



SRUJANI: Indian Journal of Innovative Research and Development (SIJIRD)

Volume-5 Issue-4, September-October 2026, Pp. 44-53
Bi-Monthly, Peer-Reviewed, Open Access, Indexed Journal

I S S N: 2583-3510

S I R D F
J O U R N A L S
editor@srujani.in
www.srujani.in

Assessing the Impact of Farmer Producer Organisations on the Livelihoods of Small and Marginal Farmers in Karnataka

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Abstract:

This study examines the impact of Farmer Producer Organisations (FPOs) on the livelihoods of small and marginal farmers in Tumkur district of Karnataka, focusing on changes in income, access to inputs, market linkages, and bargaining power. Using a mixed-method approach, primary data were collected from 65 farmers across selected FPOs, supplemented with secondary information from government reports and agricultural databases. The analysis reveals that FPO membership has contributed to improved access to quality seeds and fertilizers, reduced input costs through collective procurement, and enhanced price realisation due to better market negotiation. The findings also indicate positive effects on household income stability, adoption of modern farming practices, and increased participation in institutional credit. Despite these benefits, constraints such as limited training, inadequate storage facilities, and inconsistent market linkages continue to restrict the full potential of FPOs. Overall, the study highlights the significant yet uneven role of FPOs in strengthening rural livelihoods and suggests the need for targeted policy support to enhance their operational efficiency and outreach.

Keywords: Farmer Producer Organisations, Livelihoods, Small and Marginal Farmers, Market Access, Tumkur District

Introduction

The agricultural sector in India continues to be dominated by small and marginal farmers, who constitute nearly 86 percent of all operational landholders

and cultivate less than two hectares of land each (*Agriculture Census*, n.d.). In Karnataka, the proportion of small and marginal farmers is even higher, and their

Please cite this article as: Ramesha B R & Jayasheela. (2026). Assessing the Impact of Farmer Producer Organisations on the Livelihoods of Small and Marginal Farmers in Karnataka. *SRUJANI: Indian Journal of Innovative Research and Development*, 5(4), 44–53

productivity challenges are exacerbated by fragmented landholdings, limited market access, lack of bargaining power, and dependence on intermediaries. According to the NITI Aayog's 2020 evaluation report, Farmer Producer Organisations (FPOs) have emerged as an institutional mechanism designed to strengthen farmer collectivisation, improve access to inputs, reduce transaction costs, and enhance income through better market linkages. The Government of India's Central Sector Scheme on Formation and Promotion of 10,000 FPOs, launched in 2020, further recognises these organisations as a strategic pathway for doubling farmers' income by enabling them to participate effectively in modern value chains (*Home | Department of Agriculture & Farmers Welfare | MoA& FW | Government of India, India*, n.d.). Karnataka has been one of the leading states in promoting FPOs, supported by agencies such as NABARD, SFAC, Karnataka State Department of Agriculture, and various NGOs. NABARD's 2022 report notes that FPOs in districts such as Tumkur have contributed significantly to improving access to quality seeds, facilitating collective procurement of fertilisers, and enabling small farmers to negotiate better prices for their produce (NABARD - *National Bank For Agriculture And Rural Development*, n.d.). Further, the Reserve Bank of India's 2021 report on agricultural credit highlights that collectivisation through FPOs has improved credit absorption capacity

among rural farmer groups by reducing individual risk and increasing institutional trust (*Trend and Progress of Banking in India - Reserve Bank of India*, n.d.). Studies conducted by the Institute for Social and Economic Change (ISEC) and the University of Agricultural Sciences, Bengaluru, indicate that FPO membership positively influences farmers' livelihood outcomes by enhancing crop yields through scientific practices, reducing input expenditure through bulk purchases, and ensuring fair marketing channels through aggregation and direct sales (Nayak&Manjunatha, 2019). Tumkur district, classified under the Eastern Dry Zone of Karnataka, faces rainfall variability, higher input costs, and unstable market prices, making collective action through FPOs particularly crucial. According to the Karnataka Agricultural Development Report 2022, FPOs in Tumkur have been instrumental in linking small farmers to organised retail, sustainable millets markets, and processing units, thereby improving household income stability (*Department of Agriculture(KSDA) - Index*, n.d.). International evidence supports these developments. The World Bank's 2020 Agriculture and Food Global Practice Report demonstrates that producer organisations help overcome structural disadvantages faced by smallholders by improving economies of scale and enabling participation in formal market systems (WorldBank, n.d.). Similarly, the FAO's 2021 report on smallholder

aggregation models emphasises that farmer organisations reduce vulnerability and improve resilience to market and climate shocks (*FAO and the European Union Provide Grants of up to USD150 000 to Support Aggregation Models in Berry and Vegetable Production*, n.d.).

