

Development and Standardization of Scale to Measure Farmer's Attitude towards Farmers' Producer Company

Anirban Mukherjee^{1*}, Premlata Singh², Satyapriya³ Shantanu Rakshit⁴ and Rajarshi Roy Burman⁵

ABSTRACT

Attitude plays a crucial role in influencing one's behaviour with respect to a particular psychological object. To measure the attitude of farmers towards newly formed Farmers' Producer Company (FPC), need was realized to use a scale. But due to the non-availability of a proper scale for measuring the attitude of farmers towards Producer Company, a Likert's Summated Rating scale was constructed by following the methodology suggested by Likert (1932) and Edward (1957). Attitude towards FPC was categorized in two specific dimensions (i) Performance, role and potential of FPC, and (ii) the organizational climate of FPC. A total 68 statements were constructed and was sent to 154 judges through email, google docs form and handed over personally. Based on the 61 judges response 34 statements were screened out for item analysis. The scale was administered to 64 farmers of Haryana, Bihar and West Bengal. The split half method was followed for testing reliability of the scale and reliability co-efficient was 0.65. The validity of the scale was examined with the help of face and content validity. The scale developed finally consists of 28 statements out of that 19 statements are positive and 9 statements are negative. The scale is reliable and can produce consistent results.

Keywords: Attitude, behaviour, farmers organization, likert's summated rating scale; reliability, validity and standardized scale

INTRODUCTION

The Farmers' Producer Company (FPC) has emerged as a new generation farmer's organization in India. It was introduced in 2002 by introducing a new part IX A in to the Companies Act 1956 under the chairmanship of economist Y. K. Alagh (Alagh, 2007, NRRA, 2009). Since then Indian farmers got a new option to organize for agribusiness. Since the year 2004, 973 Farmers Producer Companies has been registered till July, 2017. It has flourished in almost all sectors in agriculture *viz.* crop, dairy, poultry, horticulture, fishery and many more. There is a rising concern that the farmers organizations can act as a

potential driving force for agricultural and rural development. Farmers' organizations are working as 'engines' of development that can uphold the pennon of development even ahead of local level, offering benefits to the rest of society (Blokland, 2007). Therefore it had become a paramount importance to study the attitude of farmers towards the Farmers Producer Company, as attitude forms an essential component for better participation and success of any innovative organizational setup. Attitudes are acquired through experience and exert a directive influence on subsequent behavior and moreover, help individuals to interpret new information and to make decisions

¹Ph.D. Scholar, Division of Agricultural Extension, ICAR-IARI ²Head, Division of Agricultural Extension, ICAR-IARI; ³Principal Scientist, Division of Agricultural Extension; ⁴Ph.D. Scholar, Division of Agricultural Extension, ICAR-IARI; ⁵Principal Scientist, Division of Agricultural Extension, ICAR-Indian Agricultural Research Institute, New Delhi-110012

more efficiently than would otherwise be the case (Baron and Byrne, 1991). Hence, in order to study the attitude of farmers towards Farmers' Producer Company, a scale has been developed.

METHODOLOGY

The attitude in the present study as defined by *Thurstone (1946)* is "The degree of positive or negative effect associated with some psychological object". By psychological object we mean the feeling about Farmers' Producer Company, which people could differ with respect to positive or negative effect. Among the techniques available for construction of attitude scale, the Likert's technique of summated rating scale is quite well known. The scale was developed on the basis of Likert's technique of summated rating scale. The Likert's technique was used for constructing the attitude scale to measure the attitude of farmers towards Farmers' Producer Company. The details of the steps followed in the construction of *Likerts (1932)* type scale for measuring the attitude of beneficiary farmers towards Farmers' Producer Company have been discussed as below:

2.1 Item collection: The construct attitude towards the Farmers' Producer Company is assumed to be governed by the person's attitude towards specific dimensions (i) Performance, role and potential of FPC, and (ii) the organizational climate of FPC. The Organizational climate was operationalized as the degree to the situation in an organization is conducive and encouraging for work and how much the members feel comfortable, respected, supported, and united as team. As the first step in developing attitude scale, a large number of statements related to performance, role, potential and organizational climate of FPC were gathered from literature, books, bulletins, articles, journals and by holding discussions with the scientists as well as with the office bearers of NGOs having personal experience in forming and supporting FPCs. A tentative list of the items was drafted keeping in view the applicability or item suited to the area of the study.

