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# Implications of Goat Rearing on Livelihood: A Gender Perspective

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## Abstract

The rearing of goats holds significant socio-economic importance in rural Punjab, Pakistan, particularly in supporting the livelihoods of marginalized households. This study explores the gendered dimensions of goat rearing and its implications for the economic empowerment and social well-being of rural communities. Goat rearing remains an essential practice in rural areas, playing a significant role in the rural social setting and culture, as well as providing a source of employment. It is a vital component of the agricultural economy in Punjab, offering substantial economic and nutritional benefits to rural families. However, the roles and contributions of men and women in this sector are often unequal, leading to a gender gap that affects the overall efficacy and benefits derived from goat rearing. Men and women still face unequal opportunities, limited access to productive resources, and an unequal share of family responsibilities. Livelihoods are not merely localized phenomena but are linked to broader national, regional, and global arenas through environmental, economic, political, and cultural processes. The main objective of the study was to explore how goat rearing contributed to household income, food security, and overall well-being, and how these contributions differed between men and women. The study was conducted in the rural areas of the pre-divided zones of Punjab—North (Chakwal), South (DG Khan), and Central (Faisalabad). Three major districts were selected purposively based on census reports, which indicated high involvement in goat farming. Two tehsils, two union councils, and four villages were selected purposively using secondary sources such as government reports and statistics on goat rearing. Lists of rural areas from the selected districts were provided by the district offices of Punjab, Pakistan. From each selected village, fifteen households (household heads and their spouses) engaged in goat rearing were selected through a convenient sampling technique. To check the gender perspective researcher, selected the equal proportion i.e. 360 male head of house and 360 their spouse. It is helpful to analyze the gender opinion regarding the problem under investigation. A well-designed, pre-tested interview schedule was used for data collection. Descriptive and inferential statistical techniques were applied to analyze the data. The statistical analysis of the study highlighted critical factors influencing livelihoods among rural goat-rearing households. Goat rearing significantly boosts the financial well-being and social standing of farming households.

**Key words:** Goat rearing, Gender, Livelihood, Implications, perspectives

## Introduction

Goat rearing plays a significant role in the livelihoods of rural households, particularly in regions like Punjab. Where agriculture is a primary source of income. The integration of livestock,

especially goats, into farming systems provides a valuable source of nutrition, income, and employment (Devendra, 2001). Goats are often considered a "poor man's cow," offering numerous advantages, including low investment costs and the ability to thrive in marginal environments (Singh *et al*., 2014). Goat rearing plays a vital role in food and economic security of rural people, especially landless, marginal and small farmers (Chander and Rathod, 2015). Goats act as a ready to use economic asset at time of crisis among rural farmers (Lebbie, 2004). Goat systems are some of the oldest and least intensified systems of livestock production (Peacock and Sherman, 2010). Poor productivity and lack of scientific knowledge about goat farming proves to be the spaces behind goat production in rural areas (Mohan *et al.,* 2009).Goats have long been recognized as a vital component of rural livelihoods, particularly in developing countries. They offer a range of benefits, including:

**Food Security** Goats provide meat, milk, and manure, contributing to dietary diversity and nutritional needs.

**Income Generation:** The sale of goats, their products, and their by-products can generate income for rural households.

**Risk Management:** Goats are relatively resilient to harsh environmental conditions, making them a valuable asset in regions prone to drought or other natural disasters.

Goat keeping is an important activity in rural regions because goats play a vital part in the social structure and culture of rural communities while also being a promising source of work and income. Goat keeping is generally considered as a low input income generating activity with multidimensional usages: it helps to clear fields for cash crops and fodder, as well as the green foliage, tree leaves, and agricultural leftovers; it also provides a livelihood for a significant portion of rural farmers who are landless poor deficient in other means of subsistence.Some regions of central and southern Punjab continue to employ a separate intense production technique for rising goats as sacrifice animals and sold for extraordinary prices during Eid-ul-Azha.Therefore, there is a considerable amount of variation in performance elements such as morphology, growth, fertility, and other features both within and across goat breeds. For example, adult body mass can vary from 20 to 70 kg, with remarkable breads quadrupling this variety. The production procedures and socio-economic conditions of goat growers are always progressing. Presently, both living goats and their products is main target of export market.

Nevertheless, there are no measures in place to address the promising growth for the local and international usage of goats and goat products (Muhammad *et al.*, 2015).

Raising goats is significant enterprise that provides livelihood of marginalized groups in society and helps farm households to satisfy their nutritional needs. Typically, goats are kept on grazing and browsing with additional feeding of agricultural leftovers and agro-industrial byproducts that are readily accessible in the area. A wide range of plants that are indigestible to other livestock species may be consumed by goats. Goat farming was the main source of earnings for rural households. The income received from the goats was mostly used to pay for food, schooling, celebrations, and agricultural supplies. The goat is sometimes referred as the "poor man's cow" due to its significant role in providing for the economic and nutritional requirements of their family. Raising goats is seen as a means of generating income for households and adolescents in rural areas. Therefore, goat husbandry in rural regions can achieve many goals of helping farmers become self-sufficient by ensuring the family members' dietary needs, by raising the standard of life by increasing overall income, creating jobs, and reducing the chance that crops would fail due to unfavorable weather conditions.Small flock owners utilized their milk for tea preparation and home consumption, whereas big flock owners sold their milk to merchants. In addition to supplies of feed and wood for the goat shed. The nearby farmers, intermediaries, livestock merchants, quacks, veterinarians, and livestock supervisors were the primary information providers for the goat caretakers.The village system provided the majority of the contributions. Since caring for goats requires less labor and input than other animal husbandry microbusinesses, goat raising has a great deal of promise to be a sustainable source of income for rural women (Rajkumar and Kavithaa, 2014).