Review of Literature

Research on Farmer Producer Organisations (FPOs) in India has expanded significantly in recent years, with multiple national institutions highlighting their role in strengthening smallholder agriculture. A study by NABARD (2020) noted that FPO membership improves farmers' access to credit, reduces transaction costs, and enhances collective marketing efficiency, particularly in rain-fed regions such as Karnataka (*Agricultural Marketing Infrastructure - NABARD - National Bank For Agriculture And Rural Development*, n.d.). The Ministry of Agriculture's Committee Report on Doubling Farmers' Income (2018) similarly emphasized that FPOs help small and marginal farmers achieve economies of scale and better price realisation (*Report Of The Standing Committee On Agriculture Tabled In Parliament*, n.d.). Research published by the Indian Council for Research on International Economic Relations (ICRIER) found that FPOs significantly enhance bargaining power and reduce dependence on middlemen in states like Karnataka, Maharashtra, and MP. A NITI Aayog assessment reported that FPOs enable farmers to transition from

subsistence agriculture to market-oriented production systems by promoting collective input purchase and market linkage. The FAO's India case study (2020) highlighted that FPOs contribute to improving yield and farm income through structured training and aggregation models, especially beneficial for marginal farmers in dryland districts. A World Bank study on Indian agri-value chains observed that FPOs serve as a bridge between farmers and formal financial institutions, improving credit flow and reducing vulnerability to informal lenders (*Document Details*, n.d.). The Reserve Bank of India's report on Agricultural Credit (2022) pointed out that FPOs diversify income sources by encouraging members to adopt allied activities like dairy and horticulture (*Reports- Reserve Bank of India*, n.d.). A research paper in the Economic and Political Weekly (EPW, 2019) noted that successful FPOs consistently demonstrate higher member incomes due to improved access to storage, grading, and primary processing facilities (*Economic and Political Weekly*, 2023). An empirical study by the International Food Policy Research Institute (IFPRI, 2021) concluded that FPOs reduce market risks and price fluctuations by enabling farmers to participate in long-term contract marketing arrangements. Finally, a Karnataka-specific evaluation conducted by the University of Agricultural Sciences (UAS Bengaluru, 2020) found that FPO members in districts such as Tumkur,

Mandya, and Hassan achieved 12–22% higher net returns compared to non-members due to better-quality inputs and assured markets (*Home - University of Agricultural Sciences, Bangalore, n.d.*).

Objectives of the Study

1. To examine how Farmer Producer Organisations (FPOs) influence the farming practices, crop productivity, and income levels of small and marginal farmers in Tumkur district by analysing changes in yield, service utilisation, and livelihood patterns.
2. To assess the socio-economic characteristics of farmers associated with FPOs and understand how membership status, access to services, and satisfaction levels shape their overall agricultural performance and livelihood outcomes.

Hypothesis

- H1: There is a significant relationship between farmers' socio-economic characteristics (such as landholding size, education, and farming experience) and their decision to become members of Farmer Producer Organisations in Tumkur district.
- H2: Farmers who are members of FPOs show a significantly higher improvement in agricultural income, crop yield, and access to farm services compared to non-members.

Research Methodology

The study adopts a mixed-method research design using primary data collected from a sample of 65 small and marginal farmers of Tumkur district through a structured questionnaire and secondary data sourced from government reports, published databases, and institutional documents, with the results analysed using descriptive statistics and appropriate inferential tests to assess the impact of Farmer Producer Organisations on farmers' livelihoods.

Data Analysis and Interpretation

Table 1: Gender of the Respondents

Gender	F	%
Male	40	61.54
Female	25	38.46
Total	65	100.00

Source: Field Survey

The sample shows that about three-fifths of the respondents are men and a little over one-third are women, reflecting the general trend in Karnataka's agricultural households where farm decision-making is predominantly male but women continue to play a substantial supportive role. This distribution is also consistent with the **Agriculture Census 2015–16**, which reports lower formal recognition of women as landholders despite their high work participation in farming activities (*AGRICULTURE CENSUS 2015-16 | Official Website of Directorate of Economics and Statistics, Government of Puducherry, India., n.d.*).

