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Farmer Producer Organisations and Institutional Economics

Institutional Economic Thought for Strengthening Sustainable Agriculture

A M Jose **Jos Chathukulam**[*#]

Abstract

This paper develops a theoretically grounded and empirically validated framework to analyse Farmer Producer Organisations (FPOs) through the lens of institutional economics. Drawing on classical, new, and heterodox traditions—including Veblen, Polanyi, Ostrom, and Sen—it proposes a seven-cluster schema spanning transaction costs, collective governance, inclusion, ecological resilience, externalities, livelihood security, and state intermediation. FPOs are conceptualised as hybrid, socio-economic institutions embedded in evolving agrarian systems, not mere market aggregators. The framework is operationalised through mixed-methods fieldwork across 12 FPOs in Kerala, alongside national-level stakeholder validation. Using composite Enabler and Barrier Indices, the study diagnoses institutional strengths and weaknesses across clusters. Results highlight robust performance in governance and coordination, but gaps in inclusion and environmental sustainability, underscoring systemic interdependencies. The framework bridges normative institutional theory with diagnostic utility, offering actionable insights for scholars, policymakers, and practitioners. It advances context-sensitive institutional design as a critical lever for strengthening FPO ecosystems and enabling inclusive rural transformation across India and the Global South.

Keywords: Farmer Producer Organisations; Institutional Economics; Participatory Governance; Transaction Costs; Inclusive Development; Sustainable Agriculture; Collective Action; Rural Transformation; Agricultural Policy

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[*] A.M. Jose is a Professor at Amity School of Economics, Amity University Haryana, Gurugram. Jos Chathukulam is the Director of Centre for Rural Management (CRM), Kottayam, Kerala

1. Introduction

Agriculture remains the backbone of India's economy, supporting 42.3% of the population and contributing 18.2% to GDP (Government of India, 2025). Yet the sector is highly vulnerable—especially for the 86.1% of farmers who are smallholders—due to limited market access, volatile prices, and severe resource constraints (Government of India, 2023). These systemic challenges underscore the need for innovative institutional solutions that empower smallholders and enhance resilience.

A key innovation in this context is the emergence of Producer Companies—hybrid entities that combine the cooperative ethos with corporate legal and financial structures. As proposed by the Alagh Committee (Government of India, 2000), Producer Companies were designed to undertake member-focused activities such as production, processing, input distribution, and technical services, to boost collective efficiency and market participation. The Radhakrishna Committee further highlighted their potential to address agrarian distress, financial exclusion, and the marginalisation of smallholders (Government of India, 2007).

The broader concept of Farmer-Producer Organisations (FPOs) gained momentum after the 2002 Companies Act amendment, spearheaded by the Small Farmers' Agribusiness Consortium (SFAC), which played a catalytic role in early FPO formation (Prasad, 2019). Over time, FPOs have evolved beyond market aggregators, becoming institutional platforms for rural transformation, enabling inclusive development and value-chain integration[1].

To formalise this vision, the Government of India introduced the Policy & Process Guidelines for FPOs, offering a comprehensive roadmap to support farmer collectives through legal, financial, and governance mechanisms (Government of India, 2013). These mechanisms enable smallholders to access investment, infrastructure, and technology via professionally-managed entities. As Pal et al. (2003) argue, post-liberalisation agrarian reforms require a rethinking of institutional arrangements at the intersection of state, market, and collective action. This forms the basis for our conceptualisation of FPOs as hybrid institutions, situated within the state–market–community nexus.

The momentum around FPOs has intensified with the release of the 2024 Draft National Policy (DNP), which reaffirms India's commitment to inclusive, enterprise-driven farming. Recognising FPOs under various legal forms—such as the Companies Act (2013) and the Cooperative Societies Act—the policy proposes a federated governance model integrating credit facilitation, digital infrastructure, and value chain ecosystems (Government of India, 2024). It envisions agriculture as a dynamic enterprise enabled by scaling strategies, collective bargaining, and risk mitigation.

These policy developments resonate with the lens of Institutional Economics adopted in this study. Unlike neoclassical models focused on rational agents and market equilibria, Institutional Economics interrogates the deeper architecture of rules, norms, and governance structures that shape economic outcomes. It critiques price-centric models for overlooking persistent inefficiencies, historical path dependencies, and the embedded nature of agrarian decision-making (Eggertsson, 1997; North,

1997). As Mäki (1993) emphasises, institutions are not peripheral—they constitute the very fabric of economic functioning.

Within this tradition, New Institutional Economics (NIE) extends neoclassical reasoning by integrating transaction costs, property rights, bounded rationality, and collective governance (Roy & Thorat, 2008; Williamson, 2000). FPOs, from this perspective, are institutional responses to market and state failures—designed to lower transaction costs, foster trust-based coordination, and enable collective action.

