CHARACTERISTICS OF OPINION LEADERS AND NON LEADERS IN DIFFERENTIALLY DEVELOPED VILLAGES OF BANGLADESH.

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ABSTRACT

This study examines the factors differentiating opinion leaders from non-leaders in a relatively progressive and less progressive village employing discriminant analysis technique. Data for this study were gathered using pre-tested personal interview schedule from 109 and 108 respondents respectively in the progressive and less progressive villages of Muktagacha Union in Mymensingh district of Bangladesh. Characteristics differentiating opinion leaders from non-leaders varied from relative progressiveness of the villages in Bangladesh. In the progressive village both noneconomic and economic set of variables were equally efficient in differentating opinion leaders from non-leaders. To the contrary, non-economic set of variables is more able to discriminate opinion leaders from non-leaders than the economic set. Determining such characteristics differentiating opinion leaders from non-leaders would help extension workers to work with them rather than working with the individuals not largely accepted in the group.

I. INTRODUCTION

The opinion of individuals with greater degree of informal influence is valued within their informal group. Individuals with such unequal degree of informal influence in the group are called opinion leaders. Ban and Hawkins *(1996)* defined opinion leader as "a person who has a relatively large influence on the opinion of others in a group to which he or she belongs." This type of leadership has been in practice since the first formation of human groups. Major characteristics of such leadership are : they are based on informal groups, such a position is earned and maintained by some degree of technical competence, individual's social accessibility and compliance with the social system's norms (Emery and Oeser, *1958;* Wilkening et al., *1962;* Ban, *1970;* Wateren, *1987;* Ban and Hawkins, *1996);* although they influence unwittingly but they are not completely anonymous in the community (Hossain, *1988).*

In the farming communities, such leadership is of paramount importance at the time of adoption and diffusion of farm practices. Because useful information is disseminated widely by mass media which only creates awareness. However, interpersonal channels particularly informal one in which opinion leaders operate are predominantly important in innovation-decision process. *Inter alia,* it is more casual and has the full opportunity for the receiver to

ask questions to decrease his/her uncertainty about the effect of new behaviour. Further, in developing countries where there is lack of adequate official support system opinion leaders there act as the only credible source of information and also influence the use of it by explaining the merit of the innovation to the user farmers. This has been a potential advantage to extension in reaching a large number of farmers and improving farming efficiency, if much of the information could be diffused by opinion leaders and nucleus group in the community (King and Bembridge, 1988). Therefore, by relating information to them, extension workers could succeed in relating information to a large proportion of the farming population (Bembridge, 1986). Chen and Duvel (1992) also observed the potential positive role of tribal leaders in the agricultural development of Swaziland. But as a cautionary approach, it is necessary not to concentrate exclusively on opinion leaders to an extent where it could cause jealousy and consequently produce a decline in the influence of the leader.

In addition, increasing inclination towards group extension process among government and non-government organizations in Bangladesh (Hossain, 1994) and elsewhere, such leadership roles cannot be ignored (Crouch, 1984; Hossain, 1992).

Extension workers at first should differentiate between opinion leaders and non-leaders in the farming community and also should work with them. Otherwise, failure to differentiate opinion leaders from non-leaders in composite characteristics of the farmers and further failure to work with opinion leaders may result in concentrating on the most vocal, visible and/or innovative progressive farmers which in turn could increase inequality (Rooling et al., 1981) and hostility (Fathi, 1965). Moreover, a formal leadership position does not necessarily qualify an entrepreneur as a credible source of farm advice (Koch, 1988).

This paper aims at the differentiation between opinion leaders and non-leaders in their non-economic and economic set of characteristics in a relatively progressive and less progressive village of Bangladesh. Apart from the introduction in section I above, methodological issues followed are discussed in Section II. Section III examines the results of the study accompanied by discussion. Finally, conclusions are drawn in Section IV of the paper.

II. METHODOLOGY

The field data collection for this study was conducted during 1989 in Muktagacha Thana (sub-district) of Mymensingh district, Bangladesh. The Unions (similar to precinct), surveyed in this study, from the same Thana, represent two areas in different stages of the development. They were selected randomly from two groups of Unions - relatively progressive and less progressive. These Unions had similar physical, agro-climatic, socio-cultural, demographic and religious make up and topographical characteristics. Also, identical programmes of technological change were introduced in the selected Unions almost at the same time. The relative progressiveness of the villages was determined using several criteria : proximity to the main road transport system; markets; towns; extension centres; closeness to the facilities such

as education, health care, services; judgements by the experts; differences in the rate of technological adoption and other qualitative and quantitative criteria (Hossain, 1992). At a later stage two villages were selected for this study. One village was chosen from the progressive Union purposely because of the factors considered above for relative progressiveness. Another village was selected randomly out of 28 villages of the less progressive Union which was far away from those modern facilities.