From the domestication of goat during the Neolithic Revolution around 10 million years ago, goats have been the most dependable source of livelihood for impoverished people among all farm animal species, boasting the broadest ecological range. A substantial portion of the additional earning income and means of subsistence for millions of resource-poor farmers and landless laborers in rural regions comes from goats. Raising small ruminants assures self-employment and provides support during difficult times like drought etc (Lata and Mondal, 2021).

Goat rearing in Punjab is a vital component of the region's agricultural landscape, contributing significantly to the livelihoods of rural households. With a long-standing tradition of livestock farming, Punjab boasts a favorable climate and diverse pasture lands that support goat husbandry (Singh *et al*., 2014).

In Punjab, the socio-economic dynamics of goat rearing are deeply intertwined with gender roles. Traditionally, women are heavily involved in livestock management, including feeding, breeding, and care (Kumar *et al.*, 2017). Despite their crucial contributions, women often face challenges such as limited access to resources, decision-making power, and market opportunities. The intersection of gender and livestock management can significantly impact household income and food security, with women's roles in goat rearing often overlooked in agricultural policies (FAO, 2011).

Goat keeping is an essential practice in rural areas as goats play an important role in the social setup and culture in rural areas as well as providing a potential source of employment and income. The large population of 64.9 million goat heads (GOP, 2012-13) is yet unable to supply the ever enhancing demand for red meat. Generally speaking, goat keeping is a low input activity having multidimensional uses: provide the livelihood of a large proportion of rural farmers, landless poor lacking other means of survival, in clearing fodder and cash crop fields; the green foliage, tree leaves, agricultural residues and leftovers. Raising goats as sacrificial animals is still a different production system practiced in some areas of central and southern Punjab using intensive production system and are sold at a very high price on Eid-ul-Azha. Appreciable diversity among and within goat breeds therefore, exists in performance traits like morphological, growth, fertility and other traits. For instance adult body weight may vary from 20-70 kg with exceptional bucks quadrupling this range (Muhammad *et al*., 2015).

Goats are ubiquitous in daily life, traditions, diet, religion, and the economy.Raising goats is a highly demanding enterprise, especially across regions of Asia and Africa that are still developing economically. The deliberation of the goat as ‘sacred’ animal, which is used for religious occasions or traditional character make it a cultural characteristic rather than an object of pure commercial interest. Comparatively speaking, the goat industry has had far less assistance than the industries that produce cow milk, beef meat, poultry. Goats are acknowledged for their

abilities as well as their potential, but they seem to have less favor in the business and economic spheres (Sahu*et al*., 2022).

Goat rearing is considered as one of the best and most distinctive livelihood prospects for tribal farmers. It can produce supplemental revenue, make use of family labor, give the family throughout the year access to wholesome milk, and clear the path for the doubled of farmers' income (DFI). Additionally, goat farming within an integrated farming system presents special chances to preserve and expand biodiversity. Small livestock, such chickens, lambs, and goats, should be prioritized in order to provide a steady income. Goat plays a vital role in the economy of landless and marginal farmers living. It is preferredover other livestock in wide range of agro climatic zones particularly in drought prone andtribal areas due to its inherent characteristics of better performance under scarce resources,higher disease tolerance, survival on poor quality feed and fodder and better reproductiveefficiency. Other than this it is easy for handling due to smaller size and highly prolificanimal. The farmers would be able to lower their production costs and increase productivity as an outcome (Moreno and Salgado, 2012).

The livelihood framework provides a comprehensive approach to understanding how people make a living. It can be used as a loose guide to a range of issues which are important for livelihoods or it can be rigorously investigated in all its aspects (Kanji *et al,* 2005) Livelihood approaches emphasizes understanding of the context within which people live, the assets available for them, livelihood strategies they follow in the face of existing policies and institutions, and livelihood outcomes they intend to achieve (DFID, 2000).

The livelihood approaches formerly regulate outcomes such as increased income, enhanced wellbeing, compact vulnerability, more consistent food security, and more sustainable use of the natural resources, therefore contribute to the growth or shrinkage of the asset bases of both men and women. Livestock may improve livelihood outcomes in a variety of ways, through the sale of livestock products to raise earnings or by increasing food security through increased use of livestock products produced domestically (Herrero *et al.,* 2013).

