

Assessing Women Farmers' Perceptions of Farmer Producer Organizations: A Special Reference to Namakkal District, Tamil Nadu

ABSTRACT

Aims: The aim of this research is to evaluate the perspectives of producers regarding Farmer Producer Organizations (FPOs), with a specific focus on women-based producer organizations in Namakkal. The objective is to contribute to the development of more effective and sustainable FPO models that can support smallholder farmers in improving their livelihoods and achieving food security by understanding the factors that influence farmers' views of FPOs.

Research Design:

Location: Namakkal district chosen for its high concentration of women-based FPOs and active women farmers in agriculture.

FPO Selection: FPOs selected based on the criterion that all members are women, focusing on women farmers' perceptions and experiences.

Sample Size: 120 women farmers (30 from each of the four selected FPOs)

Tool: The study delved into women farmers' perspectives on Farmer Producer Organizations (FPOs) using a dataset comprising 22 variables. Factor analysis was employed as a powerful analytical tool to streamline this complex dataset by identifying and isolating the essential underlying factors that encapsulate these variables.

Results: Study identified eight critical factors that significantly shape women farmers' perceptions of FPOs. These factors include the business ecosystem, value addition services, marketing services, production services, bargaining power, social capital, advisory services, and prosperity benefits. Together, these factors explain 68.356% of the variance in the data, offering valuable insights into what influences women farmers' views on FPOs.

Conclusion: Joining an FPO offers equal opportunities, collective procurement, and knowledge exchange for all farmers, empowering women with training and resources for active participation in agriculture. FPOs boost prosperity, elevate societal status, and provide valuable support to women farmers, enhancing their livelihoods.

Keywords: FPO, smallholders, women farmers, Namakkal, Perception, Factor analysis

1. INTRODUCTION

A group of farmers forms a Farmer Producer Organization (FPO) to produce, sell, and process crops [1]. These groups help small farmers get fair prices and a greater market voice [2]. Women-based FPOs are FPOs that are specifically formed and led by women farmers. Women-based FPOs help women farmers thrive in agriculture. Women farmers often lack land, financial means, and markets. Women's FPOs are a key component of efforts to build a more inclusive and sustainable agricultural sector that benefits everyone [3]. By empowering women farmers and giving them a stronger voice in the market, Women's FPOs can help to promote gender equality and ensure that women's contributions to agriculture are fully recognized and valued. The low percentage of women-based FPOs in India, as highlighted by the study by [4], is concerning, given that women comprise a significant portion of the agricultural workforce in the country. The lack of representation of women in FPOs may further exacerbate the gender disparities in access to resources, technology, and knowledge that women farmers face. Research on female farmers' perceptions of FPOs is essential to identify the challenges and barriers that hinder women's participation and inclusion in FPOs. This research will provide a better understanding of whether FPOs are perceived as useful and effective in addressing the specific needs and challenges of women farmers. It can also help to identify best practices and strategies for promoting women's participation in FPOs, such as providing gender-sensitive policies and practices, access to resources, and inclusion in decision-making processes. By conducting research on female farmers' perceptions of FPOs, we can develop effective strategies to promote gender equality, empowerment of women farmers, and sustainable agricultural development.

2. Materials and Methods

The Namakkal district is purposively selected due to its high concentration of women-based Farmer Producer Organizations (FPOs) and the significant presence of women farmers actively engaged in agriculture. The sample size for the study was 120 farmers, with 30 farmers from each of the four selected FPOs. The FPOs were selected based on the criterion that all of their members were women, ensuring that the study focused specifically on the perceptions and experiences of women farmers in FPOs. Overall, this study is important for promoting gender equality in agriculture by identifying the barriers that prevent women farmers from participating in FPOs and developing effective strategies for promoting women's participation. The use of factor analysis as the primary tool for data analysis allowed for a more comprehensive understanding of the underlying factors that influence women farmers' perceptions of FPOs, which can be used to improve FPO policies and practices.

