

Mediation of Market Intermediaries of Livestock and its Products Market Chain on Pastoralist's Economic Status; The Case of Southern EthiopiaDuba Malicha Guyo^{1*}, Chalchissa AmetieKero^{2*}, Shashi Kant³^{1*}Department of Marketing Management, Bule Hora University, Ethiopia, malichaduba11@gmail.com^{2*} Department of Management, Ethiopian Civil Service University, Ethiopia, chalchoko@gmail.com³, Department of Management, Bule Hora University, Ethiopia, shashi.kant@bhu.edu.et**ABSTRACT**

The study focused on Livestock's and Livestock Products Marketing effect on Pastoral Community Economic Status with mediation of market intermediaries in Ethiopia. The sample size is 384 samples and the selected sampling strategies are multistage, purposive, and simple random sampling. Study used quantitative data analysis research approach. This study employs KMO, EFA, CFA, and SEM using AMOS software to investigate the underlying structure of a set of variables. The Kaiser-Meyer-Olkin (KMO) measure confirmed the adequacy of the sample for factor analysis, while Exploratory Factor Analysis (EFA) identified key dimensions within the data. Confirmatory Factor Analysis (CFA) validated the factor structure, ensuring model fit and reliability. Subsequently, Structural Equation Modeling (SEM) assessed the relationships among the latent variables. The results of AMOS demonstrated that the mediation of marketing intermediaries is essential for the sale of commodities and livestock in order to improve the economic status of Ethiopia's pastoralist community. These links also imply that livestock trading by itself (without the assistance of marketing intermediaries) would not enhance the economic status of the pastoralist group. Since marketing intermediates are the ones who are fully mediating the relationship, policy makers should concentrate on them. It implies that intermediaries play a critical role in the marketing process and are essential to the survival of the pastoral economy.

Keywords: Economic status; Intermediaries; Marketing; Livestock; Livestock Products Marketing; Pastoral Communities

BACKGROUND OF STUDY

Providing a substantial source of revenue and a means of subsistence for numerous households, livestock have a vital position in the economies of Ethiopia's pastoral communities (Abebe et al., 2022; Ayele, 2019). The important activities that affect these communities' economic status are livestock marketing and the shift from producing animals to marketing livestock and its products (Tiki & Little, 2022; Seid, 2019). To guarantee effectiveness, openness, and reasonable market

pricing, market intermediaries or mediators must be involved in these procedures (Hitt et al., 2019; Bassa, 2018). Researchers aiming to examine the economic dynamics of pastoral communities in Ethiopia must comprehend the function of market intermediaries in the selling of livestock and livestock products (Chesos, et al., 2021; Prasetyo & Dzaki, 2020). The intricate interplay of producers, intermediaries, and consumers within these markets necessitates a thorough analysis to pinpoint possible obstacles, prospects, and the effects on the financial stability of pastoral communities.

According to Ag et al. (2019), livestock marketing refers to the activities, processes, and systems involved in buying, selling, and promoting livestock and livestock products within the country and in international markets (Erick, 2022; Birhanu & Chamo, 2022). Ethiopia has a rich livestock sector, and livestock production plays a significant role in the country's economy, culture, and food security (Abebe et al., 2022; Seid, 2019). The origin of livestock marketing in Ethiopia can be traced back to ancient times when livestock rearing was an integral part of the country's agricultural practices and livelihood systems (Alemneh & Getabalew, 2019). Ethiopia has a long history of pastoralism, where communities rely on livestock for their subsistence and economic well-being (Al-ghaswyneh & Oweis, 2022; Wako, 2020). Livestock, including cattle, sheep, goats, and camels, have been an essential part of the Ethiopian culture and traditions for centuries (Wafula, 2021; Lutta et al., 2021). Traditionally, livestock markets in Ethiopia were informal and operated in local, regional, and even national contexts. These markets, known as "*souks*" or "*marts*," were places where livestock owners, traders, and buyers would converge to buy and sell animals (Girmay & Yeserah, 2019; Mohamed, 2019). They served as important social and economic hubs, facilitating trade and exchange of livestock, as well as fostering social interactions and cultural practices (Lombebo & Wosoro, 2019; Ahmed, 2019).

The Ethiopian government has recognized the importance of the livestock sector and has implemented policies and programs to promote and regulate livestock marketing (Endris et al., 2020). This includes the establishment of livestock markets, improvement of infrastructure (such as roads and market facilities), development of market information systems, and the facilitation of market access for livestock and livestock products (Yitbarek, 2020). Livestock product marketing refers to the activities, processes, and systems involved in buying, selling, and promoting the

various products derived from livestock, such as meat, milk, hides, skins, wool, and other by-products (Birhanu Chamo, 2022). Livestock product marketing in Ethiopia is an essential component of the overall livestock value chain and plays a significant role in the country's economy, food security, and rural livelihoods (Yitbarek, 2020).

The origin of livestock product marketing in Ethiopia can be traced back to its long history of livestock production and the traditional practices associated with it. Livestock products have been traded and exchanged within local communities and across regions for centuries (Yitbarek, 2020). Ethiopia has diverse agro-ecological zones, each with its own livestock production systems and associated product markets (Lutta et al., 2021). Traditionally, livestock product marketing in Ethiopia was often conducted through informal channels, such as local markets, souks, or direct sales between producers and consumers. These traditional markets played a crucial role in connecting producers with consumers and facilitating the exchange of livestock products (Ahmed, 2019). They formed important social and economic hubs, where community members would gather to buy and sell livestock products, as well as engage in social interactions and cultural activities (Abebe et al., 2022).

In the context of livestock marketing, market intermediaries refer to individuals or entities that facilitate the buying and selling of livestock between producers and consumers. These intermediaries play a crucial role in the livestock market by providing services such as gathering, sorting, transporting, and selling livestock on behalf of producers (Duguma, 2022). According to Hi et al. (2018), market intermediaries in livestock marketing can include livestock auctioneers, livestock brokers, meat processors, feedlots, and livestock transportation companies. They help streamline the process of livestock sales and ensure that livestock reaches the appropriate markets efficiently. Overall, markets intermediaries help connect livestock producers with buyers, enabling transactions to occur smoothly and efficiently within the livestock market (Tiki & Little, 2022).

The Ethiopian government, along with development partners and organizations, has recognized the importance of livestock product marketing and has implemented various policies and initiatives to support its development (Birhanu et al., 2021). This includes the establishment of

market infrastructure, improvement of transportation and storage facilities, capacity building for market actors, and the promotion of value addition and quality control measures (Benti, 2022). Ethiopia's diverse livestock resources, including cattle, sheep, goats, camels, and poultry, provide a wide range of products that cater to both domestic and international markets (Faraz et al., 2021). The economic status of a pastoralist community in the context of livestock marketing refers to the financial condition and well-being of the community members who rely on livestock for their livelihood (Benti, 2022; Emana et al., 2017). It encompasses factors such as the income generated from selling livestock, the overall profitability of their livestock-related activities, access to markets, pricing mechanisms, and the ability to sustain their way of life through livestock trade (Mengistu, 2022). Understanding the economic status of pastoralist communities is crucial for developing strategies to enhance their market opportunities, improve their income levels, and ensure sustainable livelihoods (Garba, 2022; Wafula, 2021).