Livelihood is the means, assets, capability for survival of life. There three main strategies are used for survival of life namely intensification of agriculture, livelihood diversification and migration. Different sources are used for the purpose of livelihood. Among these natural, social, physical, financial, political etc. are very well known in this world. These resources are used for

the purpose of livelihood where these resources are more and rich where the livelihood are good and economy of that country boosting is easy where these resources are poor where all situation of the country is poor and as like vicious circle, they always poor. Some countries of the world have rich resources but they do not know how to utilize. The main means of livelihood sources are the agriculture, industries and services. Livelihood play great role in the reduction of poverty of the country. Through livelihood money is earn and then they use for consumption and production in the country. The purchasing power of the people are increased which further increase the demand of the goods and through this way producer earn more than before and the producer then set other machineries in the country which increase the livelihood means in the country. All world people try for job and they get the job in different form. Some jobs salaries are high while some are low according to their skill. The skill person earns more than the unskilled person. So the government educational institution trained to them and make efficient which in the long run earn more and they then enjoy the good life and everyone salute to them in society while less earner food quality is very low and they cannot purchase the high quality food (Khan *et al*., 2020).

## Problem statement

Goat rearing is an important livelihood activity for rural households in Punjab, Pakistan, contributing to food security, income generation, and socio-economic development. However, the role of gender in goat rearing practices has not been sufficiently explored, despite its potential to influence the distribution of resources, decision-making processes, and overall livelihood outcomes. In many rural areas of Punjab, traditional gender norms often limit women's participation in economic activities like livestock management, which affects their access to income, resources, and decision-making power.

The gender perspective in goat rearing is crucial in understanding how both men and women contribute to and benefit from this practice. Gender disparities in access to resources such as veterinary services, feed, training, and financial support may impact the productivity and sustainability of goat farming. Furthermore, the unequal division of labor in livestock management can limit the potential for women to contribute to household income, thereby affecting household food security and resilience to economic and environmental shocks.

This study aims to investigate the gender dynamics in goat rearing within rural households of Punjab, Pakistan, focusing on how gender roles influence livelihood outcomes, particularly in terms of income generation, food security, and reduced vulnerability. By examining the implications of these gendered practices, the research seeks to identify opportunities for enhancing the role of women in goat rearing, ultimately contributing to more equitable and sustainable livelihoods for rural households.

## Objectives

- To analyze the goat rearing practices with reference to gender roles.
- To explore the potential of goat rearing as a tool for empowering women in rural areas.
- To assess the livelihood outcomes of rural households by goat rearing.
- To find some policy measures and recommendation on research findings.

## Theoretical Framework

### Sustainable Livelihoods Approach DFID's and its Framework

DFID adapts a version of Chambers Conway's definition of livelihoods: "A livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." (DFID, 2000) DFID's biggest aim is the elimination of poverty in poorer countries. DFID, however, stresses that there are many ways of applying livelihoods approaches. Although the application of the livelihoods approach is flexible and adaptable to specific local settings and to objectives defined in participatory manner, it underlies a couple of core principles. **People-centred**: People rather than the resources they use are the priority concern in the livelihoods approach, since problems associated to development often root in adverse institutional structures impossible to be overcome through simple asset creation. **Holistic:** A holistic view is aspired in understanding the stakeholders' livelihoods as a whole, with all its facets, by a manageable model that helps to identify the most pressing constraints people have to face. **Dynamic**: Just as people's livelihoods and the institutions that shape their life are highly dynamic, so is the approach in order to learn from changes and help mitigating negative impacts, whilst supporting positive effects. **Building on strengths:** A central issue of the approach is the recognition of

everyone's inherent potential for his/her removal of constraints and realization of potentials. Identifying these strengths rather than the needs and problems is the starting point of this approach, in order to contribute to the stakeholders' robustness and ability to achieve their own objectives. **Macro-micro links**: Development activity tends to focus at either the macro or the micro level, whereas the SLA tries to bridge this gap in stressing the links between the two levels. As people are often affected from decisions at the macro policy level and vice-versa, this relation needs to be considered in order to achieve sustainable development. **Sustainability**: A livelihood can be classified as sustainable, if it is resilient in the face of external shocks and stresses, if it is independent from external support, if it is able to maintain the long-term productivity of natural resources and if it does not undermine the livelihood options of others. (Kollmair*et al.,* 2002)

The DFID framework sets out to conceptualize: • how people operate within a vulnerability context that is shaped by different factors – shifting seasonal constraints (and opportunities), economic shocks and longer-term trends • how they draw on different types of livelihood assets or capitals in different combinations which are influenced by: • the vulnerability context • a range of institutions and processes • how they use their asset base to develop a range of livelihoods strategies to achieve desired livelihood outcomes (de Stagé*et al.,* 2002)

Goat rearing is an essential resource of livelihood for rural households of Punjab, Pakistan. It provides: Food securityfor families who rely on agriculture as their main source of livelihood.

## Materials and Methods

A methodology is a collection of clear rules and procedures. It provides the framework for doing research and evaluating claims for comprehension. This arrangement is neither fixed nor unbreakable. Once it has been determined that these processes are compatible with the fundamental assumptions of the systematic methodology, they are merged into the set of guidelines known as the "soundness of examination," which governs the systematic procedure (Bhattacher, 2012).