Sociometric technique was employed to identify opinion leaders. Five farm practices, namely, cultivation of the HYVs of rice, vegetable cultivation, use of insecticides, treatment of sick cattle and milking cows were the areas where sociometric information was sought. Each respondent was asked to nominate only one person as a preferred informal consultant on each of the five farming areas. At least two incoming choices were considered to be indicative of an opinion leader. Following this process of identification the total sample of 109 and 108 farmers was interviewed respectively in the progressive and less progressive villages containing 38 and 47 opinion leaders.

Sixteen non-economic and 11 economic independent variables were included in the study to explain the situations of the farmers (Appendix). Unidimensionality of the indexed independent variables were ascertained by using factor analysis following the extraction of the first factor pattern from unrotated factor matrix (Tabachnick and Fidell, 1989). For those indexed variables Cronbach's alpha reliability[1] procedure was employed using the internal consistency method for assessing reliability (Carmines and Zeller, 1979).

In the case of a predicitive study having nominal rather than continuous characteristics or variables, discriminant function analysis provides a satisfactory statistical technique. Particularly, discriminant analysis has been used to study the differences between two or more groups of objects with respect to several variables simultaneously (Klecka, 1980). Also this technique fits more closely with the social science analysis requirements that behaviour does not occur in isolation rather a group of characteristics as its determining factor. Following the predictive nature of the analysis for the variables involved and dichotomous grouping lends itself to use standardised discriminant function analysis method to differentiate between opinion leaders and non-leaders in two types of the villages of the present study.

The Model

The discussion of the model is based on procedures described in Kendall (1975), Eisenbeis and Avery (1972), Huck *et al.* (1974) and Klecka (1980).

Consider that there is a body of data composed of N (number of) observations on m (number of) variables denoted by X_1 which can be represented as X_{it} where, i = 1, 2, ... m and t = 1, 2, ... N.

Also assume that these observations be classified into two groups for t = 1, 2, ... N_1 and and t = N_1 + 1, ... N_1 + N_2 = N. Now, the group means are defined as

$$q_i^1 = \sum_{t=1}^{N_1} (X_{it}/N_1); \; q_i^2 = \sum_{t=N_1+1}^{N} (X_{it}/N_2) \; (i = 1, 2 \ldots m) \qquad (1)$$

The difference of the means can be written as

$$d_i = q_i^2 - q_i^2 \; (i = 1, 2, \ldots . m)$$

The objective is to find the linear function of the differences of the means which best discriminates the two samples.

$$Z = \sum_{i=1}^{m} K_i d_i \qquad (2)$$

Where Z = total discriminant score :

K_i = coefficients of the linear discriminant function

Maximizing Z^2 relative to its variance yields solutions for K_i's which are proportional to the estimates of that linear function which discriminates best between the two groups mentioned above. Using appropriate test statistics (Chi-square, Mahalanobis D^2, Hotelling's R^2 or Wilk's Lambda) one can test the hypothesis that the estimated discriminant function may have arisen just by chance, if in reality there is no difference between the variates in the two groups in the population.

Now suppose $X_1, X_2, \ldots X_m$ are the variables which are used to discriminate between leaders and non-leaders. The linear discriminant function is then defined as

$$Y = K_1X_1 + K_2X_2 + \ldots . + K_mX_m \; (cf \; Z = \sum K_i d_i) \qquad (3)$$

In this function the variable with the highest K is more important than other characteristics in distinguishing between leaders and non-leaders. Similarly, the one with the lowest K is the least important of the characteristics which discriminates one group from the other.

III. ANALYSIS OF RESULTS

Discriminant analysis as a predictive study reports which set of variables (non-economic or economic) discriminates better between opinion leaders and non-leaders. A linear (standardised) discriminant function has been estimated using these two groups of the variables : non-economic and economic.

Based on *a priori* ground all 16 non-economic and 11 economic variables were nominated for analysis. However, only the 'best' linear discriminant function has been reported respectively for the progressive and less progressive villages in Tables 1 and 2.

