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INVESTIGATING MARKETING CHALLENGES BY SMALLHOLDER GOAT FARMERS TO ALLEVIATE POVERTY.THE CASE OF MASVINGO RURAL DISTRICT IN ZIMBABWE

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Abstract: This study investigated marketing challenges facing smallholder farmers in Masvingo rural District. The objectives were to determine the marketing constraints, map the various goat marketing channels, determine the economic viability of existing goat marketing channels used, and assess the determinants of goat farmers' participation in various marketing channels. Convergence parallel mixed methods approach to collect both quantitative and qualitative data from 382 smallholder goat farmers, and a stratified random sampling technique was used to select goat farmers to collect primary data. Goats play a crucial role in the lives and livelihoods of rural farmers in Masvingo District because they contribute to household food security and income. The study identified institutional factors such as (late payments, low prices, poor roads, long distances to market, and cheating by (middlemen) affect the markets and marketing processes of goats.; Farmers sold to neighboring farmers, and local butcheries were a major markets for the goat farmers.The highest price ($37.60) was on mature males goats and the lowest ($37.10) were at young does.Mature female goats fetch more prices on sale because of their use for breeding purposes, and their meat is more palatable than mature male goat meat. Analysis of profitability showed that goat marketing channels had relatively varying marketing margins with marketing channel 4 being the highest (11.93) and channel 1 being the least (2.2). The age of the household head, number of goat buyers, number of visits by extension workers, membership to an association, and distance traveled to market significantly influenced the participation of farmers in goat market channels. The study concluded that farmers are affected by institutional factors which affect market and marketing processes. The study recommended that a transportation and marketing information system be developed to reduce transportation costs and increase the overall efficiency of the goat marketing system. Government and private sector should encourage more farmers to affiliate marketing associations that promote market information dissemination.

Keywords: Convergence parallel mixed methods, institutional factors, smallholder goat farmers, marketing processes, markets, Utility Model

1. Introduction

Goats are regarded as an important livestock species for smallholder farmers, and more than 95% of the global goat population is found in the dry regions and mountainous areas in developing economies

of Asia and Africa (Mazambara *et al*., 2021). They are reared in dry arid areas because they have a comparative advantage over cattle and sheep since they are hardy, drought tolerant, and have an excellent adaptation capacity to harsh environmental conditions (Mazambara *et al.,*2021; Household & Kirkman, 2020). Due to their superb adaptation to harsh environments, goats can utilize a wider variety of tree species that characterize the savannah and semi-desert vegetation. They are also able to browse any other plants that would not usually be consumed by other livestock species. Moreover, goats excel because they are adapted to a wide range of environmental conditions and they are assisted by their highly selective grazing behavior, which enables them to survive in difficult areas and cope with toxic plants (Household & Kirkman, 2020; Homann *et al.*, 2007).

Musara *et al.*,2013) regarded goats as an essential small stock for smallholder farmers which contributes to subsistence farmers' livelihood in many developing nations. They contribute to food security and can alleviate seasonal food variability and availability directly through milk and meat production and indirectly through cash earned from the sale of their products (Homann *et al.,*2007). In addition, goats play a crucial socio-cultural role, and promoting goat production contributes to risk mitigation, particularly in drought-prone areas, and empowerment of vulnerable groups (women, HIV/ AIDS, poor) (Homann *et al.,*2007).

The goat population in Zimbabwe is estimated to be more than 3 million goats, of which the vast majority is owned by small-scale farmers in mixed crop and livestock production systems (Rooyen and Homann-Kee2009. Zimbabwean smallholder farmers use goats to supplement household food requirements and sell them to purchase food items and fund educational expenses (Homann *et al.,* 2007). The collapse of the commercial livestock sector in Zimbabwe due to fast-track resettlement programmes provides unique opportunity for smallholder farmers to use existing infrastructure, local and regional markets to commercialize goat production. However, at present the commercial market for goats remains grossly underdeveloped, especially in Masvingo District due to the weak public and private sector, which fails to provide necessary inputs and know-how to smallholder farmers. More often, goat production suffers the erratic climate and frequent droughts, resulting in dry season feed shortages and high mortalities (Rooyen and Homann-Kee,2009). Moreover, the goat marketing process is characterized by inefficiencies due to a lack of information and asymmetric of goat markets even though the consumption of goat meat has increased globally because of its lower total fat, saturated fatty acid, and protein content, which make it a healthful product (Mazambara *et al.*,2021).

Despite all the above-stated benefits of goat production in alleviating poverty and fighting against food insecurity, its profitability for smallholder farmers is affected by many constraints. One major constraint faced by the smallholder farmers is the use of informal market channel systems characterized by low and fluctuating prices that are not efficient and sustainable for this low-input farming system. There is a need for the smallholder farmers to shift from these informal markets to more competitive formal markets which are better developed and offer strengthened market linkages.

These developed markets assist the smallholder farmers in investing in enhanced technologies that increase production, improve animal quality, and consequently increase market-related offtakes. This will yield immediate (income growth, food security) as well as longer-term benefits (reducing environmental degradation, improved sustainability of agro ecosystems) and will improve the livelihoods of smallholder farmers.

Through agricultural extension services, goat production has received much attention throughout the district and ward-based extension staff. Still, there has not been a marketing drive even though the enterprise can be used by the poor subsistence farmers to alleviate poverty in their community through organized marketing systems. There is no planned marketing, and selling goats is mostly necessitated by the need to settle emergency household bills. More often, the farmers are exploited by middlemen who will buy for resale at a better market. These middlemen (*makoronyera*) are reaping huge profits through ripping off subsistence farmers. Where farmers have attempted to engage in organized goat sales, available markets seem to be underdeveloped, with poor infrastructure and limited market information. The farmers have also not fully accessed commercial goat markets due to several constraints, which include limited marketing information, unorganized markets, lack of marketing infrastructure, and long distances to the commercial markets. The situation for subsistence smallholder farmers has been worsened by the effects of climate change, which has resulted in low food production, particularly the cropping sector. This resulted in a paradigm shift, where small livestock production has become one of the key focus areas, with goats being regarded as a key take away for small holder farmers. Even though goats have had a lot of potential to provide immediate income needs for households, most farmers have not benefited. There has been unviable and inefficient goat marketing systems for smallholder farmers in Masvingo District of Zimbabwe despite significant goat production among smallholder farmers across the district. This has resulted in farmers not realizing anticipated profit margins from goat production, particularly the smallholder farmers who have suffered from unorganized informal markets, which have been characterized by disjointed and weak market structures. Whilst this has been the case, there has not been much that has been done in terms of in-

depth assessment and documentation on how goat marketing is being conducted in Masvingo Rural District hence there is need to investigate the marketing challenges facing the subsistence smallholder farmers in the district.

2. Materials and Methods

Research design

The study used the convergence parallel mixed methods approach that allows the data collectors to conduct the quantitative and qualitative elements of the study concurrently. This approach weighs the qualitative and quantitative methods equally and analyses the two components independently, but interprets the results together. This approach also allows for triangulation and ensures complementarities of qualitative and quantitative approaches. The method also assists in sufficiently triangulating data and delivering aggregate judgments. It gives the researcher a comprehensive picture of the situation on the ground in terms of both numbers and magnitude of the issues and their depth or detailed description. This cannot be obtained by using a single research approach method.

Research approach

The study followed exploratory research to investigate the marketing challenges facing the subsistence smallholder farmers in Masvingo District. The information gathered assisted in filling the glaring information deficient on why there are so many problems with goat marketing in Masvingo District. Moreover, this research filled the gap of unanswered questions due to inadequate research on goat marketing challenges faced by small-holder farmers in Masvingo District. This research, however, did not give conclusive results on the challenges faced by smallholder farmers, but it gleaned insights and helped to predict future occurrences of new ideas, concepts, and opportunities that can form the foundation of future policy on goat marketing among the smallholder farmers in the rural areas from the recommendation that were highlighted.