2.2. Editing the statements: These statements were edited as per the 14 criteria enunciated by Edwards

(1969), Thurstone and Chave (1929) and Edward and Kilpatrick (1948) as a consequence out of 92 statements 24 statements were eliminated. The remaining 68 statements were included in the Performa. These statements were framed in such a way that they could express the positive or negative attitude.

2.3. Experts response to raw statements: The proforma containing these statements on five point continuum ranging from "highly relevant" (HR) to "highly irrelevant" (HI) were mailed by email, *Google docs form* and also handed over personally to the judges. These judges were experts of the concerned subject of the universities, institutes and extension education experts and officials of NGOs working in this area. They were requested to add or delete any statement which they deemed fit for the conclusion or deletion. They were also asked to check the statements for being favourable or unfavorable attitude towards FPC. The judges were requested to examine each statement and place them on five point continuum indicating the degree of strength of these statements from strongly agree to strongly disagree. Out of 154 judges only 61 experts had returned the same set of statements after duly recording their judgments and were considered for the analysis. After analysis the statements were rewritten again in light of the criticism and comments of the experts. In this way, finally a total of 35 statements were retained. Efforts were made to select more or less equal number of positive and negative statements and than these statements were administered for the selected farmers under study and their responses were worked out.

2.4. Selection of items: The response of judges was tabulated and analyzed to work out "Relevancy percentage", Relevancy weightage" and "mean relevancy score" for all the statements.

2.4.1. Relevancy percentage (RP): It was worked out by summing up the scores of "very relevant" and "relevant" categories which was converted into percentage.

$$RP = \frac{\text{Frequency score of most relevant and relevant}}{\text{Number of Judges}} \times 100$$

The calculated value of RP was found in the range of 24.59 (minimum) to 98.36 (maximum) percentages.

2.4.2. Relevancy weightage (RW): It is the rate of actual score obtained to the maximum possible obtainable score by each respondent.

$$RW = \frac{\text{Actual scores obtained for the statement}}{\text{Maximum possible scores obtainable for the statement}}$$

The calculated value of RW was found in the range of 0.59 (minimum) to 0.94 (Maximum) percentages.

2.4.3. Mean relevancy Score: It was obtained by the standard formula.

$$MRS = \frac{\text{Actual scores obtained for the statement}}{\text{Number of Judges responded}}$$

The calculated value of MRS was found in the range of 2.97 minimum to 4.70 maximum.

2.5. Final inclusion of statements: The variable with their relevancy percentage, relevancy weightage and mean relevancy scores were tabulated in the table from this the statements having relevancy percentage of more than 60.66, relevancy weight age of more than 0.78 and mean relevancy score of more than 3.90 was considered for the final selection of statements. By this process 34 statements were selected in the first stage (Table 1).

2.6. Item analysis: A questionnaire was prepared consisting of 34 statements and responses were collected from 64 farmers of Haryana, Bihar and West Bengal by personal interview. These farmers were selected based on the criteria that either he / she is a members of FPC or having good orientation with FPC. The farmers were asked to indicate their degree of agreement on a five point continuum namely strongly

Table 1. Selection of statements based on judges (n=61): Relevancy Percentage (RP), Relevancy Weightage (RW) score and Most Relevancy Score (MRS)

