethiopia is a country with the highest number of small-ruminants in Africa. This sub-sector is the core economic act and main means of income generation for the pastoralists in Moyale district. Goats are important to the socioeconomic wellbeing of pastoralist in the district in terms of nutrition, income and intangible benefits (insurance against emergencies, savings, social and ceremonial purposes). However, the subsector faces various marketing challenges in the district.

The study was aimed at analyzing live goat market structure, conduct and performance in Moyale district, Borena zone, Oromia region, Ethiopia. The objectives of the study are determining goat market chain actors and their roles; and analyzing structure, conduct and performance of live goat market. To meet the objectives of the study primary data were gathered from 196 goat producers and 32 traders via pre-tested structured questionnaires and secondary data from different district offices, Central Statistical Agency (CSA), published and non-published sources.

The result of study indicated that the major goat market chain actors are producers/pastoralists, collectors, cooperatives, small-scale traders, large-scale traders, hotels and restaurants, and ultimate consumers. Cooperatives collect goat from member and non-member producers to resale it to large-scale traders, hotels and restaurants, and also to trade out of district. Collectors purchase goat from village and resale to small-scale traders, large-scale traders and ultimate consumers. Small-scale traders are responsible in supplying goat to large-scale traders, hotels and restaurants, and ultimate consumers. Large-scale traders mainly buy goat from collectors, cooperatives, small-scale traders and pastoral producers. They supply goat to hotels and restaurants, and again on the

other hand they are permanent transporters of goat out of the district. Hotels and restaurants mainly purchase goat from cooperatives, small and large-scale traders and they resale to consumers in meat/meal form.

SCP approach was used to examine the structure, conduct and performance of live goat market. The concentration ratio for top four goat traders in Moyale district was resulted to be 44.72% which indicates the structure of goat market in the district to be weak oligopoly in nature. As of traders' assessment findings 43.8% of goat traders stated that there is absence of barriers to entry in to goat marketing and 31.2% of the total goat traders reported lack of working capital as barriers to entry in goat trading mainly for large-scale traders and collectors. Negotiation is the main price setting mode for traders in the district and the cash on hand is the mode of payment traders are mainly using. The majority of sample goat traders depend up on the body condition of goats and goat quality to set the purchasing price. The strategies used by traders to attract their buyers were by giving quality goat and offering better price. Performance of the market was analyzed using marketing margin, and margin determination is accompanied with market. The district live goat market were identified to have eight key alternative channels. From the goat supplied to the district market the largest amount has passed through channel III (34.09TLU) while the smallest number is through channel II (9.37TLU). In channel III (43.1%) the total gross marketing margin (TGMM) was the highest and in channel II (16.8%) it was the lowest.

Generally, high market concentration causes traders to collide which causes the traders to grasp a greater portion the margin, giving them more control than goat producer households which in turn made poor market performance. Therefore, goats market in Moyale district can be characterized by weak oligopoly market nature, with higher margins for traders and inefficient.

4.2. Recommendations

Depending up on the results of the study the ensuing recommendations are made to be considered by responsible bodies for the promotion of goat production and marketing for generation of fair and equal benefit among the goat market chain actors. Governmental and non-governmental institutions or organizations and other stakeholders who are concerned to support those goat producer farmers must strengthen training, follow up and other supports to goat producers in the district to reduce pastoralists' exploitation by traders. Well-established marketing institutions are needed to promote and enhance goat market competitiveness that helps in reducing concentration and collusion of existing traders. Improving the usage of credit facilities is vital to overcome the problem of capital barrier in participating in the goat trade business. Developing the skills of pastoralists through training can develop effective marketing strategies and to negotiate more effectively with traders to increase the price they receive while marketing their animal.

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