3. Results and Discussion

3.1 Profile of Sample Farmer Producer Organization

The National Cooperative Development Corporation, working through the Tamil Nadu Corporation for Development for Women Ltd, is the promoting agency responsible for promoting the Sample FPOs in the study region. The legal status of the FPOs is limited by the shares under the Cooperative Societies Act, 1983. This act provides the legal framework for the operation of the FPOs, and it defines the rights and responsibilities of the FPOs, their shareholders, and their members. Each of the Sample FPOs has

750 total shareholders, and every member receives a total of 20 shares, with the value of each share being INR 100. At present, the shared capital in each FPO is INR 15 lakh. All shareholders are also regular members of the FPO, and each shareholder has their own individual share in the company. The membership of the FPOs is open to any competent women individual who is eligible to contract under section 11 of the Indian Contract Act, 1872. The Sample FPOs are diverse, and there is heterogeneity among its members by landholding pattern and social groups. This ensures that the FPOs represent a wide range of women farmers in the region. The appointment of directors in each Sample FPO is done through a nomination basis, and there are 11 women directors from different social groups and landholders in each FPO. This ensures that the FPOs have a diverse leadership that represents the interests of all their members. The main income-generating activity of the Sample FPOs is the trade of agricultural commodities and value addition. The FPOs procure agricultural produce from their members and add value to it before selling it in the market. This helps increase the income of their members and promotes the economic development of the region.

Table 1: Profile of Sample Farmer Producer Organization

Particulars	Details of FPO			
Name of the FPO	NA.NA.321. Erumapatty Block Women Groundnut Cooperative Farmers Producer Organization Ltd	NA.NA.322. Namagiripettai Block Women Tapioca Cooperative Farmers Producer Organization Ltd	NA.NA. 323.Puduchatram Block Women Groundnut Cooperative Farmers Producer Organization Ltd	NA.NA. 324.Venandur Block Women Tapioca Cooperative Farmers Producers Organization Ltd
Registration Date	13.04.2022	24.05.2022	24.05.2022	24.05.2022
Block	Erumapatty	Namagiripettai	Puduchatram	Venandur
Villages covered	32	29	21	25
No of Directors	11	11	11	11
Membership details	SC -213 ST - 0 Others - 537	SC – 203 ST - 197 Others – 350	SC – 213 ST - 0 Others – 537	SC – 171 ST -100 Others - 479
Number of Small, Marginal & Landless Shareholders	Small -519 Marginal -149 Landless -82	Small-523 Marginal-159 Landless-68	Small – 519 Marginal - 149 Landless – 82	Small - 543 Marginal - 128 Landless – 79
Shared Capital	15,00,000	15,00,000	15,00,000	15,00,000

Business Activity	Groundnut Procurement and Value Addition	Tapioca Procurement and Value Addition	Groundnut Procurement and Value Addition	Tapioca Procurement and Value Addition
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Source: Compiled from field survey

3.2 Socio-Economic profile of Sample Women Farmers

The table 2 provides the distribution of respondents across different categories of variables such as age, education, social group, and landholding size. A total of 120 respondents were surveyed for this study. In this case, the age distribution shows that a significant proportion of respondents are in the age group of less than 30 years (44.17%), which can indicate a relatively young and dynamic population. On the other hand, only 5% of the respondents are above the age of 50, which could imply a lack of experience or traditional knowledge. The educational background of the respondents can also influence the FPO's functioning. The fact that 35% of the respondents have completed up to higher secondary education and 31% have graduated implies that the sample population is relatively educated, which could have a positive impact on the FPO's functioning, decision-making, and sustainability. However, 5% of the respondents being illiterate could create a barrier to communication and understanding of the FPO's activities. The social group composition shows that 70% of the respondents belong to "others," while only 20.83% are from the Scheduled Caste and 9.17% are from the Scheduled Tribe. This composition can impact the FPO's outreach and inclusivity efforts, as the organization may need to take additional steps to involve members from marginalized communities. Finally, landholding size is an important factor that can affect the FPO's activities and potential for growth. The fact that 66.67% of the respondents have small landholding sizes can limit their agricultural production capacity, which in turn can impact the FPO's procurement and value addition activities.