The research used survey techniques for collecting data. It used a set of structured questionnaires for interviewing smallholder farmers and key informants (institutional representatives) to gather information about individuals' attitudes, perceptions, opinions, and behavior on goat marketing constraints.

Sample size

The sample size was considered as the number of smallholder farmers selected from the whole population of the goat smallholder farmers in Masvingo District. The group of goat farmers was selected from the large population that was representative of the real population for this study and was denoted by (n). Farmers were selected based on demographics such as age, gender, location and many more. The sample size for this study was determined by the Rao soft sample calculator.

The following considerations were made in determining the plausible size:

- the margin of error of 5%,
- the confidence level for sampling at 95%,
- and the response distribution which is estimated at 50%

Based on the Rao Soft sample size calculator, from the population, N of **52 236** for goat farmers in the district, the minimum sample size n = **382** of the respondents was determined as the plausible sample size.

Sampling Technique

This study used stratified random sampling techniques to select participants to collect primary data. A 2-stage process, with the first stage involving the selection of a ward of the smallholder farmers to be sampled, was used. In contrast, the second stage involved randomly selecting the farmers in that ward for interviews.

First stage (segmentation)

The first segmentation was at the level ward. In this respect, the study categorized the farmers into two main segments:

1. Goat farmers who produce and market
2. Goat farmers who produce and not marketing

Second stage (segmentation)

The second stage of segmentation involved allocating the farmers to each of the five natural regions that participates in goat production.

Third stage (random selection)

The third stage of sample selection involved the random selection of goat farmers to determine the number of farmers that would have been determined/established. The study used a Rao Soft sample

calculator[1] to determine the size of the sample. The following considerations were made in deciding the plausible size:

- the margin of error of 5%,
- the confidence level for sampling at 95%,
- and the response distribution, which is estimated at 50%

Based on the Rao Soft sample size calculator, from the population, N of **52 236** for goat farmers in the district, the minimum sample size n = **382** of the respondents is determined as the plausible sample size.

Data Collection.

The study collected both primary and secondary data through interviews, questionnaires, onsite observation, and key informant interviews. The incorporation of both quantitative and qualitative methods was important for two main purposes/reasons:

- For triangulation – to validate the views expressed from one approach, with findings from the other.
- To have the various approaches complement each other to close any explanatory gaps on observed outcomes.

Recruitment of Enumerators

Data collection was done by locally recruited enumerators with agricultural backgrounds and economics. Locally recruited enumerators who understand the local culture were essential for understanding the context of the data being collected as being aware of cultural differences that may affect the data's accuracy and validity. This included understanding the local language, customs, and traditions of the farmers, as this would have influenced the quality of collected data.

Conduct of the survey

The primary data collection process was presided over by the Statistician who was responsible for formatting the data collection tools and inputting them into the appropriate real-time data collection software. The study used KOBO Collect in which enumerators used smart phones to collect and disseminate the data in real-time.

Data Analysis

Data entry and analysis were done using the Statistical Package for Social Sciences (SPSS), which is user-friendly and reduces data entry errors through coding, thus enhancing data quality. SPSS has higher data analysis capabilities. Data cleaning was done by running frequencies of selected key variables to identify misplaced data to be rectified before data analysis began. Descriptive data analysis was done using SPSS such as frequencies, percentages, and averages presented in tables, graphs such as pie and bar graphs.

Qualitative data analysis used content analysis, quasi statistics, and logical analysis. After data collection, all qualitative interviews were converted into Microsoft Word transcripts. These constituted the qualitative raw data for analysis. Data was analysed through quasi-statistics specifically qualitative content analysis. Responses were classified into broader themes, and findings and conclusions were based on the frequency with which an issue was mentioned across different interviews. The approach facilitated the quantification of qualitative outcomes and reduced the possibility of minority opinions being generalized as fact.

The data was coded using four steps of data coding in Excel:

Immersion: Reading and re-reading textual data (e.g., transcripts of interviews, responses to qualitative surveys), listening to audio recordings, or watching video data to gather what they mean and starting to note emerging themes that come through about the indicators in the study.

Open coding: The initial organization of raw data from all respondents to make sense of it. This was accomplished by organizing the data in EXCEL according to emerging sub-themes about the indicators in the research.

Axial coding: Interconnecting and linking the categories of codes that have a relationship into themes.

Selective coding: Formulating the story through connecting the themes that relate to the status quo with regards to specific indicators in the baseline survey.

Study location

Masvingo District is found in the southeastern part of Zimbabwe in Masvingo Province and is in natural region 5 in the country’s climatic regions. It is located 292 km south of Harare, and it spans over an area of 654 thousand hectares. The district has 43 persons per square kilometer, which is considered high for Communal Areas. It is mostly populated by the Karanga people, who form the biggest branch of the various Shona tribes in Zimbabwe. The map shows Masvingo District's location and its various wards where the study will be conducted.

4. Results and Discussion

Location and Temperature

The study was conducted in Masvingo District, which lies between latitudes 20° and 22°S and longitudes 30° and 32°E. The average annual temperature for the district is about 20 degrees Celsius with the natural region (NR IV) having a slightly higher annual average air temperature of about 22 degrees Celsius than the rest of the district. These higher temperatures are favorable for goat production because of the presence of nutritious bushes (Acacia Species), which are favored by goats. Again, these regions have low rainfall amounts per annum which is also highly favored by goats. The district's winter air temperatures can be as low as 10 degrees Celsius.

Agro ecological farming Zones

Masvingo district includes three agroecological zones or Natural Regions: NR III accounting for 7%, NR IV, 82 % for NR V, and 11% of the total area, respectively. Large Scale Commercial (LSC) farms occupy a third of the NR III and IV district. Communal Areas (CAs) constitute about 18 percent of the total district area. They are in NRs III, IV, and V. Resettlement Areas (RAs) and Small-Scale Commercial Areas (SSCA) share the remaining proportion. All resettlement schemes are in NR III, and small-scale commercial farms are in NRs III and IV (AGRITEX, Masvingo District, 1991). Survey sites were selected from the communal and resettlement areas in NRs III and IV, where most smallholder farmers keep goats. It is important to note that the importance of goats increases as the rainfall decreases, and because goats are hardy and very easy animals to look after, they survive well under these harsh environmental conditions found in natural regions, IV and V. Again, goats are reared by smallholder farmers under extensive farming conditions, mainly for meat (chevon).

Infrastructure

Masvingo District is linked by a main road from Harare, and it passes through to South Africa via Beitbridge. Road Infrastructure plays an important role in transporting meat to markets particularly when intensive commercial opportunities are envisaged. Masvingo town is the major town within the district which harbors an excellent opportunity for goat meat marketing. Farmers in the district have relatively better access to services, like finances, because they are in a provincial town with both commercial and Saving Banks and transport to and from Masvingo town. There is also relatively easy communication because of the availability of networks like Econet, Net One, and Telcel, among others. There are numerous trading centers (hardware) where farmers buy household goods and sell agricultural products.

Rainfall and Soils

Zimbabwean Meteorology department classifies seasons by the rains as follows.

Table 1: Rain distribution in Zimbabwe

Cool Season:	Mid-May to August	Winter
Hot Season:	September to mid-November	Spring
Main rainy Season:	Mid November to mid-March	Summer
Post-rainy season:	Mid-March to mid-May	Autumn

Source: Ministry of Agriculture,2010

Masvingo District receives an average of 600 – 735 mm rainfall annually but irregular heavy rains are common around Great Zimbabwe and Lake Kyle (AGRITEX Masvingo, 2023). The distribution of the rain is uneven, and most of the rain falls from January to December. The wettest month of year in Masvingo District is December with average rains of 164 mm. During the wet period, enough grass and bushes will feed the goats. However, mid-season dry spells are common and are mostly severe, especially in communal areas where there are limited irrigation facilities. (Nyamapfene, 1991), reported that most of the soils in Masvingo District are fersiallitic types and are the most extensive soil types in Zimbabwe. The terrain in the district ranges from moderate to steep slopes and they are suitable for goat farming. In areas where slopes are high, soils shallow, and of poor texture, the potential for erosion hazards exist, and this is not good for goat production because this would require supplementary feeding.

