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RESEARCH ARTICLE

FACTORS CASING OVERLY RISE OF PRICE OF MEAT ANIMALS IN HAWASSA CITY, ETHIOPIA

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ABSTRACT

Ethiopia is one of a country which has largest cattle population in Africa and world. It has great potential to supply sufficient animals' products for domestic and international markets; however, overly increase of meat price was causing people whose income per is low capital unable to procure meat. Hawassa city is victim with overprice of meat animals. It requires investigation why this city is facing with overprice of meat animals in one of the country that has largest cattle population in Africa and world. Thus this study aimed to assess factors that were causing overprice of meat animals in Hawassa city, Ethiopia. Quantitative and qualitative research approach was used. Hawassa city was selected purposively considering its higher price index in 2016. Probability and convenient techniques were used to select 205 informants for self-administered questions and 10 for interviews. Data was analyzed by using SPSS version 20. It was carried out using descriptive statistics and regression analysis. The major factors that were causing for overly rise of meat animals' price in Hawassa market were overly request of profit, increase of living costs, increase of demand, increase of cost of production and shortage of supply. Therefore, arrangement of small enterprises around Hawassa city who can supply meat animals, any strategy to control overly request of profit from meat animals, minimize unnecessary involvement brokers and living cost of people are important areas to stable price in the city.

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INTRODUCTION

Ethiopia is one of a country which has largest livestock population in Africa and in the world. According to central statistical agency, it was estimated that the country had about 59 million cattle, 29 million sheep, 29 million goats and 57 million poultry (CSA, 2015a). The above data indicates that cattle population of Ethiopia was increasing and it has great potential to supply sufficient animals' products for domestic and international markets, however, it was reported that the price of animals and animals' products was very sky since 2007 (Sintayehu, 2013; and AGP, 2013), which implies there was problem either demand or supply. The price of beef, milk and egg has been increased by 33%, 36% and 32% respectively between 2007 and 2016 and continued with highest price. The price of meat highly increased since 2007 except lower in 2011 compared to previous years. The price of cattle has been showed a great increase by 2016 relative to 2007 price. In 2018 large oxen price picked to 38, 000 Ethiopia birr (\$ 1327.28). The price of Sheep and goats showed similar movement to upwards trend by 2016.

Finally, chicken price increased more than half percentage higher in 2016 than a decade earlier (CSA 2016). Meat as vital part in special occasions and has cultural symbolic value than other foods in Ethiopia. It is delicious foods and highly liked, special in southern nation nationalities and peoples regional state. Now this food is becoming the food of economically higher social class because it is unaffordable for those whose income per capital is low. The increases of meat and milk price in the domestic markets may force many households unable to procure and many families forced to stay without these products for long time in a year. It was also commented that this may affects animals' protein nutritional status of the low income households and causes change of feeding culture of the people (Tsegay et al., 2015). The rise price of animals' product was associated with the rise of the animals' price. Thus it requests investigation why meat animals' price moved to sky in the country that has larger livestock population. In order to avoid duplication of the same work, it was tried to assess the pre-existing literature. Different studies have not focused on causes of the rise of the price of meat animals but they gave attention on production system of sheep and goats and their skin marketing system (Tsedek, 2007), live animals meat export value chain, seasonal market price variation of livestock, livestock contribution for GDP, livestock population

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distribution in Ethiopia, and cattle market system (Getachew et.al, 2008⁷; Gezahegn et.al, 2006; Metaferia et.al, 2011; Samson and Frehiwot, 2014; and Sollomon, 2014). Recently Getahun, 2017 also studied physical and environmental characteristics that affected formation of cattle price in the Suir pastoralist. Accordingly age of ox/bull, season, body size, and market location significantly affected cattle price in the Suir pastoralist areas. Two studies, in Hawassa city, between December 2012 and February 2014 focused on factors that determine variation of livestock price and meat quality of cattle. According to these studies price of livestock fluctuated in seasons and determined by various attributes such as coat color, sex, age, body condition, holiday etc and quality of cattle meat affected by the moisture, ash, protein, fat, cooking loss and water holding capacity of beef and chevon (Tsegay, et.al, 2014 and Tsegay, et al 15). All of these scholars didn't give attention on the factors for the rise of meat animals' price in South Nation Nationalities and Peoples Regional State in general and in Hawassa market particularly. Considering this as research gap this research was designed to assess why meat animals' price rose to sky in South Nation Nationalities and Peoples Regional State in general and Hawassa market particularly.

