



Members' Intention to Participate in Farmer Producer Company Activities in Cauvery Delta Region of Tamil Nadu

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Abstract

Farmer Producer Company (FPC) is one of the tools to tackle the demand-driven market and march towards the development of deprived small and marginal farmers. Members' active participation in FPC activities is essential to resolve backward and forward linkage issues. Members could easily access speciality markets and obtain better price for agricultural products in the conventional sector, if they consistently participate in FPC activities. The present study applied the Theory of Planned Behaviour (TPB) to examine the intention of members to participate in FPC activities. The moderating role of landholdings on the relationship between various TPB factors and farmers' intentions to participate in FPC activities was also studied. The study relied on primary data collected from 382 members from the Cauvery Delta Region of Tamil Nadu using a proportionate random sampling technique. The PLS-SEM results revealed that attitudes, subjective norms, and perceived behavioural control have a significant positive influence on the participation of the members in FPC activities. There is a significant moderating effect of landholding on the relationship between TPB factors and participation intention. The study has put forward the major implication for improving the participation of members in FPC activities.



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Introduction

Agriculture is the main source of income for more than half of the population to fill their stomach. Small and marginal farmers are predominant in the cultivation groups but suffer from various bottlenecks in solving forward and backward linkage issues in agriculture.¹⁻³ The traditional top-down, growth-oriented approach to farmers' development has yet to successfully reach disadvantaged groups in


the desired way.⁴ Only spaces for participation are offered by the government to NGOs and farmers through movements. Farmers will be able to secure a voice by stopping the repetition of existing hierarchy structures in the market.⁵

In the past decade, the Indian government has formulated new policies and measures. In 1999 after the Y.K. Alagh committee recommendation,

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Farmer Groups were formed with the new term 'Farmer Producer Organisation (FPO)' in India for mutual benefits with legal recognition.^{6,7} FPO can be registered under Company, Cooperative, and Trust.² It amended the Companies Act, 1956 to accommodate this FPO as a company where the cultivators purchase the share by contributing the capital, which assures minimum shareholding and ownership. Farmer Producer Companies (FPC) are the new hope for small and marginal farmers to utilize the opportunities in modern agriculture markets. The integrated forum assists them to access the inputs at a cheaper cost, technology access for production, and market linkages for availing better prices for farm yields.⁸⁻¹⁰ Various factors will influence members' participation intentions to engage in FPC activities. The current study explored existing literature regarding the determinants that attracted members to continuous participation in business activities of farmer groups for generating better remuneration.^{11,12}

Proper knowledge about the activities, confidence, capital, and skills are the primary cause of inactive involvement. Most of the agricultural development programme is doomed to fail after lack of active participation. The use of ineffective activities at the local level and the adoption of a top-down strategy are two further factors that inhibit member participation. A very minimum number of farmers will be interested in the consultative, action-oriented decision-making stage of FPC.¹³

The commitment of members to engage in activities organized by the FPC is a critical factor in determining whether the scheme will be successful in achieving its goals. According to the existing body of literature, the level of involvement that shareholders (members) have with FPC is mostly determined by the governance in place and the level of trust that farmers have in their executives.¹⁴ The farmers' mentality directly impacts their intention to engage in any activities.¹⁵

Indian FPCs are in the nascent stage even after policy recommendations for the past two decades. The new initiation of forming 10,000 Farmer Producer Organisations has motivated researchers to empirically investigate the progress and problem of the scheme. Most research on FPCs in India

focused on the formation,¹⁶ promotion,⁷ SWOT analysis,¹⁷⁻²¹ financial performance,²²⁻²⁸ and case study aspects.²⁹⁻³³ However, FPCs' success is majorly determined based on the active participation of members in the FPC activities.³⁴ Members' involvement in the FPC activities is essential for achieving objectives like participation in annual general meetings, training programs, active involvement in governance, procuring the inputs from the outlet of FPC, exchange of agriculture knowledge among the members, and marketing the farm output through FPC. But, in India, the active participation of members in FPCs activities is ineffective to achieve the goal in the present scenario.⁴

In the Indian context, a very minimal number of studies have been carried out on the members' engagement and participation in FPC/farmer group/Cooperative activities. The main objective of this article is to determine the factors influencing members' participation intention in FPC activities in the Cauvery Delta Region based on TPB model. And, also examined the interaction effect of land size on TPB variable's influence towards the participation intention in FPC activities in the Cauvery Delta Region.

The remainder of the article was divided into the following sections: the theoretical foundation is presented in the following section. Based on current research works, materials and methods are discussed. Next, the article's results and discussions are presented. The article drew to an end with implications and a conclusion about how to raise FPC participation.

Theoretical Background

Antecedents of Participation in Agriculture activities Kenyan smallholder farmers' market participation was identified among marginal groups' market potential and difficulties faced by women-headed households and poor households using poverty-level data. Socio-economic, financial services, agri-information, and farmer group membership were used to measure market participation. Women's household heads doubled during the research period, while poor households dropped from 42 per cent to 37 percent. Credit and collective action were key to women and impoverished households participating in input and output markets, according

to the authors.³⁵ Farmers' engagement and cooperatives' impact on Armenian household income and well-being was investigated. Educational level, barley growers, water availability, information access, extension officer services, and credit subsidy were significant factors.³⁶

The impact of cooperatives operations on members and non-members of banana farmers in the central highlands of Kenya revealed that the average proportion of sales through the group was 53 per cent, the farm size was 3.22 acres, and many factors had minute differences between members and non-members. Land ownership, equipment, phone, credit availability, distance, and self-employment influenced membership decisions, but gender was insignificant. Propensity Score Matching model demonstrated that collective marketing benefited group members. In contrast, the organisation did not increase small-farmer market access. The organisation was advised to provide manufacturers with market information to improve competitiveness.³⁷

