



## Factors affecting the marketing of livestock in South Omo Zone: The case of Hammer woreda

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### Abstract

Pastoralism is important to the society for poverty alleviation, food security and economic growth. It is the backbone of many African countries' economy, particularly Ethiopia. The main objective of this study was to investigate factors affecting the marketing of livestock in terms of sales volume in South Omo Zone: the case of Hammer woreda. From 35 potential pastoralist kebeles in the woreda, 3 kebeles were selected purposively. The multi-stage sampling technique and the proportional stratified sampling technique were used to select sample pastoralists from each stratum. A total of 388 pastoralists were selected by using the systematic sampling technique. The study identified that price, infrastructure, middlemen and promotional factors significantly affect livestock marketing. The findings of this study recommend that the government should formulate and implement appropriate market and pricing policies, disseminate market information in proper media and improve road networks to enhance the effectiveness of livestock marketing in the woreda.

**Keywords:** Infrastructure, livestock, marketing, price, promotion.

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## 1. Introduction

Pastoralism is important to the society for poverty alleviation, food security and economic growth. It is the backbone of many African countries' economy, particularly Ethiopia. The pastoral sector makes a very significant contribution to the national income, employment, agriculture production and food demand of the people in Africa. Ethiopia has the leading livestock population in Africa, which is estimated to be 81 million (MOA, 1997 cited by Aklilu, 2002) and the sector plays a vital role in the overall development of the country's economy. Yet, the existing income-generating capacity of livestock when compared to its immense potentials in the country is not encouraging. Ethiopia is believed to have the largest livestock population in Africa but productivity is very low (Belachew & Jemberu, 2003). Livestock production system plays a crucial role in the Hammer pastoral society household economy. Family wealth, which is general, can be measured in terms of the number of livestock that determines the subsistence of food security and overall livelihood of the pastoral communities. Occasionally, seasonal shortage of rainfall through its impact on feed availability forces higher supply to market. The pastoralists' forced supply is constrained by their inability to plan sales in accordance with the market need (time and quality) (Belachew & Jemberu, 2003).

In Ethiopia, the structure and performance of live animal markets, for both domestic consumption and export, are generally perceived to be poor. Lack of market-oriented production, lack of adequate information on livestock resources, inadequate permanent animal route and other facilities like water and holding grounds, lack or non-provision of transport, ineffective and inadequate infrastructural and institutional set-ups, prevalence of diseases, illegal trade and inadequate market information (internal and external) are generally mentioned as some of the major reasons for the poor performance of this sector (Aklilu, 2002). Hammer pastoralists are involved in the pastoralism, marketing of livestock. However, as visited by the researchers, in the study area, pastoralists are not beneficiaries from the marketing of livestock. Livestock are not raised with market considerations, but in times of need and for goods like food and clothes, pastoralists sell their livestock. There are different marketing problems challenging the marketing of livestock in the woreda. These are lack of transport, market access, lack of knowledge about livestock marketing, lack of organised market information, poor price etc. Above all, the lack of information to the extent of these problems is another serious challenge to the livestock marketing in the area. To the best of the researcher's knowledge, there is no empirical evidence on factors affecting livestock marketing in Hammer woreda. In order to fill this gap, the study intended to investigate factors that affect the marketing of livestock in Hammer woreda.

This study sought to answer the following basic research questions:

- What are the effects of price on livestock marketing?
- What are the effects of promotion on livestock marketing?
- What are the effects of middlemen on livestock marketing?
- What are the effects of infrastructure on livestock marketing?

The general objective of the study is to investigate the factors affecting the marketing of livestock in Hammer woreda.

### 1.1. Specific objectives

- To assess the effects of price on livestock marketing.
- To explore the effects of promotion on livestock marketing.
- To determine the effects of middlemen on livestock marketing.
- To investigate the effects of infrastructure on livestock marketing.

## 2. Methods and materials

### 2.1. Research design

The study used a descriptive and explanatory research design. The purpose of a descriptive research is to describe a situation as it naturally occurs (Kothari, 2004). Thus, the investigators use this design to describe the state of affairs as it exists by asking individuals about the existing situation of livestock marketing. For the purpose of this study, both qualitative and quantitative research approaches were used. Creswell's (2003) mixed method approach was a model for social research combining qualitative and quantitative methodologies which is adequately flexible, accessible and multi-layered to interpret the real meaning from the collected data.