Research Objective: A general objective of this study was to examine why meat animals' prices moved to sky in Hawassa city, in the main city of Sidama Zone and South Nation, Nationalities and peoples State region, in Ethiopia.

Specific objectives: The specific objectives of this study are described as follows. It aimed to:

- Identify whether the increase of demand caused for the rise of meat animals' price in Hawassa city or not.
- Assess whether shortage of supply caused for the rise of meat animals' price in Hawassa city or not.
- Describe how increase of the production cost of animals caused for the rise of meat animals' price in Hawassa city.
- Identify whether overly request of profit/artificial pricing/ was pressurizing the meat animals' price to move sky in Hawassa city or not.
- Assess whether there was association between expansion of mobile communication facilitating market information to contribute on the rise meat animals' price or not in urban centers like Hawassa city.
- Assess how increase of cost of living makes pressure on the of meat animals' price to move up in Hawassa city.

Significance of the Study: The fall and rise of price can be an indicator of availability (access) and shortage of goods, because price is standard and important component of market. Price can measure purchasing power of household and indicates profitability of business. It determines how much consumers can buy by their income level. Therefore the assessment of the factors for the raise of price meat animals helps consumers, policy makers and business men to have knowledge on the problem and use findings as source for national policy plan and business strategy formulation. The findings can help producers and businessmen to give attention on animals' production and marketing to exploit available opportunities around urban areas.

Scope of the Study: The study was delimited conceptually on factors pressurizing the rise of animals' price in Hawassa city. Methodological it focused on descriptive research approaches.

RESEARCH METHODOLOGY

Description of the Study area: Hawassa city: This study was studied in May-June 2018 in Hawassa city, which is the capital city of Sidama Zone and Southern Nation Nationalities and peoples Regional State of Ethiopia. Hawassa city is locates 273 km south of capital city, Addis Ababa, of Ethiopia between 7.05° N to 7°3'N latitude and 38°28' E to 38.467° E longitude (CSA, 2016). Hawassa city administration has an area of 157.2 sq.km and has eight sub-cities and 32 *Kebeles* /localities/. Hawassa city had a total population of 455,658 (Male 227, 614 and Female 228,044). From the total population of 35.26% found between 0-15 age, 62.03% were between 15-60 age, 40.24% were between 20-44 age and above 65 ages were 2.71%. Numerical the largest populations who live Hawassa city are Sidama followed by far distance Amhara and Wolaita people, and others. It has 90.27 % of Christians from which 59.5%, 27% and 3.77% were Protestants, Orthodox and Catholic adherents respectively. The remaining 8.1% and 1.24% were Muslims and others adherents respectively. Hawassa is one of the most attractive cities in Ethiopia, exploring the city as an enjoyable and valuable experience for both foreign and domestic tourists. As it was presented on the following graph the number of visitors of the city was increasing (Hawassaadm. Report 2017)

The Study Design: Quantitative and qualitative research approach was applied to investigate factors determining the overly rise of meat animals' price in Hawassa city. This study targeted the population of meat animals sellers/farmers and traders/, brokers and butchers. All of them were included in the study considering their active participation in the animals' market in Hawassa city. Hawassa city was purposefully selected, because of its fast growing population and high price index of the consumption goods among the cities of the South Nation Nationalities and peoples Regional State. According to CSA (2016)⁴ report Hawassa city was one of the top five cities whose price index of consumption goods was high in the South Nation Nationalities and People regional State. The representative sample was selected through convenient and randomly probability sampling techniques. The names of butchers were listed and selected by randomly method. Animals' sellers and brokers were selected in *Tulla, Tiqur Wuha and Dato* animals market using convenient method. This method was applied on brokers and sellers because it was difficult to get total number of sellers and brokers, and also it was difficult to get same sellers and brokers in the different markets days. The butchers sample size was determined using the formula that simplified by Yamane (1967:886) for finite population. It is based on the assumption that 95% confidence level and 5% precision.