Crop Production

Maize is the major crop grown in the district because it is the staple food for most people in Masvingo. It is produced by almost all farmers, and over 90% of the arable land is used to grow maize. Smallholder farmers in communal areas also grow millets (pearl and finger millet) and oilseeds (groundnuts and sunflower) as cash crops for supplementary purposes. Feed for goats is limited because crops are grown for consumption (food security). Besides field crops, where sufficient water is available, farmers also produce horticultural products from individual, group, and community garden plots for both home consumption and the market.

Goat Population

The goat population in the district is shown in Fig (2). The total number of goats in the district is 86508 giving an average of 3100 goats per ward. This shows that farmers in the district keep a significant number of goats. Goats manure is an important fertilizer source, especially for fields and horticultural crops. However, the district has some challenges in goat marketing caused by

- low prices offered by middlemen (makoronyera)
- Lack of organized goat sales.
- The fact that farmers mostly sell goats when there is a crisis at home.
- lack of marketing information
- Goats are owned by several relatives in one kraal; thus, the decision to sell takes time due to consultations.

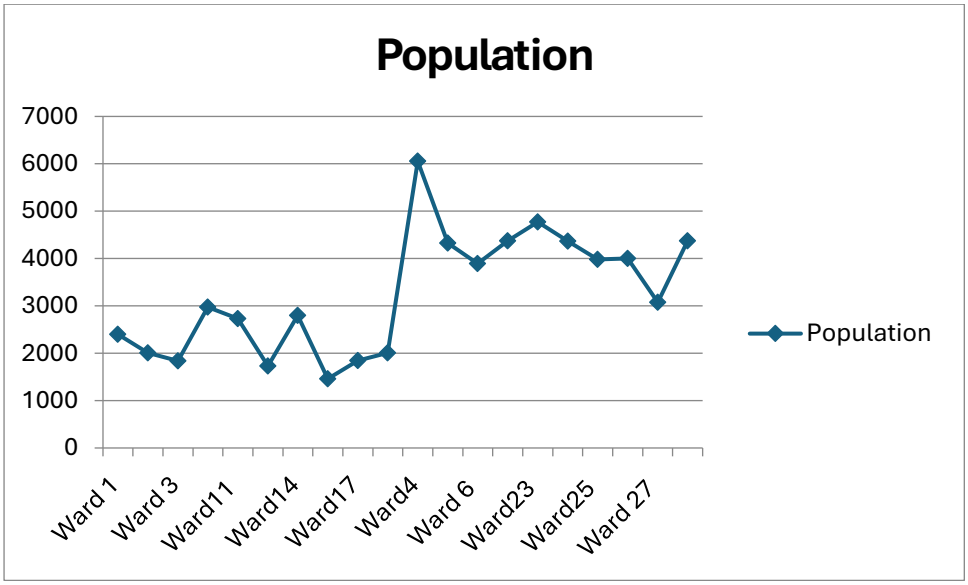

Fig 1: Goat population in Masvingo District

Data Presentation and Discussion

Nature of the study respondents

This study used a sample of smallholder goat farmers in Masvingo District that were used to draw conclusions on goat marketing challenges. The smallholder goat farmers were characterized in terms of geographical location, age, income, or any other characteristics that were associated with goat production and marketing in Masvingo District

Gender of goat farmers in Masvingo District

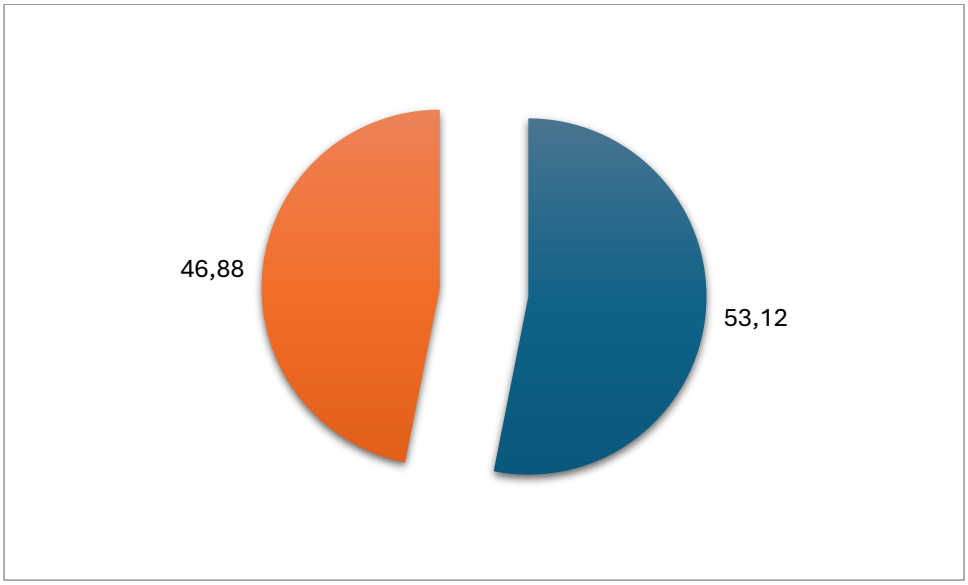

Fig 2: Showing gender of goat farmers in Masvingo District

Source: own data 2024

The result shows that 47.88 % of the goat farmers interviewed were females, while 53.12% were males. The results show fewer women are rearing goats, and more men are producing goats in the study area. This gender distribution reflects a higher participation of males in the study, indicating potential gender disparities in access to and control of animals. This could be attributed to women's tendency to grow crops more than animal production while men are associated with animal production. Moreover, in the rural areas, the women mostly work on the land while the men will be heading the goats.

Sources of Extension information

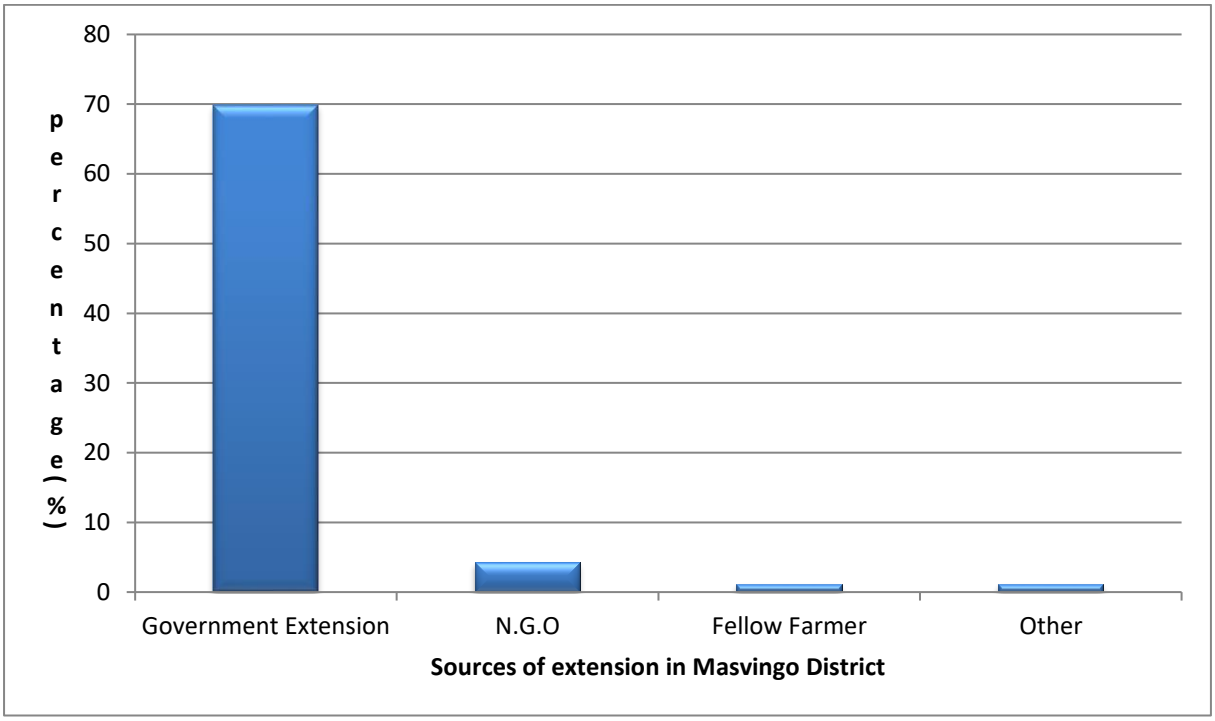

Fig 3: showing various sources of extension in Masvingo District
Source: own data 2024