Statements	RP	RW	MRS
Organized efforts through FPCs result in reducing the cost of production of my farm*	62.30	0.76	3.80
I think FPCs act as a potential driving force for synchronizing agriculture and rural development*	81.97	0.82	4.10
In my opinion FPCs influence better collective action through capacity building*	96.72	0.92	4.62
FPC provides financial management support to us by linking with financial institutions/banks*	86.89	0.81	4.07
Advantage of joining FPCs is that they conduct awareness programmes on health, environment and social issues etc.*	83.61	0.86	4.31
FPC is not able to make inputs available in right quantity on time*	80.33	0.83	4.16
Through successful value chain management FPCs have increased the marketing efficiency	49.18	0.73	3.67
I think Efficiency is hall mark of FPCs*	65.57	0.80	3.98
The rules and regulation of FPCs are complicated to me*	81.97	0.82	4.08
I think the FPCs are free from external political influence *	85.25	0.83	4.13
The quality of my farm produce has been decreased after joining FPCs*	72.13	0.78	3.90
Joining FPCs helped me to overcome production and operational risks*	70.49	0.81	4.03
I think FPCs perform with greater professionalism and flexibility in business activities than other FBOs*	70.49	0.76	3.80
I am not getting opportunities to deploy latest agricultural technologies after joining FPC*	65.57	0.73	3.66
The FPCs are paying good attention towards skill development of members	57.38	0.71	3.57
Conflicts are straightforwardly resolved in FPCs*	60.66	0.78	3.90
Leadership strongly influences performance of FPCs*	86.89	0.90	4.52
It is matter of shame to be member of FPCs*	68.85	0.71	3.57
All members enjoys equal powers and privileges in FPCs*	85.25	0.93	4.64
There is participatory decision making in FPCs*	85.25	0.82	4.11
There is discrimination among the members in FPCs*	78.69	0.81	4.03
FPCs ensure the unique elements of cooperative business with a regulatory framework similar to private companies*	78.69	0.82	4.11
Discussing agricultural problems and company's affairs with members is simply waste of time*	77.05	0.81	4.07
In case of difficulties no help is extended by fellow members of FPCs*	98.36	0.94	4.70
FPCs can never serve all members equally*	73.77	0.80	4.02

FPCs supply input efficiently and facilitate for united production activities through doorstep delivery of inputs	55.74	0.79	3.97
The FPCs are better than other FBO's for internal monitoring support	57.38	0.79	3.93
Farmers feel more empowered after joining FPC*	80.33	0.84	4.20
Joining FPC is worst decision of farmers*	75.41	0.82	4.08
Organizing trainings, extension outreach, study tours, and research linkage etc. helps in increasing production efficiency in FPC*	70.49	0.78	3.90
Strategic alliance with other organizations are encouraged in FPCs*	81.97	0.87	4.36
A good features of FPCs is that they imparts business skills to the member farmers	24.59	0.63	3.13
