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Research Article

Economic Analysis of Goat Enterprises in Kathmandu District

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Abstract

This study was conducted in Kathmandu district to perform comparative economic analysis of small and commercial goat enterprises. In the study the average annual return from large enterprises was found to be six times greater than that of small enterprises. The average annual fixed cost of small enterprises was found to be one tenth of that of commercial goat enterprises. The total average annual variable cost of small enterprises was found comparatively less than that of commercial enterprises, which is more than five times less. The per unit goat cost for the small enterprises is also twenty-five hundred less than that of commercial enterprises. The gross profit per year of small enterprise was around sixty thousand rupees with 9.5% gross profit margin ratio while in commercial goat enterprises gross profit per year accounted almost 4 lakhs with gross profit margin ratio 10.45%. Similarly, the average benefit cost ratios for small and commercial enterprises were found similar i.e. 1.10 and 1.12 but break even points varied widely as 18.36% and 56% respectively. The study concluded that there is no significant difference in production costs and income among small and commercial goat enterprises present in Kathmandu district testing at 5% level of significance. It also reveals positive aspects of small goat enterprises and at the same time suggests low functional efficiency of commercial goat enterprises in Katmandu district.

Keywords: small & commercial; goat enterprise; economic analysis; Kathmandu district

Introduction

Agricultural system in Nepal is integrated where livestock is one of the major components. Agriculture, forestry and fishing sector collectively contributed 23.95% in national GDP in FY 2021/22 whereby agriculture sole contribution was 15.6% followed by 6.23% contribution from livestock sector. (MOALD, 2022). The livestock sector has a significant potential for round the year employment generation particularly in rural areas. This provides a subsidiary source of livelihood to the people living below the poverty line due to lack of sufficient agricultural land to sustain, particularly where crop production on its own may not be capable of engaging them fully. Goats (*Capra hircus*) form an integral part of the mixed crop/livestock farming system and contribute substantially to farmers income, thus to the national economy. They provide meat, manure, and leather and even draft power as pack animals. Furthermore, they are a valuable source of income for small resource-poor farmers, particularly women, and act as a safety net referred to as a "living bank" that they can liquidate when

needed. Rearing goats is a profitable business and traditionally, goat rearing has been a subsistence activity of resource poor rural people (Kumar and Deoghare, 2002) however the import of goat has risen to 475,853 in FY 2010/11 from 274,814 in 2005/06. Goat is an important sector in terms of creating employment opportunities, income generation, and empowerment of women, marginalized, disadvantaged, and deprived people. Realizing the importance of goats in poor households, almost every developmental project launched either by governmental or non-governmental organization, promotes goat-based income generation programs. According to MoALD (2018), the population of goats in Nepal is 12 million and almost 74 thousand metric tons of goat's meat was produced in the same year. Goat husbandry occupies a pivotal position in rural livelihood as well as national economy. Goat is universally accepted as a profitable animal (Kumar, 2004). Development and improvement of goat productivity offers the most significant and direct positive impact for improved family protein and energy intake, income as well as improved standard of living of the resource poor farmers (Peacock, 2005).

They contribute to food security and can alleviate seasonal food variability and availability – directly through meat production and indirectly through cash earned from the sale of their products. Goat farming provides employment and income as a subsidiary occupation (Bashir *et al.,* 2017). Goat rearing has distinct economic and managerial advantages over other livestock because of its less initial investment, low input requirement, higher prolificacy, early sexual maturity, and ease in marketing. Goats can efficiently survive on available shrubs and trees in unfavorable environments. In addition, the rural poor who cannot afford to maintain a cow or a buffalo find goat as the best alternative source of supplementary income and milk. This is one reason why poor rural households maintain a small number of goats. Unlike a cow or buffalo, a few goats can be maintained easily and can be easily liquidated in times of distress. In recent years, goat enterprise has also shown promise of its successful intensification and commercialization (Kumar, 2007). Goats have an important enterprise function and provide an ideal opportunity for rural development. Goat rearing has seemed to attract large and progressive farmers, businessmen and industrialists due to its economic viability under intensive as well as semi-intensive systems of management for commercial production. The entry of resource-rich people, who have better access to technical knowledge, resources and markets, into this activity would help in realizing the potential of this enterprise.

Materials and Methods

Sampling frame for the research consists of all commercial goat entrepreneurs farming goat commercially as well as the entire small scale goat farming entrepreneurs of Kathmandu district. Altogether, hundred goat entrepreneurs were interviewed for the comparative study. The sampled respondents were interviewed visiting physically at their residents and farms were suitable. Questionnaire as well as schedule method, both were administered for the study and both primary and secondary data are basis for the study. Kathmandu district consists of ten municipalities (Budanilkantha, Chandragiri, Dakshinkali, Gokarneshwor, Kageshori Mahnara, Kritipur, Nagarjun, Sankarapur, Tarkeshwar, Tokha) and one Metropolitan city; Kathmandu. Seven municipalities excluding Kathmandu Metropolitan City, Kageshori Mahnara, Tarkeshwor and Gokarneshwor were selected purposively for the study. Out of ten seven municipalities were selected purposively and two rural wards from each municipality were selected for sampling. From each ward, six small goat entrepreneurs were selected randomly, altogether accounting eighty four small goat entrepreneurs. Also, sixteen registered commercial goat enterprises were sampled for the study. In this study, small entrepreneurs refers to unregistered enterprises with an on-farm goat population less than twenty and commercial goat farms as registered goat enterprises farming commercially.