The purpose of this study is to look at how mediation of market intermediaries between market livestock and livestock products is helping pastoralist community economic status. This study intends to add significant insights to the body of knowledge on market dynamics, rural development, and agricultural economics in developing nations by illuminating the function of intermediaries. Through a fuller knowledge of the complex web of actors participating in livestock markets and the ramifications for pastoral communities, future academics might acquire valuable insights from this research. Future studies can investigate new paths for boosting farmer livelihoods, increasing market efficiency, and supporting sustainable agricultural practices in comparable situations by expanding on the findings of this study. The results of this study should provide light on the difficulties pastoral communities have in reaching markets, the function intermediaries play in connecting producers and consumers, and the effects of intermediary behavior on market pricing and financial results. This research intends to offer useful insights into the operation of livestock markets in Ethiopia and recommendations for policy-makers, practitioners, and stakeholders to improve market efficiency and support the economic development of pastoral communities by examining the interactions between market intermediaries, livestock producers, and consumers.

STATEMENT OF PROBLEM

The pastoralist community in Ethiopia encounters substantial financial difficulties when it comes to the sale of livestock and associated products (Lutta et al., 2021). Using marketing intermediaries to facilitate trade and improve the pastoralists' economic status is one possible avenue for improvement (Seid, 2019); however, there is a dearth of thorough research and understatement regarding the necessity and efficacy of mediation in the sale of livestock and products (Al-ghaswynch & Oweis, 2022; Ayele, 2019). This knowledge gap impedes the development of evidence-based policies and interventions that can address the financial difficulties faced by pastoralists.

The complex dynamics of Ethiopia's livestock markets are poorly studied, especially as they relate to pastoralist communities (Adem, 2019; Girmay & Yeserah, 2019). It is essential to have a thorough grasp of market dynamics, including supply chains, pricing strategies, and buyer-seller relationships, in order to pinpoint the unique difficulties pastoralists encounter and the possible advantages of mediation (Ayele, 2019; Hi et al., 2018). There are many different kinds of marketing intermediaries, including merchants, brokers, and cooperatives (Abebe et al., 2022; Eshetie et al., 2018). There isn't enough data, though, to compare the effectiveness and effects of these various intermediate models in the setting of pastoralist communities (Yitbarek, 2020). Creating the right interventions requires an understatement of which intermediate models work best to raise pastoralists' economic status (Gebremariam & Tassew, 2020; Kenea, 2019).

Few studies have been done on how mediation of market intermediaries between market livestock and livestock products is helping pastoralist community economic status (Zewdie Birhanu et al., 2021; Tolera & Eik, 2020; Tiki & Little, 2022). Examining the impact of mediation on employment prospects, social cohesiveness, and economic distribution in these communities is crucial (Girmay & Yeserah, 2019). Furthermore, studies have to delve into the possible unforeseen outcomes and compromises linked to mediation, such as heightened reliance on middlemen or modifications to customary subsistence methods. Many pastoralist villages in Ethiopia are geographically isolated and distant, making it difficult for them to access markets (Abebe et al., 2022). Inadequate road and transportation infrastructure makes it more difficult to

move goods and livestock efficiently (Tiki & Little, 2022). For mediation to be successful, workable solutions to these logistical obstacles must be found.

A lot of pastoralists are not very knowledgeable or skilled in value chain management, negotiating strategies, or market transactions (Erick, 2022; Tiki & Little, 2022; Ombasa, 2020; Yitbarek, 2020). Optimizing the advantages of mediation requires strengthening pastoralists' ability to interact with marketing intermediaries in an efficient manner. It might be difficult to create and carry out appropriate capacity-building initiatives that are suited to the unique requirements of pastoralists (Ayele, 2019). The potential influence of mediation is restricted in the absence of appropriate institutional structures and regulations. Inadequate legal frameworks, restricted access to financial services, and a lack of regulation can all act against marketing intermediaries' efficacy (Abebe et al., 2022).

By doing an extensive analysis of the sale of livestock and goods using marketing intermediaries in the pastoralist community of Ethiopia, this study seeks to close the gap in knowledge and tackle the practical issues (Seid, 2019). Through fieldwork, interviews, and data gathering, the research was examined livestock market dynamics and the particular difficulties encountered by pastoralists. This study result was offering us a more complex picture of the economic variables affecting the necessity of mediation. The study was assessed and contrasts the effectiveness and implications of various intermediary models used in the trading of livestock. It was evaluate how well they work to give pastoralist communities better access to markets, leverage in negotiations, and financial results.

The study was looked at how mediation affects social dynamics in pastoralist groups, as well as how revenue is distributed and jobs are created. It was investigated the possible advantages and disadvantages of mediation for customs and means of subsistence. Based on the results, the research was offered useful suggestions to development organizations, government agencies, and legislators on how to create and carry out initiatives that improve pastoralists' economic situation. Additionally, it was offered solutions for the real-world issues pertaining to institutional support, capacity building, and market access. This study was supported evidence-based decision-making and the creation of successful policies and interventions that can strengthen the economic well-

being of Ethiopia's pastoralist community and empower them by addressing research gaps and practical issues.

MATERIAL AND METHOD

Study Area

The study was conducted in the Borena Zone of the Oromia Region, specifically within the Yabelo and Gomole woredas. These areas were selected due to their socio-economic reliance on livestock production, which is integral to local livelihoods and forms a core component of the pastoralist economy in the region. Two kebeles were chosen from each woreda to provide a balanced representation of the woredas. The selection of these specific kebeles was based on factors such as livestock density, accessibility, and the presence of livestock owners actively engaged in pastoralism and agro-pastoralism. This selection was intended to capture a diverse yet representative sample of livestock management practices and challenges across the study region.

Sampling Method

A multistage and purposive sampling method was used to select the study sites and participants. This approach was chosen to systematically reduce the sample size from a broad geographical area to a focused group of livestock owners, ensuring both representativeness and practicality in data collection. The multistage sampling technique enabled the study to cover a wide area while gradually narrowing down to specific populations at different levels, from the region to woredas and finally to kebeles. By using this technique, we ensured that diverse subgroups within the Borena Zone were represented, thereby increasing the generalizability of our findings. Each sampling stage allowed the selection of representative units, focusing on particular aspects relevant to livestock management and the socio-economic profile of the community.

Sample Size Determination

The study sample comprised 384 livestock owners, selected based on specific criteria to ensure that the sample size was both manageable and statistically representative of the study population. The sample size was determined by taking into account the population of livestock owners in the selected woredas, as well as the need for sufficient data to enable robust analysis and valid

conclusions. A sample size of 384 was deemed adequate to provide meaningful insights while being feasible given the resources available for data collection and processing.

