



RESEARCH ARTICLE

**ECONOMETRIC ANALYSIS OF FEMALE PARTICIPATION IN GOAT REARING AT
NAMAKKAL DISTRICT OF TAMIL NADU**

***John Christy, R.**

Senior Lecturer in Animal Husbandry, Faculty of Agriculture, Annamalai University,
Annamalai Nagar, Pin 608001

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ABSTRACT

A study was undertaken to econometrically analyse the association between the socio-economic characteristics of farm women and the extent of their participation in dairy cow keeping. The sample households consisted of 30 women respondents each from the categories of landless, marginal, small and large farmers in the Namakkal district of Tamil Nadu. The coefficient of multiple determination (R²) obtained for the model fitted was 0.949. The independent variables such as age of female head, community, average hired labour hours and number of small ruminants in animal units significantly influenced the average time spent by women on large ruminants keeping. The coefficient for age of women head indicated that every unit rise in this variable above the mean level would result in an increase of average time spent by females by 0.732 minutes per day per household. The coefficient for average hired labour hours utilised for small ruminants keeping indicated that every unit increase in these variable would decrease the time spent by women by 48.73 minutes. Significant and positive coefficient for the variable community indicated that lower caste women spent more time on large ruminants keeping. The significant negative coefficient for total large ruminants in animal units indicated that every unit increase in this variable would decrease the time spent by women by 5.11 minutes.

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INTRODUCTION

Farm women play a significant role in domestic and socio-economic life of the society (Borah, 1998) and therefore, national development is considered less feasible without developing this important and substantial segment of our society. Having been highly employed in livestock rearing activities (Birader, 1986 and Bhogal *et al.*, 1988), rural women were found to devote 90 per cent of their time on cattle care, making it more or less a female domain (Veena *et al.*, 1986). Caring animals is considered as an extension of domestic activities in Indian social system, and most of the animal husbandry activities like bringing fodder from field, chaffing the fodder, preparing feed for animals, offering water to animals, protection of animals from ticks and lice, cleaning of animals and sheds, preparation of dung cakes, milking, ghee-making and marketing of produce are performed by women (Bhople and Palki, 1998). A systematic valuation of time spent by females for household activities including animal care needs attention for policy intervention (Guleria and Agnihotri, 1985).

The contributions of rural women, though not less than that of men in terms of time and effort, are invisible because they are largely unpaid and home based. Their contributions are continued to be given lesser importance while formulating livestock / rural development programmes. Though the association between women and livestock production needs productive exploitation, especially while aiming at rural development through livestock development, lack of empirical evidence on the magnitude of the female participation and the extent and nature of their association in livestock farming operations, however, limit our efforts in exploiting this linkage. This study has been planned to fill this gap, arising out of the dearth of documented evidence on female participation in livestock farming. The specific objective of this study is to analyse the association between the socio-economic characteristics of farm women and the extent of their participation in livestock farming.

METHODOLOGY

Namakkal District of Tamil Nadu was randomly selected for the present study.

Multistage random sampling technique was used to select the respondents. The chosen district comprised 15 blocks of which, two blocks, viz., Mohanur and Paramathi were randomly selected. In the next stage, two villages from each selected block were chosen randomly. In total, 120 farmers were chosen again randomly from the selected four villages, 30 from each village, and it was ensured that the sample represented all the land holding class categories. The study was taken up during the months of April and May, 2019 and the data collected from the sample units related to the year 2008-2009. Relevant data were collected from the chosen respondents through personal interview using a pre-tested interview schedule. Cross checks were made to minimise the errors due to recall bias and also to ensure reliability of the information provided by the respondents. Linear regression model was fitted to assess the factors influencing the extent of women participation in livestock farming, one each for large ruminants and small ruminants. The form of the linear regression function fitted to assess the variables influencing average time spent by farm women in dairy cow keeping was as follows

$$T_1 = A + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \square$$

where,

T_1 = Average time spent by female members of the family in large ruminants keeping in minutes per day

X_1 = Dummy variable for type of family (Nuclear =0; and Joint =1)