Benefit of joining FPCs is that they impart management skills to the member farmers	45.90	0.72	3.62
I feel processing and value addition, packaging, branding, certification, product promotion and retail chain management are key focus areas of FPCs	50.82	0.73	3.67
FPCs are working like a good business organization*	63.93	0.80	3.98
Unlike other organizations the FPCs have strong marketing orientation*	62.30	0.73	3.66
Collecting market information and analysis is an inbuilt unique function of FPCs	49.18	0.67	3.36
The FPCs have helped in achieving the equitable access to product markets for poor farmers*	63.93	0.81	4.07
FPCs have capacity to take into account group and community interests	39.34	0.66	3.28
The inputs that are provided by FPC are of good quality	31.15	0.65	3.26
At competitive rates inputs are provided by FPCs	42.62	0.64	3.20
The FPCs do processing and value addition to Agril. Produce	47.54	0.71	3.54
FPCs also provide employment opportunities	50.82	0.68	3.39
It is always good to keep cordial relationships with other members of FPC*	62.30	0.73	3.67
FPCs have potential to enhance export of agricultural commodities	36.07	0.59	2.97
The direct feedback received from the consumers help FPCs to improve the quality of produce	50.82	0.74	3.70
FPCs are good at exposing members to Good Agricultural Practices	47.54	0.67	3.34
It is advantageous to become a member in Farmers' Producer Company	36.07	0.68	3.41
FPCs are successful in promoting member interests*	67.21	0.75	3.75
The registration process of FPCs is not so easy	44.26	0.68	3.41
Through the FPCs our negotiation power has increased	50.82	0.71	3.54
FPC can never be successful in real time	49.18	0.72	3.62
Successful FPCs can lead to development of rural community	45.90	0.64	3.20
Working in FPCs help to reduce the marketing risks	50.82	0.70	3.49
The FPCs provide effective coordination which is chiefly essential for pro-poor market linkages	59.02	0.68	3.38
As far as producers share in consumers rupee is concerned FPCs have better advantages than other organizations*	62.30	0.79	3.95
FPCs as organizations provide an appropriate framework for owning the company by the producers themselves	45.90	0.65	3.26
FPCs safe guard members by promoting crop and livestock and health insurance of stake holders	42.62	0.71	3.54
Farmers are getting better margins from Marketing by FPCs	52.46	0.69	3.43
Farmers are getting timely payment from Marketing by FPCs	55.74	0.71	3.57
There is cooperation and collaboration in FPCs	59.02	0.77	3.87
All members opinions are heard in FPCs	55.74	0.70	3.51
Mutual help and cooperation amongst members of FPCs is matter of pride*	62.30	0.76	3.82
FPCs have given confidence to do agri-business professionally	39.34	0.68	3.38
Employment opportunity have increased after joining FPC	32.79	0.62	3.11
The board members of FPCs are running it well	31.15	0.62	3.10
The administrative staffs are supporting in FPC	57.38	0.70	3.48
FPC have enhanced our livelihood security	36.07	0.64	3.20