This sample size also aligns with recommendations for quantitative studies, allowing for a reasonable level of confidence and precision in the analysis. By carefully selecting 384 individuals, the study could achieve a level of data saturation that captures the diversity and complexity of livestock ownership and management practices in the study area.

Researchers used the quantitative research approach. Finding evidence for a characteristic or relationship preferably a cause-and-effect relationship is the primary goal of quantitative research. The results are then extrapolated to the population using statistical inference (Dattalo, 2008). SPSS and AMOS 23 version was used for the data analysis in this research. Arbuckle (2014) claims that AMOS (Analysis of Moment Structures) is a user-friendly application for visual SEM. Amos made it simple for you to describe, inspect, and change your model graphically using simple sketching tools. With the aid of a Likert scale 5 point structured questionnaire, 385 pastoralists were surveyed to gather data.

The formula used for sample size calculation is commonly referred to as the sample size formula for estimating proportions. This formula is pivotal in research as it helps determine the appropriate sample size needed to achieve a specific level of confidence and precision when estimating a population parameter, such as the proportion of a population exhibiting a certain characteristic. Researchers choose this formula for several reasons. Firstly, it incorporates the Z-score, which allows for the adjustment of the sample size based on the desired confidence level, ensuring that the results are statistically reliable. Additionally, the formula considers both the estimated proportion of the target characteristic (p) and its complement (q), which is essential for accurately reflecting variability within the population. The inclusion of the population size (N) and the margin of error (e) further tailor the sample size to the specific context of the study, enhancing its relevance and applicability. By using this formula, researchers can ensure that their findings are robust, generalizable, and capable of supporting informed decision-making based on empirical evidence. As a result, the entire sample size was determined in this study using the following formula.

$$n = z^2 pq / 1 + N(e)^2$$

$$n = z^2 pq / 1 + N(e)^2 \quad n = (1.96)^2 (0.5) (0.5) / (0.05)^2 = 384$$

To develop a testable framework for this examination, the researcher focused on important empirical studies from several topic areas as well as the theoretical foundations. As a result, the empirical review previously indicated was used to build the framework that follows.

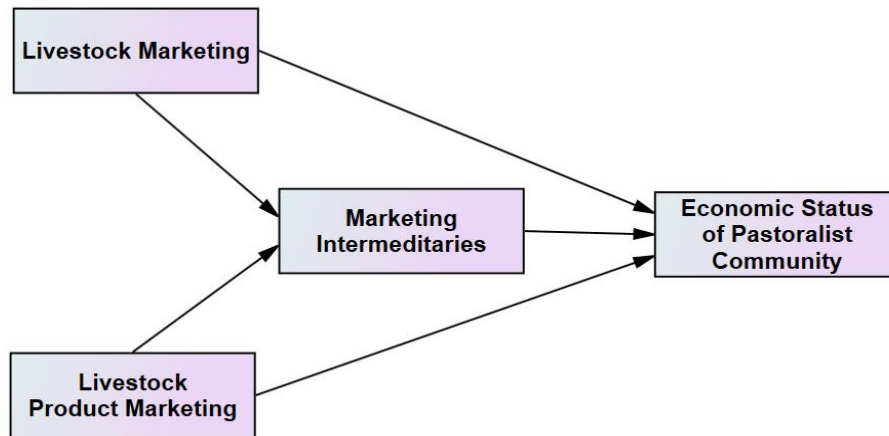


Fig 1: Conceptual Framework
Source: Compiled From Reviewed Literature, 2023

RESULTS

The minimal sufficiency of data, as determined by the KMO, needs to be more than 0.5 for a factor analysis to be considered both acceptable and integer.

Table 1. Test for Sample Adequacy

“Kaiser-Meyer-Olkin” evaluate of data sufficiency				.762
“Bartlett's investigation for Sphericity”			Likelihood value	983.198
			Degree of freedom	19
			P-Value	.000

Source: SPSS result, 2023

Table 1 presented the results of the tests for sample adequacy, specifically the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. The KMO value of 0.762 indicates that the sample is adequate for factor analysis, as values above 0.6 are generally considered acceptable. This suggests that the data possesses sufficient correlation among variables, making it suitable for further analysis. Additionally, Bartlett's test yielded a likelihood value of 983.198 with 19 degrees of freedom and a p-value of 0.000. This significant p-value (less than 0.05) indicates that the correlation matrix is not an identity matrix, affirming that there are significant relationships among the variables. Together, these results confirm the appropriateness of the dataset for conducting factor analysis, thereby supporting the validity of subsequent analyses in this research. Path analysis, structural equation modelling (SEM), exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) were used in exploratory investigations. EFA is a data-driven method that determines the number of factors and which observable variables are indicative of each hidden variable. CFA is confirmatory. Predetermined are the overall numbers of variables as well as the indicator factors' loading pattern.