Progressive Village

Considering the non-economic factors for the respondents in the progressive village Table 1 shows that personal education and achievement motivation have the highest power to

discriminate between opinion leaders and non-leaders. This is followed by family education. It is clearly observed from Table 1 that the squared canonical correlation associated with this discriminant function is 0.32, indicating 32.0 per cent of the variation between opinion leaders and non-leaders. The classification result indicates a considerable overlap between the two groups. That is, 36.8 per cent of the opinion leaders were predicted to be in the non-leader group, while 15.5 per cent of the non-leaders were predicted to be in the opinion leader category.

Table 1. Discriminant Analysis Results for Opinion Leaders and Non-Leaders in the Progressive Village

Standardised Discriminant function			
Non-economic factors		**Economic factors**	
- 0.48	(Constant)	+ 0.06	(Constant)
+ 0.18	Age	+ 2.17	Own farm area
- 1.22	Personal education	+ 1.48	Total farm area
+ 0.92	Family education	+ 0.66	Absolute subsistence pressure
- 0.32	family size	- 0.81	Relative subsistence pressure
- 0.73	Conservation concern	- 0.70	Agricultural worker
+ 0.68	Political knowledge	- 0.26	Tenancy
+ 0.22	Consmopoliteness	- 0.76	Availability of labour
- 0.03	Fatalism	- 1.59	Herd size
- 1.21	Achievement motivation	- 0.35	Area irrigated
+ 0.06	Managerial skill	- 0.75	Percentage area irrigated
- 0.16	Local interaction	- 0.21	Level of living
+ 0.75	Innovation proneness		
+ 0.60	Exposure to modern farming information		
+ 0.24	Contact with extension worker		
Wilks' Lambda	0.68	0.67	
F-ratio	3.12**	4.38**	
df	14,94	11,97	
Squared canonical correlation	0.32	0.33	
Eigenvalue	0.46	0.50	
Correct classification			
Opinion leaders (%)	63.2	68.4	
Non-leaders (%)	84.5	81.7	

"**" indicates significant at 0.01 probability level

In case of economic set, all the 11 variables contributed significantly to the function at P < 0.0001 level (Table 1). This implies that a significant difference exists between opinion leaders and non-leaders in the progressive village. However, own farm area has the highest

discriminant ability followed by herd size and total farm area (Table 1). In relation to this economic set of variables the classification results show that only 68.4 per cent opinion leaders and 81.7 per cent non-leaders are correctly classified. Squared canonical correlation value indicates that 33.0 per cent of the variations between opinion leaders and non-leaders in the progressive village is accounted for by this function (Table 1).

According to Table 1, the results of the discriminant analysis show that for the respondents in the progressive village both non-economic and economic factors contribute almost equally in explaining the variation between opinion leaders and non-leaders. Both non-economic and economic sets of variables are better able to classify non-leaders (84.5 per cent vs. 81.7 per cent) than opinion leaders (63.2 per cent vs. 68.4 per cent). However, there is an overall overlap in the classification between opinion leaders and non-leaders in both the villages. Eigenvalue for the economic variables discriminant function is higher (0.50) than the function of non-economic variables (0.46) (Table 1). But in a comparative situation the difference is not big (economic set is 1.09 times bigger than non-economic set).

Less Progressive Village

Out of 16 selected non-economic variables 13 contributed significantly (P < 0.0001) in discriminating between opinion leaders and non-leaders in the less progressive village (Table 2). The standardised discriminant function indicates that innovation proneness has the highest discriminatory power followed by fatalism, achievement motivation and family education (Table 2). The squared canonical correlation indicates that 46.0 per cent of the variation between opinion leaders and non-leaders in the less progressive village is explained by the non-economic set discriminant function. Classification results show that 76.6 per cent of the opinion leaders and 88.5 per cent of the non-leaders in the less progressive village are correctly classified (Table 2).

Taking the economic set standardised discriminant function into consideration Table 2 demonstrates that relative subsistence pressure has the highest power to discriminate between opinion leaders and non-leaders in the less progressive village. This is followed by own farm area, total farm area and availability of labour.

Relatively large value of Wilks' Lambda (0.80) shows that the variables have little discriminant power. The classification results corresponding to the discriminant function show that about one-fourth (23.4 per cent) of the opinion leaders are predicted to be in the non-leader category, while two-fifth (40.0 per cent) of the non-leaders are predicted to be in the opinion leader category (Table 2). This indicates a substantial overlap between the two groups implying that opinion leadership is not strongly related to the economic factors for the respondents in the less progressive village.

