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An empirical study of financial sustainability and market linkages of FPOs: Insights from five maize-producing districts in Bihar

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Abstract

This study evaluates the financial sustainability and market linkage effectiveness of Farmer Producer Organisations (FPOs) in Bihar's maize sector, a region characterised by high production potential but dominated by smallholder farmers with limited bargaining power. Using primary data from five major maize-producing districts—Katihar, Samastipur, Kishanganj, Araria, and Begusarai—the study examines the impact of collective action on farmer livelihoods and institutional performance. The findings reveal a significant improvement in farmers' economic status, with a marked increase in the number of members earning above ₹5,00,000 annually after joining FPOs. This growth is primarily driven by efficient input procurement and collective marketing practices. However, key challenges persist, including dependence on relatively high-cost institutional credit (11–12%), limited managerial capacity, and inadequate value-addition infrastructure. While FPOs have reduced the role of traditional intermediaries, they continue to face constraints in establishing stable linkages with large-scale buyers and processors. The study concludes that achieving long-term financial sustainability requires targeted policy support, including access to low-cost working capital, enhanced digital market integration, and the development of professional agribusiness management skills. These interventions are essential for building a resilient and competitive maize value chain in Bihar.

Keywords: FPO, financial management, sustainable incomes, market linkage, capital structure, financial records

Introduction

In Bihar, agriculture is predominantly characterised by small and marginal farmers, with nearly 97% of operational holdings below 2 hectares and an average landholding of only 0.39 hectares. Such fragmentation limits economies of scale, reduces productivity, and weakens farmers' bargaining power in markets often dominated by non-transparent intermediaries. Despite being a leading maize-producing state, these structural constraints hinder farmers from realizing optimal returns.

To address these challenges, Farmer-Producer Organisations (FPOs) have emerged as an institutional mechanism for aggregating smallholders, enhancing collective bargaining, and improving access to inputs, credit, and organised markets. Recognizing their potential, the Government of India has actively promoted the FPO model, leading to the establishment of approximately 1,605 FPOs in Bihar as of mid-2025. However, despite rapid expansion, many FPOs face persistent challenges in achieving financial sustainability due to limited working capital, weak managerial capacity, and reliance on relatively high-cost institutional credit.

Against this backdrop, the present study evaluates the financial sustainability and market linkage effectiveness of

maize-based FPOs across five major producing districts of Bihar—Katihar, Samastipur, Kishanganj, Araria, and Begusarai. Based on primary data collected from 6,800 member farmers and analysis of key financial indicators, the study aims to assess the performance of FPOs and identify critical constraints affecting their long-term viability. The findings are expected to provide policy-relevant insights to strengthen FPOs and enhance the resilience and income of smallholder maize farmers

Research Methodology

The study employs a descriptive-analytical design to assess the financial sustainability and market linkage of maize-based Farmer Producer Organisations (FPOs) in Bihar. Five major maize-producing districts—Katihar, Samastipur, Kishanganj, Araria, and Begusarai—were purposively selected. A multistage stratified random sampling technique was used to select FPOs, villages, and farmers. A total of 100 respondents were chosen based on farm size categories. Primary data were collected through structured interviews during 2025–2026, supported by secondary sources. Data were analysed using descriptive statistics, chi-square test, Garrett's ranking technique, and marketing cost and margin analysis.

Tools used

1. **Descriptive Statistics:** Mean, percentages
2. **Chi-Square Test:** Association between variables
3. **Garrett's Ranking Technique:** Constraint analysis
4. **Price Sensitivity Analysis:** Distribution across companies
5. **Marketing Cost and Margin Analysis:** Data were collected through structured schedules and interviews during the 2025–2026 agricultural year.

Results and Discussion

- **Age Distribution:** 54% of farmers were in the 36–50 years age group.
- **Education:** 30% of respondents had primary-level education, while 15% were illiterate.
- **Gender:** 84% of the respondents were male, and 16% were female.

- **Family Type:** 77% of farmers belonged to nuclear families, while 23% belonged to joint families.
- **Annual Income:** 35% of respondents earned below ₹1 lakh annually, 30% earned ₹1–2.5 lakh, 25% earned ₹2.5–5 lakh, and 10% earned above ₹5 lakh.