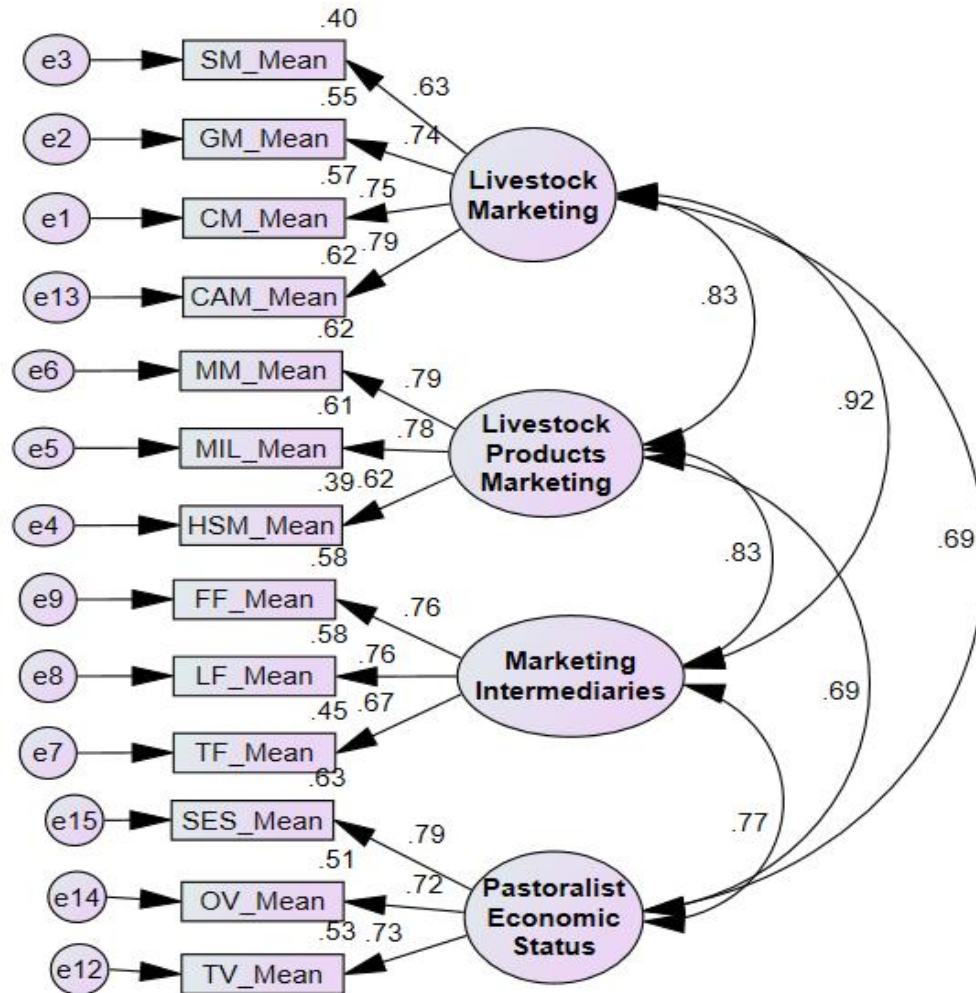


Fig 2: Exploratory factor analysis (EFA)

Source: AMOS result, 2023

Table 2. Covariance testing

			Estimate	S.E.	C.R.	P
Livestock Marketing	<-->	Livestock Products Marketing	.169	.019	9.059	***
Livestock Marketing	<-->	Marketing Intermediaries	.215	.022	9.808	***
Livestock Marketing	<-->	Pastoralist Economic Status	.159	.017	9.429	***
Livestock Products Marketing	<-->	Marketing Intermediaries	.164	.021	7.914	***
Livestock Products Marketing	<-->	Pastoralist Economic Status	.136	.016	8.713	***
Marketing Intermediaries	<-->	Pastoralist Economic Status	.173	.019	9.346	***

Source: AMOS result, 2023

The findings of the covariance tests presented in table 2, that are being given, which were gathered using AMOS, shed light on the connections between several factors pertaining to the sale of livestock and livestock products, pastoralists' economic status, and marketing intermediaries. There is a positive correlation between the marketing of cattle and livestock products, as indicated by the estimate of 0.169. The accuracy of the estimate may be seen in the standard error (S.E.) of 0.019. The statistical significance of the association is indicated by the critical ratio (C.R.) of 9.059. The association is very significant, as indicated by the p-value less than 0.05 ($p < 0.001$). All things considered, these findings point to a robust and favorable correlation between the marketing of cattle and livestock products.

A favorable correlation between cattle marketing and marketing intermediaries is indicated by the value of 0.215. The estimate's accuracy is shown by the S.E. of 0.022. The statistical significance of the link is indicated by the C.R. of 9.808 values. High statistical significance is indicated by p-value < 0.001 . These results point to a robust and favorable relationship between the marketing of cattle and the participation of marketing intermediaries.

The estimate of 0.159 showed that the economic status of pastoralists and cattle selling are positively correlated. The estimate's accuracy is shown by the S.E. of 0.017. The statistical significance of the link is indicated by the C.R. of 9.429. High statistical significance is indicated by p-value < 0.001 . These findings suggest a robust and favorable relationship between the pastoralist community's financial situation and cattle trading.

The estimate of 0.164 showed that there is a positive correlation between marketing intermediaries and cattle products. The estimate's accuracy is shown by the S.E. of 0.021. The statistical significance of the link is indicated by the C.R. of 7.914. High statistical significance is indicated by p-value < 0.001 . These results point to a robust and favorable relationship between the marketing of animal products and the use of marketing intermediaries. The estimate of 0.136 showed that the economic status of pastoralists and the selling of animal products are positively correlated. The estimate's accuracy is shown by the S.E. of 0.016. The statistical significance of the link is indicated by the C.R. of 8.713. High statistical significance is indicated by p-value < 0.001 . These findings suggest a robust and favorable relationship between the pastoralist

community's financial situation and the commercialization of livestock products. The estimate of 0.173 showed that the economic status of pastoralists and marketing intermediaries are positively correlated. The estimate's accuracy is shown by the S.E. of 0.019. According to the C.R. of 9.346, there is statistical significance in the association. High statistical significance is indicated by the "****" p-value ($p < 0.001$). These results point to a robust and favorable relationship between the pastoralist community's economic condition and the engagement of marketing intermediaries. Overall, the findings show a strong positive correlation between pastoralist economic status, marketing intermediaries, livestock goods, and livestock marketing. These results demonstrate the significance of livestock selling and the role played by marketing intermediaries in improving the pastoralist community's economic situation in Ethiopia.

Table 3. Validity Concern

	CR	AVE	MSV	MaxR(H)	LPM	MI	PES
LPM	0.732	0.643	0.219	0.852	0.654		
MI	0.758	0.657	0.132	0.763	0.171	0.665	
PES	0.793	0.603	0.274	0.797	0.383	0.193	0.684

Note: LPM= Livestock Product Marketing; MI= Market Intermediaries; PES= Pastoralist Economic Status

Table 3 presents the validity concerns associated with the constructs of Livestock Product Marketing (LPM), Market Intermediaries (MI), and Pastoralist Economic Status (PES). The Composite Reliability (CR) values for each construct indicate acceptable levels of internal consistency, with LPM at 0.732, MI at 0.758, and PES at 0.793, all exceeding the recommended threshold of 0.7. This suggests that the measures used for each construct are reliable. The Average Variance Extracted (AVE) values further support the validity of the constructs, with LPM at 0.643, MI at 0.657, and PES at 0.603. These values are above the 0.5 threshold, indicating that a significant portion of the variance in the observed variables is captured by the respective constructs. The Maximum Shared Variance (MSV) values, which reflect the extent to which constructs share variance, are lower than the AVE values, suggesting that discriminant validity is maintained among the constructs.

Additionally, the Maximum Reliability (MaxR(H)) values for all constructs are satisfactory, with LPM at 0.852, MI at 0.763, and PES at 0.797, indicating good reliability across different measurement models. Modification indices (MI) highlight the potential improvements in model

fit, with MI values for MI at 0.665 and PES at 0.684, suggesting areas for further refinement if necessary. Overall, these results affirm the constructs' validity and reliability, supporting their use in the subsequent analyses of the research.