Socio-economic factors affecting farmers' agro-processing participation revealed that 19 per cent of respondents participated. Education, land tenure, training, and knowledge positively influenced participation, but off-farm income and market distance negatively influenced participation.³⁸ Farmers' Agriculture cooperative participation in Jilin Province, Northern China, was investigated. Education and location positively affected farmers' perceptions of cooperatives. Also, risk-taking, expansion expectations, and sales cost impacted farmers' participation. Labour and crop area squared influenced farmer involvement ratio.¹² Conceptual framework and evidence of market involvement by smallholder staple food grain growers in Eastern and Southern Africa indicated that less than a quarter of smallholders sold their product in markets where farmers brought it at a higher price. Access to productive assets, technology, and loans promotes smallholders' market involvement. Market involvement is favourably associated with farmers' assets and location, which reduces transaction costs.³⁹ Characteristics impacting farmers' participation in Agri-Environmental Measures (AEM) were examined in Italy among participants and non-participants. The results showed that labour-intensive farming and farm income limited farmer

participation in AEM. Farmers' opinions and attitudes influenced agri-environmental measures, and farm structure encouraged AEM adoption.⁴⁰

Management policy, economic, and competing variables were tested in Bangladesh's Sal Forest. Satisfaction with tree species planted, participant confidence and benefits, training, and financial contributions favourably increased participation. Delays in plant harvesting and waning interest have hurt participatory forestry.⁴¹ Farmers' cooperative involvement and the impact on coffee prices in Costa Rica explained that speciality coffee cooperative participants earned a better price than other channels, US\$ 68/100 lbs on average, and 24 per cent higher engagement. According to probit analyses, Education, experience, village size, and geography positively influenced specialized market participation. Group, cooperative membership, and cooperative-owned coffee selection units positively correlated with cooperative involvement, but land cultivation negatively influenced participation.⁴² Cooperative membership and extension services in Hengxi Township, China analyses showed that agricultural cooperatives increased members to finance. Low admission fees could enhance small farmer cooperative involvement.⁴³

Rice cultivators' market involvement in Myanmar's Magway Region explained that household head education, rice production, and road access influenced rice farmers' market involvement. Further analysis showed that household size, rice output, access to extension, roads, information, market distance, and membership status influenced rice sales.⁴⁴ Bargaining PO members, Processing PO members, and non-members' decision-making in Kenya showed better educated and inventive farmers preferred Processing PO members. Older specialists and male PO participants were more focused than poor ones in Bargaining PO as compared to Processing PO.⁴⁵

Transaction costs economics to agri-food supply chain involvement in Italy experimented. Farmers' association with groups significantly influenced participation. High-profile brands encouraged participation. Investing triggers cooperative/PO membership, risk awareness, risk-managing people, specialization, human capital, uncertainty, and network-affected participation.⁴⁶ To the

best of the authors' knowledge, there was no empirical investigation in the Indian context towards the factors motivating the farmer's participation in FPC activities.

Theory of Planned Behaviour (TPB)

Under the umbrella of TPB are three primary elements: 1. perspective, 2. norms that are purely subjective, and 3. Control over one's behaviour. According to the existing literature, Ajzen revitalized the Theory of Reasoned Action by including the variable "Perceived Behavioural control." This theory is now known as the Theory of Planned Behavior.⁴⁷ Intention plays a crucial role in a person's subsequent behaviour, according to two related beliefs. Attitudes and subjective norms regarding the behaviour predict future behaviour. Subjective standards developed as a byproduct of managed social, environmental, and behavioural processes. Attitudes and subjective norms that are more positive lead to a greater sense of agency and a greater willingness to alter one's behaviour. The model helped generalizability because many behaviours call for specialized knowledge or resources.⁴⁸⁻⁵¹ It is feasible to predict behavioural intention directly using perceived behavioural control. This theory can be supported by at least two arguments. Assuming no change in purpose, perceived behavioural control is likely to result in an increase in the effort required to carry out a course of behaviour successfully. Secondly, a measure of perceived behavioural control can frequently be substituted for one of actual

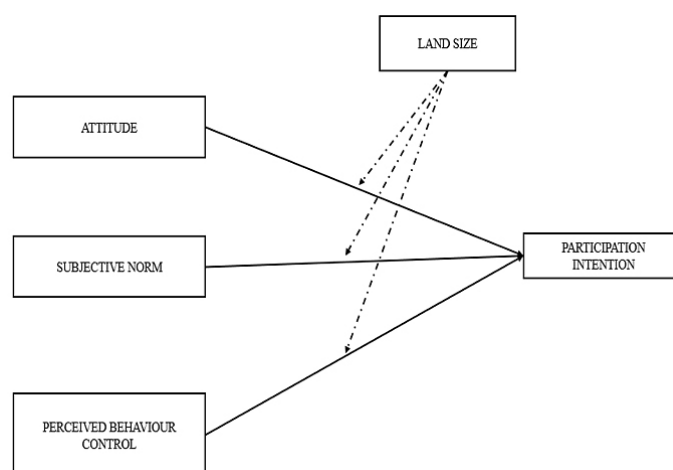
control.⁴⁷ The TPB constructs are Attitude towards FPC (ATT), Subjective norms (SBN), and Perceived behaviour Control (PBN) are employed as predictors and landholding of the shareholders family (LNSZ) as moderating variables in Participation Intention in FPC activities (P).

The model projected for members' participation in FPC activities was developed as follows.

Members' participation in FPC activities (P)=Intercept+ β_1 (ATT)+ β_2 (SBN)+ β_3 (PBN)

Hypotheses

- H₁ A significant and positive relationship exists between the intention to participate and attitude towards FPC.
- H₂ A significant and positive relationship exists between the intention to participate and Subjective norms
- H₃ A significant and positive relationship exists between the intention to participate and Perceived behaviour control
- H₄ Land size moderates the relationship between Attitude towards FPC and Participation Intention.
- H₅ Land size moderates the relationship between Subjective norm and Participation Intention.
- H₆ Land size moderates the relationship between Perceived Behaviour Control and Participation Intention.