The study was conducted in the rural areas of the pre-divided zones of Punjab—North (Chakwal), South (DG Khan), and Central (Faisalabad). Three major districts were selected purposively based on census reports, which indicated high involvement in goat farming. Two tehsils, two union councils, and four villages were selected purposively using secondary sources

such as government reports and statistics on goat rearing. Lists of rural areas from the selected districts were provided by the district offices of Punjab, Pakistan. From each selected village, fifteen households (household heads and their spouses) engaged in goat rearing were selected through a convenient sampling technique. To check the gender perspective researcher, selected the equal proportion i.e. 360 male head of house and 360 their spouse. It is helpful to analyze the gender opinion regarding the problem under investigation. A well-designed, pre-tested interview schedule was used for data collection. Descriptive and inferential statistical techniques were applied to analyze the data.

## Results and Discussions

Analysis and interpretation of data are the most essential aspects of research. Without these processes, scientific study cannot attain its goal of generalization and prediction. Inferences and generalizations are made based on the features and attitudes of the respondents.

**Table1:Distributionofrespondentsaccordingtotheirhousehold have any other livestock**

| LivestockSpecies | | | Number ownedbymale | | Number ownedbyfemale | | Numberownedjointly | |
|---|---|---|---|---|---|---|---|---|
| | | | F | P | F | P | F | P |
| Cattle | Local | Bull | 104 | 14.4 | 67 | 09.3 | 127 | 17.6 |
| | | Cow | 56 | 07.8 | 61 | 08.5 | 137 | 19.0 |
| | | Immaturemales/Heifers | 42 | 05.8 | 49 | 06.8 | 77 | 10.7 |
| Goats | Local | | 180 | 25.0 | 150 | 20.8 | 210 | 29.2 |
| | Cross/exotic | | 80 | 11.1 | 60 | 08.3 | 40 | 05.6 |
| Sheep | Local | | 200 | 27.8 | 160 | 22.2 | 250 | 34.7 |
| | Cross/exotic | | 50 | 06.9 | 30 | 04.2 | 30 | 04.2 |
| Poultry | Local | | 250 | 34.7 | 200 | 27.8 | 190 | 26.4 |
| | Cross/exotic | | 40 | 05.6 | 20 | 02.8 | 20 | 02.8 |
| Donkeys/Horses | | | 297 | 41.3 | 231 | 32.1 | 192 | 26.7 |
| Other,specify | | | 321 | 44.6 | 232 | 32.2 | 167 | 23.2 |

This table 1 provides the varieties of livestock ownership illustrated in this table, which is broken down by species and gender, reveal apparent patterns. Important findings include: Although

more men than women own bulls (14.4%), joint ownership remains the norm (17.6% for bulls and 19.0% for cows). Joint ownership remains high (19.0% for cows), with females having marginally higher individual ownership (8.5% vs. 7.8%). Couples possess the majority of local goats (29.2%), but men own more than women (25.0%). Males are more likely to own an unusual or hybrid goat (11.1%) than females (5.6%). Similar patterns emerge, with males owning 27.8% of the sheep vs 22.2% of females, and joint ownership reaching a high of 34.7% among local sheep. Male ownership of local poultry (34.7%) exceeds female ownership (27.8%) and dual ownership (26.4%). In every category, exotic fowl is extremely rare. Gender roles in draught animal use are most likely represented in the much higher rates of male ownership (41.3%) versus female (32.1%) or joint ownership (26.7%). Owners of indeterminate livestock account for a sizable proportion of respondents (44.6% male, 32.2% female, and 23.2% joint), suggesting that smallholder systems are diversified. Males are more likely to possess large animals (such as bulls, goats, sheep, and equines), whereas females own dairy animals (cows). Joint ownership is common among cattle and small ruminants, indicating shared management. With the exception of goats and hens, the majority of animals are native breeds. Female participation is especially crucial when making decisions about dairy and small ruminant animals. Encourage shared ownership concepts to increase women's equitable access to resources. Improve the availability of better breeds (such as exotic goats and poultry) to boost output. When developing inclusive livestock projects to close ownership gaps and enhance the use of joint management practices, gender-disaggregated data is critical. Future research should look into how ownership patterns correlate with income, education, and empowerment indices.

In many rural and semi-urban households, goats are often raised alongside other types of livestock such as cows, buffaloes, poultry, and sheep. This mixed livestock farming system is beneficial as it diversifies income sources, enhances food security, and optimizes the use of available resources like land and feed. For example, cow and buffalo dung can be used as manure for fodder crops or as biogas fuel, while goats provide meat and milk with relatively low maintenance costs. Raising poultry in the same household further contributes by supplying eggs and meat and controlling insect populations. This integrated approach not only increases resilience against economic shocks but also supports sustainable farming practices. According to Devendra (2013), integrating goats with other livestock species in smallholder systems plays a

crucial role in improving livelihoods and ensuring a steady flow of animal-based products throughout the year.