It is formulated as follows:

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

- Where:
- n is the sample size,
- N is the total population of butchers in Hawassa city
- e is the level of precision.

Using the above formula the following representatives were selected

$$\text{It was calculated as follows } n = \frac{194 \text{ butcher}}{1+194 \text{ butcher } (0.05)^2}$$

$$= 130 \text{ butchers} + 25 \text{ farmers/animals' sellers/}$$

$$+ 10 \text{ animals market brokers} + 40 \text{ animals' merchants} \\ = \underline{205}$$

Different data collection tools were used to obtain both qualitative and quantitative data. Primary data was collected through survey, observations animals' market on the sell, interview with key informants and reports of Hawassa city abattoir. Secondary data was collected from written materials. Data was analyzed by using SPSS version 20. It was carried out using descriptive statistics and regression analysis. The analysis techniques were performed using descriptive statistics like frequencies, mean, standard deviation, percentages, and logistic regression.

Reliability and validity test: Fifteen informants were taken and tested the reliability of the research by using Cronbach's alpha model. The value of pre-test was 0.8389 which is in the good range of Cronbach's alpha. It was based on George and Mallery (2003) analysis that states a reliability score of greater than 0.9 is excellent, greater than 0.8 is good, greater than 0.7 is acceptable, greater than 0.6 questionable, greater than 0.5 is poor and less than 0.5 is unacceptable. Content validity was checked through distributing for ten participants. Then after all questions were collected and received feedback, edited ambiguous words, unclear format and instruction, before mass distribution of the questionnaire.

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents: The respondents represented by 84.88% (n = 177/205) males and 15.12% (n = 31/205) females. The larger distribution of males in the sample may result from the less involvement of women in butcher and animals trade because cultural it is considered as a task of the males. As it was shown on the table 3.1 majorities (33.66%) of the respondents were represented between the ages of 40-45 which followed by the age 35-40 and 30-35 with 28.78% and 18.54% respectively. The rest of sample represented by 0.98% age 20-25, 2.93% age 25-30, 9.76% 45-50, 2.93% age 50-55 and 1.95% age above 55. The age below 20 was purposely excluded from the sample considering their not active participation on butcher, animal trade and farmer occupation. As it was presented on the table 3.1 96.10% (n=197/205) respondents were married, 3.90% (n=8/205) were single. As it was described on the table 3.1 the representatives have 56.59% BA/Bsc, 26.34% diploma/TVET with equal diploma, 4.88% certificate, 9.27% completed high school and 2.93% completed up to primary school. In the sample 63.41% were butchers, 19.51% were animal merchants, 12.20% were farmers and 4.88% animals' market brokers.

Logistic Regression Analysis on Factors Causing increase of Meat Animals' price in Hawassa city: It was assessed whether there was overly increase of meat animals' price or not and following question was forwarded to the informants and responded as follows. Was meat animals' price increasing overly in Hawassa market?

As it was shown on the table 3.2, 86.34% respondents rated the price of meat animals was overly increased in Hawassa city. Only 13.66% respondents rated the price of meat animals was not overly increased.