Graph 1: Proposed Model for FPC Members' Intention to Participate in Company Activities

Materials and Methods

Study Area

The work was based on a descriptive and analytical form of research that was rooted in empirical research. Cauvery Delta Region is one of the six agriculture zones in Tamil Nadu. Cauvery Delta Region is located in the eastern part of Tamil Nadu. The Southernmost districts are Ramanathapuram, Sivaganga, and Madurai. In contrast, Namakkal and Karur are the western part, Villupuram and Salem are the northmost, and Puducherry and the Bay of Bengal are east of Cauvery Delta Region. This area is called "The Rice Bowl of Tamil Nadu." This district relies more on paddy cultivation because geographically and climatically supportive of growing rice. Economically many households rely on farming as a major component of their livelihood. Cauvery Delta's population depends heavily on agriculture and allied industries (Figure 1). Tamil Nadu proclaimed Cauvery Delta as a protected agriculture zone in February 2020; only agriculture-related companies are allowed to do business.⁵² The research area's larger crop area is favourable for forming a Farmer Producer Organisation. This study area was not previously evaluated for farmers' FPC participation in the Cauvery Delta Region. These facts led the researcher to study the Cauvery Delta Region.

Survey Instrument Development

The survey was divided into three portions, the first of which focused on the socio-demographic characteristics of the respondents. The second segment contained the three constructs of the TPB, while the third part contained an attitude measurement scale. Instrument content validity was increased by framing the structured interview schedule by adopting the existing measurement scale.^{53,54} The interview schedule items were discussed with the NABARD District Development Manager, CEOs of FPC, and NGOs to ensure clear, consistent, and understandable items. They were field experts and were also involved in the promotion, formation, collectivization, and development of the Farmer Producer Organisation. Section one had information on age, gender, education, landholding size, social community, agriculture equipment ownership, loan access, and primary occupation of members of FPC, and 37 items on a five-point Likert scale from Sections 2 and 3 made up the final instrument (Appendix 1).

Sampling Technique

FPC members in the Cauvery Delta Region were regarded as populations, and the responses were collected only from those members who were company shareholders for at least two years. Researchers assume that farmers integrated with companies for two years would have enhanced their knowledge towards the companies' activities more than recently started companies. The shareholders' list was retrieved by the researcher from company documents published on the MCA website by FPC in the Cauvery Delta Region before December 2019. It was used as a sampling frame for this investigation. The current research had a minimum 381 sample size based on the formula issued by National Education Association⁵⁵ As the sample frame was accessible, multi-stage proportionate random sampling was applied for sample selection. Before the instrument's questions were asked to the respondents, verbal consent was taken from the respondents. A short informal interview was undertaken regarding their association with FPC. The study's intention was briefly explained, and observation was made through the interaction. The researcher understood the language where the data was obtained but could not talk back fluently. So, translators were hired who were proficient in the language. Through face-to-face interaction, all the data was collected. Five points Likert scale was used for measuring the constructs and the land size was a ratio scale. For context validity, the pilot study was carried out in the research geographical area from November 2020 to December 2020 among 70 sample members around Thiruvavur. Final data were collected from July 2021 to January 2022. Overall, retained data after the cleaning process for analysis was 382 samples.

Data Analysis

In contrast to other statistical methods (such as multiple regression or MANOVA), which are limited to examining the relationship between the set of constructs separately, the Structural Equation Modeling (SEM) methodology was utilized to assess the multiple relationships using latent score and the effect of moderating variables at the same time. SEM is considered the most appropriate approach for running the moderation effect of land size.⁵⁶ The SEM was used to assess the reliability and validity of the constructs and test the proposed

model hypotheses. In addition, the IPMA test was performed to determine the most influential construct

impacting the model. SPSS 22 and SmartPLS 4 were used to analyze the data.