Following Williamson's four-level schema, FPOs operate across nested institutional layers—from informal norms and customs to formal governance structures and policy regimes (Williamson, 2000). Complementary insights by Hubbard show how contracts, conventions, and authority relations reduce uncertainty and strengthen member coordination (Hubbard, 2001).

The DNP further proposes a three-tier governance structure, reforms in credit architecture, digital CACMPs (Common Agriculture Credit Mechanism Platforms), and inclusive business models. These developments indicate that institutional economics is being increasingly internalised in India's policy discourse on FPOs. As Sidhu observed in his Presidential Address to the Indian Society of Agricultural Economics, FPOs are now recognised as central mechanisms for promoting inclusive, market-oriented, and sustainable agricultural transformation (Sidhu, 2025).

According to the Tata-Cornell Institute (TCI), India currently hosts over 45,097 registered FPOs, of which around 26,938 are active and compliant—surpassing the national target of 10,000 functional entities (TCI, 2024). FPOs are increasingly seen as institutional platforms for aggregation, bargaining power, and systemic transformation toward sustainable, inclusive agriculture.

This paper argues that the performance and sustainability of FPOs can be more effectively understood and strengthened through a structured Institutional Economics framework. Drawing from classical, new, and heterodox traditions, we develop a seven-cluster model capturing the key enablers and constraints that shape FPO effectiveness. The framework is empirically tested using a mixed-methods design: bibliometric analysis, field research across 12 FPOs in Kerala, and stakeholder validation.

Institutional thinkers such as Elinor Ostrom (governance of commons), Douglass North (institutional evolution), Mancur Olson (collective action), Amartya Sen (capabilities and inclusion), and Ronald Coase (transaction costs) have laid foundational pillars of institutional economic thought. We further draw on Thorstein Veblen (institutional evolution), Herbert Simon (bounded rationality), Geoffrey Hodgson (institutional routines), Oliver Williamson (hybrid governance), and Dani Rodrik (contextual reform). Collectively, these scholars offer a rich conceptual toolkit for analysing FPOs as hybrid, evolving institutions shaped by both formal rules and informal norms within the state–market–community interface.

The central research question is: How can institutional economics theory provide a systematic framework for understanding and enhancing FPO performance in India's diverse agrarian contexts?

We propose that India's FPOs can be systematically strengthened through a seven-cluster framework integrating transaction cost theory, collective governance, and capability-based development. These clusters—transaction costs, governance design, social capabilities, ecological resilience, externalities, market participation, and state intermediation—collectively determine institutional performance.

Our empirical fieldwork operationalises this framework, illustrating how alignment across these dimensions enhances FPO sustainability and impact. Rather than viewing FPOs merely as economic aggregators, this paper positions them as embedded institutional innovations capable of transforming smallholder agriculture.

The study contributes a diagnostic and design-oriented lens that enables policymakers and practitioners to:

a) Identify institutional strengths and bottlenecks using Enabler and Barrier Indices;

b) Tailor governance and capacity-building interventions to FPOs' unique contexts;

c) Coordinate state support, market linkages, and ecological stewardship;

d) Foster adaptive governance through multi-stakeholder feedback loops; and

e) Replicate successful institutional designs across diverse regions.

This integrative framework not only advances theoretical understanding of rules, norms, and authority structures in collective action, but also offers a practical toolkit to improve FPO governance and resilience. By bridging theory with grounded field realities, the paper contributes to global debates on institutional design and agricultural transformation.

This paper is structured into five sections. The Introduction contextualises the institutional challenges faced by smallholder agriculture in India, and outlines the rationale for adopting an institutional economics lens to study FPOs. Section 2: Methodology details the mixed-methods research design, combining bibliometric analysis, fieldwork across 12 Kerala-based FPOs, and national stakeholder validation. Section 3: Theoretical Foundations and Conceptual Framework draws on classical, new, and heterodox institutional traditions to construct a seven-cluster analytical schema for assessing FPO performance. Section 4: Empirical Validation of an Institutional Economics Lens on FPOs applies this framework using Enabler and Barrier Indices derived from field data, revealing both systemic strengths and institutional bottlenecks. Finally, Section 5: Discussion and Conclusions synthesises the empirical findings, reflects on policy implications, and outlines forward-looking strategies for institutionalising resilient and inclusive FPO ecosystems in India.

2. Methodology

This study is grounded in institutional economics, which highlights the role of institutions in shaping incentives, reducing uncertainty, and fostering long-term cooperation (Shirley, 2005).