Results and Discussion

Age of Goat Entrepreneurs

It was evident that the average age of entrepreneurs involved in goat farming at a small scale was higher than that for commercial goat farming entrepreneurs. As depicted in Fig. 1, comparatively senior citizens were found involved in traditional goat enterprise and the younger generation was found attracted towards commercial goat farming.

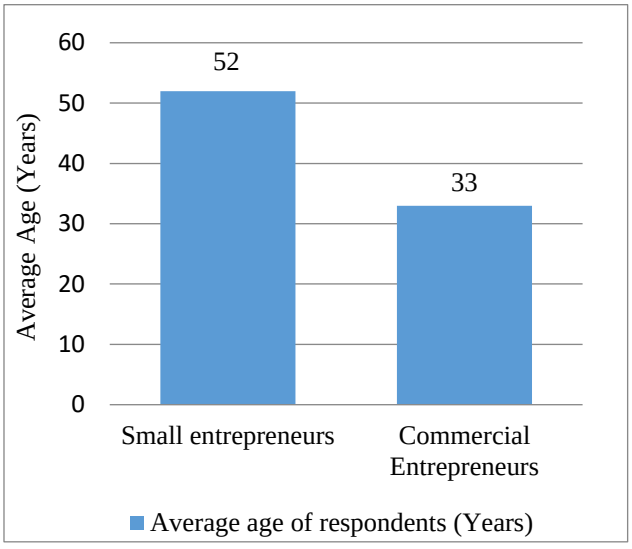

Fig. 1: Average age of the respondents

Ethnicity

Among surveyed entrepreneurs, it was found that at small goat farming enterprise level, the majority of Janajati (58 %) communities are involved. 30 % farmers were Chhetris,

12% were Brahmins and Chhetri and Janajati were found dominating commercial goat farming enterprises while small and integrated farming was covered by Janajati communities (Table 1).

Table 1: Ethnicity of respondents

Ethnicity	Small Enterprises (%)	Commercial Enterprises (%)
Brahmins	11.9	12.5
Chhetris	26.2	50
Janajati	61.9	37.5
Total	84	16

Economic Analysis of Farms

Economic analysis is a systematic approach to determine the optimum use of scarce resources, involving comparison of two or more alternatives in achieving a specific objective under the given assumptions and constraints. Total costs in goat farming were collectively traced determining total fixed costs and variable costs. Financial analysis of the surveyed farms illustrated the situations of goat farming enterprises in Kathmandu district.

The study revealed that the average annual fixed cost in goat farming per household was around 10 thousand two hundred and one for small goat entrepreneurs and 1 lakh 5 thousand 3 hundred and thirty-five for commercial goat entrepreneurs. The total average variable cost per year for small goat enterprises was 83 thousand 1 hundred and 30 and for commercial goat enterprises it was 5 lakh 3 thousand 5 hundred forty. As shown in the Table 2, average annual total cost of commercial enterprises is around ten times more than that for small entrepreneurs. Average per unit goat cost in the small goat enterprises was found to be 4 thousand 2 hundred and seventy-eight and for commercial goat enterprises it was 6 thousand 5 hundred and sixty four respectively.

Returns from Goat Farming

Average return for small goat enterprises in a five-year period was found to be 6 lakh 77 thousand and 6 hundred and seventy nine rupees and for commercial enterprises, average return tends to be 37 lakh 39 thousand 6 hundred and twenty five rupees. Calculating per year average income it becomes 1 lakh 38 thousand 7 hundred and two rupees for small goat enterprises and 7 lakh 47 thousand 9 hundred and twenty-five for commercial enterprises. In the current year small goat enterprises showed per year return of 1 lakh 38 thousand 7 hundred and two and commercial enterprises 6 lakh 92 thousand 3 hundred seventy-five rupees respectively (Table 3).

Table 2: Cost calculations of goat enterprises

S.N.	Particulars (Rs./Enterprise)	Small Enterprise	Commercial Enterprise
1	Average annual fixed cost	10,201.23	1,05,335.42
2.	Average annual variable cost	83,129.76	5,03,540
3.	Average annual cost	93,330.99	6,08,875.42
4.	Average per goat cost (Rs.)	4277.72	6563.99

Table 3: Returns from goat enterprise (per farm, per year)

S.N.	Particulars (per enterprise)	Small Enterprise (Rs)	Commercial Enterprise (Rs)
1	Average five-year income	6,77,678.57	37,39,625
	Average per year income	1,38,702.38	7,47,925.00
2	Current year average income		
2.1	Return from Wether	78,845.24	3,77,250
2.2	Return from male kids	3,678.57	1,02,000
2.3	Return from female kids	36,273.81	1,51,562.50
2.4	Return from Buck	17,761.9	44,250
2.5	Return from old Doe	2,142.86	17,312.50
2.6	Total average current year income	1,38,702.38	6,92,375

Profits from Goat Production

Profit is a reward for good management. Gross profit from goat farming per year on the current year of study was calculated by using five-year production data and findings have been illustrated in Table 4.