Analyzing sources of agricultural information for goat farmers in Masvingo district shows that most (70%) respondents relied on ARDAS. This is the government source of extension which provides goat information to farmers. Principally, ARDAs is the agricultural extension provider formally known as AGRITEX. This is the significant source of information for the agricultural market and marketing information. ARDAS is the principal agrarian extension information provider because the officers are found in every district ward supported by supervisors and the district extension head. In this regard, the goat farmers need to work closely with the Agritex officers who can provide technical and marketing information necessary for production and marketing purposes.

There are other sources of information used by goat farmers in Masvingo District, which include NGOs and fellow farmers, among others. The fellow farmer and other sources of information are the least sources of information. It is, however, important to note that there are aspects of social capital in the district because local people share goat information on various aspects of goat production and marketing. This is very important for the sustainability of goat production in the district because farmers can share information among themselves, and this enhances the continuity of goat production.

Access to Extension and contact hours

Table 4: Access to Extension and contact hours

Extension Topic	% of Household visited	Number of visits/year	Average time (hrs)
Goat Rearing	71.48	4.8	1.32
Goat Marketing	56.64	3.97	1.45

Source: Own data 2024

Extension topic and the number of extension contacts and average time in hours used for discussing the topics that the farmer has, has a positive relationship with goat production and marketing. Extension services strengthen the farmer's understanding of goat production and marketing. This gives the farmer the right information regarding appropriate goat production techniques, other farming systems, and marketing strategies in their localities. The major extension topics in these are goat rearing and goat marketing. Goat rearing shows the highest number of hours visits per year (4.8) followed by goat

marketing (3.97). Interestingly, goat marketing has the highest average contact time (1.45) hours even though it has a lower number of visits per year. This scenario means that the extension providers take more time to discuss goat farmers' marketing issues than the production issues. This is because marketing issues are very important to farmers because they represent money, which is the major livelihood source for farmers in the rural setup. Extension contacts can be received through media such as radio, television, newspapers, published journals, or write-ups or directly through experienced goat farmers and extension agents like ARDAS.

Marital status of goat farmers

Table 5: Marital status of goat farmers in Masvingo District

Marital Status	Frequency	Percentage
Married	188	73.44
Widowed	55	21.48
Separated	6	2.34
Divorced	4	1.56
Single (never married)	3	1.17

Source: own data 2024

The majority of the sampled goat farmers were married (74.44 %) and widowed (21.48 %), whereas the least proportion was separated and divorced (2.34 %) and (1.56 %) (Table 4.2) respectively. The results show that most of the respondents were married. This means that married people place importance on goat production and marketing because it is more resistant to climate change. This could be a risk management strategy of diversifying into a more resistant farming enterprise than crop production.

Level of education for the goat farmers

Table 6: Education level for the goat farmers in Masvingo District

Level of Education	Frequency	Percentage
Secondary	143	55.86
Primary	77	30.08
College	26	10.16
No formal education	7	2.73
Other	3	1.1

Source: own data 2024

Academic education levels of goat farmers were analyzed because education is an important institutional factor in goat production and marketing processes. This also plays an important role in decision-making regarding the use of input quantities, where to buy, where to market the goats, and where and how to get capital for farming. The results therefore showed that, most of goat farmers have secondary (55.86%) primary education (30.08%) while college (10.16%) and no formal education (2.73%) respectively. The results are in line with the education report produced by (Shizha et al., 2011), which reported that most Zimbabweans are literate. They are the most literate in Africa. (Mushunje, 2005) and Sharada, 1999) also found out that farmers' success in farming depends on education and practical experience (apart from individual talents).

Employment Status of Goat Farmers

Table 7: Employment Status of goat farmers in Masvingo District

Employment Status	Frequency	Percentage
Not employed	224	87.5
Informal employment	19	7.42
Formal employment	13	5.08

Source: own data 2024

Respondents were also asked to indicate their employment status. In this regard, most goat farmers (87.5%) indicated that they were not formally employed. However, a few indicated that they were formally employed, and this proportion constituted only 5.08 % of the respondents. The majority of the goat farmers are not officially employed because they entirely depend on goat farming, which is demanding in terms of time, though it uses local resources. The formally employed goat farmers will not be fully committed to goat farming.

Asset ownership

Table 8: Asset endowment by goat farmers in Masvingo District

Asset	Mean Ownership	Mean Purchase Price USD	Mean Selling Price USD	Total Value (USD
Ox Plough	0.93	84.06	58.92	65.34
Wheel-Barrow	1	39.54	26.55	28.92
Push-Cart	0.13	38.32	31.45	31.73
Sickle	1.67	3.61	2.63	3.47
Spades	0.86	6.71	5.18	6.32
Axes	1.86	7.80	5.05	7.11
Hoes	5.52	13.84	9.47	15.37
Knap-Sack Sprayer	0.87	12.43	9.32	11.42
Water Pump	0.26	46.66	36.90	46
Cell-phones	2	61.47	43.07	70.35

Source: own data 2024

Asset endowment in Masvingo District, goat production is closely interrelated with crop production (Barret, 1991). Goat plays an important role for goat farmers as they provide manure and meat and provide income when sold. Goats also are kept by farmers to diversify their livelihoods and manage risks. Results for asset ownership for the sampled goat farmers show the highest hoes mean of 5.52 and the lowest mean 0. of 26. The results for hoe endowment by goat farmers confirm that they farmers are still far from farm mechanization. The presence of a high number of hoes ownership per farmer and low water pump (0.26) shows that the traction power of animals (0.93) and digging manually is still apparent. This shows that the goat farming system is highly characterized by the plow and dig culture. This indicates that most of the farmers are diversifying into less climate change-risk goat farming

Land ownership patterns

Table 9: Goat farmers' Land ownership

Land Ownership	Ha
Total Land	15.73
Arable Land	5.57

Source: own data 2024

An analysis of goat production for goat farmers in terms of total land and arable land showed the mean average of 15.73 hectares as the total land put under goat production. The arable land is 5.57 ha. One possible explanation for goat farmers to have just 15.73 hectares could be because goat production does not require more land. Goats can be produced intensively on a small plot meaning that even farmers with small plots can produce goats because they are not heavy feeders like cattle.