**Table2:DistributionofrespondentsaccordingtotheirDecision making about goat rearing**

| Decision making about goat rearing | My self (household head) | | Spouse | | Joint decision | |
|---|---|---|---|---|---|---|
| | F | P | F | P | F | P |
| Who primarily makes decisions about goat rearing in your household | 299 | 41.5 | 202 | 28.1 | 219 | 30.4 |
| Who make decisions about the purchase of goats made in your household | 291 | 40.4 | 198 | 27.5 | 231 | 32.1 |
| Who is responsible for deciding the number of goats to be kept or sold | 271 | 37.6 | 217 | 30.1 | 232 | 32.2 |
| Who make decisions about the breed of goats to rear made | 245 | 34.0 | 264 | 36.7 | 211 | 29.3 |
| Who decides on the allocation of resources (feed, healthcare) for goat rearing | 274 | 38.1 | 211 | 29.3 | 235 | 32.6 |
| Who handles the finances related to goat rearing (buying feed, veterinary services | 302 | 41.9 | 192 | 26.7 | 226 | 31.4 |
| Investing in goat rearing equipment or infrastructure | 267 | 37.1 | 202 | 28.1 | 251 | 34.9 |
| How are profits from goat sales used or distributed in your household | 294 | 40.8 | 243 | 33.8 | 183 | 25.4 |

This table 2 gives light on the mechanics of decision-making within households about goat-rearing, revealing patterns of power, gender roles, and shared tasks. Most choices are made by the head of the household, who is typically a man. This is particularly true in: Overall, 41.5% of goat-rearing decisions Accounting and finance (41.9%). Profit distribution is at 40.8%. Purchase of goats (40.4%). This evokes patriarchal structures from the past, when males dominated farmers' economic and strategic decisions. Women (couples) have a disproportionate say in goat breed selection (36.7%, the highest percentage among spouses). Shed size calculation (30.1%) The distribution of profits (33.8%) There appears to be a gender discrepancy in competence, with women potentially leading breeding decisions (related to dairy/meat aims) and directing

household resources. A trend towards shared marital collaboration is visible in houses where 30-35% of decisions (such as purchasing, herd size, and resource allocation) are made together. Given the potential long-term repercussions on the economy, it is not surprising that infrastructure investments (34.9%) and resource allocation (32.6%) have the highest levels of collaboration. Spouses outnumber household heads in breed choosing (36.7%), suggesting women's better knowledge in this subject. Perhaps as a result of cultural norms surrounding income control, the household head makes more decisions about how to use profits (40.8% vs. 33.8% spouse), whereas less decisions are made jointly (25.4%). Achieving Gender Equality: Make it simpler for women to participate in large-scale financial and strategic decisions by providing them with resources such as education and loans. Models of concurrent decision-making: In areas where collaboration is already taking shape, such as investment and breed selection, advocate for combined efforts. As part of gender-sensitive initiatives, programs should be structured to capitalize on women's breeding knowledge while also removing barriers to their participation in financial and profit-generating enterprises. Spouses, particularly women, play critical roles in herd management and breed selection, even if family heads (usually men) have enormous influence. There is potential for more egalitarian cooperation because collaborative decision-making is popular in key industries. Policymakers should aim to address the gender imbalance in profit control and formalize shared governance (for example, through cooperative structures or joint land rights). Future research could look into the relationship between decision-making practices and either production or household well-being.

In Punjab, Pakistan, decision-making in goat rearing is predominantly influenced by gender roles, household structure, and socio-economic dynamics. While men typically take the lead in decisions related to buying and selling animals, healthcare, and breeding strategies, women play a crucial role in day-to-day management such as feeding, cleaning, and caring for the goats. In many rural households, women’s contributions are significant, yet their involvement in strategic decision-making remains limited due to cultural norms and restricted access to resources and information. However, recent development programs and awareness campaigns have begun to encourage more inclusive participation, recognizing the vital role women play in livestock management (Asif *et al*., 2020).

## Multivariate Analysis

Multivariate analysis is performed to identify whether the ratio is false or non-false. Multivariate analysis also allows the researcher to find the relative importance of each independent variable in determining a dependent variable. Multivariate analysis also indicates the suitability of independent variables to study a dependent variable (Zafar, 1996).

**Multiple Regression Analysis**

Multi-regression analysis is a cumulative technique for analyzing numerical data consisting of different predictors and a single response variable. There are several models in regression analysis, such as linear regression, ordinal regression, binary regression, and numerical regression (Richard and Ramey, 2004).

Regression methods, such as linear, logistic, and ordinal regression, are useful tools for analyzing the relationship between several explanatory variables and the outcome variable (Chatterjee and Hadi, 2006; Chen and John, 2004). In the current study, linear regression and ordinal logistic regression modeling are used to check the effect of predictors on the response variable.