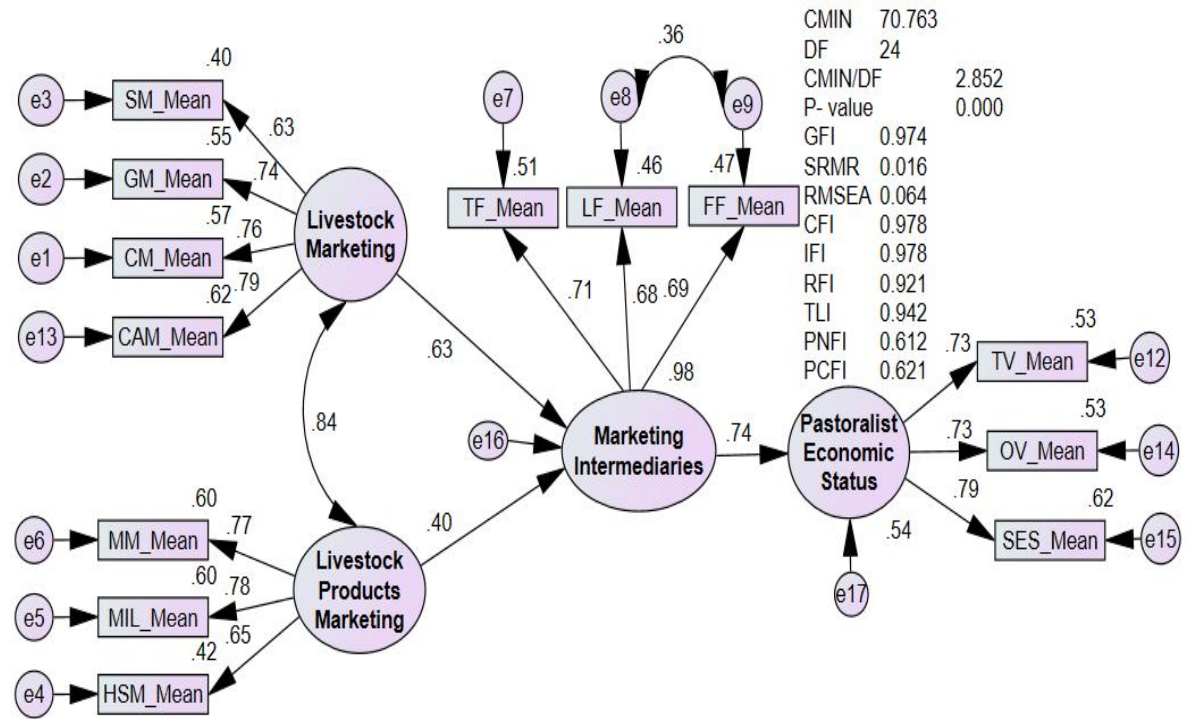


Fig 3: Structure Equation Model

Source: AMOS result, 2023

Table 4. Regression Analysis

			Estimate	S.E.	C.R.	P	Hypothesis
Marketing Intermediaries	<---	Livestock Marketing	.647	.100	6.446	***	Accepted
Marketing Intermediaries	<---	Livestock Products Marketing	.469	.118	3.959	***	Accepted
Pastoralist Economic Status	<---	Marketing Intermediaries	.680	.058	11.781	***	Accepted

Source: AMOS result, 2023

Researchers used the estimates, standard errors (S.E.), critical ratios (C.R.), p-values, and related hypotheses in order to verify the findings of the regression shown in Table 4. A favourable correlation between cattle marketing and marketing intermediaries is indicated by the value of 0.647. The estimate's accuracy is shown by the S.E. of 0.100. The statistical significance of the link is indicated by the C.R. of 6.446. High statistical significance is indicated by the $p\text{-value} < 0.001$. This relationship's underlying theory is acknowledged. Consequently, the idea that there is a strong positive correlation between cattle marketing and marketing intermediaries is supported by data. The estimate of 0.469 showed that the marketing of animal products and marketing intermediaries have a positive association. The estimate's accuracy is shown by the S.E. of 0.118. The statistical significance of the link is indicated by the C.R. of 3.959. High statistical significance is indicated by $p\text{-value} < 0.001$. This relationship's underlying theory is acknowledged. Consequently, the idea that there is a strong positive correlation between the marketing of cattle products and marketing intermediaries is supported by data.

Pastoralists' economic status and marketing intermediaries are positively correlated, as indicated by the estimate of 0.680. An estimate's accuracy is shown by its S.E. of 0.058. The link may be statistically significant, as indicated by the C.R. of 11.781. High statistical significance is indicated by a $p\text{-value} < 0.001$. With regard to this relationship, the theory is acknowledged. Thus, there is proof in favor of the theory indicating that pastoralists' economic status and marketing intermediaries are significantly positively correlated. All of the tested hypotheses are accepted in light of the results of the hypothesis testing that are reported. This suggests that there is a substantial body of data in favor of the existence of beneficial connections between marketing intermediaries and the marketing of livestock and livestock products. Furthermore, a strong body of research indicates that pastoralist economic status and marketing intermediaries are positively correlated. These results point to the value of marketing middlemen in enabling livestock sales as well as their effect on pastoralist communities' financial status.

Table 5. GOF Indices and Model fitness

Measurement Category	Fit Indices	Model Value	Cut-off Value	Remark
Chi-Square	CMIN	70.763	-	
	DF	24	-	
	CMIN/DF	2.852	3-5	Good fit
	P- value	0.000	P>0.5	Not fit
Absolute fit measurement	GFI	0.974	>0.9	Good fit
	SRMR	0.016	< 0.08	Fit
	RMSEA	0.064	< 0.08	Fit
Incremental fit measurement	CFI	0.978	>0.9	Good fit
	IFI	0.978	>0.9	Good fit
	RFI	0.921	>0.9	Fit
	TLI	0.942	>0.9	Fit
parsimony fit measure	PNFI	0.612	>0.5	Fit
	PCFI	0.621	>0.5	Fit

Source: AMOS result, 2023

Table 5 presents the goodness-of-fit (GOF) indices and model fitness results for the structural equation modeling analysis. The chi-square statistic (CMIN) is reported at 70.763 with 24 degrees of freedom, yielding a CMIN/DF ratio of 2.852, which falls within the acceptable range of 3 to 5, indicating a good fit. However, the p-value of 0.000 suggests that the model does not fit the data perfectly, as it is less than the threshold of 0.05. In terms of absolute fit measurements, the Goodness-of-Fit Index (GFI) is 0.974, exceeding the cut-off value of 0.9, which signifies a good fit. The Standardized Root Mean Square Residual (SRMR) at 0.016 and the Root Mean Square Error of Approximation (RMSEA) at 0.064 are both below the recommended thresholds, further supporting a good fit. For incremental fit measurements, the Comparative Fit Index (CFI) and the Incremental Fit Index (IFI) are both 0.978, indicating a strong fit as they surpass the 0.9 threshold. The Relative Fit Index (RFI) at 0.921 and the Tucker-Lewis Index (TLI) at 0.942 also demonstrate acceptable fit levels. Finally, the parsimony fit measures, including the Parsimony Normed Fit Index (PNFI) and the Parsimony Comparative Fit Index (PCFI), both exceed the threshold of 0.5, indicating that the model maintains a good balance between fit and complexity.

Overall, these indices suggest that the model is a good representation of the data, with several indicators affirming its adequacy.