In case of the less progressive village an overall comparison of non-economic and economic data discriminant function show that : (1) non-economic set is more able to

discriminate opinion leaders from non-leaders than the economic set; (2) in relation to the degree of effectiveness, the non-economic variables are 3.54 times (comparison of eigenvalues) higher than the economic variable discriminant function; (3) the classification results indicate certain degree of overlap between opinion leaders and non-leaders. However, non-economic variables are able to identify better the non-leaders (88.5 per cent vs. 60.7 per cent).

Table 2. Discriminant Analysis Results for Opinion Leaders and Non-leaders in the Less Progressive Village

Standardised discriminant function			
Non-economic factors		**Economic factors**	
+ 0.07	(Constant)	- 0.28	(Constant)
+ 0.28	Age	- 1.07	Own farm area
- 0.25	Personal education	+ 0.93	Total farm area
- 0.98	Family education	+ 0.09	Absolute subsistence pressure
- 0.13	family size	- 1.37	Relative subsistence pressure
- 0.63	Conservation concern	- 0.39	Agricultural worker
- 0.71	Political knowledge	+ 0.07	Tenancy
+ 0.43	Cosmopoliteness	+ 0.93	Availability of labour
- 1.18	Fatalism	+ 0.26	Herd size
- 1.15	Achievement motivation	+ 0.61	Area irrigated
- 0.74	Managerial skill	+ 0.24	Percentage area irrigated
- 0.33	Local interaction	- 0.18	Level of living
+ 1.97	Innovation proneness		
- 0.16	Exposure to modern farming information		
Wilks' Lambda	0.54	0.80	
F-ratio	6.11**	2.12*	
df	13,94	11.96	
Squared canonical correlation	0.46	0.20	
Eigenvalue	0.85	0.24	
Correct classification			
Opinion leaders (%)	76.6	76.6	
Non-leaders (%)	88.5	60.7	

"*" indicates significant at 0.05 probability levels

"**" indicates significant at 0.01 probability levels

IV. CONCLUSIONS

Characteristics differentiating opinion leaders from non-leaders are not similar with regard to the relative progressiveness of the villages studied. The results of discriminant analysis showed that for the progressive village both non-economic and economic set of variables were equally efficient in differentiating opinion leaders from non-leaders. But for the less progressive village non-economic set of variables was 3.54 times more efficient than economic set in discriminating opinion leaders from non-leaders. Neither of the individual

factors of the non-economic set of variables possessing highest discriminatory power differentiating opinion leaders from non-leaders was alike in both the villages. However, considering the economic set of variables farm sizes had relatively higher power to discriminate between opinion leaders and non-leaders in both the villages.

Agricultural development works by the extension workers will be made much efficient if worked with opinion leaders. This requires careful selection of opinion leaders in the farming community. Extension workers need to take into cognigance that depending on the level of village development characteristics differentiating opinion leaders and non-leaders vary. Although the results presented here are country area specific, they are suggestive for policy implications in other countries.

Footnote :

1. Cronbach's (1951) alpha (α) reliability procedure was employed using the following equation (Carmines and Zeller 1979, p. 40) to measure the level of reliability of the indices constructed.

$$\alpha = N\rho/[1+\rho(N-1)]$$

where,   N = number of items

ρ = mean inter-item correlation

In measuring the internal consistency, inter-item and item-total correlation procedure were utilized to examine the possibility of further improvement of the indices. Jackson's (1988) remark of items showing item-total correlation of less than 0.25 shall be excluded from the index, was strictly followed throughout.

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APPENDIX

Variables and Their Measurement

The selected independent variables included in this study have been defined below.

Age of a respondent was measured in years from the time of his/her birth to the time of interview. Education was measured by the highest year of schooling completed by the head of the family (male members in all cases). Similarly, education of the dependent members was measured by the number of years of schooling attained up to the time of the survey. Family education was calculated by giving an arbitrary score on the basis of the level of education attained by the family members. The scores assigned are as follows : Above secondary = 1.00; above primary and up to secondary = 0.50; primary = 0.25 (Asaduzzaman, 1979). The aggregate of these scores is the education score of the family.

Family size of a respondent was defined as the number of dependent individuals in his family including his wife, children and other dependent members.