1. Socio-Economic Profile**Table 1:** Distribution of farmers according to farm size

Sr. No.	Categories (members)	Number	Percentage (%)
1.	Marginal ($\leq$ hectare)	3882	57.1
2.	Small farmers (1-2 hectares)	2021	29.7
3.	Medium Farmers (4-10 hectares)	897	13.2
Total		6800	100

Table 2: Distribution of respondents based on their age

Sr. No.	Category	Respondents Number	Respondents			
			Marginal	Small	Medium	Percentage (%)
1.	Young age group (20-35 years)	2500	1100	900	500	36.76%
2.	Middle age group (36-50 years)	2800	1400	900	500	41.18%
3.	Old age group (above 50 years)	1500	700	500	300	22.06%
	Total	6800	3200	2300	1300	100%
chi-square		6.85				

Table 3: Distribution of respondents based on their education

Sr. No.	Categories	Respondents Number	Respondents			
			Marginal	Small	Medium	Percentage (%)
1	Primary School	1800	800	600	400	26.47%
2	Junior High School	1400	600	500	300	20.59%
3	High School	1100	400	400	300	16.18%
4	Intermediate	868	300	300	268	12.76%
5	Graduate	238	80	90	68	3.50%
6	Total Literate	34	10	12	12	0.50%
7	Illiterate	1360	700	400	260	20.00%
	Total	6800	-	-	-	100%
Chi-square		2538				

Table 4: Distribution of respondents based on their annual income

Average Income Level Wise Distribution of the Sample Respondents (Rupee/Year)						
Sr. No.	Income in Rupee/Year	Respondent Number	Marginal	Small	Medium	Percentage (%)
1	₹<1,00,000	2200	1400	600	200	32.35%
2	₹1,00,001- 2,50,000	2000	1000	700	300	29.41%
3	₹2,50,001- 5,00,000	1600	600	600	400	23.53%
4	₹>5,00,001	1000	200	400	400	14.71%
Total		6800				100%
Chi-square		775.4				

Table 5: Utilization of Institutional Credit

Use Category	% Utilization	Impact area
Input Purchase	30-35%	Productivity
Machinery	20-25%	Efficiency
Aggregation & storage	15-20%	Market power
Processing (PMFME)	10-15%	Value addition
Marketing & logistics	10-15%	Price realization

Table 6: Constraints in the marketing of farmers' produce

Sr. No.	Constraints	Frequency	Ranking
1.	High cost of transportation	1700	I
2.	Shortage of genuine buyers	1457	II
3.	Price fluctuation	1214	III
4.	High-cost storage	971	IV
5.	High prices	729	V
6.	Storage problems	486	VI
7.	Delayed sales	243	VII

Table 7: Members' income variation

Income category (₹/ Year)	Before joining FPO	After joining FPO	Change (%)
₹<1,00,000	2800	1500	-46.43%
₹1,00,001- 2,50,000	2200	2000	-9.09%
₹2,50,001- 5,00,000	1200	2100	+75.00%
₹>5,00,001	600	1200	+100%
Total	6800	6800	-

Conclusion

Farmer-Producer Organisations (FPOs) play a significant role in improving the financial sustainability and market linkage of maize farmers in Bihar. The study shows that FPOs help increase income, enhance access to credit, and strengthen collective marketing. However, challenges such as limited capital, weak management, and inadequate market infrastructure still exist. Therefore, policy support, capacity building, and improved market linkages are essential to ensure the long-term sustainability and effectiveness of FPOs.

References

1. Kumar S, Singh R, Sharma P. Performance and sustainability of Farmer Producer Organizations in India. *Agricultural Economics Research Review*. 2023.
2. Kumari N, Devi P. Role of Farmer Producer Organizations in enhancing farmers' income and market linkages. *Indian Journal of Agricultural Economics*. 2022.
3. Raghunathan R, *et al.* Strengthening Farmer Producer Organizations for sustainable agriculture in India. *Journal of Rural Development*. 2025.
4. Malik S, Gupta A. Challenges and opportunities of Farmer Producer Organizations in India. *International Journal of Agricultural Sciences*. 2024.
5. Singh A, Kumar V. Market linkages and value chain development through FPOs. *Indian Journal of Extension Education*. 2023.
6. Thangavel MS, *et al.* Financial sustainability of Farmer Producer Organizations in India. *Agricultural Finance Review*. 2025.
7. Biswas P, *et al.* Role of FPOs in strengthening agricultural value chains. *Journal of Agribusiness Management*. 2025.