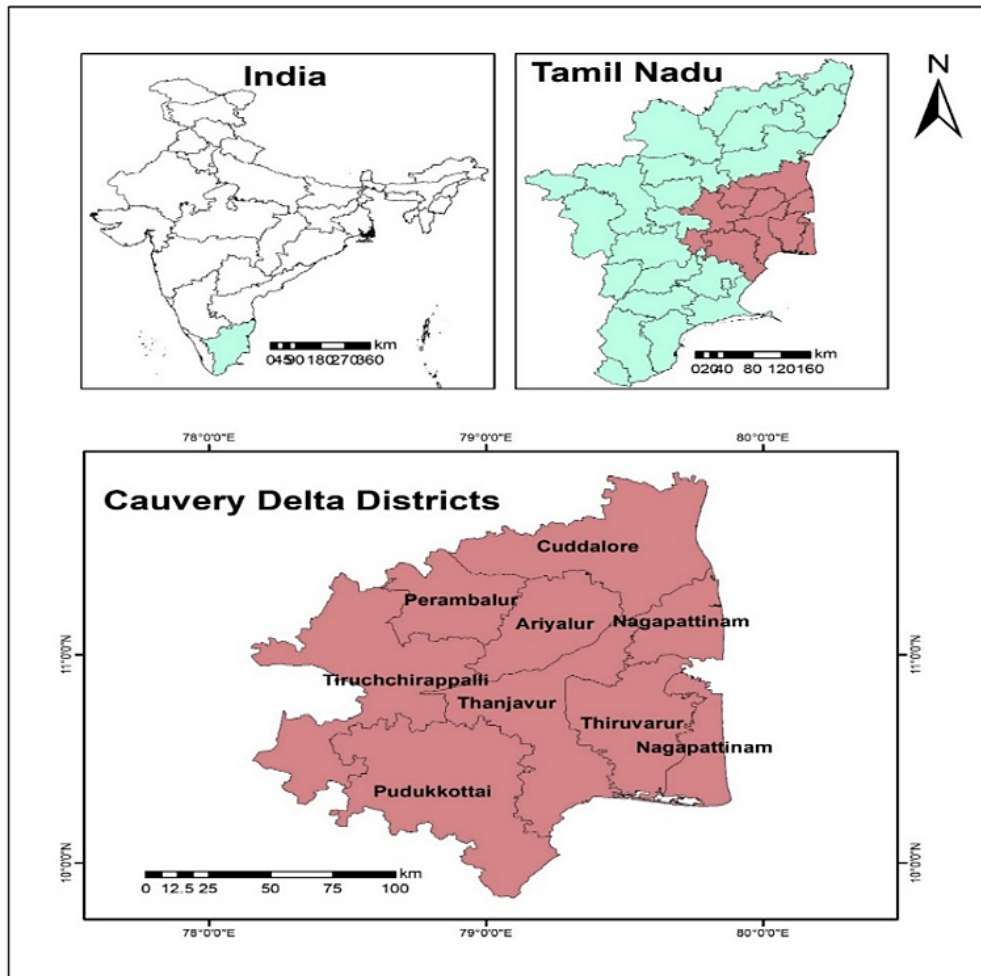


Fig. 1: Cauvery Delta Region

Results and Discussions

Socio-Demographic Description

Table 1 shows the socio-demographic backgrounds of the respondents (FPC members) who were face-to-face surveyed. The socio-demographic variables include members' gender, socio-community, the main occupation of a family, ownership of agricultural implements, education, and loan access in the previous five years. According to the sample numbers, approximately one-third of females were members of this FPCs. whereas, men were preponderance (65.71 percent). Personal interaction revealed that the majority of the head of the family was deciding on the house members

to join and engage in FPCs. Members of backward social groupings accounted for 83.74 per cent of the community categories, with SC and ST category members accounting for a minor portion.

Regarding substantial occupation, 59.95 per cent of respondents stated farming was their family's principal source of income, 36.65 per cent said farming and non-farming were their main occupations, and 3.40 per cent said they relied mostly on non-farming activities. Owning agricultural equipment explains that 67.54 per cent of the sample comprised economically disadvantaged farmers. Only 32.46 per cent of the farmers were

owning agricultural implements. The majority of the members in the study region possess education up to the 12th standard (i.e., 81.68 per cent).

It was noted that 69.11 per cent of the respondents had accessed a loan in the previous five years.

Table 1: Socio-Economic variables of FPC members.

Variables	Classification	Frequency	
Sex	Male	251	(65.71)
	Female	131	(34.29)
Socio-community	Backwards	320	(83.74)
	SC & ST	62	(16.24)
Family occupation	Farming	229	(59.95)
	Non-farming	13	(3.40)
	Both	140	(36.65)
Agriculture equipment ownership	No	258	(67.54)
	Yes	124	(32.46)
Education	<= 12 th standard	312	(81.68)
	> 12 th Standard	70	(18.32)
Loan access	No	118	(30.89)
	Yes	264	(69.11)
	Total	382	(100)

Note: values given in parentheses are the percentage; () total percentage for each item

Analysis

Multicollinearity Assessment

A Variance Inflation Factor (VIF) greater than 5 indicates a collinearity issue, and a model may be infected by common method bias.^{57,58} As a result, if all VIFs in the inner model obtained from a comprehensive collinearity test are equal to or less than 5, the model is devoid of common method bias.⁵⁹ The current study's construct items VIF value was less than 5, demonstrating no multicollinearity issue in the examined variables (Table 2). SmartPLS-3 statistics package calculated scores ranged from 1.220 to 4.009. In the inner model, the Collinearity value was 1.372, 1.307, and 1.067 for Attitude, Subjective norm, and Perceived behaviour control with Participation construct.⁵⁹

Measurement Model Analysis

Convergent validity and discriminant validity are two critical components of measurement frameworks. Cronbach's alpha, rho (ρ), and composite reliability were used to assess the construct's internal reliability. The convergent validity was tested using the Average Variance Extracted (AVE). The scale's content validity was examined using

factor loading.⁵⁶ When the Convergent validity of the constructs was tested, the attitude had an AVE lesser than 0.50. As a result, factor loading for the attitude variable revealed that 17 items, namely A3, A4, A5, A7, A8, A11, A12, A13, A16, A17, A18, A19, A20, A23, A25, A26, and A27 had a value below 0.7. As a result, these items were removed from the construct. Retesting of AVE generated a 0.586 score, while the remaining 11 items had a factor loading equal to or greater than 0.7. Table 2 shows the Cronbach's alpha values for the four constructions were 0.929, 0.743, 0.824, and 0.791, all of which were greater than 0.70.⁵⁶ All four constructs had AVE values larger than 0.5, indicating convergent validity.⁶⁰ Consequently, all items are appropriately inserted into the respective construct with a loading value of 0.70. As an outcome, the indicator's reliability was also present. The composite reliability score was also greater than 0.70 in all four constructs, confirming convergent validity. In Table 3, the heterotrait-monotrait ratio (HTMT) values of all constructs were less than 0.90.⁶¹ As the HTMT values fell below the threshold level, the discriminant validity is confirmed. Fornell and Larcker criterion values of constructs revealed that the values

of the square root of AVE were greater than the corresponding construct.⁶² Both tests revealed that items of each construct are different. Hence, discriminant validity was confirmed.

Table 2: Multicollinearity Assessment of the Model

Construct	Item	FL	α	ρ	CV	AVE	VIF
Attitude			0.929	0.935	0.939	0.586	
	A1	0.733					1.893
	A10	0.749					2.125
	A14	0.751					2.543
	A15	0.695					1.768
	A2	0.732					1.950
	A21	0.854					3.039
	A22	0.779					2.842
	A24	0.744					2.071
	A28	0.835					2.674
Subjective Norm	A6	0.803					2.584
	A9	0.733					2.021
			0.743	0.759	0.845	0.645	
	SBN1	0.837					4.009
Perceived Behaviour Control	SBN2	0.799					3.822
	SBN3	0.771					1.135
			0.824	0.828	0.895	0.740	
Participation Intention	PBN1	0.844					1.848
	PBN2	0.878					2.039
	PBN3	0.859					1.767
Participation Intention			0.791	0.831	0.881	0.716	
	P1	0.929					3.961
	P2	0.921					3.845
	P3	0.660					1.220