Table 6. Mediation Analysis

	Livestock Products Marketing	Livestock Marketing	Marketing Intermediaries	Pastoralist Economic Status
Marketing Intermediaries	.469	.647	.000	.000
Pastoralist Economic Status	.319	.441	.680	.000

Source: AMOS result, 2023

Table 6 provides the results of the mediation analysis, highlighting the relationships among livestock products marketing, livestock marketing, marketing intermediaries, and pastoralist economic status. The coefficients indicate the strength of these relationships, with marketing intermediaries showing a significant positive effect from both livestock products marketing (0.469) and livestock marketing (0.647). This suggests that effective marketing strategies for livestock and its products significantly enhance the functioning of intermediaries, which is crucial for connecting pastoralists to markets. Furthermore, the analysis indicates that marketing intermediaries have a strong positive influence on pastoralist economic status, with a coefficient of 0.680. This finding underscores the importance of intermediaries in facilitating market access and improving economic outcomes for pastoralists. The values of 0.000 in the significance column for both relationships indicate that these effects are statistically significant, reinforcing the role of marketing intermediaries as a vital link between livestock marketing efforts and the economic wellbeing of pastoral communities. Overall, the results emphasize the critical interplay between marketing practices and economic status, highlighting the need for strategic interventions in the livestock marketing sector.

These connections suggest that the pastoralist community's economic status may not be enhanced by livestock marketing on its own (without the assistance of marketing intermediaries). This is due to the fact that, in connection to pastoralist economic status, the coefficient for livestock

marketing (0.647) is less significant than the coefficient for marketing intermediaries (0.680). However, the Pastoralist Economic Status may be more significantly impacted by Livestock Products Marketing in conjunction with Marketing Intermediaries. The fact that the livestock products marketing coefficient (0.469) is greater than the livestock marketing coefficient (0.647) lends credence to this. It implies that the pastoralist community's financial situation may be enhanced by using Marketing Intermediaries in the sale of livestock products. Thus, it is advantageous to concentrate on a mix of livestock marketing and livestock product marketing, assisted by marketing intermediaries, in order to improve the economic status of Ethiopia's pastoralist population. The pastoralist group may access new markets, bargain for lower pricing, and take advantage of value-added activities related to animal goods by using marketing intermediaries. The pastoralist community in Ethiopia might see an improvement in overall economic well-being and greater economic benefits from this integrated strategy.

DISCUSSION

The findings from the mediation analysis and hypothesis testing provide significant insights into the effects of livestock and livestock products marketing on the economic status of pastoral communities in Ethiopia, with market intermediaries playing a crucial mediating role. The strong positive relationships identified—particularly the substantial effect of livestock marketing on marketing intermediaries (estimate = 0.647) and the influence of these intermediaries on pastoralist economic status (estimate = 0.680)—underscore the pivotal role of intermediaries in facilitating access to markets and enhancing economic outcomes for pastoralists. The results suggest that effective marketing strategies for livestock and livestock products not only improve market access but also empower intermediaries to optimize the distribution process, thereby contributing to increased income for pastoralists. Additionally, the direct effect of livestock products marketing on marketing intermediaries (estimate = 0.469) indicates that diversifying product offerings can enhance intermediary functionality, ultimately benefiting the pastoral community. These findings highlight the importance of strengthening market channels and improving the efficiency of marketing intermediaries to foster economic growth in pastoral areas. By focusing on enhancing livestock marketing systems and supporting intermediaries, policies can be designed to strengthen the economic status of pastoralists, thereby promoting sustainable livelihoods and resilience within these communities. Overall, this research underscores the

interconnectedness of marketing practices, intermediary roles, and economic wellbeing in the context of Ethiopia's pastoral communities.

CONCLUSION

In conclusion, this research demonstrates the significant impact of livestock and livestock products marketing on the economic status of pastoral communities in Ethiopia, with market intermediaries serving as a critical mediating factor. The findings reveal that effective marketing strategies not only enhance the accessibility and efficiency of livestock markets but also empower intermediaries to facilitate better economic outcomes for pastoralists. The strong correlations observed in the mediation analysis underscore the importance of optimizing marketing processes and supporting intermediary roles to improve income and sustainability within these communities. As policymakers and stakeholders consider strategies to enhance the livelihoods of pastoralists, the insights from this study can guide the development of targeted interventions that strengthen market linkages and improve the overall efficiency of livestock marketing systems. By fostering a robust market environment, there is potential for significant economic advancement for pastoral communities, ensuring their resilience and long-term prosperity in an evolving economic landscape.

RECOMMENDATIONS

Based on the findings of this study, several recommendations can be made to enhance the economic status of pastoral communities in Ethiopia through improved livestock and livestock products marketing. First, it is essential to strengthen the capacities of marketing intermediaries, as they play a crucial role in connecting pastoralists to broader markets. Training programs should be implemented to equip intermediaries with skills in negotiation, logistics, and market analysis, enabling them to operate more effectively and support pastoralists better. Additionally, fostering partnerships between pastoralists and intermediaries can enhance trust and collaboration, leading to more favorable market conditions. Initiatives should be developed to promote cooperative marketing strategies among pastoralists, allowing them to pool resources and increase their bargaining power when dealing with intermediaries and buyers.

Investment in infrastructure, such as roads, storage facilities, and market centers, is also vital to facilitate easier access to markets and reduce transaction costs. Furthermore, leveraging technology, such as mobile apps for price information and market access, can empower pastoralists by providing them with vital data that can inform their marketing decisions. Finally, policymakers should prioritize the establishment of supportive regulatory frameworks that promote fair trade practices and protect the rights of pastoralists within the marketplace. By implementing these recommendations, stakeholders can create a more conducive environment for livestock marketing, ultimately leading to improved economic outcomes for pastoral communities in Ethiopia.

ACKNOWLEDGEMENTS

As a corresponding author, I would like to express my heartfelt gratitude to Bule Hora University for providing the resources and support necessary to conduct this research. The institution's commitment to academic excellence has greatly facilitated my journey. I am profoundly thankful to my PhD advisors, whose guidance and expertise have been invaluable throughout this study. Their constructive feedback and encouragement have significantly shaped my research and helped me navigate the complexities of the subject matter. Additionally, I extend my appreciation to all the respondents who participated in this study. Their willingness to share insights and experiences has enriched my research and contributed to a deeper understanding of the challenges and opportunities within livestock marketing in pastoral communities. Without their cooperation, this work would not have been possible. Thank you all for your support and dedication to advancing knowledge in this important area.

DECLARATION

We hereby declare that this research is my original work and has not been submitted for any other degree or publication. All data and findings presented in this study are accurate and reflect my honest assessment of the research topic.

CONFLICT OF INTEREST

We declare that there are no conflicts of interest related to this research. We have no financial or personal relationships that could inappropriately influence the work presented in this study.

