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Development of a scale to measure the attitude of the farmers towards Geographical Indications in agriculture

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Abstract
Attitude plays a crucial role in influencing one's behaviour with respect to a particular psychological object. Likert's Summated Rating scale was constructed to measure the attitude of farmers towards Geographical Indications (GI) in agriculture by following the standard methodology. For this, 89 items were constructed and sent to 50 experts through email and Google Docs form and handed over personally by visiting the experts. Based on the responses of 30 experts, 55 items were screened out for item analysis. The scale was administered to 30 farmers. The odd-even method was followed for testing the reliability of the scale, and the reliability coefficient was 0.731. The scale's validity was examined with the help of face and content validity. The scale developed finally consisted of 34 items.

Keywords: Development, scale, measure, attitude

Introduction

The prime economic function of GI protection is to maintain the goodwill and reputation of the product in the market and thus expand access to the market for better revenues. However, this is influenced by personal, socio-economic and policy related factors. These factors are likely to influence the attitude of stakeholders towards the existing systems of intellectual property rights of indigenous products. Stakeholders' attitude towards GI is crucial in achieving the objectives of instituting various mechanisms for ensuring the intellectual property rights of farmers. Understanding the attitude of the farming community would help us initiate corrective measures to make the systems more efficient and effective. In the current age of market competition, it is important that we investigate the patterns of attitudinal shifts of stakeholders towards the concept of farmers rights on intellectually protected indigenous products. Allport (1935) [1] defined attitude as a mental and neural state of readiness organized through experience, exerting a directive or dynamic influence upon the individual's response to all related objects and situations. The general attitude of the farmers towards GI was measured using an attitude scale developed for the purpose.

Methodology

Locale of study and sampling plan

For the construction of attitude scale, thirty non-sample respondents from were taken. Later, for calculating reliability of the developed attitude scale, thirty fresh non-sample respondents were taken. Further, the developed attitude scale was administered to 200 respondents in the study area to measure the farmer's attitudes towards GI in agriculture. The products selected for the study were Kaipad rice, *Changalikkodan nendran*, *Marayoor jaggery* and *Tirur betelvine* and thus Kannur (Kaipad rice), Thrissur (*Changalikkodan banana*), Idukki (*Marayoor jaggery*) and Malappuram (Tirur betel leaf) districts respectively were the concerned districts with these products. From each of the four identified GI products, 50 farmers involved in the particular GI production were randomly selected, making a sample size of 200 farmers.

I. Scale construction

A scale was constructed to measure the attitude of farmers following the method of summated rating suggested by Likert (1932) and Edwards (1969) [5]. A summated rating scale is a set of attitude statements all of which are considered of approximately equal attitude value and to each of which subjects respond with degrees of agreement or disagreement carrying different scores. This method was adopted for the present study because, the use of single statement to represent a concept is avoided and instead several statements as indicators, all representing different facets of the concept to obtain a more well-rounded perspective can be used. The important steps adopted for the scale construction were;

1. Collection and editing of statements: A set of potential scale items, which can be rated on a 1-to-5 Disagree-Agree response scale, was created. Creation of items involved the engagement experts from the relevant fields of agricultural extension and agricultural economics. Besides this,

available literature on GI registration and stakeholders' attitudes towards it was also referred to. A total of 89 statements were collected, which were organized and structured in the form of items to measure attitude. The statements were then edited keeping in mind the criteria developed by Edward (1957) [4]. The process ended up in generation of 55 items.

2. Relevancy test: To examine the statements for their relevancy in measuring the attitude of farmers towards GI, the items collected in the first step were subjected to expert scrutiny by a panel of judges from the above fields. The statements were presented to a panel of thirty experts for relevancy judgment on a five-point Likert scale of relevancy *viz*., most relevant, relevant, neutral, irrelevant, and least relevant with scores 5, 4, 3, 2, and 1, respectively. Now, the total relevancy score of each item was calculated by summing the scores of the judges' responses to that item. Afterwards, we worked out the relevancy percentage, relevancy weightage, and mean relevancy for all the 55 statements individually by using the following formulae.

a. Relevancy percentage: Relevancy percentage was worked out by summing up the scores of highly relevant, relevant, and neutral categories, which were converted into percentage.

b. Relevancy weight (RW)

$$RW = \frac{Number\ of\ most\ relevant\ response * 5 + Number\ of\ relevant\ responses * 4}{Maximum\ possible\ score}$$

c. Mean Relevancy Score (MRS)

$$= \frac{Number\ of\ most\ relevant\ response * 5 + Number\ of\ relevant\ responses * 4}{Number\ of\ judges}$$

The statements having a relevancy percent above 60, relevancy weightage above 0.60 and mean relevancy score above 2.5 were then selected. The total number of statements retained after this relevancy screening process was 55. These statements were further rephrased and edited based on the judges' remarks.

