

Research Article

STUDY TO DEVELOP AN APPROPRIATE MODEL FOR IMPROVING THE COMMUNICATION BEHAVIOUR OF FARMERS

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Abstract: Models perform an organizing function in explaining the relationship of one part to another and in giving us an idea of the whole system. He also says that a model performs an explanatory function by pointing out in a somewhat simplified fashion how a system operates. Models can be best used for explanatory purposes only when we are alive to their limitations, as they are by no means a simulacrum of reality, but only a simplified image of it. It was found that the output (communication behaviour) increases with increase in the input (independent variable) but with the decreasing ratio. With the increase in independent variable communication behaviour (dependent variable) also increases but ultimately a saturation point reaches after that the communication behaviour of the farmers did not increase.

Keywords: Communication Behavior, Model, Variable

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Introduction

Models are symbolic representations of structures, objects or operations. A model may also be useful in explicating the working of a system.

In order to determine an appropriate model for the communication behaviour of farmers, firstly the linear function was fitted and the value of R^2 was found to be 0.6564 which was not very high. Then, a number of models were tried and the Cobb-Douglas model was considered as the best fit. The value of R^2 in this case was very high (0.9835). The Cobb-Douglas function is defined as:

 $Y = aX_1^{b1}X_2^{b2}....X_n^{bn}$

Where, 'Y' is the dependent variable, 'a' is the intercept constant, X_i 's are the independent variables and b's are the regression coefficients.

Material and Methods

The study was conducted in Kathua district of Jammu and Kashmir which was selected purposively. Out of 19 C.D Blocks only 4 C.D. Blocks namely Marheen, Hiranagar, Kathua and Barnoti were selected randomly. A sample of 20 percent Gram Panchayats from each selected block was selected randomly. A sample of 20 percent farmers was selected randomly from the selected villages. The Cobb-Douglas equation has been worked out in the following way between the dependent variable (communication behaviour) and independent variables X1, X2, X3, X4, X5, X6 and X7 (size of land holding, interpersonal interaction, innovation proneness, value orientation, achievement motivation, socio-economic status and education respectively) [1-14].

Results and Discussion

Communication behaviour model is expressed as:

 $Y = 11.20 X_{1}^{0.0748*} X_{2}^{0.0330*} X_{3}^{0.0134*} X_{4}^{0.0608*} X_{5}^{0.0212**} X_{6}^{0.3059^{**}} X_{7}^{0.2906^{**}}$

Table-1 Communication behaviour and its determinants-multiple regression analysis			
Item No	Variables	b	t-value
1	Size of land holding (X ₁)	0.0748	2.2697*
2	Interpersonal interaction (X ₂)	0.0330	2.0972*
3	Innovation proneness (X ₃)	0.0134	2.2734*
4	Value orientation (X ₄)	0.0608	1.9827*
5	Achievement motivation (X ₅)	0.0121	3.5720**
6	Socio-economic status (X ₆)	0.3059	2.8723**
7	Education (X7)	0.2906	2.8647**

R² = 0.9835; a =11.20, *Significant at 5% level of significance, ** Significant at 1% level of significance.

A close study of the data in [Table-1] indicates that all the eight independent variables taken together explained to the extent of 98.35 percent variation in the communication behaviour of farmers towards farm education programmes of T.V. It is clear that annual income, achievement motivation, socio-economic status and education were found to be positively significant at 1 percent level of significance while size of land holding, interpersonal interaction, innovation proneness and value orientation were found to be positively significant at 5 percent level of significance. It means that these variables were important in predicting the communication behaviour of the farmers towards farm education programmes of television.

The significant coefficient of size of land holding with positive sign indicates that 1 percent increase in the size of land holding would bring about an increase in the communication behaviour of the farmers towards farm education programmes of television by 0.0748 percent by keeping other factors constant at their geometric mean level. Significant coefficient of interpersonal interaction would bring about an increase in the communication behaviour of the farmers towards farm education programmes of television by 0.0330 percent by keeping other factors constant at their geometric mean level. The significant coefficient of innovation proneness with positive sign indicates that 1 percent increase in innovation proneness would bring about an increase in the communication behavior of the farmers towards farm education programmes of television by 0.0134 percent by keeping other factors constant at their geometric mean level.