Note: FL = Factor loading score; α = Cronbach's alpha; ρ = Dijkstra-Henseler's rho; CV = Composite reliability; VIF = Variance Inflation Factor; AVE = Average variance extracted;

Table 3: Discriminant Validity

Constructs	ATT	P	PBN	SBN
Heterotrait–monotrait ratio				
ATT				
P	0.647			
PBN	0.275	0.569		
SBN	0.546	0.600	0.221	
Fornell and Larcker criterion				
ATT	0.766			
P	0.558	0.846		
PBN	0.250	0.466	0.860	
SBN	0.485	0.497	0.125	0.803

Structural Model Analysis

The conditionality and validity of measurement model attributes were verified in the preceding section. This segment evaluated the structural model using R^2 and path coefficient significance p-value. The value of R^2 in this model was 0.492, which is moderate.^{56,61,63} The Standardized Root Mean Residual (SRMR) value is 0.079, which is less than 0.1 and indicates that the model fits well. The researchers also determined the extent of the effect (f^2). Small, medium and large f^2 values are represented to be 0.02, 0.15, and 0.35, respectively.⁶⁴ As seen in Table 4, the f^2 values are between medium and big, indicating that the overall condition of the constructs is good. In bootstrapping, the 5,000 resample approach was carried out to estimate the

statistical significance of the hypotheses.⁵⁶ According to existing research, a decent model requires a t-value of more than 1.96 and a p-value of less than .05. The significance level of path coefficients was determined using these criteria. According to the results presented in Table 4, attitude ($\beta = 0.328$, $t = 7.498$, $p < 0.01$), subjective norm ($\beta = 0.295$, $t = 6.981$, $p < 0.01$), and perceived behaviour control ($\beta = 0.348$, $t = 8.990$, $p < 0.01$) positively influenced the participation intention of members, thereby supported the H1, H2, and H3 hypotheses. Attitude, subjective norm, and perceived behaviour control all positively and significantly influence members' participation in FPC activities (Figure 2). A higher rate of influence was determined based on perceived behaviour norms.

Table 4: Structural Model

Hypotheses	Path	Coefficient (β)	SE	t- statistics	SE	p- values	Decision	Model Goodness of fit	f^2
H1	ATT -> P	0.328	0.044	7.498		.000	Supportive	SRMR = 0.079 R^2 = 0.492 p-value = 0.000	0.155
H2	SBN -> P	0.295	0.039	6.981		.000	Supportive		0.223
H3	PBN -> P	0.348	0.042	8.99		.000	Supportive		0.131

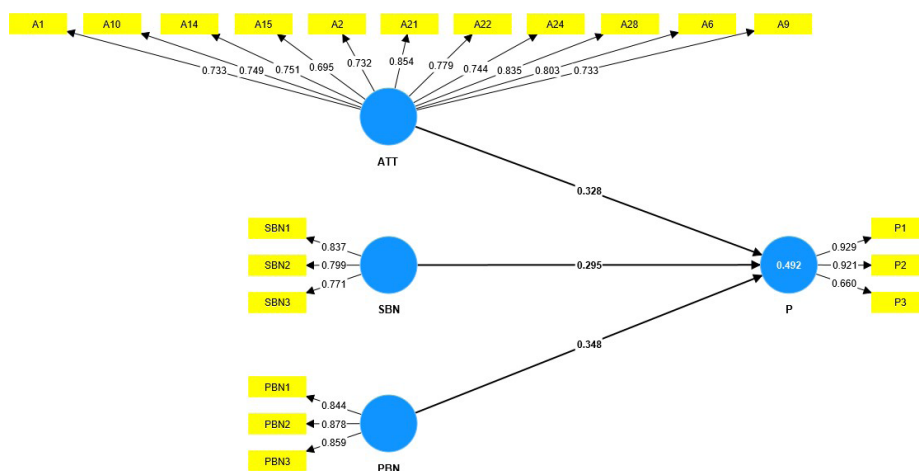


Fig. 2: Model depicting the members' participation intention based on TPB factors

According to Ringle and Sarstedt (2016) "The importance-performance map analysis (IPMA) allows researchers to enrich their PLS-SEM analysis

and, thereby, gain additional results and findings". The analysis revealed that the high-performance indicating factors contributing towards the members'

participation intention in FPC activities. The mean of TPB variables scores evaluated performance, but the importance of three independent variables is estimated by the sum of their impacts on the dependent variable.

Figure 3 depicts the chart displaying the most influential factor on participation intention measured by importance and performance scores. Perceived Behaviour Control and Attitude had a stronger

impact (total effect) in reproducing the best constructs to predict FPC activities participation intention. One construct, subjective norm, fell into the low performance and low importance category. The executive and promoting agencies can focus more on improving the perceived behaviour control and members' attitudes towards FPC which had a higher potential towards improving the participation intention in FPC activities by members.

