



RESEARCH ARTICLE

Farmers Attitude Towards Private Agricultural Extension Services (PAES): A Guttman Scalogram Analysis

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ABSTRACT

Farmers need accurate and timely information to increase crop production and productivity. However, market price fluctuations and extension approach changes inspired the farmers to opt for private agricultural extension systems. The decision to adopt or reject an innovation depends on the farmer's attitude toward the innovation. Thus, the present study was undertaken to assess the unidimensional nature of scale through the scalogram technique (Good enough technique) and to administer the scale in analyzing the farmer's attitude towards PAES. Based on the review of literature and discussion with experts, 7 favorable statements were selected to assess the farmer's attitude towards PAES. To check the coefficient of reproducibility of the developed scale, it was administered with 15 subjects and found to be 0.83, indicating the scale's reliability. Simultaneously, the developed scale was employed to assess the attitude of farmers towards PAES and found that more than half of the farmers (53.33%) had a favorable attitude. Most of the farmers suggested that continuous monitoring and regulation of PAES should be done to ensure proper functioning.

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INTRODUCTION

Agricultural extension is a service-oriented system to deliver agro-advisory services, technical knowledge and impart skills according to the needs of the beneficiaries. The evolution of agricultural extension services in India can be dated back to 1964 through National Demonstration. From its origin to till date, agricultural extension caters to the needs and informs the people about current developments. Thus, agricultural extension plays a crucial role in boosting agricultural productivity, enhancing food security, improving rural poor's livelihood and promoting agriculture as an engine of economic and social growth.

Despite of pandemic situation or whatever happens, the world keeps running, and we have to feed the growing population. In order to increase the production and productivity of agricultural and horticultural crops in our country, we should provide timely information to the farmers. Whereas State Government to serve the farmers' need, they provide public extension advisory

services at free of cost. But farmers felt that lack of proper information in a timely manner, inadequate research-extension linkage, unavailability of plant protection chemicals, low morale, and lack of involvement of extension personnel are the major constraints they experienced. Meanwhile, over the years, the development of technology has resulted in changes in extension approaches. Thus, to overcome the constraints experienced in public extension system, privatization of agricultural extension services can act as a supplementary or alternative extension service.

Saravanan and Gowda (1999) operationalized PAES as 'services rendered in the area of agriculture and allied aspects by extension personnel working in private agencies or an organization for which farmers are expected to pay a fee'. Thrustone (1946) operationalized that attitude is the degree of favorableness or unfavorableness that affects the association with some psychological object. Whereas the attitude will differ from person to person depending on the psychological object, which may be an idea, institution or an activity.

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Adoption or rejection of innovation primarily depends on the individual's attitude. Thus, it becomes inevitable to study the attitude of farmers towards PAES.

Sharma *et al.*, (2020) assessed the paddy farmers attitude contract farming in Jammu region of J&K state and reported that among 100 contract farmers and 100 non-contract farmers; 55 per cent had favorable attitudes towards contract farming. It is because contract farming provides better access to modern inputs, improve and encourage quality production among small farmers. Further, they reported that, educational status of the farmers, agriculture and their subsidiary occupation and irrigated land of the farmers had significant influence over the farmer's attitude.

Statement of the problem

It's a well-known fact that, the attitude of the farmers towards a technology influences them to adopt or reject the technology. Meanwhile, present day farmers has to tackle numerous challenges besides pests and disease problems and lack of quality irrigation water, such as obtaining a remunerative price for their produce, consequences of climate change, competition with large farmers, and increased pest and disease resistance. In addition to this, they have the responsibility to feed the growing Indian population and to ensure food and nutritional security, all these factors encourage them to adopt PAES. Though, farmers were in need of PAES, adoption of PAES depends on the attitude of the farmers. Hence, this study was formulated to assess the attitude of farmers towards PAES.

Justification of the study

Though the Guttman scaling technique is old, it was employed in the study because of its unidimensional nature. Guttman scaling technique not only portrays the opinion or the attitude of the farmers, it also portrays the intensity or how strong a farmer believes in his opinion. Since, the Guttman scaling provides the strength of farmer's attitude towards PAES with greater accuracy, it was utilized in this study.

Research questions

1. What is the farmer's attitude towards PAES?
2. Why farmers have favorable attitude towards PAES?

Hypothesis

Based on the previous literature and background of the context, the following assumption has been formulated,

H₀₁: Farmer's prefer PAES as it provides cost-effective services

H₀₂: Farmer's prefer PAES as they provide location specific and crop specific information

H₀₃: More than half of the farmers had favorable attitude towards PAES.

