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Determinants Influencing the Continuance and Discontinuance of Beneficiaries of Priceless Distribution of Goat Scheme in Tamil Nadu

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Abstract: ***Priceless distribution of the Goat scheme performances of beneficiaries in continuance and discontinuance of the scheme is explored and assessed by the linear discriminant function analysis. This analysis was adopted to identify the variables that are imperative in discriminating between continuance and discontinuance of rearing goats among the beneficiaries of the priceless goat scheme. This analysis is executed by including 21 independent variables such as age, caste, education, family size, primary occupation, secondary occupation, goat income, total income, flock size, time spent on goat rearing, experience, material possession, social participation, contact with extension agency, information seeking behavior, decision making behavior, economic motivation, risk orientation, self-reliance, scientific orientation and knowledge and dependent variables - continuance and discontinuance . The results of the step-wise selection revealed the flock size, time spent on goat rearing, experience, social participation, self- reliance and these were the importantsignificantly discriminating the continuance and discontinuance of rearing goats by the beneficiaries of the Priceless goat scheme.. The results of the classification of cases based on the score obtained by the discriminant function had shown that among discontinuance 95.8 % were predicted correctly by the model, while among the continuance 100% were identified correctly. In total 99.5 per cent of the original grouped cases were correctly classified by the model.***

Keywords: Discriminant analysis, Continuance, Discontinuance, Goat rearers, Beneficiaries

1. Introduction

Animal husbandry sector has a strong role in alleviating poverty and in providing food security in rural areas. Animal husbandry, after crop production, was the main source of livelihood for marginal and landless poor farmers (The HINDU, 2012). Goats form an important component of livestock and play a vital role in the socio-economic structure and of nutrition of landless, small and marginal farmers in the country (Deshpandey and Sabapara, 2010). Generally the operations related to livestock rearing and management is jointly carried out by all the family members the goats are specifically managed by spare family members i.e., women, old persons and even children due to its easy handling (Gurjar and Pathodiya, 2006).Goat rearing as a micro-enterprise has considerable potential for sustainable income generation among the rural women since the management of goats is less labour oriented and input intensive. Goat provides a dependable source of income to 40 per cent of the rural population below the poverty line in India and to many who do not possess any land. Considering the importance of small ruminants like goat and sheep towards development of rural livelihood and rural economy.The Government of Tamil Nadu had launched a "Scheme for Free Distribution of Goats / Sheep" for the poorest of poor in the rural areas in order to enhance their standard of living during the year 2011-12. The Scheme has been well appreciated for its success in converting an assetless individual into animal asset owning families having a sustainable livelihood opportunity. The scheme is being continued for the next five year period from 2016-17 to 2020-2021.

According to this scheme, 7,00,000 beneficiaries who were predominantly women in rural areas were distributed four goats / sheep each during 2011-16 so as to have a sustainable livelihood opportunity (Animal Husbandry, Dairying and Fisheries Department, Government of Tamil Nadu, 2016).Therefore, the present study was undertaken to find out performance of beneficiaries continuing the scheme for sustainable income generation.

2. Methodology

To achieve the objectives, an ex–post facto research design was used in the study. The respondents for the study was selected among the 2014-15 beneficiaries of Priceless Goat distribution scheme of Department of Animal Husbandry, Government of Tamil Nadu by applying simple random sampling method. The respondents were selected randomly from five districts namely Villupuram (Zone I), Salem (Zone II), Erode (Zone III), Thanjavur (Zone IV), and Tiruneveli (Zone V), representing five agro-climatic zones excluding the high rainfall (Zone VI), and hilly zones (Zone VII) of Tamil Nadu. Among the identified five agro-climatic zones, one district select from each of the five selected zones. In each district two blocks was selected and in each block two villages was identified from each of which 10 beneficiaries of the scheme was selected as respondents, thus making a total sample of 200 respondents.

The data pertaining the objectives of the study were collected using a well – structured, pre- tested interview schedule. The data was collected personally by the researcher through direct interview with the beneficiaries.

In this study the discriminant function analysis was used to determine which variables discriminate between continuance and discontinuance of rearing goats by the beneficiaries of the priceless goat scheme. In performing a discriminant analysis, we do not have to specify how to combine groups so as to form different discriminant functions. Determine some optimal combination of variables so that the function provides the most overall discrimination between groups. Computationally, perform a canonical correlation analysis that will determine the successive functions and canonical

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roots (the term root refers to the eigen values that are associated with the respective canonical function). The maximum number of functions will be equal to the number of groups minus one or the number of variables in the analysis, whichever is smaller. The result has given β (and standardized beta) coefficients for each variable in each discriminant (now also called canonical) function and they can be interpreted as; larger the standardized coefficient, the greater is the contribution of the respective variable to the discrimination between groups.

Discriminant function analysis is computationally very similar to MANOVA (Multivariate analysis of variance). It was assumed that the data (for the variables) represents a sample from a multivariate normal distribution. It is assumed that the variance/covariance matrices of variables are homogeneous across groups. Another assumption of discriminant function analysis is that the variables that are used to discriminate between groups are not completely redundant.

