

Determining the Factors Affecting Goat Marketing Systems among Smallholder Farmers in Chirundu District of Zambia

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Abstract

In many developing countries, goat production has an important role in rural livelihoods, as a source of household income and food security. Smallholder farmers are still experiencing low returns on their goat products owing to inefficient marketing systems, even when demand for these products is increasing in Zambia. Goat marketing system determinants among smallholder farmers in Chirundu district. Southern province, Zambia in particular, the study aimed at determining the factors that influence goat marketing among smallholder farmers. Research Design A descriptive study with mixed-methods cross-sectional research design was used involving a total of 70 respondents (goat farmers, traders, consumers and district officials). Descriptive and inferential statistics were used to analyse quantitative data and thematic analysis for qualitative data. The results showed that goat sales were primarily through informal marketing channels and most farmers relied on visual appraisal by middlemen to determine prices. High transport costs, information gap in the market, poor infrastructure and water scarcity as well as weak institutional support, contributed to limiting participation at markets (Table 1). Regression analysis found that selling price for goats was significantly predicted by breed type and marketing channel. The authors conclude that improving market infrastructure, increasing access to market information, facilitating the adoption of better goat breeds and supporting farmer organisations would lead to increased market participation and higher household incomes. These findings provide further evidence to policymakers, development partners and researchers interested in enhancing livestock value chains in Zambia.

1. Introduction

Livestock production continues to play a key role in agricultural development and financing rural livelihood pathways across Sub-Saharan Africa. Goat production has become an important enterprise among livestock enterprises because goats require relatively low capital investment, adapt well under harsh climatic conditions and provide consistent income source, meat and household store assets (Food and Agriculture Organization [FAO], 2023). The International Fund for Agricultural Development (IFAD), 2021 estimates that in many African countries, about 80% of people living in rural areas directly or indirectly rely on livestock farming for their livelihood.

Zambia is already gaining attention to the goat production as melting demand for goat meat in the country, and increasing emission potential in country within the Southern African region. Goat commercialization can be an effective poverty reduction and rural economic development strategy in Zambia as Southern Province contributes the highest percentage of goat-keeping households (Ministry of Fisheries and Livestock, 2024). Efforts made by government such as Enhanced Smallholder Agribusiness Promotion Programme (ESAPP) to upscale goat breed, commercialization and value chain development for smallholder farmers.

Goat marketing, however, has generally remained informal despite these interventions. Farmers most typically sell goats through middlemen at the farm-gate level, and these farmers receive considerably lower prices than would be expected in an efficient market structure such as due to their low degree of bargaining power; limited access to timely information on pricing and supply demand; as well as high transaction costs. These marketing inefficiencies lower household income and disincentivise investing in yield improving livestock production.

According to Transaction Cost Theory, inefficient infrastructure, information asymmetries and inadequate institutional arrangements lead to higher marketing costs and lower profits for farmers in accessing markets (Williamson 1985). Likewise, empirical evidence shows the importance of reducing transaction costs for increased agricultural commercialization and better household welfare (Barrett, 2008; Holloway et al.

While some research has been conducted on livestock production systems in Zambia, the information available on goat marketing systems in different settings is still scarce especially at Chirundu District level. This study thus helps to address this gap by providing evidence on which factors can significantly influence goat marketing behaviour among smallholder farmers.

1.2 Statement of the Problem

Chirundu District, over the past ten years has recorded significant growth in Goat production. But this extra output has not translated into similar gains in household income—primarily because non-disruptive and informal marketing remained the norm for many farmers. Still, this continued dependence on middlemen, lack of market information, poor road infrastructure and water scarcity, together with limited institutional support are inhibiting market participation and causing depressed prices for producers. As a result, due to the low price of goats, farmers do not fully experience the economic benefits of goat production even though consumer demand is soaring. However, in Chirundu District of Zambia, previous works were geared towards aspects such as livestock production and little is documented on livestock marketing systems suggesting a dearth of empirical information. Therefore, this study was conducted to determine the major constraints of goat marketing system in smallholder farmers.

2 Literature Review

2.1 Goat Marketing Systems

In truth, goat production is vital for rural households' livelihoods in Sub-Saharan Africa owing to goats' ability to adapt under unfavourable environmental and economic conditions, their low production costs compared to other livestock species and increasing demand on the market (Food and Agriculture Organization [FAO], 2023). The improvement of producer incomes, the reduction in rural poverty and improved food security depend on the existence of efficient goat marketing systems. Marketing systems include all activities that are related to livestock movement from producers through consumers – pricing, transport, market information, storage and institutional support (Barrett 2008).

African livestock markets are dominated by informal trade while the demand for goat meat in Africa is rapidly rising. Farmers largely sell animals at the farm gate also through brokers or intermediaries, leading to low producer prices and limited market power (Negassa & Jabbar, 2008). This kind of market design serves to decrease incentives for commercial production and diminishes chances for value addition.