### 2.2. Target population

The target populations of the study were livestock owners of Hammer woreda. The total population of pastoralists who engaged in rearing livestock in selected kebeles was 13,989 (Hammer Woreda Administration, 2018).

### 2.3. Sampling techniques

For this study, in order to select a representative sample, a multi-stage random sampling technique was implemented to select pastoralist kebeles and sample farm households.

### 2.4. Sample size

The researcher used the following sample size determination formula to estimate the representative sample from pastoralists. The formula was developed by Yamane (1973). It was calculated as follows:  $n = N_1 + (e)$

where  $n$  is the sample size,  $N$  is the population size and  $e$  is the level of precision or sampling error.

Based on the above-mentioned formula, the sample size from each stratum is shown in Table 1.

**Table 1. Sample size of pastoralists from selected kebeles**

Kebeles	Total population	Sample
Aseli	6,936	192
Beshade	3,645	101
Angode	3,408	95
Total	13,989	388

Source: (Hammer Woreda Agricultural Office, 2018).

**Table 2. Total number of questionnaires distributed, returned and unreturned**

Questionnaires	Number	Percentage
Returned	377	90.4
Unreturned	11	9.6
Total distributed	388	100

As Table 2 shows, the questionnaires were distributed to 388 pastoralists. Among these, 377 (90.4%) were kind enough to fill in the questionnaires properly and return them on time. The rest 11 (9.6%) failed to complete and return the questionnaires. All the returned questionnaires were completed and considered for the analysis, which represents a response rate of 90.4%.

## 2.5. Method of data collection

In order to achieve the objective of this study, the schedule method of data collection was used. The schedule method of data collection is very much like the collection of data through questionnaires, with little differences which lie in the fact that schedules are being filled in by the enumerators who are specially appointed for the purpose. All items in the schedule were constructed in negative form. Variables under part four were measured by using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5); the respondents were requested to tick the boxes that indicated the extent of their agreement with each statement. This sort of scale is called Likert scale, which uses a numerical response format (Bryman and Bell, 2001). According to Anol (2012), the Likert scale is a very popular rating scale for measuring ordinal data in social science research.

## 2.6. Method of data analysis and presentation

To meet the specified research objectives, both qualitative and quantitative data analyses were applied for the study purpose. Both descriptive and inferential statistical methods were employed. Microsoft Excel and Statistical Package for the Social Sciences (SPSS) version 20 were used to analyse the data obtained from primary sources. Specifically, descriptive statistics (mean, standard deviation and frequency) and inferential statistics (correlation and regression) were used.

## 2.7. Ethical considerations

All the research participants included in this study were appropriately informed about the purpose of the research and their willingness and consent was secured before the commencement of distributing the questionnaire and asking interview questions. In this research, an issue relating to the ethical conduct of research such as informed consent, confidentiality, privacy and anonymity was maintained.

## 3. Results, findings and discussion

### 3.1. Frequency analysis of demographic information

In this section, the researcher analyses the respondents' demographic information by using frequency analysis. It included gender, age and education.

**Table 3. Demographic information of the respondents**

		Frequency	Percent
Gender	Male	375	99.5
	Female	2	0.5
	Total	377	100
Age	15–25	28	7.4
	26–35	134	35.5
	36–45	141	37.4
	46–55	58	15.4
	>56	16	4.2
	Total	177	100
	Education level	No formal education	251
	Primary education	126	33.4
	Total	377	100.0

Source: Researcher's field survey result (2019).

As can be seen from Table 3, the majority of pastoralists were male, which constitutes 375 (99.5%), and the remaining 2 were female (0.5) out of the total 377 respondents. Therefore, most of the respondents of the sample questionnaire were male. The result indicates that more males are involved in livestock than females, although some women also participated in farm activities. This could be attributed to the fact that males are mostly involved in the marketing of livestock in the area. This is probably men are in charge of family activities involving cash transactions, while women are in charge of taking care of their homes and children and therefore spend most of their time at home. The table also shows the gender frequency in which 99.5% of the respondents were male and 0.5% were female. Therefore, most of the respondents to the sample questionnaire were male. The reason behind this might be that the majority of people engaged in the activity of pastoralism in Hammer woreda are male.