International Journal of Agriculture Sciences ISSN: 0975-3710&E-ISSN: 0975-9107, Volume 12, Issue 3, 2020 The significant coefficient of value orientation with positive sign indicates that 1 percent increase in value orientation would bring about an increase in the communication behaviour of the farmers towards farm education programmes of television by 0.0608 percent by keeping other variables constant at their geometric mean level. The significant coefficient of achievement motivation with positive sign indicates that 1 percent increase in achievement motivation would bring about an increase in the communication behaviour of the farmers towards farm education programmes of television by 0.0121 percent by keeping other factors constant at their geometric mean level. The significant coefficient of socio-economic status with positive sign indicates that 1 percent increase in socio-economic status would bring about an increase in the communication behaviour of the farmers towards farm education programmes of television by 0.3059 percent by keeping other factors constant at their geometric mean level. Similarly, the significant coefficient of education with positive sign indicates that 1 percent increase in education would bring about an increase in the communication behavior of the farmers towards farm education programmes of television by 0.2906 percent by keeping other factors constant at their geometric mean level. Also, it is clear from the table that summation of ($\sum bi = 0.8979$) which is less than one it means that it is decreasing returns to scale indicating that the rate of change in dependent variable would be less than the rate of change in independent variables. It signifies that increase in input by 1 percent, would increase in output (communication behaviour) by less than 1 percent.





Further from [Fig-1], it is revealed that with the increase in size of land holding, the communication behavior of the farmers towards farm education programmes of television also increased but with the decreasing ratio. With the increase in size of land holding, communication behaviour also increased but ultimately a saturation point reached after that the communication behaviour of the farmers did not increase.



Fig-3 Exponential Model of Communication Behaviour-3

From [Fig-2], it can be revealed that with the increase in interpersonal interaction, the communication behavior of the farmers towards farm education programmes of television increased with the decreasing ratio. With the increase in interpersonal interaction, ultimately a saturation point reached after that the communication behaviour of the farmers did not increase with the increase in interpersonal interaction.

From [Fig-3], it is revealed that with the increase in innovation proneness, the communication behavior of the farmers towards farm education programmes of television increased with the decreasing ratio. Ultimately a saturation point reached after that the communication behavior of the farmers did not increase.



Fig-4 Exponential Model of Communication Behaviour-4

From [Fig-4], it is revealed that the increase in value orientation, the communication behaviour of the farmers towards farm education programmes of television also increased but with the decreasing ration. With the increase in value orientation, lastly a saturation point reached after that the communication behaviour of the farmers did not increase.



Fig-5 Exponential Model of Communication Behaviour-5 From [Fig-5], it can be expressed that with the increase in achievement motivation, the communication behaviour of the farmers towards farm education programmes of television increased with decreasing ratio. Ultimately a saturation point reached with the increase in achievement motivation, after that communication behaviour of the farmers towards farm education programmes of television did not increase.





From [Fig-6], it is revealed that with the increase in socio-economic status, communication behavior of the farmers towards farm education programmes of television also increased with the decreasing ratio. Here, in this case the decreasing rate is so slow that it is not visible in this model. Ultimately a saturation point reached with the increase in socio-economic status, after that the communication behaviour of the farmers toward farm education programmes of television did not increase.

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Fig-7 Exponential Model of Communication Behaviour-7

From [Fig-7], it is depicted that with the increase in education, communication behaviour of the farmers towards farm education programmes of television also increased with the decreasing ratio. Here also the decreasing rate is so slow that it is not visible in this model. With the increase in education, communication behaviour of the farmers, ultimately reached to a saturation point after that the communication behaviour of the farmers did not increase.

Conclusion

It is concluded that value of R² found in case of linear function was lesser than that in the exponential function. So, exponential model (Cobb-Douglas Model) was considered as the best fit. In exponential model, with the increase in inputs (independent variables), output (communication behaviour) increases with the decreasing ratio. Ultimately a saturation point reaches after that the output communication behaviour of the farmers does not increase.

Application of research: In this model all the regression coefficients were found to be significant whereas, in the linear regression model some of them were non-significant. It shows that all the independent variables were contributing significantly towards communication behaviour in case of Cobb-Douglas model.

Research Category: Agriculture Extension

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Cultivar / Variety / Breed name: Nil

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