3. Item analysis: In the next step of scale construction, statements retained in the previous procedure were administered to 32 non-sample respondents for pilot testing. They were asked to score the statements on a five-point continuum *viz*., strongly agree, agree, undecided, disagree, and strongly disagree with scores of 5, 4, 3, 2, and 1, respectively, and a reverse scoring pattern was adopted in negative statements. The score obtained by each respondent was calculated. Based on the total score, upper and lower 25 per cent of the subjects were selected as criterion groups for calculating value. The responses were then summed up to obtain a total score on each item. The critical ratio was calculated by t-test. Items or statements were selected on the basis of higher *t* value over a cut-off point of 1.75.

$$t = \frac{\bar{x}_h - \bar{x}_l}{\sqrt{\frac{s_h^2}{n_h} + \frac{s_l^2}{n_l}}}$$

$\overline{x_h}$ = Mean score of given statement in high group

$\overline{x_l}$ = Mean score of given statement in low group

s_h^2 = The variance of the distribution of responses in high group

s_l^2 = The variance of the distribution of responses in low group

n_h = number of subjects in high group

n_l = number of subjects in low group

The t-test provides information on the discrimination capacity of each statement.

4. Reliability test: Reliability of the testing instrument is the ability to give dependable, consistent, stable and accurate measurement score in repeated testing with same instrument. For testing the reliability of the scale, the total set of responses was taken into consideration. The reliability of the scale was measured using Cronbach's Alpha, and the reliability coefficient was found to be 0.73, which is satisfactory.

5. Validity test: Validity is the ability of a measuring instrument to measure what it is intended to measure. The validity of the sensitization scale was measured with the jury's opinion method. Content validity, according to Anastasi (1968) [3], entails a systematic analysis of the test content to see if it covers a representative sample of the behaviour area to be assessed.

As shown in the Table 1, selection of items for the final scale was made after calculating the t-value for all items. Those items with t-values equal to or greater than 1.75 were finally selected and included in the attitude scale. It was observed that 44 statements were found to have values more than 1.75, and 26 items were discarded from the list due to their lower value on item analysis, which is marked with a star (*). The range of the t value was 0 (lowest) and 3.58 (highest). According to Edwards, a t-value above 1.75 for any item has high discriminating power, which could be placed in the final attitude scale. Following this criterion, 34 items were included in the attitude scale. Items that were not classified by the majority of judges as either positive or negative with regard to the attitudinal object were eliminated from consideration for use in the final scale, ensuring the robustness of the final scale.

Table 1: Mean Relevancy Score (MRS), Relevancy Weightage (RW), Relevancy Percentage (RP), and estimation of the t-value of the selected items