*Statements selected for item analysis

agree, agree, undecided, disagree and strongly disagree with scores of 5, 4, 3, 2 & 1 for each positive statement and 1, 2, 3, 4 and 5 for each negative statement respectively. The attitude score of a respondent was

obtained by summing the score of all items, thus total score obtained by each respondent was calculated. The respondents were arranged in the descending order. For the purpose of item analysis 25 per cent of the respondents

with highest total score and 25 percent of respondents with lowest total score were selected. The t test was conducted for each statement using the responses of these two groups by using the following formula.

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{\sum (X_H - \bar{X}_H)^2 + \sum (X_L - \bar{X}_L)^2}{n(n-1)}}$$

t = t value of particular statement

\bar{X}_H = The mean score on given statement of the high group

\bar{X}_L = The mean score on given statement of the low group

n = Number of respondents in each group

Σ = Summation

The calculated t value was found to be distributed between 0.69 to 9.76. Later the statements with t value of 3.10 and above were considered for final inclusion these 28 statements quantified in the final scale (Table 2).

2.7. Standardization of the scale: The developed scale was further standardized by establishing its reliability and validity.

2.7.1. Reliability: Reliability is the ability of a test

Table 2: The statements of item analysis by farmers of non-sample area

Statement	t	r
Organized efforts through FPCs result in reducing the cost of production of my farm	2.07 ^{NS}	0.226
I think FPCs act as a potential driving force for synchronizing agriculture and rural development. †	9.76**	.827**
In my opinion FPCs influence better collective action through capacity building. †	7.20**	.668**
FPC provides financial management support to us by linking with financial institutions/banks. †	7.35**	.488**
Advantage of joining FPCs is that they conduct awareness programmes on health, environment and social issues etc.†	4.75**	.531**
FPC is not able to make inputs available in right quantity on time. † (-ve)	3.91**	.525**
I think Efficiency is hall mark of FPCs.†	8.39**	.622**
The rules and regulation of FPCs are complicated to me. † (-ve)	5.75**	.589**
I think the FPCs are free from external political influence†	6.74**	.619**
The quality of my farm produce has been decreased after joining FPCs	2.59 ^{NS}	.335**
Joining FPCs helped me to overcome production and operational risks. †	4.73**	.464**
I think FPCs perform with greater professionalism and flexibility in business activities than other FBOs†	3.10*	.430**
I am not getting opportunities to deploy latest agricultural technologies after joining FPC. † (-ve)	5.51**	.423**
Conflicts are straightforwardly resolved in FPCs. †	6.32**	.548**
Leadership strongly influences performance of FPCs. †	5.51**	.509**
It is matter of shame to be member of FPCs. † (-ve)	6.65**	.579**
All members enjoys equal powers and privileges in FPCs. †	9.19**	.686**
There is participatory decision making in FPCs. †	7.92**	.689**
There is discrimination among the members in FPCs. † (-ve)	5.06**	.551**
FPCs ensure the unique elements of cooperative business with a regulatory framework similar to private companies	1.78 ^{NS}	.276*
Discussing agricultural problems and company's affairs with members is simply waste of time. † (-ve)	5.17**	.531**
In case of difficulties no help is extended by fellow members of FPCs. † (-ve)	8.74**	.701**
FPCs can never serve all members equally. † (-ve)	5.65**	.545**
Farmers feel more empowered after joining FPC. †	5.09**	.397**
Joining FPC is worst decision of farmers. † (-ve)	3.97**	.543**
Organizing trainings, extension outreach, study tours, and research linkage etc. helps in increasing production efficiency in FPC	0.69 ^{NS}	0.192
Strategic alliance with other organizations are encouraged in FPCs. †	9.27**	.660**
FPCs are working like a good business organization. †	4.72**	.534**

(n=64)

Unlike other organizations the FPCs have strong marketing orientation. †	7.64**	.683**
The FPCs have helped in achieving the equitable access to product markets for poor farmers. †	5.92**	.530**
It is always good to keep cordial relationships with other members of FPC. †	8.33**	.611**
FPCs are successful in promoting member interests. †	4.39**	.458**
As far as producers share in consumers rupee is concerned FPCs have better advantages than other organizations	2.13 ^{NS}	0.235
Mutual help and cooperation amongst members of FPCs is matter of pride	1.57 ^{NS}	0.145

† indicate statement selected for final scale; (-ve) indicate negative statement; * & ** indicates significant at 5% and 1% respectively; NS: Non Significant

instrument to generate consistent results from one set of measures to another. A good instrument should evoke responses that are valid and yield nearly same results if administered twice to the same respondents (Goode and Hatt, 1952). According to Kerlinger (1964) reliability is the accuracy or precision of a measuring instrument. The split half method was used for assessing internal consistency of the scale developed. The scales were split into two halves on the basis of random numbers and the sets of statements were administered to 64 selected numbers of respondents. Thus, two sets of scores were obtained. The half test reliability coefficient was calculated by using Cronbach's Alpha in SPSS 20. The Alpha value of set 1 was found 0.902 and set 2 was 0.857 where as the correlation between these two was 0.656. The reliability coefficient thus obtained indicated high internal consistency of attitude scale constructed for the study. The result was further confirmed by using the Guttman Split-Half Coefficient which was also found as 0.790 (Table 3).

2.7.2. *Validity:* Content validity is the

representativeness or sampling adequacy of the content-substance, the matter and the topics of a measuring instrument. All the edited statements were given to 61 judges for their expert guidance in developing the scale. The suggestions of the experts were incorporated in the scale. Hence the present scale satisfied the content validity. The validity of the statements were also confirmed by Pearson's correlation (r) calculated with the total score (Table 2). Finally, 28 items were selected to determine attitude of farmers towards FPC and arranged in such a way that positive and negative statements appear randomly to avoid biased responses.