Regression Analysis: In order to check how the explanatory variables could explain the variance in the dependent variable the regression model was used and presented as follows. As it was stated on the table 3.3 R-square = 0.949 revealed that the dependent variable was explained by 94.9% of independent variables and the rest 5.3% explained by other variables that were not included in this study. As it was shown on table 3.4 the significance level of all independent variables are less than p-value = 0.05. Thus they are statistically significant at 99% level to the variation on the dependent variable. From the unstandardized coefficient B, it was understood how the dependent variable affected by the independent variables. It was described on the following formula.

$$\text{Predicted increase of meat animal price score} = 6.783 + 0.086 (X_1) - 0.045 (X_2) + 0.08 (X_3)$$

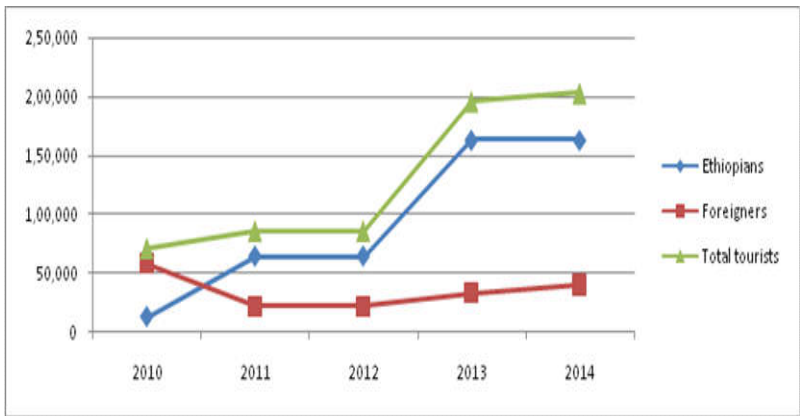
$$+ 0.64 (X_4) + 0.03 (X_5) + 0.279 (X_6)$$

As it was described in the above formula one unit of increase of meat animals' price affected by 0.86 increase of demand, -0.045 shortage of supply, 0.08 increase of production cost, 0.64 overly request of profit from the sellers, 0.03 expansion of mobile communication technology and 0.279 increase of living cost. The Pearson's product moment correlation coefficient was used to determine whether there is significant correlation between the dependent/meat animals' price/ and independent/increase of demand, shortage of supply, increase of production cost, overly request of profit, expansion of mobile communication technology, and increase of living cost/ variables. As it was described on the table 3.5 except the expansion of mobile communication technology, all of the five independent variables have strong correlation with the dependent variable.

All of five independent variables/ increase of demand, shortage of supply, increase of production cost, overly request of profit, and increase of living cost/ correlations are found in the range of the strong correlation. As it was argued that the correlation between -0.7 to -0.9 and 0.7 to 0.9 is located in the range of strong correlation relationship between the independent and dependent variables but if the correlation fall between the range of -0.3 to -0.1 and 0.1 to 0.3 is weak correlation. Thus expansion of mobile communication technology has weak correlation. The output of the research was also statistical significant at p-value= 0.000, which is statistically significant at 99% level except increase of the demand which was statistically significant at 95% level. As it shown on the table 3.6 the mean value of overly request of profit (mean=4.75) is largest followed by increase of living costs (mean=4.31), increase of the demand (mean=4.09), increase of the production cost (mean=3.93), shortage of supply (mean=3.73) and expansion of the mobile communication technology in rural areas (mean=2.28)

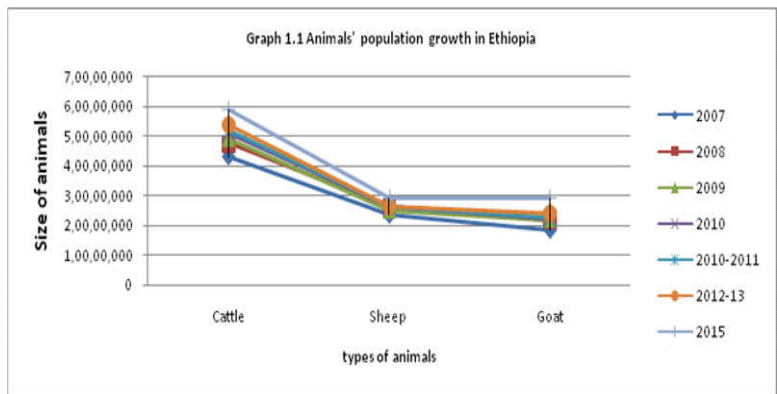
DISCUSSION

As it was shown on the table 3.6 the major factors that were pushing meat animals' price were overly request of profit, increase of living costs, increase of demand, increase of