**Table 3: Impact of explanatory variables on the response variable livelihood: Linear regression Model**

| **Regression Results** | |
|---|---|
| **Variable Model 1** | **Standardized β** |
| Age | 0.271** |
| Education | 0.151** |
| Time spent on goat rearing activities | 0.167** |
| Gender specific challenges | 0.256** |
| Management challenges in goat rearing | 0.324** |
| Livestock owned by household | 0.172* |
| F | 202.106 |
| $R^2$ | 0.592 |
| Adjusted $R^2$ | 0.589 |
| P-value | 0.000** |

**Predictor:** Age, education, time spent on goat rearing, gender specific challenges, management challenges in goat rearing, livestock owned by household,

**Dependent Variable:** Livelihood

**= Highly Significant *= Significant

Using multiple linear regression, the relationship between independent and dependent variables was analyzed. The analysis revealed that the model was statistically significant with a p-value of 0.00 and an F-statistics value of 202,106. The coefficient of determinants (R2) is 0.589, indicating that 58.9% of the change in livelihood can be attributed to the variables discussed in this model. The remaining variation may be attributable to additional variables that were not considered. The preceding table provides a comprehensive description of each variable and its associated values. Six variables are used to explain the variation in the livelihood. Age predicts that the dependent variable will change by 27,1% as a result of the younger age group of respondents, which is more involved in goat rearing. Education is the next component. According to the beta value, respondents' educational levels caused a 15.1% shift in the livelihood. As respondents' educational attainment increases, so does the rate of livelihood increased. The amount of time spent on goat rearing activities indicates an increase of 16.7 percent in respondents' livelihood. The maintenance of gender specific challenges is essential to the transformation of livelihood. This variable's beta value is 25,6%, which represents a 25% increase in livelihood as a result of maintaining existing gender specific challenges. The management level challenges in goat rearing for 32.4% of the change in livelihood.

The average duration of involvement in goat rearing among smallholder farmers typically ranges from 5 to 10 years, reflecting its role as a long-term livelihood activity, especially in rural and semi-urban areas. This extended engagement is often driven by the low initial investment, steady income from meat, milk, and manure, and the adaptability of goats to diverse climatic conditions. Experienced farmers tend to develop sustainable practices and improve productivity over time, contributing to household food security and economic resilience (FAO, 2019). Goat rearing, therefore, remains a stable and enduring component of small-scale livestock farming systems.

The duration of involvement in goat rearing plays a significant role in enhancing household livelihoods, particularly in rural and resource-constrained settings. Longer engagement in goat farming often translates into increased experience, improved herd management practices, and better knowledge of disease control, breeding, and marketing strategies. These factors collectively contribute to higher productivity and income generation over time. Studies have

shown that experienced livestock farmers are more likely to adopt effective husbandry practices and capitalize on market opportunities, thereby improving household welfare. Ayalew*et al*. (2003) highlighted that accumulated knowledge and adaptive practices gained through years of goat rearing significantly impact productivity and livelihood outcomes in smallholder systems. Thus, sustained engagement in goat farming is positively associated with improved livelihood indicators such as income stability, food security, and asset accumulation.

The average time involved in goat rearing typically ranges from 3 to 5 hours per day, depending on the scale and management practices. This time is spent on feeding, cleaning shelters, monitoring health, and providing basic care such as milking and grooming. Goat rearing, while moderately time-intensive, offers flexibility and can be integrated into daily rural life or small-scale farming routines. With proper planning and efficient systems in place, the workload can be managed effectively, making it a viable and rewarding livelihood option, especially for smallholder farmers and rural families seeking sustainable income sources (FAO, 2021).

Time investment in goat rearing is a crucial factor influencing the productivity and economic contribution of small ruminants to household livelihoods. The more time households devote to goat-related activities—such as feeding, health care, shelter maintenance, and breeding management—the better the performance and health of the herd, leading to improved income and food security. Greater time allocation often results in timely interventions for disease prevention, enhanced nutrition, and better marketing outcomes, all of which cumulatively enhance livelihoods. According to Alary *et al*. (2007), households that integrate goat rearing into daily routines and allocate adequate labor tend to realize higher returns from their livestock, especially in mixed crop-livestock systems. Furthermore, Ahuya*et al*. (2005) observed that smallholder farmers who spent more time on improved goat management practices achieved greater productivity and resilience in income generation. Thus, while time is only one of many factors, its strategic allocation in goat farming significantly boosts the livelihood potential of rural households, particularly among women and land-poor farmers who rely heavily on small ruminants.

The study found that there exist gender variations in goat farming in a variety of areas, including decision-making, financial resources, job distribution, and mobility to grazing grounds. Despite the fact that a sizable percentage of respondents denied these disparities, the findings suggest that

gender bias remains a problem in the industry. To bridge the gender gap in goat farming, we need policies that promote fair training, gender-inclusive financing initiatives, and other targeted interventions.

In goat rearing, gender-specific challenges are prominent, particularly in rural areas of Punjab, Pakistan, where cultural norms and economic factors shape the roles of men and women. Men typically handle high-value activities such as purchasing and selling goats, as well as making major decisions regarding breeding and health management. However, women are primarily responsible for the day-to-day care of goats, including feeding, milking, and cleaning. Despite their critical role, women often face limited access to resources such as land, capital, and training opportunities, which hinders their ability to make strategic decisions or improve farming practices. Furthermore, women's contributions are often undervalued in household decision-making processes. Programs that promote gender inclusivity in agricultural extension services and provide women with more access to training, resources, and decision-making power are essential to overcoming these challenges and enhancing productivity in goat farming (Sultana *et al*., 2018).