Table 3 also shows the age frequency of the respondents where 37.4% of them were aged from 36 to 45 years, 35.5% aged from 26 to 35 years, 15.4% aged from 46 to 55 years, 7.4% of them aged from 15 to 25 and the remaining 4.2% of the respondents were aged above 56 years. This shows that most of the respondents are aged between 36 and 45 years. This implies that most of the respondents were adults.

Education is a crucial factor for skill development and enhancing effective marketing decisions. The attainment of education was found to have a positive relationship with the individual’s attitudes towards change agents such as a favourable attitude towards innovativeness. The level of education of respondents enhanced the assimilation and adoption of new agricultural innovations, including marketing. As indicated in Table 3 from among the sample pastoralists, 251 (66.6%) were illiterate, followed by 126 (33.4%) who had non-formal education. Here, one can say that the majority of the pastoralists are categorised under illiterate. This implies that majority of the farmers participate in livestock production without any educational background, and this may have implications for pastoralist handling and transporting their livestock in a traditional way. With regard to frequency, Table 3 shows that there are education levels that have been considered in the survey and they are no formal education and primary education. The frequency percentages were 66.6% and 33.4% for no formal education and primary education, respectively. The table also reflects that majority of the respondents had no formal education, which constitutes 251 (66.6%).

### 3.2. Descriptive analysis of study variables

**Table 4. Descriptive statistics for the price variable**

Items	N statistic	Mean statistic	Std. deviation Statistic
The current livestock price is not fair	377	3.48	0.737
There is high price fluctuation	377	3.42	0.743
The price of livestock does not enable me to cover rearing costs	377	3.60	0.864
Livestock owners are price taker of their own livestock	377	3.42	0.715
There is high difference between price charged to buy from pastoralist and price charged at central market	377	3.61	0.902
Valid N (listwise)	377		
Overall mean score	377	3.506	0.7922

Source: Researcher’s field survey result (2019).

The descriptive statistics for price items are shown in Table 4. The mean score of the respondents’ answers to the current livestock price is not fair is 3.48 on a 5-point scale, while the standard deviation is 0.737. Respondents are of the opinion that there is a high price fluctuation with a mean value of 3.42 and a standard deviation of 0.743, and the price of livestock does not enable them to cover rearing costs with a mean of 3.60 and a standard deviation of 0.864. Respondents agree on the statements that livestock owners are price takers of their own livestock with a mean value of 3.42 and

standard deviation of 0.715. The mean score of the respondents’ answers to ‘there is high difference between price charged to buy from pastoralist and price charged at central market’ is 3.61 on a 5-point scale, while the standard deviation is 0.902. According to the interview with the key informants regarding price factors, the major factors that affect the livestock sales volume in the study area were price fluctuations, followed by lack of livestock price information in the market, which were the most determinate factors that hindered the sales volume in the study area. The key informants indicated that pastoralists are the price takers of their own livestock, and this is another determinant factor that hindered the sales volume of livestock marketing. This resulted in the pastoralists being forced to follow the price that was set by the middlemen. Moreover, the respondents replied that the lack of coordination among the pastoralists resulted in easy exploitation by middlemen. The overall mean score of price item was 3.506 with a standard deviation of 0.7922. According to the criterion set, the mean value falls to the ‘agree level’ of the respondents. This means that the majority of the respondents agree on the price of the items.

**Table 5. Descriptive statistics for the middlemen variable**

Items	N	Mean	Std. deviation
	statistic	statistic	Statistic
Middlemen exploit pastoralist	377	3.59	0.760
Large number of middlemen are involved in livestock marketing	377	3.50	0.783
I am not interested with middlemen	377	3.60	0.897
Middlemen provide untruthful information	377	3.64	0.836
Middlemen make more profit than pastoralist	377	3.45	0.710
Valid N (listwise)	377		
Overall mean score	377	3.556	0.7972

Source: Researcher’s field survey result (2019).

The descriptive statistics for middlemen items are shown in Table 5. The respondents agree with all the constructs in this variable. They agree that middlemen exploit them (mean score of 3.59 and a standard deviation of 0.760); they agree that a large number of middlemen are involved in livestock marketing (mean value of 3.5 and standard deviation of 0.783); they are not interested in middlemen (mean score of 3.6 and standard deviation of 0.897). Respondents also agreed that middlemen provide untruthful information and they make more profit than pastoralists. This had mean values of 3.64 and 3.45, respectively. The overall mean score of all the constructs was 3.556 with a standard deviation of 0.7972. According to the weighted means, the results for the Likert scale set by Creswell and Plano Clark (2007) fall under the ‘agree’ level of respondents. The result of this study is similar to the findings of Aklilu (2003), who stated that the producers are exploited by middlemen in the livestock trade. Too many middlemen affect the efficiency of the livestock markets in the region. Many livestock keepers are engage in very little direct livestock trading and hence the involvement of middlemen reduces the profit margin for the livestock keepers.