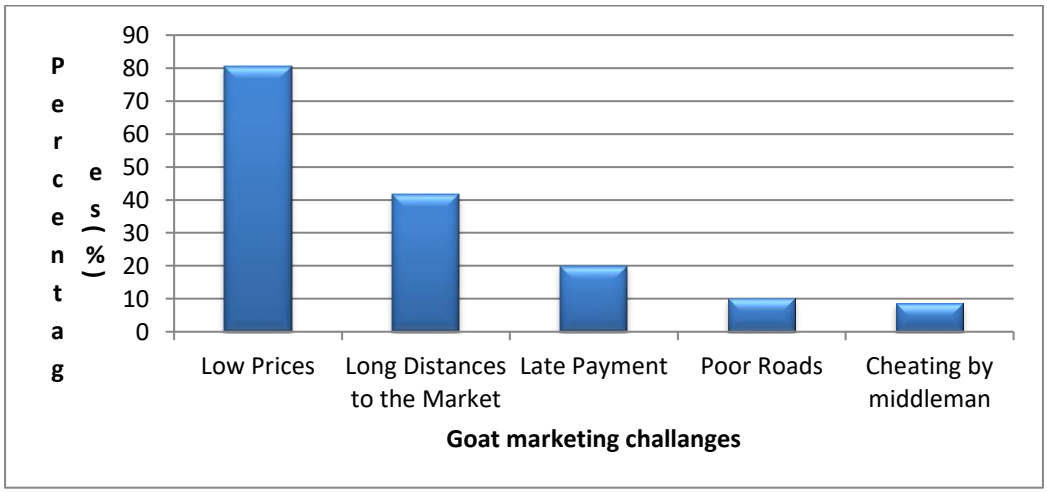

Fig 4: Showing goat marketing challenges

Source: own data 2024

Marketing challenges

Marketing challenges are problems with marketing that negatively affect the marketing processes for the goat farmers in Masvingo District. These limit goat farmers' marketing potential and growth. Marketing challenges are problems with marketing that negatively affect the markets and marketing processes. These limit project beneficiaries' marketing potential and growth through accessing important lucrative markets. The study identified one major category of market and marketing challenges. This category is predominantly institutional factors that affect markets and marketing processes for the goat farmers. Goat farmers' institutional challenges include late payments, low prices, poor roads, long distances to the market and cheating by the middlemen. Analysis of these challenges shows that institutional factors need attention because most of the goat farmers highlighted them as major issues to be corrected to access lucrative markets. For example, issues of low goat prices (80%) and long distances to markets (41%).

One of the reasons that contribute to the low prices of goats in Masvingo District is the lack of organized and well-coordinated markets for goats. This means that there is no formal arrangement with available markets, and it is difficult to determine the prices for their goats. The middlemen, therefore, prey on the farmers because they are not organized. In trying to solve this challenge, farmers then travel long distances to access formal and lucrative markets. Low prices could also be caused by the fact that most goat farmers still sell individually, so they face challenges because they have low bargaining power. Togarepi et al. (2021) also found out a lack of organized markets and information are some of the challenges faced by farmers in the production and marketing of goats.

Goat markets in Masvingo district

A market is described as a place where farmers can gather to facilitate the exchange of goods and services, involving buyers and farmers. These markets are essential for goat growth and promoting sustainable development.

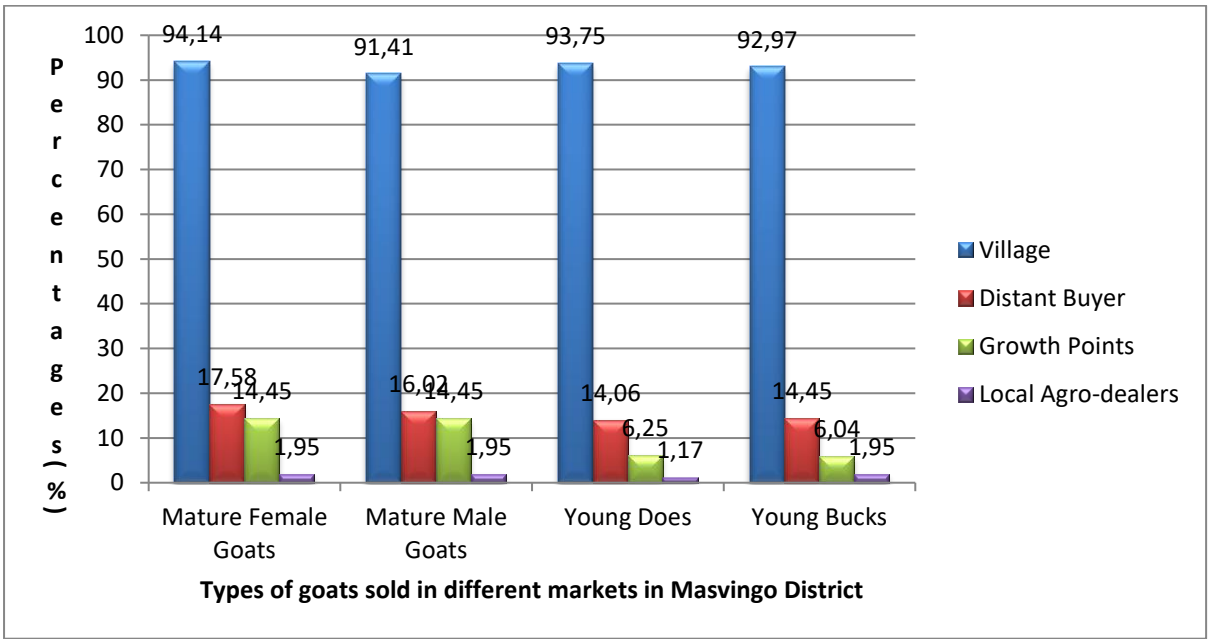

Fig 5: Showing types of Goats sold in different markets in Masvingo District
Source: own data 2024

The study revealed that there are both formal and informal goat markets in Masvingo District. In this case formal markets are those where farmers sell directly and publicly. These markets follow the rules and regulations of the government. For example, farmers in the Masvingo district sell mature male and female goats as well as young does and bucks for the local agro-dealers. These agro dealers, like local butcheries, buy goats using the formal rules and regulations that control the meat industry. However, the study found that very few farmers are selling goats through the formal channel.

Farmers also sell to informal markets, where they sell through bilateral bargaining and avoid taxes and regulations. The markets are not organized, and goat farmers are not organized because there is no formal arrangement with any available market. This is dominated by the middlemen or people who come to determine the prices of the goat. This constitutes most of the local buyers; for example, in livestock, it is mainly the middlemen who move around with their trucks, buying goats from the farmers at a lower price to sell to abattoirs. In this, the local village dominates the goat market for all goat types (mature females and males as well as young does and bucks). The study shows that most goat farmers prefer this market. The highest percentage is 94.14%, sells mature female goats, while the lowest is 91.41%.

This market is preferred by most goat farmers because they pay cash though the market offers very low prices. Moreover, the village market uses social networks to negotiate prices and payment arrangements.

This village market comprises of the local or neighbouring farmers as the major buyers of goat in Masvingo District. Most of the farmers (94.92%) sell their goats to the neighbouring farmers and this constitute the majoe market for the farmers.Local butchers (19.4%) are also a preferred market. This shows that both formal and informal markets are used by the goat farmers.The informal markets are, however , most preferred (Fig 6).