Gender-specific challenges in goat rearing have a profound effect on household livelihoods, particularly in rural and agrarian communities where goats serve as critical livelihood assets. While women are often the primary caretakers of small ruminants like goats, they frequently face systemic barriers that limit their productivity and economic benefits. These include restricted access to veterinary services, markets, training, decision-making power, and ownership rights over livestock and income. As noted by Kristjanson*et al*. (2014), gender disparities in livestock ownership and control often prevent women from fully capitalizing on the economic potential of goat rearing, thereby constraining household income and food security.

The management of goat rearing presents various challenges, particularly in rural areas where resources and infrastructure may be limited. One of the primary challenges is inadequate access to quality feed and nutrition, which affects the growth, milk production, and overall health of goats. Many farmers rely on local grazing resources, which may not provide a balanced diet, leading to deficiencies that can hamper the goats' productivity. Another significant challenge is the management of animal health. Goats are susceptible to diseases like gastrointestinal parasites, respiratory infections, and foot-and-mouth disease, and without access to regular veterinary care,

farmers may struggle to keep their herds healthy. Additionally, improper breeding management and a lack of quality breeding stock can lead to low fertility rates and poor herd genetics. Environmental factors, such as extreme heat or cold, can also affect the well-being of goats, especially in regions without adequate shelter. Furthermore, financial constraints and limited access to markets for selling goats or their products often hinder farmers from investing in modern farming practices or improving herd management. Despite these challenges, the integration of modern farming techniques, better access to veterinary services, and government support programs can help mitigate these issues, improving the sustainability of goat farming (Devendra & Burns, 2019).

Therefore, while the statement holds generally true, the relationship between livestock size and livelihood is not strictly linear or universal—it is mediated by contextual socioeconomic and ecological variables.

## Conclusion

This study paints a detailed picture of the socio-economic landscape of households engaged in goat rearing, predominantly featuring younger to middle-aged individuals with a slight female majority. Agriculture remains a key income source, but diversification into other sectors like government/private jobs and business is evident. While a significant portion of respondents fall into the middle-income bracket, a notable percentage face economic challenges and have limited formal education. Traditional joint family structures are prevalent, and land ownership is characterized by small to medium-scale holdings, with a concerning lack of formal titles for many.

Goat rearing is a significant activity, primarily driven by economic and subsistence needs, with women playing crucial roles in daily care while men often dominate decision-making and income control. However, gender disparities are evident across various aspects, including access to resources, training, and market information. Access to essential resources and services like animal health, breeding services, and extension support remains limited for a considerable portion of respondents.

In conclusion, while goat rearing serves as a vital livelihood strategy and offers substantial benefits, realizing its full potential requires addressing existing disparities in resource access,

gender inequalities, and management practices through targeted interventions and support systems.

# REFERENCES

Alary, V., M. El Mourid, P. Lecomte, A. Nefzaoui, A. Waterhouse, I.A. Wright and A. Gibon. 2007. Assessment of livestock farming systems in harsh environment: approaches adopted by farmers through management practices. European Association for Animal Production 6: 1-15.

Asif, M., M. Ahmad and A. Saboor. 2020. Gender roles in livestock management: Evidence

Bhattacharya, U., A. Hackethal, S. Kaesler, B.Loos, and S. Meyer. 2012. Is unbiased financial advice to retail investors sufficient? Answers from a large field study. The Review of Financial Studies 25:975-1032.

Carney, D., M.Drinkwater, T. Rusinow, K. Neefjes, S. Wanmali andN.Singh,. (2000): Livelihoods approached compared. In: Forum on Operationalizing Sustainable Livelihoods Approaches. Proceedings. Annex 4. Pontignano (Siena). 7-11 March, 2000.

Chen, C. and John, 2004. Sustainable Rural Livelihoods: Practical Concepts forth 21 "Century. IDS Discussion Paper 296. Cambridge: Institute of Development Studies.

De Stagé, R..,A. Holloway, D.Mullins, L. Nchabaleng and P.Ward. (2002): Learning about livelihoods. Insights from southern Africa. Oxfam Publishing. Oxford.

Devendra, C. 2013. Investments on pro-poor development projects on goats: ensuring success for improved livelihoods. Asian-Australasian journal of animal sciences 26: 1-5.

Devendra, C., S. Morales. 2001. Reducing food insecurity in developing countries through meat production: the potential of the guinea pig (Caviaporcellus). Renewable Agriculture and Food Systems 16: 159-173.

DFID 2000. Sustainable Livelihoods Guidance Sheets. Department for International Development.Availableat:http://www.livelihoods.org/info/info_guidancesheets.html accessed on:23.05.2025.

FAO. 2010. The state of food insecurity in the world 2010: Addressing food insecurity in protracted crises. Food and Agriculture Organization of the United Nations.

FAO. 2011. "The Role of Women in Agriculture." The State of Food and Agriculture 2010-2011. Food and Agriculture Organization of the United Nations.