ETHICAL CLEARANCE

Ethical clearance for this research was obtained from the relevant ethics committee at Bule Hora University. Informed consent was acquired from all participants, ensuring their voluntary participation and the confidentiality of their responses. All ethical guidelines were followed throughout the research process.

FUNDING SOURCE

We confirm that there are no funding sources for this research. This study was conducted independently without financial support from any organization or institution.

AUTHORSHIP

We confirm that I am the sole author of this work and that all contributions to the research, including data collection, analysis, and writing, have been made by me. No other individuals contributed to this study in a manner that warrants authorship.

REFERENCES

- Abebe et al., (2022). Opportunities and Challenges for Pastoral Beef Cattle Production in Ethiopia. *Advances in Agriculture*, 8. <https://doi.org/10.1155/2022/1087060>
- Adem, M. (2019). Production of hide and skin in Ethiopia; marketing opportunities and constraints: A review paper. *Cogent Food and Agriculture*, 5(1).
- Ag et al., (2019). *Baseline Study Of Livestock And Meat Marketing Trends And Implications For Agricultural Marketing Service United States Department of Agriculture* (Issue August).
- Ahmed, J. (2019a). Review on Live Animal and Meat Value Chain in Ethiopia : Challenges , Opportunities and Intervention Strategies Review on Live Animal and Meat Value Chain in Ethiopia : Challenges , Opportunities and Intervention Strategies. *Industrial Engineering Letters*, Vol.9(September). <https://doi.org/10.7176/IEL>
- Al-ghaswyneh et al., (2022). Marketing of the Livestock Sector and Its Impacts on Food Security : A Case Study of the Northern Border Region. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies ISSN*, 13(4), 1–10. <https://doi.org/10.14456/ITJEMAST.2022.72>
- Alemneh, T., & Getabalew, M. (2019). Beef Cattle Production Systems , Challenges and Opportunities in Ethiopia. *Juniper Online Journal of Public Health*, 5(1), 2019. <https://doi.org/10.19080/JOJPH.2019.05.555651>
- And, D. D., & Abduku, H. (2022). Review On Cattle Breed Improvement Practices And Marketing Review On Cattle Breed Improvement Practices And Marketing System In South And South East Oromia Pastoral. *International Journal of Research and Analytical Reviews (IJRAR)*, 7(2), 74–83. <https://doi.org/E-ISSN 2348-1269>
- Arage, A. (2021). Review on Determinants of Milk and Milk Product Post-Harvest Loss in Ethiopia. *Accelerat Ing the World's Research*.
- Ayele, A. (2019). A Review on Livestock Marketing in Ethiopia: Opportunities and Challenges. *Journal of Marketing and Consumer Research*, 59, 1–8. <https://doi.org/10.7176/jmcr/59-01>
- Azeb Lemma et al., (2020). Value chain analysis of smallholder milk producer in West Hararghe Zone, Ethiopia. *International Journal of Agricultural Science and Food Technology*, 6, 093–100. <https://doi.org/10.17352/2455-815x.000061>
- Bassa, Z. (2018). Market Structure Conduct and Performance of Live Cattle in Borana Pastoral area: The Case of Moyalle District, Oromiya Regional State. *Current Investigations in Agriculture and Current Research*, 4(3), 29–37. <https://doi.org/10.32474/ciacr.2018.04.000189>
- Benti et al. (2022). The Effects of Commercial Orientation on (Agro) Pastoralists' Household Food Security: Evidence from (Agro) Pastoral Communities of Afar, Northeastern Ethiopia. *Sustainability (Switzerland)*, 14(2). <https://doi.org/10.3390/su14020731>
- Benti, M. (2022). Review on Potential of Small Scale Cooperatives on Milk Marketing and Processing in Ethiopia. *International Journal of Food Science and Agriculture*, 6(1), 76–82. <https://doi.org/10.26855/ijfsa.2022.03.010>
- Bereda et al., . (2016). Livestock and Livestock Products and By-Product Trade in Ethiopia. *A Review on Developing Country Studies*, Vol.6(7), 44–51.
- Bimrew, A. (2018). Smallholder farmers livestock production and marketing in Bahir Dar Zuria District, Northwestern Ethiopia. *Journal of Development and Agricultural Economics*, 10(5), 159–164. <https://doi.org/10.5897/jdae2017.0897>
- Birhanu, B., Anaf, O., Adem, K., & Beshir, H. (2021). Indigenous knowledge on camel milk and k2camel milk products hygienic handling, processing and utilization in Borana Area, Southern Ethiopia. *Journal of Food Science and Nutrition Therapy*, 7, 025–032. <https://doi.org/10.17352/jfsnt.000029>

- Birhanu Chamo. (2022). *Factors Influencing Livestock Market In Pastoralist Area: A Case Of Hammer Woreda*.
- Chesos, et, al. (2021). Influence of Milk Collection and Milk Utility Form aspects of Value Chain Innovation on the Performance of the Dairy Sector in Moiben Sub- County, Uasin Gishu County, Kenya. *African Journal of Education, Science and Technology*, 6(3), 1–23.
- Dirriba M et al. (2022). Hides and Skins Market in Borana. In *Livestock Research Results* (Issue January).
- Duguma, B. (2022). Milk composition , traditional processing , marketing , and consumption among smallholder dairy farmers in selected towns of Jimma Zone , Oromia Regional State , Ethiopia. *Wiley Periodicals LLC, march*, 1–17. <https://doi.org/10.1002/fsn3.2884>
- Emana et al., 2017. (2017). Analysis of Gender Role in Cattle Value Chain in Dugda Dawa District, Borena Zone, Ethiopia. *International Journal of Research in Economics and Social Sciences (IJRESS)*, 7(Issue 11), 665–694.
- Endris, M., Jemaneh, M., & Mohammed, H. (2020). Study on challenges and opportunities of Cattle Milk Production and Marketing in the Case of Aysaita District in Afar National Regional State, Northeast Ethiopia. In *Researchgate.Net* (Issue December). <https://doi.org/10.13140/RG.2.2.22080.56328>
- Erick, D. S. (2022). The Role Of Livestock Marketing In Improving The Livelihoods Of Pastoralists. *International Journal Of Livestock Policy*, 1(1), 2003–2005. <https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders>
- Eshetie et al., (2018). Meat Production , Consumption and Marketing Tradeoffs and Potentials in Ethiopia and Its Effect on GDP Growth : A Review. *Journal of Marketing and Consumer Research*, 42, 17–24.
- Faraz et al., (2021). Socio-economic constraints on camel production in Pakistan’s extensive pastoral farming. *Pastoralism*, 11(1). <https://doi.org/10.1186/s13570-020-00183-0>
- Garba, S. (2022). Economic Significance Of The Livestock Sector In Nigeria. *Yobe State University, Damaturu, Nigeria*, 10(2), 17.
- Gebremariam, T., & Tassew, A. T. (2020). Status of hides and skins production and marketing system in Tahtay-Koraro district of Tigray , northern Ethiopia. *JOURNAL OF THE DRYLANDS*, 9(1), 948–956.
- Girmay, G., & Yeserah, S. (2019). the Impact of Live Animal Export on Meat and Meat Products Export in Ethiopia. *International Journal of Research -Granthaalayah*, 7(9), 162–171. <https://doi.org/10.29121/granthaalayah.v7.i9.2019.585>
- Gonfa, L. (2019). Determinants of Food Insecurity in Pastoral and Agro-Pastoral Households of Ethiopia. *Food Science and Quality Management*, 85, 40–47. <https://doi.org/10.7176/FSQM>
- Hinestroza, D. (2018). Factors Influencing Livestock Marketing In Marsabit Region: A Case Of Merille Livestock Market Arero. In *American Research Journal of Agriculture* (Vol. 7).
- Hitt et al., (2019). Resource based theory in operations management research. *Journal of Operations Management*, 41, 77–94. <https://doi.org/10.1016/j.jom.2015.11.002>
- Kena, D. (2022). Review on camel production and marketing status in Ethiopia. *Pastoralism: Research, Policy and Practice*, 12(6), 1–10. <https://doi.org/10.1186/s13570-022-00248-2>
- Kenea, T. (2019). Review on Hide and Skin Value Chain in Ethiopia. *American Research Journal of Agriculture*, 5(1), 15. <https://doi.org/10.21694/2378-9018.19001>
- Lamesegn, D. (2018). Goat Production and Marketing System in Ethiopia. *European Journal of Applied Sciences*, 10(2)(2079–2077), 48–54. <https://doi.org/10.5829/idosi.ejas.2018.48.54>
- Lombebo, W. A., & Wosoro, E. S. (2019). Challenges and Opportunities of Urban Dairy Cattle Keeping and its Role