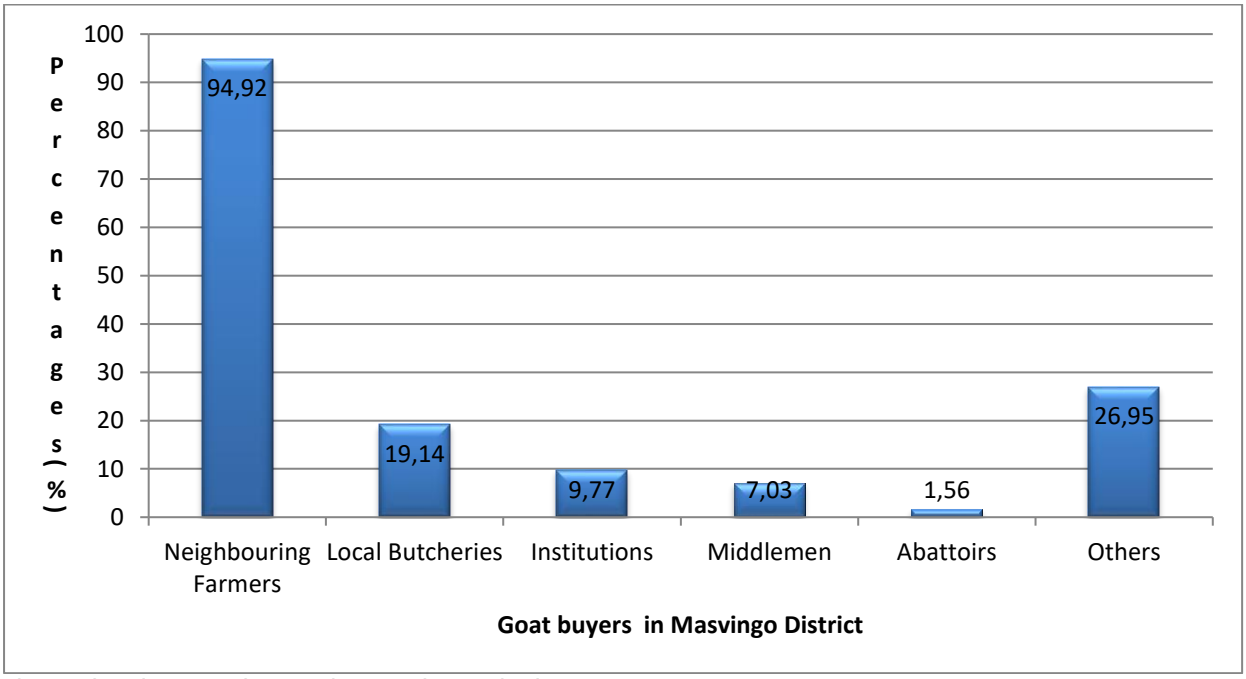

Fig 6. Showing goat buyers in Masvingo District
Source: own data 2024

Goat farmers experiences

Most goat farmers (62.89 %) had 5 years of farming experience. These were followed by a proportion (23.44%) who indicated that they had 10 years of farming experience. In addition, 8.59 % had more than 20 years whilst the minority (4.69%) had 15 years of experience in goat farming (Table 10). In Zimbabwe, goat farming has been practiced as one of the traditional farming systems, but more farmers are entering into goat farming because it is less climate risk, and the demand for meat has suddenly risen both for internal and international markets.

Table 10: Goat farmers' experiences

Number of years of experience in goat production	Frequency	Percentage
5 years ago	161	62.89
10 years ago	60	23.44
20+ years ago	22	8.59
15 years ago	12	4.69

Source: own data 2024

Uses of goat in Masvingo district

Goats are used mainly for consumption and sale (89.45 %), followed by household consumption, and the least is the sign of wealth (fig4.6). This means most farmers have not yet purely commercialized goat production in Masvingo District. This could be caused by the lack of lucrative markets that buy in large quantities and regularly. The results are in harmony with the findings from Marius et al., (2021) , who said that the primary purpose of goat farming in communal areas is rather for home consumption; thus, trading becomes secondary when a need for emergency income arises Farmers have therefore no drive to commercialize goat production fully but to do subsistence farming. This is however, against the background that demands and prices for goat meat are high on the international markets like Dubai.

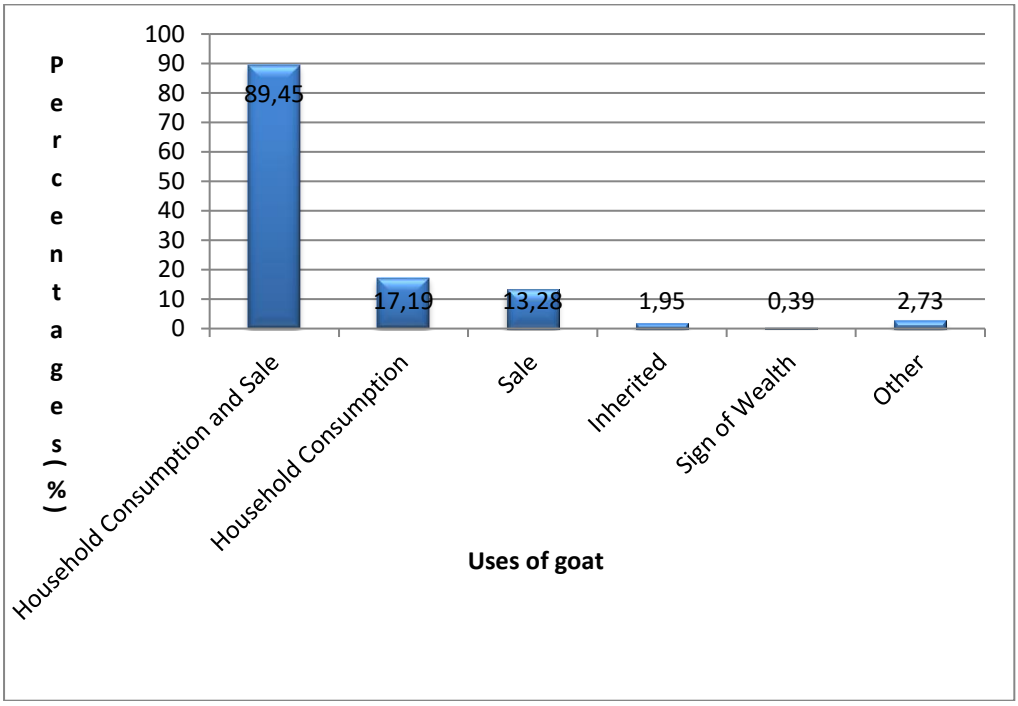

Fig 7 : Uses of goats in Masvingo District
Source: own data 2024

This, therefore, calls for goat market research, and that would result in linking farmers to lucrative markets.

Goat Prices
The highest mean price of goats was for mature male goats and the lowest for young does. The reason why mature female goats fetch higher prices on sale is basically to do with their demand on the market for breeding purposes and, secondly, their meat palatability preference over mature male goat meat. The meat of older goats is darker and less tender but juicier and more flavourful than that of kid goats. This agrees with previous research conducted by United States Department of Agric-Food Safety and Inspection Services (2013) which also isolated similar traits as determinants for meat choices in markets.

Table 11: Showing different types goats and their prices

Item	Price of mature male goats ($)	Price of mature female goats ($)	Price of young does ($)	Price of young bucks ($)
Mean	38,71	37,60	27,10	
Std. dev.	4,83	6,15	6,85	
Maximum	60	70	40	
Minimum	25	25	15	

Source: own data 2024
Channel type and distances travelled to sell goats

Table 12: Channel type and distances travelled to sell goats in Masvingo District

Item	Distance to market mature female goats (km)	Distance to the market mature male goats (km)	Distance to the market young does (km)	Distance to the market young bucks (km)
Mean	5,00	3,92	3,65	4,36
Std. dev.	5,91	4,23	4,38	5,47
Maximum	40	20	25	30
Minimum	0,1	0,1	0,1	0,1

Source: own data 2024
Distance to market has an influence on the quantity and quality of products sold in each market, and it also has a bearing on the cost of transportation to markets, whether input or output markets. The study found that there are variations in the accessibility of markets depending on the goat that a farmer has for disposal. Farmers travel, on average, the longest distance to sell their mature female goat goats (5km). The least distance when they are selling young is (3.65) km. This could indicate that young does

have a more localized demand when compared to the other classes of goats for activities such as cultural ceremonies during marriages. Again, farmers travel more distances (maximum 40km) to sell their mature female goat (Table 12). This may mean that the local market does not prefer mature female goats. This has a bearing on the profit margin for the goat because transport is a major cost, which could be a deterrent for goat production if markets and marketing processes are not arranged for the goat farmers.

Characteristics of goat buyers in Masvingo District.

Analysis of the marketing characteristics of goat buyers is very important when selling goats. It is important to evaluate the buyers in terms of means of payment, payment timeline, amount per unit, and product volumes. This will reduce the circumstances of selling to buyers who pay very little per unit, and yet they buy small amounts. Table 13 shows the characteristics of the goat markets in Masvingo district. The results show that most buyers' mode of payment is cash since farmers prefer to be paid in cash (98.05 %) for their goats. It can also be seen that most buyers negotiate for the price at delivery of goats (65.5%). Access to credit remains a challenge for small-scale goat farmers, and there is little direct financial support from local goat stakeholders to support goat marketing.