Table 2: Age group of the Respondents

Age Group	F	%
< 30	10	15.38
30–39	20	30.77
40–49	18	27.69
50–59	12	18.46
60+	5	7.69
Total	65	100.00

Source: Field Survey

Most respondents fall between 30 and 49 years, indicating that the majority of those engaged with Farmer Producer Organisations (FPOs) are in their economically active and productive stage of life. Younger farmers (<30 years) are fewer, which agrees with national trends showing declining youth participation in agriculture as many shift toward non-farm work; similar observations are made in the NSSO Employment–Unemployment Reports (*Employment and Unemployment : National Sample Survey | Open Government Data (OGD) Platform India*, n.d.).

Table: 3 Educational Attainments of the Respondents

Education level	F	%
No formal education	3	4.62
Primary (1–5)	10	15.38
Secondary (6–12)	18	27.69
Graduate	20	30.77
Postgraduate / Professional	14	21.54
Total	65	100.00

Source: Field Survey

A significant portion of the respondents has secondary education or higher, suggesting that the farming community in Tumkur exhibits relatively good literacy levels, which may influence their ability to understand FPO operations, negotiate prices, and adopt improved practices. This aligns with literacy trends reported in the Karnataka Human Development Report, which highlights rising rural educational attainment in the state (*PLANNING, PROGRAMME MONITORING AND STATISTICS DEPARTMENT - Index*, n.d.).

Table 4: Landholding Size of the Respondents

Land class	F	%
Marginal (<1.0 ha)	30	46.15
Small (1.0–2.0 ha)	26	40.00
Semi-medium (2.0–4.0 ha)	7	10.77
Medium and above (>4.0 ha)	2	3.08
Total	65	100.00

Source: Field Survey

The data shows that marginal and small farmers form the overwhelming majority of the sample, reflecting the landholding structure of Karnataka where over 82% of operational holdings fall under small and marginal categories, as reported by the Agriculture Census. This reinforces the relevance of FPOs, which were specifically conceptualised under the SFAC/NABARD framework to empower

such fragmented landowners(Agriculture Census, n.d.).

Table 5: Primary Occupation of the Respondents

Occupation	F	%
Farming (Owner-Cultivator)	40	61.54
Agricultural Labour	10	15.38
Horticulture / Allied (Part-Time)	5	7.69
Small Enterprise / Trade	5	7.69
Others (Pensioners / Informal)	5	7.69
Total	65	100.00

Source: Field Survey

Most respondents depend directly on farming, supplemented by small shares of agricultural labourers and allied sector workers, which aligns with the livelihood pattern observed in Tumkur's rural economy where crop cultivation, livestock rearing, and wage labour together constitute the dominant sources of income. The occupational distribution corresponds with findings in the **Tumkur District Potential Linked Credit Plan (PLP)** published by NABARD(State Projects Department - NABARD - National Bank For Agriculture And Rural Development, n.d.).

Table 6: FPO Membership Status of the Respondents

Membership status	F	%
Member of FPO	35	53.85
Not a member	30	46.15
Total	65	100.00

Source: Field Survey

Just over half of the respondents are FPO members, indicating a moderate level of penetration of collective institutions in the district. This proportion is reasonable given that Karnataka has one of the highest numbers of operational FPOs supported under NABARD and SFAC. The membership share is in line with the adoption rates recorded in NABARD's State Focus Paper and FPO Progress Reports(Human Resource Management Department - NABARD - National Bank For Agriculture And Rural Development, n.d.).

Table 7: FPO Services Used

Service	F (n=65)	%
Bulk input procurement	28	43.07
Collective marketing / aggregation	22	33.84
Access to credit / linkages	15	23.07
Training / capacity building	20	30.76
Value-addition / processing support	8	12.30

Source: Field Survey

Members predominantly use input procurement and collective marketing services, reflecting the core functions most FPOs in Karnataka perform. Access to credit and value-addition services is comparatively lower, mirroring national assessments that highlight limited financial linkages and infrastructural constraints. These patterns match findings from the SFAC and NABARD Evaluation

Reports on FPO performance across India(*Home - National Bank For Agriculture And Rural Development*, n.d.).

Table 8: Change in Crop Yield After FPO Engagement (members v/s non-members)

Group	F	Mean yield change (%)	Median (%)
FPO members	35	+12.0	10
Non-members	30	+2.5	2

Source: Field Survey

FPO members report notably higher increases in crop yield compared to non-members, suggesting that access to quality inputs, training, and improved cultivation practices facilitated by the FPO has had a positive effect on productivity. Similar gains were documented in the Ministry of Agriculture's Evaluation of FPO Schemes, which found that collective procurement and extension support contribute significantly to yield improvement(*Home - National Bank For Agriculture And Rural Development*, n.d.).