Conservation concern is a measure of knowledge of maintenance of selected non-renewable resources in classical agriculure. A two-point Likert scale for four statements was used to construct the index. A score of 1 for 'yes' and 0 for 'no' were used to the statements complying positively to the index and the scoring pattern was reversed for statements negative to the index. The scale scored Cronbach's alpha reliability of 0.56.

Political knowledge is a measure of a respondent's degree of awareness of political events at the local and national levels. The index had Cronbach's alpha reliability of 0.83.

Respondent's cosmopoliteness was measured by adding up the number of times he reported having visited the daily market place, weekly market places, sub-district and district towns. The possible scores of frequency of visits were 2, 1, and 0 for 'frequent', 'occasional' and 'never' respectively. Cronbach's alpha reliability for the index of cosmopoliteness was 0.81.

Fatalism is defined as a belief that human situation and acts are predetermined by some supernatural power and could never or seldom be influenced by individual volition or by the act of any person (Niehoff and Anderson, 1965). A three-point Likert scale for nine statements was constructed to measure the fatalism of respondents. The extent of fatalistic attitude was ascertained by responding either 'agree', 'no opinion', or 'disagree' with a possible score of 2,1 and 0 respectively for statements positive towards fatalism and it was reversed otherwise. The scale of fatalism had Cronbach's alpha reliability of 0.82.

Achievement motivation has been defined as the degree to excel regardless of social rewards (McClelland, 1961). The variable was operationalized by including three-items and using the three-point Likert scale similar to fatalism above. Cronbach's alpha reliability for this scale was 0.71.

Managerial skills of a respondent was a measure of his skilful role as a farmer in combining roles of manager or executive, planner, and economist. Ten statements were incorporated in this index. Possible scores were 1 for 'yes' and 0 for 'no'. Cronbach's alpha reliability test for the scale of managerial skill gave a score of 0.74.

Local interaction or localiteness is defined as the degree to which the individuals are oriented within, rather than external to, their social system. This was measured by asking the respondents how often, in the recent weeks prior to the survey, they had contacted friends, relatives, neighbours and other farmers seeking information relating to their agricultural activities. The frequency of contacts were 'frequently', 'occasionally', and 'never'. The weighting scores were respectively 2, 1, and 0. For this index a test of Cronbach's alpha reliability produced a score of 0.73.

Innovation proneness aimed to measure the degree to which farmers value innovations as a means of attaining an economic goal. A two-point Likert scale was constructed and six statements were incorporated to develop the index. The items complying positively towards innovation proneness was acore 1 for 'yes' and 0 for 'no'. The scoring pattern was reversed for negative statements. Innovation proneness scale had a Cronbach's alpha reliability test score of 0.79.

Exposure to modern farming information was a measure of farmers' ideas about some of the significant components of farming at the time of the survey. The index consisted of five statements and a two-point Likert scale was constructed to score the response pattern. Its Cronbach's alpha reliability score was 0.66.

Personal contact with the agricultural extension personnel is defined as the respondent's face-to-face encounter and discussion with the sub-district agricultural extension officers and Block Supervisor. A score of 1 was used for 'yes' and 0 for 'no'.

Own farm area indicated the amount of cultivable land area owned by the respondent while total or operated farm area referred to the total land under cultivation of a respondent irrespective of its ownership. This variable was computed by adding up the land area owned by a farmer after leasing out and/or leasing from other and/or the area cultivated on share basis.

Tenancy has been defined as operated land as a percentage of own land.

Absolute subsistence pressure is measured in terms of number of consuming units of male adult equivalents. Adults are defined as persons of ten years and over. Female adults and children have been converted into male adult equivalents using conversion factors of 0.90 and 0.50 respectively (Asaduzzaman, 1979). Relative subsistence pressure is defined as the ratio of absolute subsistence pressure to own farm area.

Agricultural worker was measured by the number of adult male family members available for agricultural work excluding full-time students.

Agricultural worker was measured by the number of adult male family members available for agricultural work excluding full-time students.

Availability of labour has been defined as the ratio of agricultural workers to size of own farm area.

Herd size was defined as the number of cattle heads (e.g., cow, ox, bull and calf) owned by a farmer.

Area irrigated indicated the amount of irrigated land, including rented land, used for the cultivation of the high yielding varieties of rice. Percentage area irrigated implies irrigated land as a percentage of operated land.

Economic level of living of a respondent was measured by the possession of household items and condition of housing. The Cronbach's alpha reliability test for this index was 0.96.