**Table 6. Descriptive statistics for the promotion variable**

Items	N	Mean	Std. deviation
	statistic	statistic	Statistic
I did not attend the different events regarding livestock marketing	377	3.57	0.809
I did not use any printed or broadcast media to promote my livestock	377	3.42	0.736
The government never helps me to promote my livestock to the public	377	3.57	0.894
There is no well-organised livestock marketing system in the woreda	377	3.40	0.701
I have insufficient knowledge on how to promote my livestock	377	3.52	0.832
Valid N (listwise)	377		
Overall mean score	377	3.496	0.7994

Source: Researcher’s field survey result (2019).

Table 6 shows that the respondents agree with the items described for the promotion variable because all their responses are above 3.4 on the 5-point scale. For example, they agree that they did not attend the different events regarding livestock marketing (mean score of 3.57 and a standard deviation of 0.809); they did not use any printed or broadcast media to promote their livestock (mean value of 3.42 and a standard deviation of 0.736). They also agreed that the government never helps them to promote their livestock to the public (with the mean value of 3.57 and standard deviation of 0.894). They agreed that there is no well-organised livestock marketing system in the woreda and they have insufficient knowledge on how to promote their livestock (mean scores of 3.4 and 3.52, respectively). The overall mean score for the promotion variable is 3.496. According to the criteria set by Creswell and Plano Clark (2007), this value falls under the response of the agree level.

**Table 7. Descriptive statistics for the infrastructure variable**

Items	N statistic	Mean statistic	Std. deviation Statistic
I have insufficient information regarding livestock marketing	377	3.71	0.776
I never receive market information from reliable sources	377	3.50	0.715
Poor market information affects livestock marketing	377	3.44	0.738
Poor rural urban road network connectivity and transport link affect livestock marketing	377	3.72	0.808
The existing transportation method challenges me to access livestock market place	377	3.45	0.735
There is no alternative livestock market place around my area	377	3.59	0.904
Valid N (listwise)	377		
Over all mean score	377	3.568	0.779

Source: Researcher’s field survey result (2019).

The mean values for all the measuring items in Table 7 show that the respondents agree and support all the facts raised. Under the infrastructure variable, the statement ‘I have insufficient information regarding livestock marketing’ was supported by the respondents with a mean score of 3.71 and a standard deviation of 0.776. On the 5-point scale, the mean value for the second construct is 3.50 for ‘I never receive market information from reliable sources’. The mean score for ‘Poor market information affects livestock marketing’ is 3.44 with a standard deviation of 0.738. The majority of respondents agree with the statements ‘Poor rural–urban road network connectivity and transport link affect livestock marketing and the existing transportation method challenge me to access livestock market place’, which had mean values of 3.72 and 3.45, respectively. The respondents are also agreed with the statement that there is no alternative market place around their area. The overall mean score for infrastructure variable is 3.568. According to the criteria set by Creswell and Plano Clark (2007), this value fall under the response of the agree level. In view of the key informants and interviews, this poor state of local roads has hampered the accessibility of their livestock and transport of their livestock to the market. In addition, it has forced the pastoralists to sell their livestock without bringing them to the market for a minimum price.

### 3.3. Results of inferential analysis

Pearson’s correlation and multiple linear regressions are the main inferential methods employed in this study to analyse the relationship between the dependent and independent variables. In this section, the results of inferential statistics are presented.

### 3.4. Pearson’s correlation coefficient analysis

Pearson’s correlation coefficient analysis can be used to measure the strength and direction of the linear relationship between two variables. It also describes the degree of a variable related to the others (Zikmund, 2003).

**Table 8. Rule of thumb on Pearson’s correlation coefficients**

Range of coefficient	description of strength	Classification
±0.81 to ±1.00		Very strong
±0.61 to ±0.80		Strong
±0.41 to ±0.60		Moderate
±0.21 to ±0.40		Weak
±0.00 to ±0.20		None

Source: (Bhattacharjee, 2012).