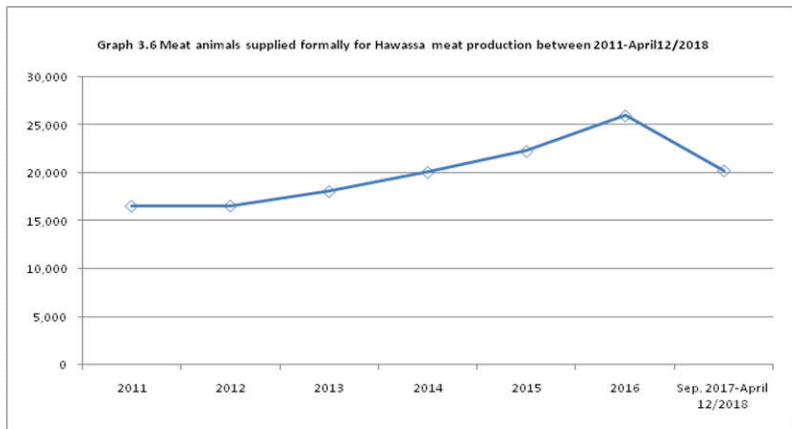


Source Hawassa city administration report 2014

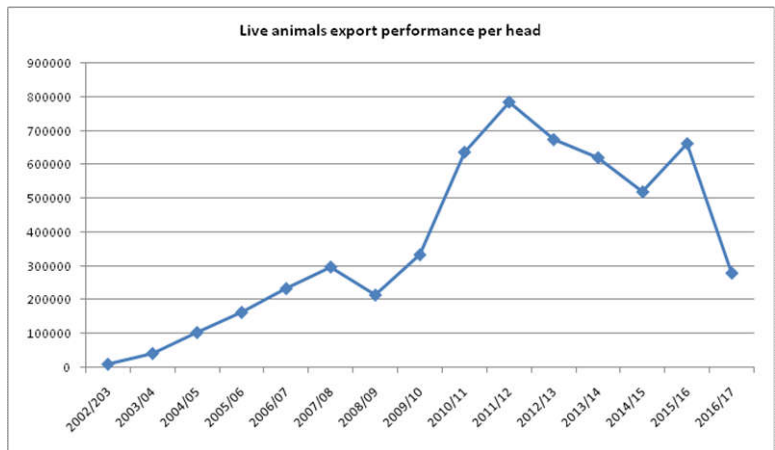
Graph 2.1 Annual tourist statistic from 2010-2014 to Hawassa city



Source CSA 2015a and 2016



Source: Hawassa abattoir report 2018



Source: ERCA (2012) and ERCA (2018)

Graph 3.7 Live animals export performance over 2002/03- 2016/17

Table 3.1. Demographic characteristics of respondents

types	sex	frequency	%
sex	Male	174	84.88%
	Female	31	15.12%
Age	total	205	100%
	20-25	2	0.98%
	25-30	6	2.93%
	30-35	38	18.54%
	35-40	59	28.78%
	40-45	69	33.66%
	45-50	20	9.76%
	50-55	6	2.93%
	55< above	4	1.95%
Marriage	Total	205	100%
	Married	197	96.1%
	Single	8	3.9%
	Divorced	0	0
	Widow	0	0
Education	Total	205	100%
	Completed up to primary	2.93%	6
	Completed high school certificate	9.27%	19
	Diploma	4.88%	10
	BA/Bsc	26.34%	54
	MA/Msc	56.59%	116
	PhD and above	0	0
	Total	0	0
Occupation	Total	205	100%
	Farmers	25	12.2%
	merchants	40	19.51%
	Butchers	130	63.41%
	brokers	10	4.88%
	Total	205	100

Source field survey 2018

Table 3.2. trends of meat animals' price in Hawassa city

response	Freq.	Percent	Cum.
Yes overly increased= 1	177	86.34	86.28
Not overly increased = 0	28	13.66	100.00
Total	205	100.00	