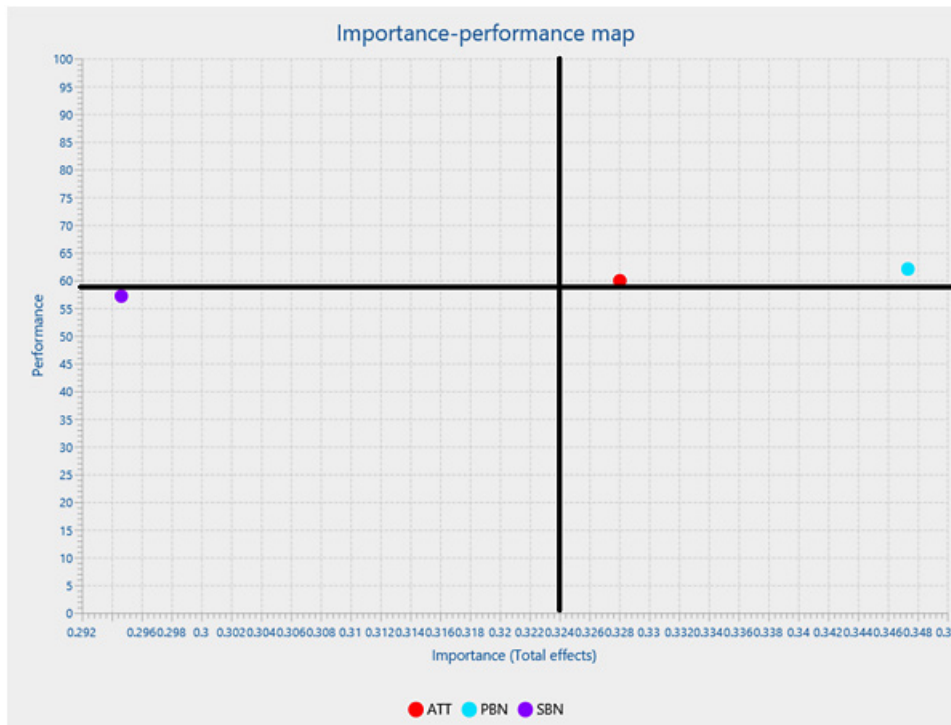


Fig. 3: Importance-Performance Map Analysis for members participation intention in FPC activities

Moderating Effect of Land Size

Further study investigated the moderating role of land size (LNSZ) on the relationship between attitude towards FPC (ATT) and intention to participate in FPC activities (P). Exclusion of moderating effect (LNSZ*ATT), the R² value of Intention to participate was 0.492. With the inclusion of moderating effect, the R² model improved to 0.503, i.e., the constructs can explain 50.3 per cent of the variance. This shows an increase of 1.1 per cent variance explained in the dependent variable (P).

Table 5 shows the moderation analysis summary. The investigation revealed that land size holding moderated effect on the relationship between attitude and participation positively and significantly ($\beta = 0.109, t = 2.333, p < 0.05$), supporting H₄. It explains that with the increase in land size holding the relationship between ATT and P is strengthened. Further, the significance of land size on Subjective norm (SBN) and participation (P) was analyzed. The results shows that significant and negative moderating effect of land size on the relationship between subjective norm and participation

($\beta = -0.106$, $t = 2.246$, $p < 0.05$), which supported H5. This hypothesis confirms that the increase of land size, the relationship between subjective norm and participation is weakened. Finally, the relationship between perceived behaviour control and participation was tested using land size as moderating variable. The test showed that significant and negative influence of land size was present between perceived behaviour control and intention to participate ($\beta = -0.105$, $t = 1.847$, $p < 0.1$), which

supported H₆ (Figure 4). This explains that increase in land size the relationship between PBC and P is weakened. The F^2 effect of land size was found on attitude, subjective norm and perceived behaviour control in the model was 0.013, 0.011, and 0.010, respectively. According to Cohens' proposition, the effect size was not significantly contributing to participation intention as the values were less than 0.02.⁶⁴

Table 5: Continuous Moderators Perspective Model results

Hypotheses	Relationship	Coefficient (β)	SE	t- statistics	P values	Decision
H4	LNSZ x ATT -> P	0.109	0.047	2.333	0.020	Supportive
H5	LNSZ x SBN -> P	-0.106	0.047	2.246	0.025	Supportive
H6	LNSZ x PBN -> P	-0.105	0.057	1.847	0.065	Supportive

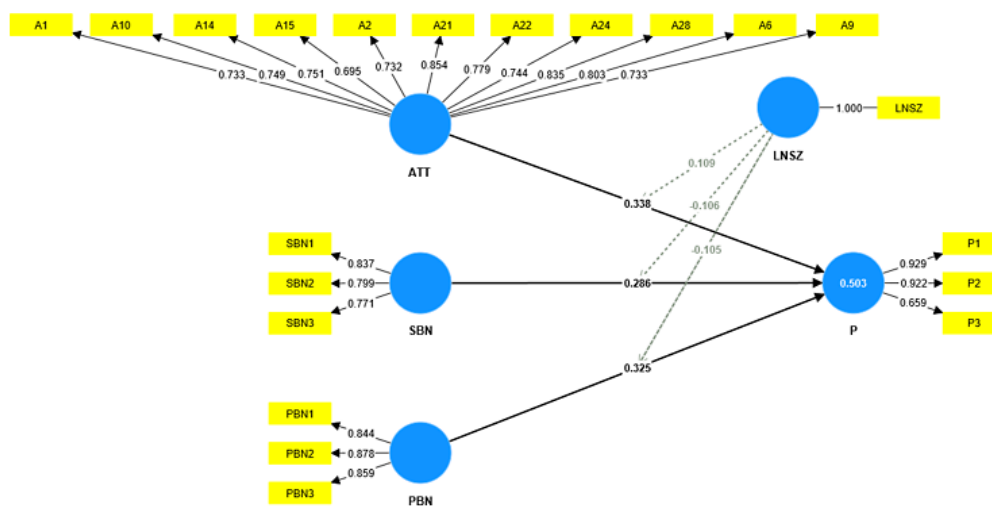
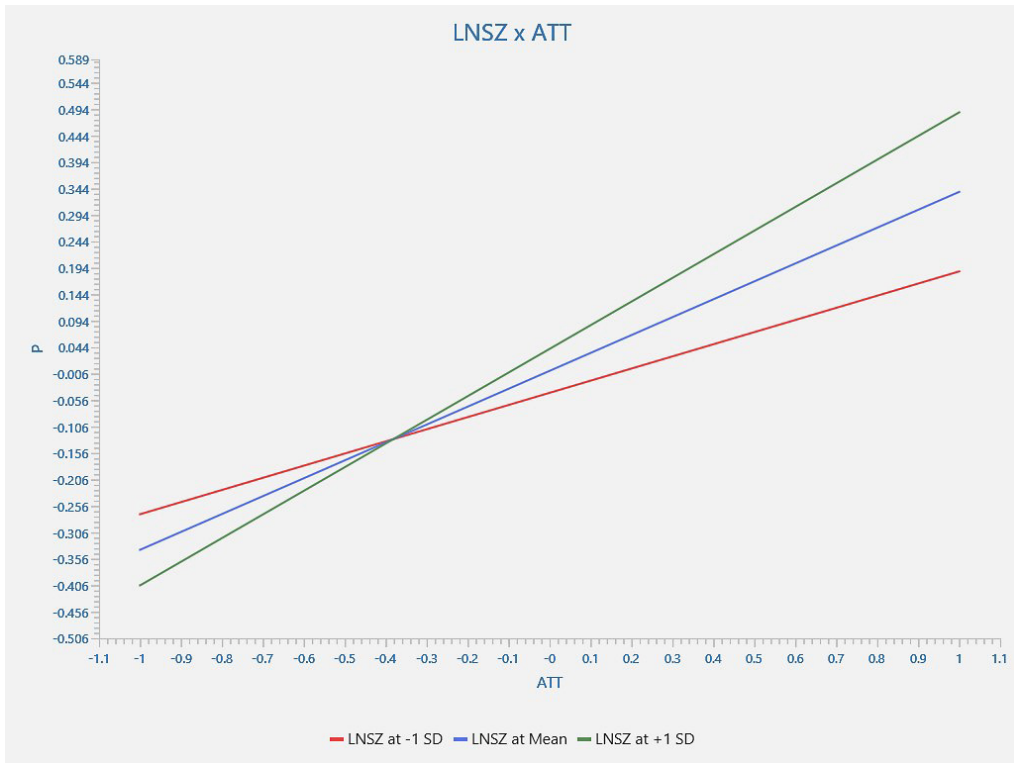