Table 9 presents the results of Pearson’s correlation on the relationship between dependent and independent variables.

**Table 9. Pearson’s correlation coefficient**

		Sale volume	P	INF	MID	PR
Sales volume	Pearson’s correlation	1	–0.751**	–0.826**	–0.748**	–0.705**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
	N	377	377	377	377	377
P	Pearson’s correlation	–0.751**	1	0.754**	0.759**	0.662**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
	N	377	377	377	377	377
INF	Pearson’s correlation	–0.826**	0.754**	1	0.760**	0.715**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
	N	377	377	377	377	377
MID	Pearson’s correlation	–0.748**	0.759**	0.760**	1	0.730**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
	N	377	377	377	377	377
PR	Pearson’s correlation	–0.705**	0.662**	0.715**	0.730**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	377	377	377	377	377

\*\*Correlation is significant at the 0.01 level (2-tailed). P = price, INF = infrastructure, MID = middlemen and PR = promotion.

Source: (Survey, 2019).

Note: In this study, all items in the questionnaire were constructed in negative forms.

The results in Table 9 indicate that there is a negative and significant relationship between all independent variables and livestock sales volume. Infrastructure and livestock sales volume ( $r = -0.826$ ,  $p < 0.01$ ), price and livestock sales volume ( $r = -0.751$ ,  $p < 0.01$ ), middlemen and livestock sales volume ( $r = -0.748$ ,  $p < 0.01$ ) and promotion and livestock sales volume ( $r = -0.705$ ,  $p < 0.01$ ).

### 3.5. Multiple linear regression analysis

The multiple regression analysis allows the researcher to determine the relative importance of each predictor as well as ascertain the collective contribution of the independent variables (Sekaran, 2003). To test the hypotheses set of the model, there is a need to find out if the independent variables are significant predictors of the dependent variables. In regression analysis, this is measured by adjusted



$R^2$ . The dependent variable for this research is livestock marketing in terms of sales volume (LSV), whereas the four independent variables are price, infrastructure, middlemen and promotion.

**Table 10. Model summary on the coefficient of determination**

Model summary					
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. error of the estimate	Durbin–Watson
1	0.860 <sup>a</sup>	0.740	0.737	0.338	2.016

<sup>a</sup> Predictors: (Constant), promotion, price, infrastructure, middlemen.

<sup>b</sup> Dependent variable: livestock sales volume.

Source: SPSS data analysis, 2019.

Table 10, with adjusted  $R^2 = 0.737$ , shows that the total variation in the dependent variable (LSV) is explained by 73.7% of the change (increase) in all independent variables. In other words, 26.3% of the variation in overall livestock marketing cannot be explained by these four independent variables. So, there must be other factors that are not incorporated in the study to explain livestock marketing in Hammer woreda. In other words, there are other additional variables that are important in explaining livestock marketing that have not been considered in this study.

**Table 11. Analysis of variance (ANOVA)**

ANOVA <sup>a</sup>						
Model	Sum of squares	df	Mean square	F	Sig.	
Regression	11,781.645	4	2,945.411	264.280	0.000 <sup>b</sup>	
1 Residual	4,146.111	372	11.145			
Total	15,927.756	376				

<sup>a</sup> Dependent variable: SV.

<sup>b</sup> Predictors: (Constant), PR, P, INF, MID.

ANOVA is a test of the variation present in an experiment. The analysis specifically tests the variation of scores in the dependent variable that can be attributed to the independent variables, and is based on the  $F$  statistic.  $F$ -value is the mean square regression divided by the mean square residual ( $2,945.411/11.145 = 264.280$ ). Table 10 indicates that the regression model predicts the outcome variable significantly well. This indicates the statistical significance of the regression model that was applied. Here,  $p < 0.000$ , which is less than 0.05 and indicates that, overall, the model applied is *significantly good enough* in predicting the outcome variable. In general, Table 10 shows a strong relationship between the dependent and independent variables of the study with  $F$ -statistic or  $F$ -ratio of 264.270 for the overall analysis, and it is worth-mentioning that the  $F$ -value is highly significant (as  $p = 0.000 < 0.01$ ).