Source field survey of 2018

Table 3.3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
1	.974 ^a	0.949	0.947	0.10199	0.000

a. Predictors: (Constant), increase of living cost, increase of demand, increase of production cost, shortage of supply, expansion of mobile communication technology, overly request of profit

b. Factor: overly increase of meat animals' price

Table 3.4 coefficients of variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
Coefficients ^a	(Constant)	6.783	0.387		17.522	
	increase of demand (X ₁)	0.086	0.015	0.179	5.764	0.000
	shortage of supply (X ₂)	-0.045	0.013	-0.087	-3.495	0.001
	Increase of production cost (X ₃)	0.08	0.014	0.14	5.89	0.000
	overly request of profit (X ₄)	0.64	0.044	0.624	14.699	0.000
	Expansion mobile communication technology (X ₅)	0.03	0.012	0.07	2.59	0.01
	Increase of living cost (X ₆)	0.279	0.034	0.291	8.092	0.000

a. Dependent Variable: overly increased meat animal price

production cost, and shortage of supply. The expansion of mobile communication also helped people to have price information at tertiary market and resisted to sell low requesting tertiary market price at primary market centers. Production cost specially animals' feeding cost was one of the major cause for the rise of meat animals' price. As it was stated in literature cost of animals' feeding increased at high rate in the last 10-15 years because of shortage of communal grazing land by the expansion of agriculture. The price of crop residues also moved to sky.

Thus the cost of production increased to three to four folds and it was becoming a challenge for Ethiopia due to rapid population growth, expansion of croplands, and the high frequency of climatic shocks (Demissie 2018). As it was stated on the table 3.6 overly request of profit by sellers particularly the merchants and highly involvement of brokers make the price of meat animals to be beyond the capability of the low income people or meat will be the food of economically higher social classes. This shows that reduce of unnecessary involvement of brokers on the animals market can

Table 3.5. Correlations of independent variables with dependent variable

		Overly increase of meat animals' price
increase of demand	Pearson Correlation	.846*
	Sig. (2-tailed)	0.037
	N	205
shortage of supply	Pearson Correlation	-.838**
	Sig. (2-tailed)	0.000
	N	205
Increase of production cost	Pearson Correlation	.820**
	Sig. (2-tailed)	0.000
	N	205
overly request of profit	Pearson Correlation	.950**
	Sig. (2-tailed)	0.000
	N	205
expansion of mobile communication technology	Pearson Correlation	.337**
	Sig. (2-tailed)	0.000
	N	205
Increase of living cost	Pearson Correlation	.909**
	Sig. (2-tailed)	0.000
	N	205

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3.6. Descriptive Statistics of mean and standard deviation

Independent variables	N	Mean	Std. Deviation
increase of demand	205	4.09	0.922
shortage of supply	205	3.7268	1.04013
Increase of production cost	205	3.93	0.777
overly request of profit	205	4.7512	0.43336
expansion of mobile communication technology	205	2.28	0.855
Increase of living costs	205	4.31	0.463
Valid N	205		

help to control the overly rise animals' price while the other variables in the model are held constant. It requests transparent pricing strategy for fairly distribution of meat for majority people. This implies the market needs strong over profit request controlling system to maintain animals' price. As it was described in the above table 3.5 increases of demand meat animals was one of the major factors that accelerating the movement of meat animals' price to move up. The data that was collected from Hawassa abattoir report (2018) assured the increase of demand meat animals. According Hawassa abattoir office meat animals which supplied for the city people between 2011 and 2018 had increased. The above table 3.6 shows that the number of oxen supplied to Hawassa abattoir was increased between 2011 and 2018. This data didn't include informally slaughtered animals in the home of individual households and different institutions of governmental and none governmental organizations. Goats and sheep that were slaughtered at home were not included in abattoir's report. If informal supplied animals included in the data, the number was very large because almost there is no household without meat during different public holidays like new years and common religious festivals.