Table 4: Gross profits of goat enterprises

Gross profits	Per year (five years data)	Current year
Small Enterprises	61,694.04	45,371.39
Commercial Enterprises	3,90,810.19	83, 499.58

Gross Profit Margins

Gross profit margin is a profitability ratio that measures how much of every dollar of revenues is left over after paying cost of goods sold (COGS). Analyzing last 5 year data for gross margin, small goat enterprises and commercial goat enterprises could not show wide variation while in the year of the study small entrepreneurs were found making more profit with almost three times greater gross profit margin as shown in the Table 5.

Table 5: Gross profit margins of goat enterprises

S N.	Gross profit margins	Per year (five years data)	Current year
1	Small Enterprises	9.1%	32.33%
2	Commercial Enterprises	10.45%	12.05%

Benefit Cost Ratio of Goat Rearing

A financially profitable goat farming enterprise has an income/cost ratio greater than 1. The analysis of the goat farms suggests that it is financially profitable, and the income has surpassed the costs. There is a noticeable difference visible in the amount of benefits in both types of enterprises as smaller seems to enjoy slightly more profit than that of commercial goat enterprise. The reason for this is the low cost of goat farming under integrated and subsistence farming. The benefit cost analysis was carried out and findings have been presented in Table 6.

Table 6: Benefit cost ratios in goat enterprises

S N.	Benefit cost ratios	Per year (five years data)	Current year
1	Small Enterprises	1.10	1.49
2	Commercial Enterprises	1.12	1.14

Thus, the benefit cost ratio of small enterprises on an average presented (1.10) positive value, while in the current year it depicted a slightly higher (1.49) value. Similarly, B:C ratio of commercial farms was also found in the similar range i.e. 1.12 and it was 1.14 in the current year.

Break-Even Analysis

Goat enterprise analysis for break-even calculation was done separately for comparative study in between small and commercial farms with the findings shown in Table 7.

Table 7: Break-even point analysis of goat enterprises

S N.	Enterprises	Break Even Point
1	Small	18.36%
2	Commercial	56%

As illustrated in the Table 7 for small goat entrepreneurs, the calculated BEP value is 18.36% while for commercial farms it is 56 %. This means that up to 18.36% percent sales of goats in the small farms' entrepreneurs will be at zero profit and up to 56% percent of sales, commercial or large farms will be at no profit no loss situation. The fixed investments and variable investments up to this point are all covered by the income. Any production or sales of the goats beyond these BEP points will be contributing towards profit of the respective enterprise.

Test Statistics

Combined double-mean test was applied and calculated values were compared with tabulated values at 5% level of significance. Two findings of the study which were statistically tested for the measuring their significance are:

a. H_o: There is no difference between per unit goat cost in small and commercial goat enterprises
H_1: There is significant difference between per unit goat cost of small and commercial enterprises

b. H_o: There is no difference between per unit goat income in small and commercial goat enterprises
H_1: There is significant difference between per unit goat income from small and commercial goat enterprises

Result of Test Statistics

a. At 0.05 level of significance, -1.960 > **-10.27** < 1.960
b. At 0.05 level of significance, -1.960 > **-2.33** < 1.960

Decision: Since calculated values of the test statistics are smaller than tabulated values at 5% level of significance, both the null hypothesis were accepted stating that there is no significant difference between per unit goat farming costs as well as per unit goat income in Kathmandu district under small and commercial goat farming enterprises.

Conclusion

The study has provided evidence on growing attraction of young generation towards commercial goat farming which

proves goat farming as a profitable enterprise with minimum investment and multiple advantages. The traditional goat farming is slowly getting transformed into a commercial but still the economic potentials of commercial enterprises seem unexplored. Nowadays entrepreneurs are more aware and are found adopting good farming practices such as vaccinations, nutritious feeding, shed managements, etc. but still there seems no significant difference between small and commercial entrepreneurs in terms of average farm income, average gross profit, gross profit margins and benefit cost ratios. Low break-even point of small farms has suggested early and more economic profits for small entrepreneurs. Small entrepreneurs were found competitive due to their advantage in shade and feed management under domestic conditions and low input costs while uncompetitive performance of commercial farms has reflected their inability to utilize full potential. Similar conclusions can be made comparing average per goat cost and income of both small and commercial goat enterprises. Thus, the insignificant differences between production costs and income earned among small and commercial goat enterprises in Kathmandu district has strongly highlighted the positive aspects of small goat enterprises and at the same time suggested inefficient utilization of resources and poor functioning of commercial goat enterprises in Katmandu district.

Conflict of Interest

The authors declare that there are no conflicts of interest regarding publication of this paper.

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