**Table 12. Regression coefficients and collinearity statistics**

Regression coefficients							
Model	Unstandardised coefficients		Standardised coefficients beta	t	Sig.	Collinearity statistics	
	B	Std. error				tolerance	VIF
(Constant)	64.045	1.066		60.054	0.000		
Price	-0.407	0.091	-0.201	-4.468	0.000	0.345	2.897
Infrastructure	-0.803	0.079	-0.477	-10.176	0.000	0.318	3.143
Middleman	-0.278	0.098	-0.136	-2.837	0.005	0.303	3.305
Promotion	-0.258	0.082	-0.131	-3.137	0.002	0.402	2.489

<sup>a</sup> Dependent Variable: SV.

Source: SPSS data analysis, 2019.

Here follows the presentation of the hypothesis testing. Based on Table 12, using ‘ $\beta$ ’ (standardised) coefficients, the regression equation of the research model becomes the following form:  $Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$

$$\text{Livestock marketing (Sales volume)} = 60.045 - 201 * X_1 - 477 * X_2 - 136 * X_3 - 131 * X_4$$

where Y is the response or dependent variable – sales volume (livestock marketing).

$\beta_0$  = constant which would be equal to the mean if all slope coefficients are 0.

$X_1$  = price factors.

$X_2$  = infrastructure factors.

$X_3$  = middlemen factors.

$X_4$  = promotion factors.

As presented in Table 12, infrastructure has a negative and significant effect on livestock marketing with a beta value of  $-0.477$ , at 95% confidence level ( $p < 0.05$ ). The results in Table 12 also showed that the standardised coefficient beta and  $p$ -value of price were negative and significant (beta =  $-0.201$ ;  $n = 377$ ;  $p < 0.05$ ). As shown in the table, middlemen also had negative and significance effect on livestock marketing (beta  $-0.136$ ;  $p < 0.05$ ); promotion also had a negative and significance effect on livestock marketing, with a beta value of  $-0.131$  ( $p < 0.05$ ). Moreover, from the findings of this study, the researcher found out that all of the independent variables (INF, P, MM and PR) had a negative and significance impact on livestock marketing. The findings of this study also indicated that infrastructure and price is the most important factor having negative and significant effect on livestock marketing, followed by middlemen and promotion. Therefore, one can say that all these variables have a significant effect on livestock marketing (sales volume) in the study area.

### 3.6. Hypothesis testing

Hypothesis testing is the method of testing whether claims or hypotheses regarding a population are likely to be true. Therefore, the smaller the  $p$ -value, the better it will be. The general rule is to reject  $H_0$  if  $p < 0.05$  and accept  $H_0$  if  $p \geq 0.05$  (Pallant, 2007).

**Table 13. Independent variables with their coefficients and  $p$ -value**

Independent variables	Coefficients		$p$ -value (Sig.)
	unstandardised	Standardised	
	<i>B</i>	<i>B</i>	
Price	-0.407	-0.201	0.000
Infrastructure	-0.803	-0.477	0.000
Middlemen	-0.278	-0.136	0.005
Promotion	-0.258	-0.131	0.002

Source: (SPSS Output of Survey Data, 2019).

Price, infrastructure, middlemen and promotion have a significant effect on sales volume of livestock marketing. Table 13 shows that the of beta values of price, infrastructure, middlemen and promotion have a negative impact on livestock marketing sales volume with a value of  $-0.201$ ,  $-0.477$ ,  $-0.136$  and  $-0.131$ , respectively. Since the  $p$ -value is lesser than 0.05 (at  $p = 0.000$ ) or even strictly  $p < 0.01$ , the value is highly significant. Thus, we, accept all alternative hypotheses ( $H_a$ ). This states that all independent variables have a significant effect on sales volume of livestock marketing. This finding correlates with the views of Ganapathi (2015) who found in his studies that lack of promotion would have a negative and significantly influence satisfaction of jasmine growers about marketing of jasmine.

#### 4. Conclusion and recommendations/future directions

This study was conducted to investigate factors affecting marketing of livestock in terms of sales volume in Hammer Woreda. With sales volume of livestock marketing as a dependent variable in one side and price, promotion, middlemen and infrastructure factors as independent variables on the other side, the collected data were analysed using both descriptive and inferential statistics. The study constituted four specific objectives alongside the research questions and each of them was met through different analysis methods. The questionnaire was developed to address the objectives from which 388 copies were produced and 377 were filled and returned. Based on the analysis, discussion and related issues of the research, the following summaries are made accordingly. The study employed a mixed method. Using qualitative methods, focused group discussions and key informant interview to be exact helped the researcher get insights of factors that are affecting livestock marketing; then the questionnaire was used to collect explanatory data and analyse the cause and effect relationship between the earlier identified factors and livestock marketing using multiple linear regression models. In the study, the demographic variables are taken for discussion. These demographic variables include gender, age and level of education. Majority of the respondents were between the age range of 36 and 45 years.