Table 13: Characteristics of goat buyers in Masvingo District

Means of payment of goats	Response %	Pricing period	Response %
Cash	98.05	At delivery	65.50
Credit	1.17	Before delivery	23
Eco cash (mobile transaction)	0.78	After delivery	11.50
Determinants of prices	Response %	Promotion strategies	Response %
Size of goat	44.90	Good prices	64.40
Health status of goats	40.80	Fair treatment	34.20
Weight of goats	4.10	Advertising	0.8
Others	10.20	Others	0.6
Source of capital	Response %	Value addition activities	Response %
Loans	2.34	Yes	18.20
NGO	1.56	No	81.90
Own	96.48		

Source: own data 2024

The results also show that the major price determining factor is the size of the goat (44.9%). The study also found that the major sources of capital for goat production in Masvingo District are the own sources (96.48%). This means that there is low stakeholder participation in goat production and marketing because there are few (2.34 %) of goats who said they get loans from financial institutions for goat production. At the same time, participation of the NGOs is low as few goat farmers (1.46%) said they get capital from the NGOs. There is a need to increase goat stakeholder engagement so that the sector grows as more capital is channeled towards goat production.

Goats marketing margins in Masvingo Rural District
Table: 14. Goats marketing margins in Masvingo Rural District

Marketing Margins	**1(Village market)**	**2(Local agro-dealers)**	**3(growth point)**	**4 Distant Buyer**
1. goats producer				
a) Cost of production (Fixed and Variable)	15.00	15.00	15.00	15.00
b) Total Marketing Cost	2.2	3.8	4.6	4.5
c)Total Cost	17.20	18.8	19.6	19.5
d) Profit added	18	16.40	15	15.5
e) Goat producer price	35.20	35.20	34.6	35.00
2. Village collector				
a) Total Marketing Cost	0	0	2.0	2
b) Profit added	0	0	1.8	2.5
c)Village trader selling price	0	0	42.50	41.65
Village collector marketing margin			4.1	2.15
3. Retailers				
a) Total marketing Cost	0	1.1	0.8	0
b) Profit added	0	0.9	1.7	0
c) Retailer selling price	0	37.20	45	0
a) Total Marketing Cost	0	0	0	0.58
b) Profit added	0	0	0	2.35
c) Market collector selling price	0	0	0	44.58
5.Consumer Price	35.20	37.20	45	44.58
6.Total Marketing Cost (2a + 3a + 4a)	2.2	4.9	7.4	7.08
7.Total Marketing Margin (TMM) of all middlemen (2b + 3b + 4b)	0	0.9	3.5	4.85
8. Price Spread/Marketing Margin	2.2	5.8	10.9	11.93

Source: Own Data 2024

The marketing margin is the difference between the amount consumers paid for the final product and the amount producers received, including the marketing cost. Moreso, the marketing margin has two components: marketing cost and profits.
The results show that the price received by the goat farmers did not differ very much for each channel since producers sell their goats from the farm household or in the local market. The marketing margin was a total of the total marketing costs and profits (Table 15). Again, this was essential for assessing the profitability of intermediaries involved in moving goats from goat farmers to buyers. These margins help to evaluate the effectiveness of marketing channels, and the costs incurred during the process of marketing.
The findings show that goat marketing channels had relatively varying marketing margins, with marketing channel 4 being the highest (11.93) and channel 1 being the lowest (2.2). The large marketing cost in marketing channels 3 and 4 was due to large number of intermediaries that are in the channels. These findings are consistent with those of Akieyo et al. (2014) and Massoud and Srinivasa (2012) who postulates (2014) and Massoud and Srinivasa (2012), who postulate that lower marketing margins are exhibited in marketing channels with higher marketing costs and a large number of intermediaries. Channels 3 and 4 have higher consumer (selling) prices that contribute to a higher price spread.

Goat Marketing channels and gross margins

Table15: Goat Marketing channels and gross margins in Masvingo Rural District

	Marketing Channels			
Variable	1(Village market)	2(Local agro-dealers)	3(growth point)	4 Distant Buyer
Producer Price	35.20	35.20	34.60	35.00
Consumer Price	35.20	37.20	45.00	44.58
TGMM	0	5.4	23.1	21.5
GMMp	100%	94.6%	76.9%	78.5%

Source: own data 2024

Total Gross Marketing Margin (TGMM) was calculated to show the difference between what goat buyers paid and what the goat farmers received for each goat sold. This was meant to quantify the overall profit generated along the marketing channel selected by different farmers. The calculated marketing margins were used to evaluate the efficiency of marketing processes for each channel. The marketing margin had two components: marketing cost and profits. The price received by the goat farmers did not differ very much for each channel since producers sell their goats from the farm household or in the local market (table 15.) Gross Marketing Margin (GMMp) represents the percentage of revenue goat farmers retain after accounting for direct expenses like labor and other inputs in goat production. This is a crucial profitability measure that compares gross profit (goat revenue minus cost of goats sold) to total revenue. Here's the formula used for calculating gross margin:

Text Gross Margin=fractext Gross Profit text Revenue x100

For example, if goat farmers gross margin is 100 % (table 15), it means the farmer retained $100 from each dollar of revenue generated from selling the goats. This was used for assessing goat production costs relative to revenues gained after they have sold the goats. Farmers selling through the home village channel retain more money as compared to distant channel buyers because of the presence of more middlemen expenses. Kapembwe et al. (2022) also found out that the choice of the marketing channel used by the farmer has a bearing on the price received and profits.

Table 16: Marketing Channels and Marketing Efficiency in Masvingo District

		Marketing Channels		
Variable	1(Village market)	2 (Local agro dealers)	3(growth point)	4 Distant Buyer
Consumer Price	35.20	35.20	34.60	35.00
Marketing Cost	2.2	4.9	7.4	7.08
Marketing Efficiency Index	15	6.18	3.68	3.94

Source: own data 2024

Marketing Efficiency

Marketing efficiency is used to measure marketing performance. Furthermore, marketing efficiency is related to the cost of moving goods from the producer to the ultimate consumer and the quantity of services offered. Improved marketing efficiency means reduced marketing costs without reduction of the quantum of services to the consumer. The market efficiency of goats' marketing channels was measured using the Shepard (1965) index.

$$ME = \frac{V}{I} - I \quad (3)$$

Where ME = Marketing Efficiency Index; V = value of goats sold in US$ per goat (US$/ goat) and I = total marketing cost in $ per goat ($/goat)

Value added was measured by the prices consumers were willing to pay per goat in the market. Marketing cost was measured by summing up all costs of resources used in providing marketing services in US$. Marketing cost is captured as all expenses incurred in performing the marketing functions as the goat moved from the producer to the ultimate consumers. These expenses included the costs of transportation, handling, storage, packaging, and labor, marketing charges, costs of assembling, processing, and distribution of goats. The results of the marketing efficiency of goat marketing channels (Table 16) indicate that channel 1 is more efficient than other channels. Marketing

costs for channel 1 are lower because it is a local marketing channel where the buyers are neighbors, and this does not incur transport costs. Kumar et al., (2015) also found out that the higher the marketing cost and marketing margin in the marketing channel, the lower the marketing efficiency of the channel.
Factors Affecting Market Choice by the Small-scale Goat Farmers
Given that sampled farmers in the study area have more than two alternative channel choices, the Multinomial Logit (MNL) model was applied to estimate factors affecting their choice of marketing channel choice. The multinomial logit model is the best approach for choices based on the decision maker's attributes rather than the choice itself.
Due to the narrowness of the goat marketing channel options in the country, four distinct alternatives were isolated: the Growth Point, Village Market, Local Agro-dealers, and the Distant Buyer. The village market was used as the referent category because this channel was chosen by most of the small-scale goat farmers to trade their goats, and the results were interpreted relative to the village market. The positive sign of the coefficient indicates an increase in the likelihood that a farmer will change to the alternative option. On the other hand, a negative value shows that a farmer is less likely to consider the alternative. The levels of the categorical variable, marketing channel choice, are assumed to have no natural ordering.