MATERIAL AND METHODS

Scalogram analysis also known as Guttman scaling, is a technique to measure the unidimensional nature of the scale (i.e.) whether the scale measures the same thing?. This technique was developed by sociologist Louis Guttman in 1944. Scalogram being an unidimensional scale, the statements for scalogram technique were selected as favorable statements to predict the total score. Meanwhile, scalogram technique intends to reproduce the same results at different times with same sample (reliability) and don't measure the intent or purpose of the scale (validity). Thus, scalogram technique can be administered only to test the unidimensional nature of the scale and not to construct or develop an attitude scale. In scalogram, the method suggested by Good Enough was adopted since it enables to determine the coefficient of reproducibility.

Selection of statements

Based on the review of literature and discussion with experts, 10 statements were developed. The developed statements were revised and restructured based on the fourteen criteria put forward by Edwards (1969). Finally, seven favorable attitude statements were selected to check the scale's unidimensionality. The selected attitude statements for administering the scale is presented in table.1.

Scoring of responses

Since scalogram technique is unidimensional, the respondents' responses can be either yes or no with scores 1 and 0, respectively. The attitude for each individual on the scale was computed by summing up the total scores.

Computing the errors

The responses of the respondents were arranged in descending order based on individual attitude scores obtained by them. Cutting points were drawn

based on the shifting response to compute the errors in the statements and find the coefficient of reproducibility. Thus, the responses which deviates from the predicted response pattern and falls outside the column are counted as errors.

Co-efficient of reproducibility

To assess the reproducibility of the scale, the scale was subjected to analyze the co-efficient of reproducibility among the non-farmers.

The coefficient of reproducibility can be calculated from the following formula:

Formula.1. Co-efficient of reproducibility

$$\text{Coefficient of reproducibility} = 1 - \frac{\sum e}{n * c}$$

Where, n = number of respondents

C = number of statements

$\sum e$ = Summation of error

It was found that, the scale had $\sum e = 18$ and the coefficient of reproducibility with 7 statements and 15 subjects is 0.83. Hence, the scale can be administered to study the attitude of farmers towards PAES.

Table. 1. Selected attitude statements for the study

S. No.	Statements
1	PAES render services based on seasonal needs
2	PAES provide appropriate advisory services in timely manner
3	PAES provide solution to all technical problems of farmers pertaining to agriculture and allied activities
4	PAES ensures maximum profit to farmers
5	PAES enhances overall efficiency of agricultural production system
6	PAES motivate the farmers to utilize the loan or credit for intended purpose
7	PAES is cost effective

Administering the scale

The seven attitude statements prepared to study the attitude of farmers were employed to learn the attitude of farmers towards PAES in Namakkal District.

Being in a pandemic, 30 progressive farmers with better extension agency contact, mass media exposure and cosmopolite in nature were asked to opine their responses towards PAES through telephone interview during August 2021. The overall attitude of the farmers towards PAES was obtained by categorizing attitude into three categories based on the mean and standard deviation of the total scores obtained by the farmers as least favorable, favorable, and most favorable.

RESULTS AND DISCUSSION

The final seven statements were revised according to Edwards (1969) fourteen criteria and frame the attitude scale. Thus, the attitude scale tested for unidimensionality is employed to assess the attitude of farmers towards the privatization of agricultural extension. The responses of the farmers regarding PAES was collected, categorized and presented as shown in table.2 and in figure.1.

Table. 2. Farmers responses towards PAES

S. No.	Statements	Response			
		Yes		No	
		f	%	f	%
1	PAES render services based on seasonal needs	28	93.33	2	6.67
2	PAES provide appropriate advisory services in timely manner	16	53.33	14	46.67
3	PAES provide solution to all technical problems of farmers pertaining to agriculture and allied activities	22	73.33	8	26.67
4	PAES ensures maximum profit to farmers	12	40.00	18	60.00
5	PAES enhances overall efficiency of agricultural production system	20	66.67	10	33.33
6	PAES motivate the farmers to utilize the loan or credit for intended purpose	18	60.00	12	40.00
7	PAES is cost effective	26	86.67	4	13.33

From table.2, it can be seen that 93.33 per cent of respondents had a favorable attitude and 6.67 per cent of respondents had an unfavorable attitude towards the statement "PAES render services based on seasonal needs". Similarly, 53.33 per cent and 46.67 per cent of respondents had favorable and unfavorable attitude towards the statement "PAES

provide appropriate advisory services in timely manner". Nearly three-fourth (73.33%) of the respondents had favorable attitude and 26.67 per cent had unfavorable attitude regarding "PAES provide solution to all technical problems of farmers pertaining to agriculture and allied activities".

Simultaneously, more than half of the respondents (60%) had expressed unfavourable attitude over the statement "PAES ensures maximum profit to farmers" and only 40 per cent of farmers agreed to the statement. Whereas, 66.67 percent and 33.33 percent of respondents had favorable and unfavorable attitude regarding "PAES enhances overall efficiency of agricultural production system". Similarly, 60 per cent and 40 per cent of respondents possess positive and negative attitude regarding "PAES motivates the farmers to utilize the loan or credit for intended purpose". Finally, a higher percentage of respondents (86.67%) had a favorable attitude on the factor that "PAES is cost-effective", whereas only a few (13.33%) deny that. Meanwhile, the overall attitude of the farmers towards PAES is indicated in figure.2.