With regard to the selling price, the livestock selling price is usually decided by negotiation. Lack of market place and information is the most prevalent factor affecting the pastoralists in the Hammer woreda. They would decide to sell livestock when they face shortage of money at the time drought. Majority of the pastoralists provide their livestock to the market through middlemen rather than directly to consumers. The information mainly received from middlemen enforces them to sell their livestock at a cheaper price. According to the findings from the descriptive statistics on variables of the study, in the study area there is high difference between price charged to buy from pastoralists and the price charged at the central market; the price of livestock does not enable them to cover raring costs, the current livestock price is not fair with the major factors affecting livestock marketing in the study area with a mean value of 3.61, 3.60 and 3.48, respectively.

The other thing that must be summarised here should be the overall fitness of the model; this fact has been confirmed by different types of statistical results. The first way is the ANOVA test that produced a  $p$ -value of 0.000 which is below the alpha level, i.e., 0.05. This shows that the overall independent variables have a statistically significant relationship with that of the dependent variable, i.e., sales volume of livestock marketing. Turning to the findings from the correlation and regression analyses, the highest negative correlation score of  $-0.826$  between

On top of this, the formulated hypotheses were tested using the regression analysis. The result of analysis showed that all entire alternative hypotheses were accepted.

Most of the respondents' responses in each item and variables were inclined to agree. From the qualitative analysis that elicit from key informant interview and focus group discussion, the pastoralist in the study area are also affected whereby they are the price takers of their own livestock in the market, with high price fluctuation, lack of access to selling promotional programmes, poor market linkage, unfairly exploitation of middlemen and high involvement of middlemen, which are major factors affecting livestock marketing in the study area. Generally, this conclusion, in line with a study by Matsane and Oyekale (2014), finds that the major constraints in livestock marketing were lack of market information, poorly developed village markets, inadequate access roads and high transportation costs.

#### 5. Recommendations

- One of the major problems faced by Hammer pastoralist is low price of livestock. From the result of this study, it was realised that pastoralists were not in a position to obtain better income due to low selling price which is related to so many factors, such as poor access to market place, lack of market

price information and exploitation by middlemen, which resulted in poor bargaining power of pastoralists. Therefore, much emphasis has to be given to improve price systems by the government for pastoralists to have better income of their livestock particularly through cooperative unions.

- The result of this study has shown that pastoralists in the study area do not get timely market price information up on which to base their marketing livestock. They depend on middlemen for price information. Therefore, there has to be price disseminator institution that delivers price information weekly or monthly through any available media like TV, radio and local billboards in order to reach pastoralist. This would make the marketing system operate efficiently and harmoniously. The availability of timely and precise market price information increases pastoralists' bargaining capacity to negotiate with buyers of their livestock.
- Hammer woreda animal and fishery resource development office should implement promotional strategies that fit with the pastoralist's capacity and create awareness about promotion strategies to the livestock owners.
- The government should improve the quality of roads so as to allow smooth transportation of livestock. Improved roads can capacitate livestock owners to enjoy economies of scale.
- The government should formulate and implement appropriate market and pricing policy, disseminate market information in proper media and improve road networks to enhance the effectiveness of livestock marketing in the woreda.
- The union and government also should take strong measures to protect pastoralists from exploitations by middlemen.
- Generally, the researchers recommend that the government should take stringent measures to fill the gaps so as to improve the livestock marketing sales volume in order to maximise the benefits of the pastoralists from their livestock and to improve the marketing system of the livestock.

## **6. Suggestions for further studies/future directions**

In an attempt to address the limitations of this research, it is recommended that further research should be conducted. The findings of this study have raised theoretical and methodological questions that need further investigation. To this end, the following areas for further research are recommended:

- The study covered a single woreda that is Hammer woreda in South Omo Zone; therefore, there is a need of similar studies to be conducted for the other woredas in the zone elsewhere in Ethiopia.
- Further research on the potentiality of livestock marketing to poverty reduction is worth conducting.
- Finally, further studies on livestock marketing system should be conducted in all pastoralist areas.

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