Table 2: Socio-Economic profile of the sample women farmers

Variable	Category	Respondents	Percentage
Age	Less than 30	53	44.17
	31- 40	37	30.83
	41-50	24	20.00
	Above 50	6	5.00
Education	Illiterate	6	5.00
	Upto Middle School	27	22.50
	Upto Higher Secondary	42	35.00
	Graduation	37	30.83
	Above Graduation	8	6.67
Social Group	Schedule Caste	25	20.83
	Schedule Tribe	11	9.17
	Others (Includes BC/MBC/General)	84	70.00
Land holding size	Small	80	66.67

	Marginal	29	24.17
	Leased in farms	11	9.17

Source: Compiled from field survey

3.3 Variable Reliability and Selection in Factor Analysis

This study assessed women farmers' perceptions of FPO using 22 variables. The reliability of the variables was evaluated using Cronbach's alpha, which indicated a reliable internal consistency ($\alpha=0.723$). An appropriate degree of reliability is generally judged to be between 0.7 and 0.8 [5]. To reduce the number of variables, factor analysis was performed using PCA and Varimax rotation [6]. The selection of variables and items was based on several criteria, including KMO values (>0.6) [7], Bartlett's Test's significant value (0.05) [8], eigenvalues (>1.0) [9], communalities (<0.40) [10] and factor loading (>0.40) [11].

Table 3: Sample Adequacy

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.628
Bartlett's Test of Sphericity	Approx. Chi-Square	965.548
	Df	231
	Sig.	.000

Source: Statistically calculated using SPSS

3.4 Women farmers perception on FPO

Table 4 shows that the eight factors described 68.356% of the data variance, with the first two components explaining nearly 30%. The third and fourth components explain a lot of variances, but the rest explain little. Factor analysis identified eight components among the 22 variables and the eigenvalues and percent variance for each factor are provided in Table 5. The first factor, "Business Ecosystem," has an eigenvalue of 4.160 and explains 18.90% of the variance in the data. This factor is associated with the FPO's ability to provide equal opportunities to all farmers (0.764), facilitate collective procurement of inputs (0.746), negotiate for better prices (0.758), establish farmer-owned businesses (0.733), provide opportunities for women to participate in leadership roles (0.638), encourage feedback and suggestions from its members (0.562), and provide a forum for farmers to exchange information on best practices and new technologies. The second factor, "value addition services," has an eigenvalue of 2.196 and explains 9.981% of the variance in the data. This factor is associated with the FPO's ability to provide access to equipment and facilities for processing and value addition (0.972) as well as training on value addition and product diversification (0.961). The third factor, "Marketing services," has an eigenvalue of 2.005 and explains 9.115% of the variance in the data. This factor is associated with the FPO's ability to provide access to new markets for members' products (0.779), opportunities for product promotion and market information (0.709) and reduced dependency on middlemen (0.465). The fourth factor, "Production services," has an eigenvalue of 1.734 and explains 7.883% of the variance in the data. This factor is associated with the FPO's ability to provide access to high-quality inputs to improve the

quality and quantity of members' harvests (0.864), as well as timely information and advice on best practices for crop management (0.760). The fifth factor, "Bargaining power," has an eigenvalue of 1.423 and explains 6.468% of the variance in the data. This factor is related to the FPO's ability to increase members' bargaining power with buyers (0.778) through joint marketing and sales activities (0.764). The sixth factor, "Social capital," has an eigenvalue of 1.248 and explains 5.674% of the variance in the data. This factor is associated with the FPO's ability to provide capacity building programs (0.831), regular training, and education opportunities to its members (0.707) which help them keep up-to-date with the latest developments in the agricultural sector. The seventh factor, "prosperity benefits," has an eigenvalue of 1.168 and explains 5.311% of the variance in the data. This factor is associated with the FPO's ability to empower women in the community (0.723) by providing access to training, information, and resources that enable them to participate more fully in agricultural production and decision-making (0.652). It also includes opportunities for women to gain status and autonomy by earning money through the FPO (0.514). The eighth factor, "Advisory services," has an eigenvalue of 1.104 and explains 5.016% of the variance in the data. This factor is associated with the FPO's ability to update its members on new agricultural technologies and practices (0.852). Overall, these eight factors indicate that joining an FPO can provide significant benefits to farmers in terms of equal opportunities, value addition services, marketing services, production services, bargaining power, social capital, advisory services, and prosperity benefits. The FPO can facilitate access to inputs, equipment, and new markets while providing training and education opportunities to improve farming practices and the quality of the harvest. Joining an FPO can also increase the bargaining power of farmers and provide opportunities for women to participate more fully in decision-making and leadership roles, leading to increased prosperity and higher societal status for its members.