Table 17: Multinomial regression

Variables	$\mathbf{In}\left(\frac{P_1}{P_2}\right)$ Growth Pointvs Village market (farm gate)		$\mathbf{In}\left(\frac{P_3}{P_2}\right)$ Local agro-dealersvsVillage market (farm gate)		$\mathbf{In}\left(\frac{P4}{P_2}\right)$ Distant Buyer vsVillage market (farm gate)	
	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
Age	-0.26	0.494	12.05	0.051*	-0.044	0.075*
Number of Buyers	-0007	0.080*	-0.127	0.052*	0.027	0.001***
Extension contracts	-0.068	0.655	-0.42	0.366	2.61	0.051*
Membership of associations	0.59	0.023**	2.77	0.077*	-1.34	0.046**
Household size	0.62	0.011**	-1.39	0.044**	0.105	0.391
Income	0.43	0.128	-0.033	0.163	0.37	0.095*
Market Information	0.013	0.945	0.52	0.658	0.59	0.023**
Number of goats supplied	-0.31	0.00***	-0.29	0.032**	2.6	0.036**
Distance	-0.11	0.349	-0.122	0.007***	-0.168	0.079*
Price	-0.157	0.045**	2.67	0.057**	-0.73	0.605
Number of observations=369						
LR $chi^2(34)$ = 471.64						
Pseudo R^2 = 0.6232						

Source: Generated by authors from 2024 goat survey data using STATA.

Notes: -***; ** and * indicate p-values significant at 1%, 5%, and 10% levels, respectively.
The estimated LR chi^2 is 471.64show statistical significance at the 5% level suggesting that the multinomial logit model adequately fits the data. Since the multinomial logistic regression modeling does not have an equivalent to the R^2 that is found in O.L.S regression, the researcher cautiously concluded that the included explanatory variables explained about 62.32% variance in the choice of the goat market using the Pseudo R^2

The age of the household head significantly reduced the likelihood that a goat seller will sell to the village market relative to the local agro dealer. In most of the rural set ups in Zimbabwe most agro-dealers offer cash on delivery and hence the producers will prefer the buyers who offer cash. The age of the household head also significantly reduced the likelihood that a goat seller will sell to the distant buyer relative to the village market. Most old farmers won't have the capacity to transport the goats to the distant buyer and will end up supplying to the village market. From the research findings it can be concluded that as the farmers get older, they prefer to sell their goats within the village visa viz the distant market. Older farmers may be better connected within the village and have developed social capital with traders in the village. These findings concur with the findings of Arinloye et al. (2014), who noted that older farmers are most likely to sell through closer markets because they are likely to have established relationships with buyers who purchase within the village.

The research findings also noted that the number of goat buyers significantly affected the market choice by the small-scale goat farmers in Zimbabwe. The number of goat buyers significantly reduced the likelihood that a goat seller would sell to the growth point relative to the village market (farm gate). The

more buyers at the farm gate, the better prices will be as buyers compete directly with each other. This direct competition can allow sellers to negotiate higher prices without an additional market cost, which often reduces the goat farmer's profit margins. The number of goat buyers also significantly reduced the likelihood that a goat seller will sell to the agro-dealers relative to the village market (farm gate). From the research findings, it can be noted that as the number of buyers increases, most of the sellers will prefer to sell their goats at the village market.

The number of visits by extension workers significantly increased the likelihood that a goat producer will sell to the distant buyer relative to the village market. Access to extension services is expected to increase the ability of farmers to acquire relevant market price information and related production information, which, in turn, increases a farmer's ability to choose a distant market. The findings concur with the findings of Mgale et al., (2020) who noted that access to extension services significantly increased the likelihood that a small-scale farmer will choose the distant buyer who often offer more lucrative prices relative to the village market. Even though communal farmers' initiatives for the development of their agricultural capacities have generally received support from the private sector and the non-governmental organizations, training by extension workers has been observed to positively and significantly affecting market choice by goat farmers. This is because these farmers who are trained have the capacity and ability to make use of available market information to their benefit in the form of contractual arrangements. This result conforms to findings of Musara et al. (2018)

Membership in an association group was associated with an increased likelihood of a farmer selling at either the growth point or local agro-dealer as opposed to the village market. Farmers in groups have the advantage of bulking hence gaining economies of scale. It is also easier and cheaper for traders to enforce quality and grade requirements by reaching farmers in groups rather than individually. Being a member of an association can assist farmers in pooling their goats for collective marketing, making it easier to reach larger markets that are more lucrative. Institutional economists also noted that group membership can lower transaction costs associated with marketing. Mukarumbwa et al. (2018) also noted that group participation enables smallholder farmers to gain access to markets they might find difficult to penetrate individually.

Access to market information has a positive sign for the distant market. Goat sellers with access to market information would prefer distant buyers. The findings align with most institutional economics theories, which state that distant buyers often offer better prices than the local buyers. From the focus group discussions, it was also highlighted that with direct access to market information; farmers may choose to by-pass middlemen and sell directly to the distant market. These findings concur with the findings of van de Merwe (2021), who noted that timely access to marketing information helps smallholder farmers to make informed decisions and increase the likelihood of the farmer choosing the most lucrative markets for their produce. Access to reliable market information helps to reduce transaction costs associated with market search.

Distance to the market significantly influenced the probability of choosing the village market to local market, which is consistent with a priori expectations. As the distance to the local market increases the small-scale goat producers will prefer the village market in selling their goats. Also, as distance to the market decreases, as is with selling at the farm gate, there are naturally trustworthy and reliable bonds that are cemented between the small-scale goat producers and the goat buyers. Farmers who are located further away from markets face higher transaction costs and so may opt to sell at farm-gate rather than selling to the local market, which increases transaction costs. Ndoro et al., (2015), also noted that the larger the distance, the higher the transportation cost and the higher the marketing cost which farmers always like to bring down to enhance their profit.

5. Conclusions

Farmers are affected by institutional factors that affect markets and marketing processes for the goat farmers. The institutional challenges identified by goat farmers include late payments, low prices, poor roads, long distances to the market, and cheating by the middlemen.

The marketing efficiency of goat marketing channels is determined by marketing costs and the availability of intermediaries within the channel. Marketing costs for the channel are lower because it is a local marketing channel where the buyers are neighbors, and this does not incur transport costs. The higher the marketing cost and marketing margin in the marketing channel, the lower the marketing efficiency for that channel.

Access to market information has a positive sign for the distant market. Goat sellers with access to market information would prefer distant buyers.

Recommendations

Based on the findings of the study, the following recommendations are forwarded.

- Transportation and marketing information systems should be developed, which can contribute greatly to reducing transportation costs and increase the overall efficiency of the goat marketing system. The efficiency of less efficient channels can also be improved through developing better transportation and communication systems.
- The characterization of farmers indicates that more males participate in goat marketing than females. This disparity indicates some form of inequality in the sector. There is a need to encourage women's participation in goat marketing.
- The government and private sector companies should encourage more farmers to affiliate with marketing associations as this has proved to be one key strategy that can be used to promote market information dissemination on goat production. This can also ultimately result in farmers going into commercial goat production as they pool resources and increase goat production through gaining access to information and required production and marketing resources.
- Farmers should use centralized contract models for direct marketing of goats. This would reduce marketing costs and increase producers' share in the final consumer price. Adopting this strategy will make the goats more competitive because of vertical integration with goats' traders in the high value markets.
- Farmers should organize a body and perform group marketing. As an organized body they would acquire better bargaining power for their products over the middlemen that manipulate and control the price of goats in the marketing system. These will increase farmers' profits considerably.
- The government should develop market infrastructure like road communication and transport media, which will be helpful to decrease transport costs; thus, marketing efficiency will increase.

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