2.8. *Scoring technique:* The selected 28 statements for the final format of attitude scale are randomly arranged to avoid response biases, which might contribute to low reliability and direction from validity of the scale. Against each of 28 statements there were five columns representing a five point continuum of agreement or disagreement to the statements as followed by Likert (1932). The points on continuum were strongly agree, agree, undecided, disagree and

Table 3: Reliability test (Split Half)

Cronbach's Alpha	Set 1	Value	.902
		N of Items	14 ^a
	Set 2	Value	.857
		N of Items	14 ^b
	Total N of Items		28
Correlation Between Sets			.656
Spearman-Brown Coefficient	Equal Length		.792
	Unequal Length		.792
Guttman Split-Half Coefficient			.790

^a The items are: statement_2, statement_3, statement_4, statement_5, statement_6, statement_9, statement_10, statement_17, statement_19, statement_20, statement_21 statement_24, statement_28, statement_31.

^b The items are: statement_8, statement_12, statement_13, statement_14, statement_16, statement_18, statement_23, statement_25, statement_29, statement_35, statement_36, statement_38, statement_44, statement_49.

strongly disagree with weight of 5, 4, 3, 2, and 1 respectively for favourable (positive) statement and with weight of 1, 2, 3, 4, and 5 respectively for unfavourable (negative) statement.

For the purpose of this study attitudes were categorized into five categories: Strongly Negative, Moderately Negative, Neutral, Moderately Positive, and Strongly Positive. These categories were assigned by dividing the possible range of each participant's score by five (table 4). A range of 113 was identified with the lowest score of 28 (rating 1 on each of 28 items) and highest possible score of 140 (rating 5 on each of 28 items).

Table 4: Category of attitude based on the total score obtained

Category	Range
Strongly Negative	28-49
Moderately Negative	50-72
Neutral	73-94
Moderately Positive	95-117
Strongly Positive	118-140

CONCLUSION

Farmers' Producer Company is emerging in a very big way in India. The preference of farmers to be a member largely depends on their attitude towards the FPCs. This scale has been devised to help the researcher, policy makers and promoting organizations to work out farmer's attitude of a particular area towards FPC. The scale will help them in baseline surveys to make policy decision regarding initiation of FPC in that area or behavioural change awareness programme. Farmers with negative and neutral attitude towards FPC can be targeted for awareness building and training to develop favourable attitude towards FPC. Further, the scale can be used to measure farmer's attitude beyond the study area with suitable modifications.

Paper received on : May 12, 2018

Accepted on : May 27, 2018

REFERENCES

Alagh K Y. (2007) On Producer Companies. PRADHAN'S Workshop on Producer Companies.

Baron, R. A. and Byrne, D. (1991) Social psychology, understanding human interaction. Prentice-Hall of India Pvt. Ltd., New Delhi.

Blokland K and Gouët C. (2007) Farmers' Peer-to-Peer Support Path to Economic Development. In: Ton, G., Bijman, J. and Oorthuizen, J. (Eds), Producer Organizations and Market Chains. Facilitating Trajectories of Change in Developing Countries. Wageningen: Wageningen Academic Publishers, pp. 71-88.

Edward, A.L. (1957) *Techniques of Attitude Scale Construction*. Vakils, Feffer and Simons Inc, New York.

Edwards, A.L. and Kilpatrick, F.P. (1948) A technique for construction of Attitude Scale. *Journal of Applied Psychology*. 32 : 374-384.

Goode, W. J. and Hatt, P. K., (1952) *Methods in Social Research*, McGraw Hill, New York.

Kerlinger, F. N., (1964), *Foundations of Behavioural Research*, Holt Rinehart and Winston Inc., New York, p. 379.

Likert, R.A., (1932) A technique for the measurement of attitude. *Archives of Psychology*, 22 (140): 1-55.

Lindquist, H. F., (1966) *Educational Measurement*. American Council of Education, Washington, D. C., p.672.

NRAA. (2009) Perspectives and Problems of Primary Producer Companies-Case Study of Indian Organic Farmers Producer Company Ltd, Kochi, Kerala; National Rainfed Area Authority (NRAA), New Delhi, India. P 18.

Thurstone, L. L. (1946) The measurement of attitude. *American J. of Socio.*, Chicago Univ. Press, 39-50.

Thurstone, L.L. and Chave, E.J. (1929) *The Measurement of Attitude*. Chicago University Press, USA. pp 39-40.