Sl. No.	Items	MRS	RW	RP	t value
1.	I believe organized marketing will help us to promote GI system	3.49	90.06	0.88	0.14*
2.	I believe organized marketing can reduce intermediary influence in the business	1.82	51.74	0.46	1.83
3.	I often think that organized marketing can reduce duplicate entry in the market	3.14	74.02	0.79	3.1
4.	I think GI protection necessarily enhanced the place reputation	3.59	72.89	0.9	1.9
5.	GI tagging offers consumers more trust	3.31	76.54	0.83	1.77
6.	The intermediaries are controlling the supply	3.1	67.21	0.78	2.8
7.	I think organized marketing can enhance the producer profit in this business	2.77	62.9	0.7	0.24*
8.	I think GI tag offers more consumer trust	2.96	67.66	0.74	1.79
9.	GI registration ensures the consumer original product	3.12	78.07	0.78	2.08
10.	I do not think that the production system has undergone any changes due to GI registration	3.21	77.23	0.81	3.09
11.	I believe that GI registration is necessary for a farmer to continue the farming of traditional methodology/ variety	3.42	81.77	0.86	2.21
12.	I feel highly privileged/ proud as an authorized user of this product	3.4	79.55	0.85	1.94
13.	I suppose GI will ensure indigenous biodiversity conservation	3.45	89.06	0.87	2.22
14.	I feel existing GI rules have loopholes that enable free riders in the market	3.26	78.98	0.82	2.3
15.	I believe post-registration of the GI product needs to be more channelized	2.91	76.43	0.73	0.5*
*16.	I feel that registration process should ensure and identify two or more assured supply chain	3.45	66.9	0.87	2.3
17.	I assume that government interventions in marketing of GI are inadequate	3.1	69.68	0.78	2.61
18.	I believe that institutionalization of GI products can enhance the welfare of producers	3.52	81.11	0.88	1.9
19.	I think there are no specific community benefits accrued from GI registration	3.12	71.93	0.78	0.1*
20.	I think that the benefit sharing mechanism of GI systems in the state is weak	3.1	69.11	0.78	2.19
21.	I assume that the current system has no quality assurance mechanism to ensure the standards of GI product specified during registration	3.26	84.55	0.82	0.66*
22.	I believe the production protocol of GI products is not standardized	3.35	77.11	0.84	2.21
23.	Quality control/ monitory/ inspection mechanism of GI products is not adequate	2.89	81.6	0.73	0.63*
24.	I think there should be a management board for each GI product	2.91	69.89	0.73	1.67*
25.	I assume that the proprietor/ owner of the GI should be a farmers organization	2.87	74.44	0.72	1.77
26.	I think producers are not aware of the actual benefit of GI registration	3.14	80.3	0.79	0*
27.	I am not aware of the laws regarding post registration measures and rights	2.96	79.75	0.74	2.1
28.	I believe infringement actions are not taken seriously	2.84	67.43	0.71	2.87
29.	I prefer to sell my produce as an ordinary product, not as a GI product	3.31	78.81	0.83	1.6*
30.	I believe GI can attract youth to this sector	2.96	75.83	0.74	2.18
31.	I enjoy abundant opportunities in the farming of GI products	2.84	68.43	0.71	0.74*
32.	I feel GI registration is an effective tool for rural development	3.21	79.23	0.81	2.7
33.	I do not want to continue farming of GI products	3.63	85.89	0.91	3.35
34.	Without GI registration itself, the product fetched a premium price in the market	3.59	83.49	0.9	0.35*
35.	I feel that the product does not have a consistent market demand even after getting the GI tag	3.4	79.01	0.85	1.58*
36.	I think GI registration has regulated the free riders in the market	3.49	89.93	0.88	2.26
37.	I feel that imitation products have higher demand than the original in the market	3.33	87.61	0.84	2.78
38.	I think the GI tag ensured better income to the farmer	3.31	78.81	0.83	0.75*
39.	I feel GI is not a strong IP tool compared to trademark/copyright/ patent	3.45	79.3	0.87	2.96
40.	I believe GI registration has stabilized the price of the product all-round the year	3.31	84.54	0.83	3.58
41.	I assume that the demand has increased in the local market after GI registration	3.35	90.1	0.84	3.2
42.	I assume that the demand for products has increased outside the local market after GI registration	3.35	75.09	0.84	1.31*
43.	I often think that direct marketing can only fetch premium prices for producers	2.66	69.91	0.67	1.45*
44.	I believe that an institution of Govt. has to be set up to exclusively look after the pre and post registration challenges of GI products	3.14	80.84	0.79	1.46*
45.	I think the production assistance given to farmers is not adequate to produce premium-quality	3.19	71.12	0.8	1.35*
46.	I think there is no authority to guide post-GI activities	3.35	75.09	0.83	1.31*
47.	I think GI can only enhance the reputation, not the monetary benefits	3.24	73.14	0.81	0.52*
48.	I assume GI value chain has to be focused on, instead of the supply chain	3.05	81.28	0.77	2.34
49.	I think the farmer collectives have to be empowered in terms of knowledge on all aspects of the GI- pre and post registration	2.98	67.86	0.75	1.13*
50.	I believe farmer participation from the pre-registration period can bring substantial improvement in the status of post-GI activities	2.63	71.29	0.66	0.99*
51.	GI registration gives legal protection against infringement	2.96	79.72	0.74	1.81
52.	GI system ensure better protection of the traditional system	2.91	65.44	0.73	1.82
53.	GI registration increases the scope for enhancing income	3.45	73.65	0.87	3.38
54.	GI registration increased the product reach to distant markets	3.4	72.21	0.85	3.28
55.	GI registration has brought community advantages as it is a collective right	3.45	81.76	0.87	2.91

Table 2: Reliability of scale

Cronbach alpha	Set 1	Value	0.767
		N of items	16
	Set 2	Value	0.875
		N of items	16
		Total No of items	34
Correlation between sets			0.665
Spearman brown coefficient		Equal length	0.731
		Unequal length	0.731

Reliability, according to Ray and Mondal, relates to the precision or accuracy with which a measurement or score is taken. According to Kumar (2021) [6], a test is said to be dependable when it consistently produces the same results when applied to the same sample. The split-half model reliability coefficient was 0.731, according to the reliability data for the developed attitude scale (Spearman brown coefficient). The reliability coefficient revealed that the attitude scale devised had a high internal consistency, which is the most important aspect of attitude scale creation because it demonstrates the scale's robustness.

According to the American Psychological Association (1966) [2], the representativeness or sampling adequacy of the content substance, matter, and themes of a measuring instrument is known as content validity. The scale was developed with the help of 30 judges who reviewed all of the revised statements, and the experts' recommendations were included in the scale. As a result, the content validity of the current scale was duly met. Finally, 34 items were considered to assess farmers' attitudes toward the GI in agriculture, and they were structured in such a way that positive and negative words appeared at random to avoid biased answers. Against each of the 34 items, there were five columns representing a five-point continuum of agreement or disagreement to the item, as followed by Likert (1932). The points on continuum are strongly agree, agree, undecided, disagree and strongly disagree with respective weight of 4, 3, 2, 1 and 0 respectively for favorable (positive) item and with weight of 0, 1, 2, 3, and 4 respectively for unfavorable (negative) item.

Conclusion

Geographical indication as an intellectual property right is gaining attraction and becoming highly relevant. The attitude of stakeholders toward GI in agriculture is critical as it determines the success of GI, especially in completing post-GI operations. The measurement tool created can assist researchers, policymakers, and anyone interested in determining farmers' attitudes towards the GI in each location. The scale may aid them in conducting baseline surveys to make policy decisions on GI and post-GI aspects and design awareness programmes. The created tool has a reliability of reliability coefficient of 0.73, which may be termed as highly consistent and, hence, usable in varied conditions.

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