- in Poverty Reduction of Livelihoods in Hosanna Town, Southern Ethiopia. *Veterinary Science and Research*, 1(1).
- Lutta et al., (2021). Determinants of livestock market participation among pastoral communities of Tana River County, Kenya. *Environment, Development and Sustainability*, 23(5), 7393–7411. <https://doi.org/10.1007/s10668-020-00922-8>
- M, A. (2019). Production of hide and skin in Ethiopia ; marketing opportunities and constraints : A review paper. Production of hide and skin in Ethiopia ; marketing opportunities and constraints : A review paper. *Cogent Food & Agriculture*, 5(1). <https://doi.org/10.1080/23311932.2019.1565078>
- Mamo, G. D. (2019). Assessment on Impact of Live Animal Export on Meat Export Performance in Ethiopia ; Policy Implications. *Business and Management Studies*, Vol. 5(3), 21–28. <https://doi.org/10.11114/bms.v5i3.4467>
- Mengistu, D. (2021). Assessment of Hides and Skins Market in Borana, Southern Ethiopia. *Journal of Marketing and Consumer Research*, 76(April). <https://doi.org/10.7176/jmcr/76-01>
- Mengistu, D. (2022). Milk Value chain Analysis in Borana Zone , Southern Oromia. In *Oromia Agricultural Research Institute* (Issue June).
- Mohamed, A. A. (2019). Pastoralism and Development Policy in Ethiopia : A Review Study. *Budapest International Research and Critics Institute-Journal*, 2(4), 1–11. <https://doi.org/https://doi.org/10.33258/birci.v2i4.5621>
- Munir et al., (2022). The Beef Cattle Livestock Research : from the Perspective of the Resource-Based View (RBV Theory). *THE 10th Islamic Banking, Accounting And Finance International Conference 2022 (Ibaf 2022)*, 10, 229–239.
- Ombasa, B. B. M. (2020). The Influence Of Livestock Policy And Livestock Productivity Programs On Pastoral Production In Garissa County , Kenya. *International Academic Journal of Social Sciences and Education*, 2(2), 253–269.
- Prasetyo, P. E., & Dzaki, F. Z. (2020). Institutional performance and new product development value chain for entrepreneurial competitive advantage. *Uncertain Supply Chain Management*, 8(4), 753–760. <https://doi.org/10.5267/j.uscm.2020.7.004>
- Seid, A. B. B. (2019). *The Effects of Determinant Factors on Livestock Market Participation : A case of pastoralists at Dullessa Woreda of Afar Region . The thesis Research is Submitted to Hawassa University School of Graduate Studies in Partial Fulfillment of the Requirements*
- Tarekegn et al., (2019). Dairy Value Chain Analysis in Bench Sheko and Sheka Zones, South Western Ethiopia. *Trends in Applied Sciences Research*, 15(1), 21–28. <https://doi.org/10.3923/tasr.2020.21.28>
- Tessema et al., (2019). Refining the smallholder market integration framework: A qualitative study of Ethiopian pastoralists. *NJAS - Wageningen Journal of Life Sciences*, 88(January), 45–56. <https://doi.org/10.1016/j.njas.2018.12.001>
- Tiki, W., & Little, P. D. (2022). Deception and default in a global marketplace : the political economy of livestock export trade in Ethiopia. *The Journal of Peasant Studies*. <https://doi.org/10.1080/03066150.2021.2010714>
- Tolera, A., & Eik, L. O. (2020). Stratified Livestock Production and Live Animal and Meat Export from Ethiopia: Lessons from the Experience of a Donor Funded Project. *Climate Impacts on Agricultural and Natural Resource Sustainability in Africa*, 301–311. https://doi.org/10.1007/978-3-030-37537-9_18
- Wafula, W. M. (2021). Analysis of Actors and Activities at Dagoretti Livestock Market in Nairobi City, Kenya Walter. *Kenya Agricultural and Livestock Research Organization*.
- Wako, P. (2020). Factors Contributing for Livestock Excessive Mortality in Borana Pastoralist Area: Signal for Leadership and Disaster Risk Management Policy of Ethiopia. *Public Policy and Administration Research*,

February. <https://doi.org/10.7176/ppar/10-2-04>

- Wondimagegn, K. A. (2017). Value chain assessment of beef cattle production and marketing in Ethiopia : Challenges and opportunities of linking smallholder farmers to the markets Value chain assessment of beef cattle production and marketing in Ethiopia : Challenges and opportuniti. *Livestock Research for Rural Development*, 12(3).
- Yecheng Xu et al. (2019). Livestock dynamics under changing economy and climate in Mongolia. *Elsevier*, 0–33.
- Yitayew et al., (2019). Identification of strategies to improve goat marketing in the lowlands of Ethiopia: a hedonic price analysis. *Applied Economics*, 51(1), 61–75. <https://doi.org/10.1080/00036846.2018.1490693>
- Yitbarek, M. B. (2020). Livestock And Livestock Product Trends By 2050 : *International Journal of Animal Research*, September.
- Zewdie Birhanu et al. (2021). Prevalence of household food insecurity and associated factors in drought-prone pastoralist communities in Borana ,. *Ethiop. J. Health Dev.*, 35(1), 38–49.