2.2 Transaction Cost Theory

This study draws from Williamson (1985)'s Transaction Cost Theory. Exchange has associated costs such as search and information costs, bargaining and decision-making costs, policing and enforcement costs. High transaction costs prevent people from participating in the formal markets and reduces market efficiency.

In livestock marketing, transaction costs result from Bett improve road infrastructure, travel distance, market information and institutional arrangements. Barrett (2008) claims that decreased transaction costs lead to higher levels of participation in high-value markets which hence allow households to achieve greater welfare.

2.3 Infrastructure and Market Participation

Infrastructure continues to be one of the major determinants of agricultural commercialization. Transportation costs are high due to poor rural roads and farmers are unable to reach in profitable markets (World Bank, 2021). Transport costs have direct impacts on producer prices, as transport cost is reflected in price reduction offered to the farmers by buyers at livestock markets (Ayele et al., 2003).

Water availability factored into your livestock productivity as well. During extended dry seasons, the inability to obtain reliable water sources diminishes animal body condition and market value (FAO, 2023). It is against this backdrop that investment in water infrastructure has emerged as a key strategy for enhancing livestock commercialization in semi-arid regions.

2.4 Market Information

Farmers who have access to information that is accurate and timely about the market are able to negotiate for better prices as well as choose marketing channels that are profitable. Because farmers with limited access to current market exchange rates most often choose offers from intermediaries, and their situation suffered as they lack data on prevailing market conditions (Ouma et al., 2010). Research has shown that the potential for digital technologies and mobile phone-based market information systems to reduce the effect of information asymmetry in agricultural markets is considerable.

2.5 Quality and Market Performance of the Breeds

Farm animal breed plays a key role in farm livestock exercise and market costs. On the other hand, improved goat breeds including Boer and Kalahari Red are fast growing than indigenous sOeeds and have good carcass quality which also attract greater market demand (Kosgey et al. As a result, improved breeds tend to yield more sales and household income for farmers. But adoption is still hampered by high acquisition costs and a scarcity of breeding services.

2.6 Research Gap

While livestock commercialization in developing countries has received much attention, goat marketing systems in Chirundu District, Zambia are still relatively unexplored. Most of the current researches only concentrate on livestock production, rather not marketing performance. In addition, there is limited empirical evidence on the joint effect of infrastructure, market information, quality of breeds and institutional support on the marketing of goats by smallholder farmers. Hence, this experimental work fills the gap through using factual data from Chirundu District.

3 Methodology

Research Design

This study was a quantitative cross-sectional survey that adopted a mixed-methods approach. This design facilitated the collection of quantitative and qualitative data to develop a broad understanding of variables influencing goat marketing systems among smallholder farmers.

Study Area

This research was conducted in Chirundu District, Southern Province, Zambia. Factors that selection of the district as a site included the high goat population, its increase in commercialization initiatives and its geographical advantage along the Zambia–Zimbabwe border.

Target Population and Sample

The targeted key informants for the study were goat farmers, livestock traders, consumers and officials from the Ministry of Fisheries and Livestock. Sixty-four respondents were included in the study, which utilized purposive and simple random sampling methods.

Data Collection

Structured questionnaires were used to collect primary data on the demographics of farmers, and semi-structured interviews with key informants encompassed the collection of qualitative data. Secondary data were sourced from government publications, journals and books, and reports by international organizations.

Data Analysis

The quantitative data were obtained and analysed using the Statistical Package for Social Sciences (SPSS Version 27). Respondent characteristics were summarized using descriptive statistics including frequencies, percentages, means, and standard deviations. We used inferential statistics which included independent sample *t*-tests, chi-square tests, ANOVA and multiple regression analysis to find relationships between variables. Qualitative data were analysed using thematic analysis [27].

Ethical Considerations

This study was approved by the respective university in which we collected the data. All respondents gave informed consent for participation, voluntary participation with confidentiality maintained throughout the study and individuals were apprised of their right to withdraw from the study at any point without penalty.

4 Results

4.1 Channels of Marketing by Smallholder Farmers

The results showed that most of the smallholder farmers marketed their goats via informal farm-gate sales. The vast majority sold goats to passing traders (middlemen) and a much smaller share of respondents accessed formal livestock markets or urban consumers directly. Poor road networks, high transport costs and limited access to reliable market information were cited as major factors causing an overreliance on informal marketing channels.

Only 20.0% of respondents were from Farming as a Business Schools (FaaBS) or cooperatives, indicating slighter institutional participation. The between FaaBS membership and formal marketing channel choice was not statistically significant ($\chi^2(1) = 1.072$, $p = 0.300$), indicating that current performance motivations and institutional interventions do not substantially enhance access of FaaBS members to formal marketing channels.

Infra related challenges also impacted marketing results. Farmers who reported low transport constraints with significantly higher mean selling prices ($M = \text{ZMW } 1,521.43$) than those experiencing high transport constraints ($M = \text{ZMW } 867.86$). The difference was statistically significant ($t(68) = 2.845$, $p = 0.006$), thus confirming that transport costs have a negative effect on market participation and profitability.