Fig. 4: Land size interaction between TPB variables and participation intention.

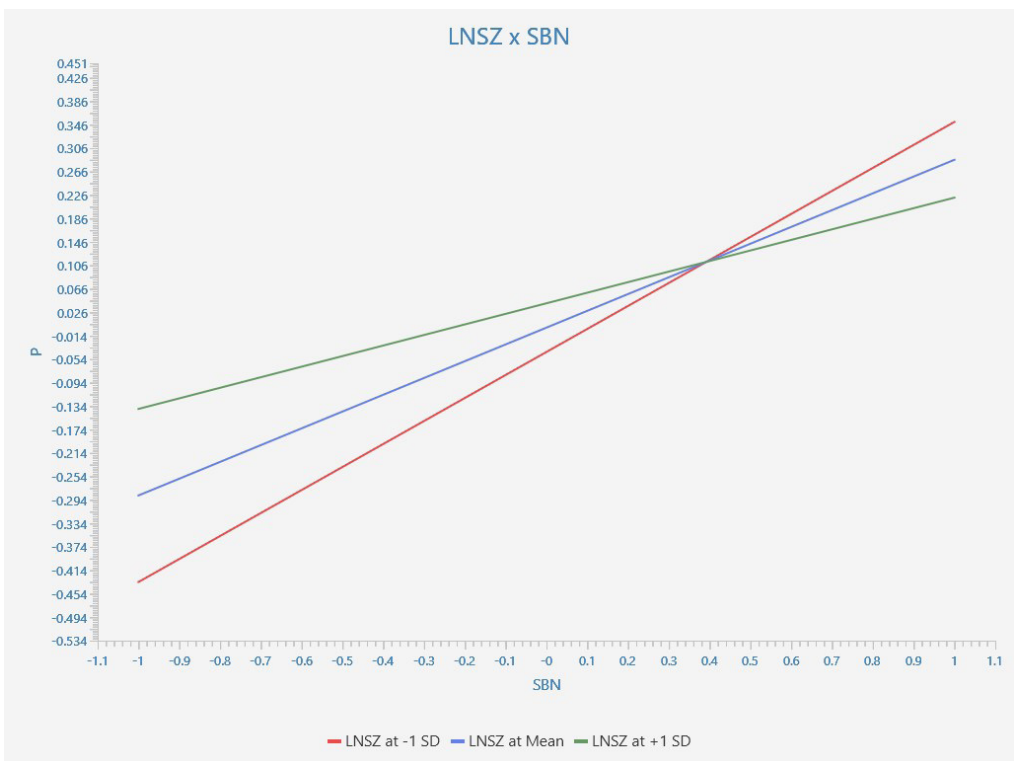
Further, A slope analysis also clarifies the effect of moderating variable's effect on the dependent-independent relationship. Figure 5(i) confirms that the members' attitudes towards FPC (ATT) and intention to participate (P) are positively correlated. When attitude increases intention to participate in FPC activities also increases, and vice versa. However, land size holding (LNSZ) moderates this relationship. The members with higher land size, have a stronger relationship between attitude and intention to participate in FPC activities than members with lesser land size holding. Hence, concludes that land size strengthens the positive

relationship between attitude towards FPC and members' participation intentions in FPC activities.