According to Hawassa abattoir office the supply of meat animals was increasing since 2007. As it was shown in the graph3.6 the meat animal supplied between 2011 and 2016 increased by 36.13% for Hawassa meat consumers. The increased number of meat animals' supply to city indicates, there was increase of meat demand in the city. At national level demand of meat animals in domestic and international markets was showing increment. Exports have dramatically increased since first decade to early second decade of the 21th c. Even though it show decline after 2012, it highly increased in 2018/19. Currently Ethiopia's live animal exports are estimated at 2,323,500.

Statically data of export live animals from 2002 to 2017 was presented on the following graph 3.7. From exports of live animals performance informal exporting shared larger portion which predominantly across borders to Somalia, Kenya, Somaliland, Djibouti and Sudan. It was because of different bureaucratic and socio-economic factors (ERCA, 2012; Sintayehu et al., 2013, and AGP, 2013). This implies that domestic markets like Hawassa city were facing with shortage of supplies because suppliers transferring live animals to neighbor countries from primary market expecting higher price than domestic markets. Thus by controlling the informal exporting, it may have probability to stabilize meat animals' market while the other variables are held constant. This research also assessed whether there was influence of increase of living cost on increase of meat animals' price. As it was assessed in this research 85.45% respondents agreed that their monthly income was increased in the last fifteen years but 64.81% agreed that their monthly income unable to cover their living costs. They complain it was because of the weak purchasing power of Ethiopia birr in the era of consumption cost was very high. At interview session informants/traders, butchers, brokers/ at Hawassa *Tikur Wuha* and *Tula market* site added that there was serious problem by increase of living costs. For ever items, price was increasing from time to time and one can be one of factors for rise of price of others goods like meat animals' price in urban. Market information is crucial for producers, wholesalers and consumers use to make decisions what and whether to buy or sell. The pieces of information are useful in designing appropriate cattle pricing as well as cattle marketing procedures and provision of services like reliable marketing information to avoid unfair cattle-pricing practices. In interview session farmers added that distribution of moveable phone and technology supported communication helped them to have information of price of animals at the terminal markets in urban centers.

Thus producers request same price of tertiary markets at the primary market centers. This forced traders to buy meat animals in increased price at primary markets and sell by more money at terminal market like Hawassa market. In addition to moveable phone, improvement of road and information infrastructure as well as closer links with rewarding export markets might have contributed to general price rises in livestock sector. International trade and price movements in destination markets also might have driven some animals' product price increases in Ethiopia (Fantual et al., August 2017 and Negassa et al., 2012).

Conclusion

Meat animals' price was overly increasing in Hawassa city. Different factors were pushing price of meat animals to move to sky. The major findings that were identified in this research are summarized as follows. Meat animals' price was overly increased in urban areas like Hawassa city in the last years. The major factors that were causing for overly rise of meat animals' price in Hawassa market are overly request of profit, increase of living costs, increase of demand, increase of cost of production and shortage of supply. The expansion of mobile communication technology also helped farmers to have information of tertiary market and hesitate to sell with low price at farmers' gate market. This also forced merchants to buy with high price at farmers' gate market and resell with too high price at urban.

Recommendation

Based on the above finding following recommendations are forwarded. Governmental and none governmental organization should work to establish feedlot around Hawassa city. This strategy may help to increase job opportunities for those who involved on this job one hand and solve shortage of supply on the other hand. Pricing strategy in Hawassa market was not fixed scale. Most sellers and buyers determine the price of the animals' simple estimation strategy. It is better if there is pricing strategy and exaggerated price controlling mechanism to minimize overly request of profit from meat animals. Highly involvement of brokers in market is aggravating the rise of price of meat animals' market. Thus it request strategy to minimize unnecessary involvements of this individuals. It is obvious that Hawassa city population is highly increasing which forces the increase of demand of meat in this city. Taking this as consideration, encourage the value chain production system. Over all government should plan to minimize living costs of people at large scale particularly for wage based life, or people who live daily or monthly based buying for consumption. Solution which focuses on reducing living costs may be medicine for the rise of different price of goods to stabilize market price.

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