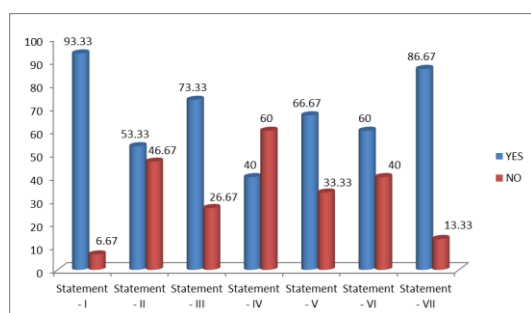


Figure.1. Farmers responses towards PAES

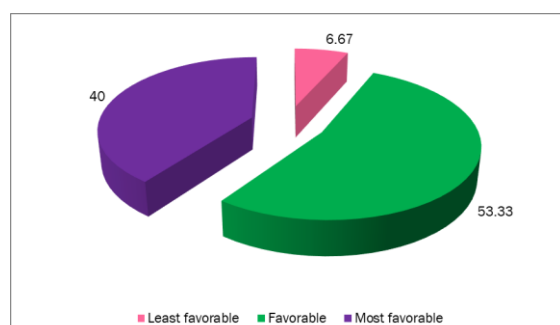


Figure.2. Overall attitude level of farmers towards PAES

It can be interpreted from figure.2, that more than half of the farmers (53.33%) had a favorable attitude towards PAES, followed by 40 per cent, and 6.67 percent of respondents had the most favorable and least favorable attitude towards PAES. Similar results were reported by Pandya (2004), Mahaliyanaarachchi et al. (2006) Jasvinder et al., (2013), and Sharma et al., (2020).

Though the selected progressive farmers had good extension agency contact, mass media exposure and cosmopolite in nature; pandemic situation made them depressed. As they were small and marginal farmers, they couldn't sell their produce and lost their revenue. While during an interview they quoted that, farmers who had a contract with agencies were provided with insurance amount. After transport relaxation, they were able to sell their produce both under contract and in local markets. This incident influenced the neighbouring farmers towards PAES.

Most farmers preferred PAES because of timely advisory services, increased quality of service, increased responsibility, inefficient public extension workers, fluctuation in market price, increased profitability, and increased overall effectiveness and accurate information. They also suggested that for effective functioning of PAES, ensuring proper and accurate information dissemination in a timely manner, providing services at reasonable and affordable prices to farmers, continuous monitoring and regulation of the activities of PAES is essential to ensure public interest and conglomeration of public and private agricultural extension service (PPP).

Based on the findings, it can be understood that more than half of farmers had a favorable attitude towards PAES as it provides services based on seasonal needs and cost-effective services which are financially viable and economical for small farmers. Thus, it provides the answer to the research questions and accepts the null hypothesis of H_{01} , H_{02} and H_{03} .

Conclusion

Eventually, the scale in the last shape consists of 7 statements with the coefficient of reproducibility 0.83 which was highly significant to administer the scale. While employing the scale to 30 farmers, it can be inferred that most farmers had favorable attitudes towards PAES. Fluctuation in market price and inefficient extension worker being the major constraints, forced the farmers to go for private extension in order to improve overall effectiveness.



They also suggested monitoring and regulating PAES activities to ensure proper functioning. Thus, it can be concluded that, though public extension advisory system has certain limitations; it has advantages also. Hence, amalgamation of public and private extension advisory system through PPP (Public Private Partnership) can satisfy the farmers' needs and act as a strategy for their social and economic empowerment.

Application of research

The attitude scale developed and tested through scalogram technique serves as a tool to measure the attitude of farmers towards private agricultural extension services. Eventually, the behaviour of farmers towards private agricultural extension services can be learnt and planned accordingly.

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Ethics statement

No specific permits were required for the described field studies because no human or animal subjects were involved in this research.

Originality and plagiarism

All the authors of this paper assure that we have written and submitted an entirely original work. We assure that we have appropriately cited the work of others.

Consent for publication

The authors of the article, "Farmers Attitude Towards Private Agricultural Extension Services (PAES): A Guttman Scalogram Analysis" consent to publish the content of the article in Behavior research Methods in open access. Therefore, anyone can read material published in the Journal.

Competing interests

There was no conflict of interest in the publication of this content

Data availability

All the data of this manuscript are included in the MS. No separate external data source is required. If anything is required from the MS, certainly, this will be extended by communicating with the corresponding author through angelinmadhumitha@gmail.com.

Author's contribution

Sree Madhumitha¹ involved in designing the study, data collection, data analysis, interpretation and drafting the article. Karthikeyan and Nirmala Devi were involved in critical revision and final approval of the article version for publication.

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