In addition, a one-way ANOVA assessed how marketing channels affect selling prices and confirmed significant differences ($F = 14.67$, $p < 0.001$). The average price paid for surplus maize was highest among farmers who sold directly to urban traders ($M = \text{ZMW } 1,612.50$) compared with farm gate sales ($M = \text{ZMW } 845.83$) or sales within local communities ($M = \text{ZMW } 789.67$). Taken together, the results show that having access to formal marketing channels and networks drastically increases returns from marketing.

Lastly, a multiple linear regression analysis was performed to determine the strongest predictors of price for selling goats. The regression was statistically significant, $F(5,64) = 14.23$, $p < 0.001$ and accounted for 52.4% of the variance in goats selling prices ($R^2 = 0.524$; Adjusted $R^2 = 0.487$). In order of decreasing strength, these were breed type ($\beta = 0.512$, $p < 0.001$), marketing channel ($\beta = 0.312$, $p < 0.001$) and water source ($\beta = 0.178$, $p = 0.036$). On the contrary, Membership of FaaBS ($p = 0.620$) and access to market price information ($p = 0.285$) were not significant predictors of goat selling prices.

4.2 Summary of significant factors

Table 1: Summary Statistics

Factor	Statistical test	Result	Decision
Breed type	Independent <i>t</i> -test	$t(19.23) = -6.834$, $p < 0.001$	Significant
Marketing channel	One-way ANOVA	$F = 14.67$, $p < 0.001$	Significant
Transport costs	Independent <i>t</i> -test	$t(68) = 2.845$, $p = 0.006$	Significant
Water source	Multiple regression	$\beta = 0.178$, $p = 0.036$	Significant
FaaBS membership	Chi-square/Regression	$p = 0.300$; $p = 0.620$	Not significant
Price information	Multiple regression	$p = 0.285$	Not significant

4.3 Impact of Breeds Type on Price of Goat

The findings showed that the selling price of local goat breeds were statistically significantly different from improved local goat breeds. Farmers who reared improved breeds such as Boer and also Kalahari Red obtained considerably greater market prices than for those keeping indigenous breeds. Results of the multiple regression analysis affirmed that breed type was a significant predictor of goat selling price.

4.4 Institutional Support

More than two decades had passed since government and development partners introduced Farming as a Business Schools (FaaBS) and other livestock development programmes, with relatively limited uptake by farmers. This is important because institutional support had a relatively minimal effect on marketing performance; insufficient programme coverage remained an issue.

4.5 Discussion

Results Five main findings highlight the high transaction costs and weak market integration in goat marketing in Chirundu District. The findings of this research support Transaction Cost Theory (Williamson, 1985) that poor infrastructure, information and weak institutional arrangements escalate marketing costs by worsening efficiency.

Goat marketing in Uganda is largely dominated by middlemen, a pointer to an unorganised livestock marketing situation. Similar results have been found in Ethiopia, Kenya and Tanzania, where low access to formal markets by livestock producers led them towards brokers (Ayele et al., 2003; Barrett, 2008). This reliance diminishes farmers' negotiating clout and lowers the prices they receive for their goods.

The positive relationship of better goats bred with selling prices is supported by previous studies which indicate a genetic improvement can positively impact productivity, carcass quality and market value (Kosgey et al., 2008). But adoption is still hampered by a lack of available breeding services and financial incentives.

Another key determinant of marketing performance was predominantly poor market information access. Intermediaries can take advantage of knowledge asymmetry, taking advantage of farmers unaware of market prices. A similar study has also demonstrated that the market information systems foster farmers to take advantage of profitable markets which help increase household income in general (Ouma et al., 2010).

The results further underscore that there is a great need to invest in rural infrastructure. Better road networks, water infrastructure, and livestock markets would lower transaction costs and help more people join the market. These investments align with recent World Bank (2021) and FAO (2023) recommendations that prioritize infrastructure development as a key driver of agricultural commercialisation.

5 Conclusion and Recommendations

This study determined the factors that influence goat marketing systems in smallholder farmers in Chirundu District, Zambia. The results indicated that transport cost, bad infrastructure, lack of market information, lack of water supply, weak institutional support and informality dependence were related to goat marketing performance ($p < 0.05$). The second revealed that selling prices and household income is considerably higher with improved goat breeds.

Policymakers should strengthen market infrastructure, establish more village collection centres, expand access to livestock market information, promote better breeding programmes, improve and strengthen farmer cooperatives and enhance development of extension services to boost livestock commercialisation. They would lower transaction costs, increase cities' effectiveness within a composite marketplace and drive-up rural family earning.

Disclaimer

This article is based on the Master's dissertation entitled "Investigation of Goat Marketing Systems among Smallholder Farmers: The Case of Chirundu District, Southern Province, Zambia (2019-2025)." NOTE: This paper has been reformatted from an in-process manuscript to a philosophical journal article. The opinions, interpretations, analyses and conclusions here are those of the writers and do not necessarily reflect the views of Mulungushi University or any affiliated entities.

Declaration of Competing Interests

The authors declare that they not aware of any competing financial interests or personal relationships that may have influenced the work described in this document.

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Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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