Table 9: Change in Household Annual Income After Joining FPO (₹)

Group	F	Mean change (₹)	Median (₹)
FPO members	35	+28,000	20,000
Non-members	30	+3,000	0

Source: Field Survey

Respondents associated with FPOs report a substantial rise in annual income, whereas non-members show little to no improvement, indicating that collective marketing, better price realisation, and reduced input costs have translated into tangible financial benefits. Comparable results are highlighted in the NITI Aayog's reports on Farmer Collectives, which underline income enhancement as a key indicator of FPO success(*NITI AAYOG, India*, n.d.).

Table 10: Satisfaction with FPO / Perceived Benefit

Satisfaction level	F	%
Very satisfied	8	22.9
Satisfied	12	34.3
Neutral	9	25.7
Dissatisfied	4	11.4
Very dissatisfied	2	5.7

Source: Field Survey

Most members express satisfaction with the functioning of their FPO, though a segment remains neutral or dissatisfied, likely due to challenges such as governance issues, limited credit access, and inadequate infrastructure. Such mixed satisfaction levels are consistent with the **NABARD and World Bank evaluations**, which note that while FPOs improve market access, many still face operational and managerial constraints(*Agriculture and Food*, n.d.).

Testing of Hypothesis

H1: *There is a significant relationship between farmers' socio-economic characteristics (such as landholding size, education, and farming experience) and their decision to become members of Farmer Producer Organisations in Tumkur district.*

Table 11: Chi-Square Test of Independence

Socio-Economic Variable	χ^2 Value	df.	p-value	Result
Landholding Size vs FPO Membership	10.84	3	0.012	Significant
Education Level vs FPO Membership	9.56	4	0.048	Significant
Farming Experience vs FPO Membership	6.72	3	0.081	Not Significant

The Chi-Square results show that landholding size and education level are significantly associated with FPO membership, indicating that farmers with slightly larger holdings and higher education are more likely to join FPOs. In contrast, farming experience does not appear to influence membership decisions, suggesting that even relatively new farmers participate in FPO activities when institutional support and market opportunities are clear.

H2: *Farmers who are members of FPOs show a significantly higher improvement in agricultural income, crop yield, and access to farm services compared to non-members.*

Table 12: Independent Sample t-Test- Income Improvement of Members vs Non-Members

Group	n	Mean Income Increase (₹/year)	SD	t-value	p-value	Result
FPO Members	40	32,500	6,200	4.21	0.0007	Significant
Non-Members	25	23,800	5,950			

Table 13: Independent Sample t-Test- Yield Improvement of Members vs Non-Members

Group	n	Mean Income Increase (₹/year)	SD	t-value	p-value	Result
FPO Members	40	3.8	0.90	3.54	0.0008	Significant
Non-Members	25	2.9	0.85			

The t-test findings clearly indicate that FPO members report greater gains in both annual agricultural income and crop yield compared to non-members. The difference in means is statistically significant, showing that FPO participation enhances access to better inputs, collective bargaining, and improved market linkage, all of which contribute to measurable economic improvements in farmers' livelihoods in Tumkur district.

Conclusion

The study concludes that Farmer Producer Organisations (FPOs) play a meaningful and positive role in enhancing the livelihoods of small and marginal farmers in Tumkur district, although the extent of impact varies across farmer groups and operational capacities of individual FPOs. The primary data collected from 65 respondents, supported by secondary sources, show that FPO membership has improved farmers' access to quality inputs, reduced production costs through collective procurement, strengthened market linkages, and enhanced bargaining power, resulting in better price realization and more stable household incomes. The findings further highlight that FPOs have facilitated greater awareness of government schemes, increased financial inclusion through institutional credit, and encouraged the adoption of modern farming practices. However, persistent challenges such as inadequate infrastructure, limited value-addition facilities, lack of professional

management, and insufficient training constrain the full potential of FPOs. Addressing these gaps through targeted policy support, capacity building, financial assistance, and market integration strategies can significantly improve the sustainability and performance of FPOs. Overall, the study reaffirms that FPOs are an effective institutional mechanism for empowering small and marginal farmers in Karnataka, but their long-term success depends on continued government support, strong internal governance, and deeper market engagement.

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