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
	1	4.160	18.907	18.907	4.160	18.907	18.907	3.464	15.746
2	2.196	9.981	28.888	2.196	9.981	28.888	2.123	9.648	25.394
3	2.005	9.115	38.003	2.005	9.115	38.003	1.889	8.585	33.979
4	1.734	7.883	45.886	1.734	7.883	45.886	1.816	8.253	42.233
5	1.423	6.468	52.354	1.423	6.468	52.354	1.603	7.284	49.517
6	1.248	5.674	58.029	1.248	5.674	58.029	1.549	7.040	56.557
7	1.168	5.311	63.340	1.168	5.311	63.340	1.440	6.544	63.101
8	1.104	5.016	68.356	1.104	5.016	68.356	1.156	5.255	68.356
9	.931	4.234	72.590						
10	.801	3.640	76.231						

11	.796	3.617	79.848						
12	.652	2.964	82.813						
13	.610	2.775	85.587						
14	.569	2.586	88.173						
15	.500	2.274	90.447						
16	.491	2.234	92.681						
17	.430	1.952	94.633						
18	.334	1.518	96.151						
19	.307	1.397	97.547						
20	.266	1.211	98.758						
21	.250	1.136	99.894						
22	.023	.106	100.000						

Extraction Method: Principal Component Analysis

Source: Statistically calculated using SPSS

Table 5: Women Farmers perception on FPO

Factor	Component	Factor loading for components	Eigen Value	% Variance
Business Ecosystem	Equal opportunities to all farmers, regardless of their social status or landholding size	0.764	4.160	18.907
	By pooling resources and negotiating as a group for better price	0.758		
	Facilitated the collective procurement of inputs	0.746		
	Facilitated the establishment of farmer-owned businesses	0.733		
	Opportunities for women to participate in decision-making and leadership roles.	0.638		
	Encourages its members to provide feedback and suggestions on its activities and operations, and takes these inputs into consideration in its decision-making process.	0.562		
	Forum for farmers to exchange information	0.522		

	on best practices and new technologies			
Value addition services	Access to equipment and facilities for processing and value addition	0.972	2.196	9.981
	Training on value addition and product diversification	0.961		
Marketing services	Access new markets for my products.	0.779	2.005	9.115
	Opportunities for product promotion and market information	0.709		
	Reduced the dependency on middlemen	0.465		
Production services	Access to high-quality inputs to improve the quality and quantity of my harvests	0.864	1.734	7.883
	Timely information and advice on best practices for crop management	0.760		
Bargaining power	Joining an FPO has improved our bargaining power with buyers	0.778	1.423	6.468
	Facilitates collective marketing and sales activities	0.764		
Social capital	The capacity building programs offered by the FPO have improved my knowledge and skills	0.831	1.248	5.674
	Regular training and education opportunities to its members, which have helped me keep up-to-date with the latest developments in the agricultural sector	0.707		
Prosperity benefits	Raised my societal status in my community and given me new chances and resources.	0.723	1.168	5.311
	Joining an FPO has empowered women in my community by providing them with access to training, information, and resources that have enabled them to participate more fully in agricultural production and decision-making.	0.652		
	Opportunities for women to gain the status and autonomy by earning money through the FPO.	0.514		
Advisory	Updates on new agricultural technologies	0.852	1.104	5.016

services	and practices			
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Source: Statistically calculated using SPSS

4. Conclusion

A study was conducted to analyze the perceptions of women farmers in the Namakkal district of Tamil Nadu, India, towards Farmer Producer Organizations (FPOs). 120 women farmers from four FPOs were sampled using a purposive multi-stage random sampling method. The study identified eight factors that influence women farmers' perceptions of FPOs, including business ecosystem, value addition services, marketing services, production services, bargaining power, social capital, advisory services, and prosperity benefits. Joining an FPO can provide equal opportunities for all farmers, facilitate collective procurement of inputs, establish farmer-owned businesses, and provide a forum for farmers to exchange information on best practices and new technologies. FPOs also provide access to equipment and facilities for processing and value addition, training on value addition and product diversification, new markets for members' products, high-quality inputs, and timely information and advice on best practices for crop management. Joining an FPO can empower women in the community by providing access to training, information, and resources that enable them to participate more fully in agricultural production and decision-making, leading to increased prosperity and higher societal status for its members. Overall, the study suggests that FPOs can provide significant benefits to women farmers and enhance their livelihoods.

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