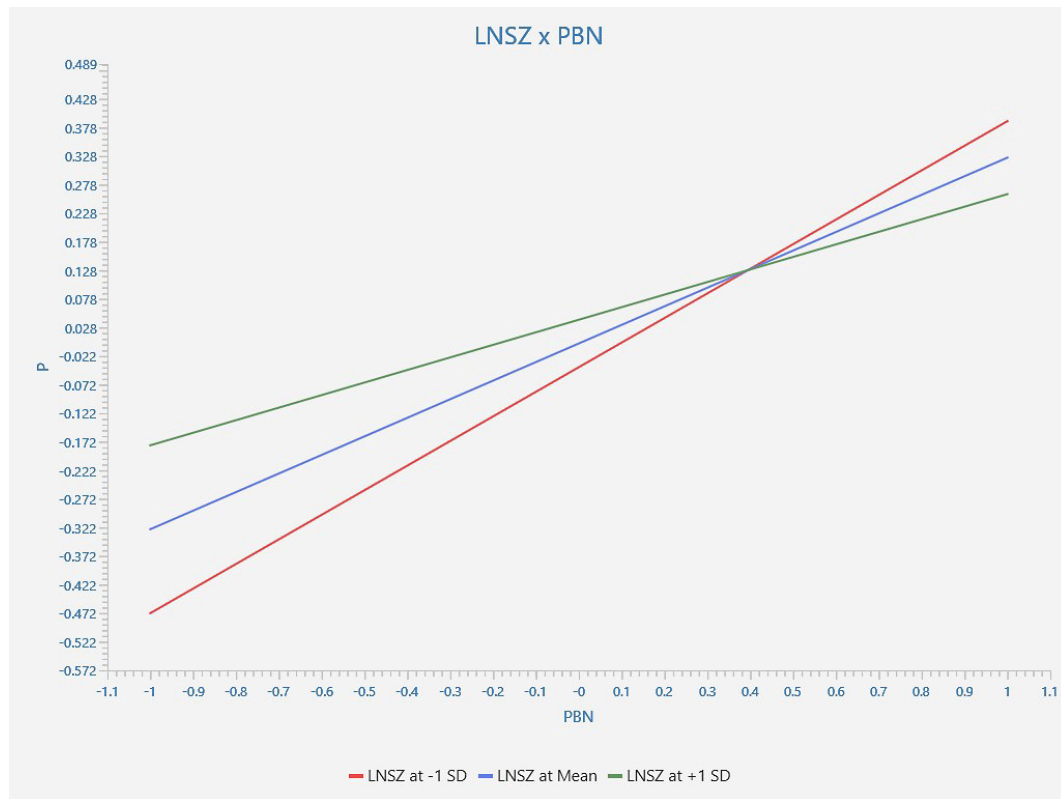
In figure 5(ii), the line is much steeper for less land holders, this explains that for small land holding, the effect of subjective norm on participation is much stronger than for large landholders. This elucidates that members with less landholding expressed an increasing desire to participate in FPC activities at a higher rate of the subjective norm than members with more landholding. It concludes that large landholding ambiguity weakens the influence of subjective norms on the participation intention of members.



(i)



(ii)



(iii)

Fig. 5: Moderating effect of land size on TPB variables and Participation intention

Figure 5(iii) demonstrates that perceived behaviour control was positively associated with the intention to participate. When compared to large land holdings, the impact of perceived behaviour control on members' participation is substantially larger at smaller land holdings, as evidenced by the line's steeper slope. Therefore, landholding size dampens the positive association between perceived behaviour control and participation intention as the trend line moves downward. Due to the interaction effect of land size between perceived behaviour control and intention to participate, large landholding members are less negatively influenced by perceived behaviour control than small landholders. So, uncertainty regarding land size lessens PBC's effect on participation.

The findings highlighted the major conclusions of this study. Results are clearly supporting the hypotheses of the study. The comparison of the two models—

the theory of planned behaviour with and without a moderator. The planned behaviour with a moderator theory has a better ability to predict outcomes. When analysing the first model, three latent constructs—attitude, subjective norm, and perceived behavioural control—are used to measure participation intention. As evident, H1, H2 and H3 are accepted. Members had hope for a positive organizational climate in the near future. According to existing surveys, farmers anticipate stronger results and benefits from the companies in the upcoming years.^{65,66} The SEM findings revealed a 49.2 per cent accuracy in predicting farmers' intentions to take part in business activities, which was higher compared to earlier literature's models of agriculture.^{67,68} The structural model's regression coefficient demonstrates the beneficial effects of attitude, subjective norm, and perceived behaviour control on the farmers' intention to take part in company activities.¹⁵

The moderating variable effect of land size on the relationship that exists between attitude and participation intention was positively significant (acceptance of H_4). However, the further results demonstrated a negative interaction effect between perceived behaviour control and subjective norm on participation,⁶⁵⁻⁶⁷ in contrast to the previous similar research. Hence, H_5 and H_6 were accepted. According to the influence of extraneous variables such as culture, situation, and other exogenous factors,^{35,37,39,69} the prediction of intention also varies. In line with findings from other literature,^{66,67} the IMPA analysis revealed that attitude and perceived behavioural control were the major and best predictors of involvement intention. However, the results showed that subjective norm was irrelevant for intention based on IMPA.⁵⁴ These findings were related to research findings with different agricultural contexts in nations like Brazil.⁶⁵

Conclusion and Implication

The empirical results explained and suggested that subjective norms, attitude, and perceived behaviour control played a crucial role in the model anticipation towards the participation decision. However, Indian farmers commonly possess less awareness of the FPC. Hence, perceived behaviour control can be improved through awareness campaigns in public forums for enhancing clarity regarding the purpose of the formation of FPC in the study region. The training and capacity-building programs are more accessible by the Board of Directors, where a majority of small and marginal farmers would be deprived of the opportunity. The bottom-up approach needs to be followed in this scenario for enhancing the knowledge of FPC.

Next, attitude can be improved through the agriculture officers and NGOs, who must contact the ground-level farmers to explain the process of the company operation and select the Board of Directors in a democratic manner. Finally, the subjective norm can be improved through the proper social engagement of the farmers of executives in the local area by ignoring the social constraints that exist in society.

Our research investigated that farmer decision is closely related to intention participation with perceived behaviour control, subjective norm and attitude on the basis of land size interaction. The results showed that only attitude was having a positive influence on participation with land size moderator. The farmers with large land sizes had positive attitude are more interested to engage in the business activities of FPC. Whereas, subjective norm and perceived behaviour control were having a negative influence on participation intention based on land size. IMPA results suggested improving the perceived behaviour norm and attitude for enhancing the FPC activities participation by members.

There are two key contributions to policy and FPC executive: members' positive attitude needs to be improved for active participation in FPC activities. Land size holding effect on the TPB demonstrates that the participation by small farmers is still low. It needs to be enhanced through the proper awareness measures. Social interaction and perceived behaviour control can be improved through companies' activities reaching farmer groups to members. Future investigations can be carried out across the nation to identify the factors determining the participation decision. The model can be modified and extended by including the transaction cost, and other socio-economic variables to understand the members' participation intention.

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Conflict of Interest

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