X_2 = Age of women head

X_3 = Dummy variables for educational status of the female head (Illiterate =0; and Literate = 1)

X_4 = Number of economically dependent members in the family

X_5 = Number of economically active members in the family

X_6 = Score for community of the respondent (OC/BC=1; MBC/DNC=2; and SC/ST=3)

X_7 = Hired labour for animal husbandry in hours per day

X_8 = Total large ruminants in animal units

X_9 = Total small ruminants in animal units

A, β_i = Co-efficients to be estimated

\square = error term

RESULTS AND DISCUSSION

Regression Coefficients of the Linear Regression Model fitted (Dependent Variable: Average time spent by female per day per household in minutes for Goat Keeping). The coefficient of multiple determination (R^2) obtained for the model fitted was 0.949 indicating that 94.9 per cent of variations in the average time spent by females per household for goat keeping were explained by the chosen variables. 'F' value demonstrated the statistical significance of R^2 in the model fitted. It can be seen from the Table 1, that the variables such as age of female head, community, average hired labour hours and number of small ruminants in animal units significantly influenced the average time spent by women on large ruminants keeping. These findings were supported by the findings of Ghosh (1985), Sirohi (1985), Sisodia (1985), Susheela *et al.* (1991), Borah (1998) and Kishor *et al.* (1999). The coefficient for age of women head indicated that every unit rise in this variable above the mean level would result in an increase of average time spent by females by 0.732 minutes per day per household. The coefficient for average hired labour hours utilised for small ruminants keeping indicated that every unit increase in these variable would decrease the time spent by women by 48.73 minutes. Significant and positive coefficient for the variable community indicated that lower caste women spent more time on large ruminants keeping. This result is similar to the reported findings of Ghosh (1985), Sirohi (1985), Sisodia (1985). The significant negative coefficient for total large ruminants in animal units indicated that every unit increase in this variable would decrease the time spent by women by 5.11 minutes. The results of the study revealed that farm women are spending significant amount of time for goat rearing.

Policy suggestions

The results emanating from the study produce well-documented evidence that farm women have a close association with livestock farming in the state. These results tend to suggest a more active role for this segment of the rural society so as to achieve rural development through combining women and livestock development. In the light of these results the following policy suggestions are made to fully and productively exploit the women- livestock linkage.

Table 1.

Independent Variables	Regression Coefficient
Constant	-27.641 (15.138)
Type of Family	-0.785 (3.134)
Age of women head	0.732** (0.211)
Educational status of female head	-15.010 (5.643)
Total number of economically dependent members in the family	0.219 (0.744)
Total number of economically active members in the family	0.682 (1.980)
Community	14.921** (4.579)
Average hired labour hours per day	-48.783** (13.544)
Total large ruminants in animal units	-5.112* (1.862)
Total small ruminants in animal units	23.675** (1.518)
R^2	0.949
Adjusted R^2	0.944
F Statistics	172.563**
Sample Size	120

Figures in the parentheses indicates respective standard errors.

** Significant at 1 per cent level of probability.

* Significant at 5 per cent level of probability.

- Channels of information, credit, inputs and access to markets have to be aimed at women as they played a very important role in livestock keeping and decisions related to livestock productions.
- The existing extension setup working to promote livestock production in the rural areas has a typical social obstacle not being able to contact the farm women to extent transfer of technology. This difficulty poses problems for the extension wing to approach those who actually undertake and decide livestock production activities. This warrants positioning appropriate female front line extension officers to interact and offer first hand information to the farm women.
- Bringing the services available to rear the animals physically closer to women.
- In Spite of the fact that there is a close and more productive association between farm women and livestock, women participation in training programmes have not been satisfactory primarily due to the socio-economic impediments existing. Hence, efforts are the need of the hour to make appropriate measures to train the farm women in scientific management practices.
- Promoting intensive livestock rearing in rural areas may encourage female to participate more in livestock keeping as this practice did not require farm women to take animals for grazing far away from home.
- Encouraging the formation of rural women livestock farmer's co-operative society may increase female participation in livestock rearing.

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