FAO. 2011. The state of food and agriculture 2010-2011: Women in agriculture – Closing the gender gap for development. Food and Agriculture Organization of the United Nations.

FAO. 2017. The future of food and agriculture – Trends and challenges. Rome: Food and

FAO. 2018. The role of women in the livestock sector: A review of the evidence. Food and Agriculture Organization of the United Nations.

Khan, A. A., and G. Habib. 2018. Assessment and mitigation of methane emissions from livestock sector in Pakistan. Earth Systems and Environment 2:601-608.

Kollmair, M. and St.Gamper. (2002): The Sustainable Livelihood Approach. Input Paper for the Integrated Training Course of NCCR North-South. Development Study Group. University of Zurich.

Kristjanson, P., N. Mango, A.Krishna, M.Radeny. and N. Johnson. 2010. Understanding poverty dynamics in Kenya. Journal of international development 22: 978-996.

Kumar, S., C.A. R. Rao, K. Kareemulla and B. Venkateswarlu. 2010. Role of Goats in Livelihood security of rural poor in the less favoured environments. Indian Journal of Agricultural Economics. 65:760-782.

Lata, R., and P. Mondal. 2021. Role of women in agricultural development: A case study of Assam, India. International Journal of Current Microbiology and Applied Sciences10: 2410-2418.

Lebbie, S. H. B. 2004. Goats under household conditions. Small Ruminant Research51: 131-136.

Mack, A. 2005. Human security report 2005: War and peace in the 21st century. Die Friedens-Warte, 80: 177-191.

Mack, N. 2005. Qualitative research methods: A data collector's field guide. The Astrophysical Journal 665: 1277.

Mahmood, K. 2008. Library web OPACs in Pakistan: an overview. Program, 42: 137-149.

Morgan, S. L. 2013. Handbook of causal analysis for social research. Dordrecht: Springer Netherlands. Assessed on March 25, 2025 https:// link. springer. com/book/10.1007/978-94-007-6094-3.

Muhammad, F., A. Ali, S.M. Khan, M. Ahmad, and S.Rahman. 2015. Factors affecting women's participation in livestock management activities in district Peshawar, Khyber Pakhtunkhwa. Sarhad Journal of Agriculture31: 281-288.

Muhammad, M. S., M. Abdullah, K. Javed, S.M Khan, and A.M. Jabba. 2015. Goat production systems in Punjab, Pakistan. JAPS: Journal of Animal & Plant Sciences, 25: 1-12

Muhammad, T., K. Kebede, Y. Mekasha, and B. Abera. 2015. On-farm phenotypic characterization of native sheep types in North Wollo zone, Northern Ethiopia. Direct Research Journal of Agriculture and Food Science 3:48-56.

Munshi, S.,R. Zwart, R and H. Waddington. 2018. Impact of agricultural extension services on farmers' income and productivity: A systematic review. Synthesis Report.

Naz, F., U.R.Awan, and G. Noureen. 2020. Challenges of academic publishing: A case study of Punjab, Pakistan. Journal of Research in Social Sciences (JRSP) 59: 71-85.

Naz, F., U.R.Awan, and G. Noureen. 2018. Professional development of university teachers and its impact on teaching performance. Pakistan Journal of Psychological Research33: 163-176.

Naz, F.,U.R.Awan, and G. Noureen. 2021. Work life balance: Satisfaction of university teachers working from home. Journal of Arts & Social Sciences (JASS) 8:173-188.

Okello, D. M., W.Odongo, T. Aliro, ,and K.E. Ndyomugyenyi, 2020. Access to veterinary services and expenditure on pig health management: the case of smallholder pig farmers in Northern Uganda. Tropical Animal Health and Production. 52: 3735-3744.

Peacock, J., and P. W. Sherman, 2010. The evolution of social play in animals. American Scientist 98: 154-161.

Rahman, H. 2017. The role of women in livestock management in rural areas of Khyber Pakhtunkhwa, Pakistan. Journal of Rural Development and Administration49: 77-88.

Sabir, M. and E. Ahmed. 2003. Land reforms and agricultural productivity in Pakistan: A policy

Sahu, A. K., R. Singh, M.M. Kadam, S. Das, and K.S. Mohanty. 2022. Impact of climate change on livestock production: A review. Indian Journal of Animal Sciences 92: 522-527.

Shah, A. A., Gong, Z., Khan, N. A., Khan, I., Ali, M., and Naqvi, S. A. A. 2021. Livelihood diversification in managing catastrophic risks: evidence from flood-disaster regions of Khyber Pakhtunkhwa Province of Pakistan. Environmental science and pollution research, 28:40844-40857.

Sharma, G. D., and M.Mahendru. 2020. Lives or livelihood: Insights from locked-down India due to COVID19. Social Sciences & Humanities Open, 2:100036.

Singh, A., P.Gaur, N. Shukla, S. Das. 2014. Differential dendritic cell-mediated activation and functions of invariant NKT-cell subsets in oral cancer. Oral Diseases20:297-306

Thurmond, V. A. 2001. The point of triangulation. Journal of nursing scholarship 33:253-258.