In discriminant function analysis, the magnitude of the discriminant co-efficient can be interpreted as indicators of relative importance of the variable and hence variables with large coefficients are thought to contribute more to overall discriminant function. However, the magnitude of the unstandardized coefficient is not a good index of relative importance, when the variables differ in the units of measurement. When the variables are standardized to a mean of '0' and a standard deviation of '1', the standardized variable ZX which will be equal to

$$ZX=\frac{X-X}{SD}$$

These standardized coefficients will be the good index of relative importance of variables in discriminating the group. Hence, in this study, the variables were standardized to adjust for the unequal means and standard deviation. The data for the selected variables were tabulated and the discriminant function analysis was run using, IBM SPSS 20.0 for, a computer package for the analysis in social sciences.

The linear discriminant function used for the study is of the following form.

$$Z= \sum_{i=1}^{21} bixi$$

where
Z = total discriminant score continuance and discontinuance of rearing goats by the beneficiaries of the priceless goat scheme
The linear discriminant function used for the study is of the following form.
$Z = b_1 X_1 + b_2 X_2 +\ldots\ldots\ldots.+ b_i X_i \quad (i = 1, 2, 3\ldots.21)$
X_I = socio economic demographic variables

3. Results and Discussion

Discriminant functions consider discriminating the continuance and discontinuance of rearing goats by the beneficiaries of the priceless goat scheme of eigen value 6.657*. (*indicate canonical discriminant functions were used in the analysis)

The results of the discriminant function analysis are depicted in Table 1, 2 and 3. The Table - 1 showed the test of discriminant function. The Wilks' Lambda value and the corresponding chi-square statistic are significant ($p<0.01$) at 1 per cent level

Table 1: Wilks' Lambda

Test of Function	Wilks' Lambda	Chi-square	Df	Sig.
1	.131**	393.887	5	.000

The results of the discriminant function analysis are given in Table 2, which showed the discriminant function co-efficient for the 21demographic variables of the beneficiary of the priceless goat scheme. On perusal of the table, it could be observed that among the 21 variables included in the study, five variables viz., flock size, time spent on goat rearing, experience, social participation, self- reliance were found to be significantly discriminating thecontinuance and discontinuance of rearing goats by the beneficiaries of the priceless goat scheme. The result finding that Sorathiya*et al.,* (2016) in his study ongoats were reared by the practice of 2 to 8 hour daily browsing which required 1 to 10 km daily travelling, whereas browsing duration and travelling was significantly ($p<0.01$) affected by the goats rearers.

Table 2: Co-efficients of Discriminant Functions- Results of Discriminant Function Analysis

Demographic Variables	Discriminant Functions
age (x_1)	-.055
cas (x_2)	-.007
edu (x_3)	-.029
fsize (x_4)	.012
pri_occu (x_5)	-.068
sec_occu (x_6)	-.073
goatinc (x_7)	-.102
total_inc (x_8)	.052
flksize (x_9)	.378*
timespen (x_{10})	.582*
exd (x_{11})	.734*
matpos (x_{12})	.187
socpar (x_{13})	.051*
conext (x_{14})	.176
infosee (x_{15})	.260
decmak (x_{16})	.031
ecomot (x_{17})	.065
riskorien (x_{18})	.122
selfrel (x_{19})	-.053*
sciorien (x_{20})	.071
knowlge (x_{21})	.065

Classification of Results

To know the effectiveness of discriminant function, it is necessary to check the percentage of cases classified correctly by this function. The individual score of the continuous was find out. Based on the results of the discriminant function analysis and the discriminant score for each respondent, the beneficiaries of the schemewere post-stratified into beneficiaries continuing or discontinuing goat rearing. The classification results are given in table 3. From Table 3, it could be inferred that 99.5% of original grouped cases correctly classified by this discriminant function model.

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Table 3: Classification Results

Con/ discontinue of beneficiary			Predicted the goat rearing of beneficiaries		Total
			Discontinue	continue	
Original	Count	discontinue	23	1	24
		Continue	0	176	176
	%	discontinue	95.8	4.2	100.0
		Continue	0.0	100.0	100.0
a. 99.5% of original grouped cases correctly classified.					

4. Conclusion

The results showed that the socio – economic variable were associated with continuing or discounting of goat rearing under priceless distribution of goat scheme. It is observed that five variables viz., flock size, time spent on goat rearing, experience, social participation, self- reliance were found to be significantly discriminating the continuance and discontinuance of rearing goats by the beneficiaries of the Priceless goat. Henceforth these scheme implemented by the Government of Tamilnadu in alleviating poverty among the landless, women headed family beneficiaries aided them in improving the economic level, predominantly beneficiaries use the profit by selling the goat for their children education, marriage and to buy and meet the nutritional needs, therefore the scheme become bread winner for the women beneficiaries of the family. It is evident 700000 beneficiaries was provided 24 lakhs goat the kids born under scheme * showed overwhelming majority of beneficiaries were continuing the scheme. The study observed majority of the beneficiaries them in continuance of rearing of goat and the scheme was a successful model.

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