Guided by this theoretical lens, we adopt a mixed-methods design that synthesises conceptual inquiry with empirical validation across multiple data sources.

The research design evolved through participatory dialogue at a national seminar hosted by the Centre for Rural Management (CRM), Kerala, in partnership with NABARD (Nov 1–2, 2024). Over 100 stakeholders - including farmers, FPO directors, government officials, NGO representatives, and academics - contributed insights that informed the study's core questions and policy relevance.

In order to empirically evaluate our seven-cluster institutional framework, we carried out fieldwork in three stages across twelve purposively selected FPOs in Kerala: preparatory interviews and pilot testing in July–August 2024 (to inform the NABARD National Seminar), follow-up data collection in December 2024 (immediately after the Seminar), and final validation in June–July 2025 (incorporating peer-reviewer comments)[2]. The sample reflected diversity in region (Kannur, Thrissur, Kottayam, Alappuzha, Idukki), performance maturity, and organisational structure. Selection was informed by NABARD, Palai Social Service Society, political leaders, and progressive farmers.

Primary data collection included structured surveys with 52 FPO members and 38 board directors[3]. The questionnaire was built around the seven-cluster framework and designed to capture both enabling and constraining institutional factors. To ensure the reliability and validity of our survey instrument, we conducted a pilot test with two FPOs, refining items through cognitive interviews[4]. Survey responses were anonymised, and interviewer training minimised response bias.

Enablers were rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), while Barriers were inversely scored. Based on these responses, Enabler and Barrier Indices were computed, standardised to a 0–100 scale, and integrated into a composite Thematic Index. These indices facilitated cross-cluster and cross-stakeholder comparison, revealing institutional strengths, bottlenecks, and divergent perceptions.

Three multi-stakeholder Focus Group Discussions (FGDs) were purposively conducted in selected FPOs. Each included farmers, board members, traders, local officials, and NGO representatives. These sessions unearthed tacit norms, informal practices, and local governance dynamics often missed by structured instruments.

To triangulate findings, extensive desk research was undertaken, including a bibliometric analysis of academic literature (2000–2024) and a policy review of key government reports. This layered approach - combining bibliometric mapping, conceptual synthesis, field data, and stakeholder validation - ensured both empirical rigour and theoretical depth. In line with Faghih and Samadi (2021), special attention was paid to path dependence and local institutional embeddedness.

The triangulated insights not only contextualised the field findings but also operationalised our theoretical model in a real-world setting, linking the abstract logic of institutional economics to the everyday functioning of FPOs in Kerala. While our design ensures methodological rigour, findings are context-bound to Kerala's agrarian settings, and future studies may extend this framework to other regions and seasons.

3. Theoretical Foundations and Conceptual Framework for Understanding FPOs

FPOs are complex institutional responses to agrarian transformation in the Global South. Understanding their governance and performance requires moving beyond neoclassical assumptions of rational agents and self-correcting markets. Institutional Economics offers a pluralist and dynamic lens, recognising that both formal and informal institutions shape behaviour, reduce uncertainty, and mediate development outcomes.

This section reviews key institutional traditions underpinning our framework. Each of the following seven subsections unpacks a major tradition, and maps it to specific performance dimensions of FPO governance.

(i) Classical Institutionalism: Classical Institutionalism challenged neoclassical economics by emphasising norms, culture, and social embeddedness. Veblen's concept of cumulative causation portrayed economic behaviour as historically contingent and habit-driven (Veblen, 1899). Commons defined institutions as "collective action in control of individual action," highlighting legal and normative embedment (Commons, 1934). Polanyi argued that markets are embedded in social relations; informal norms often govern rural value chains, especially in India (Polanyi, 1944). These insights position FPOs as socio-cultural institutions whose legitimacy and effectiveness depend on aligning formal mechanisms with deep-rooted social norms. This informs the Institutional Design and Collective Governance clusters.

(ii) New Institutional Economics (NIE): NIE provides analytical tools for understanding market-based institutions. Coase explained firms as responses to high transaction costs in markets (Coase, 1937). North described institutions as "rules of the game" that reduce uncertainty and support cooperation (North, 1990). Williamson classified governance into markets, hierarchies, and hybrids—shaped by bounded rationality, asset specificity, and opportunism (Williamson, 1985). Olson's logic of collective action showed how selective incentives and rules structure group behaviour (Olson, 1965). NIE positions FPOs as hybrid governance structures designed to reduce transaction costs and manage coordination—key to the Transaction Costs & Institutional Efficiency cluster.

(*iii) Contracts and Property Rights Theories*: Contract and property rights theories clarify how institutions manage incentives and control. Grossman and Hart's theory of incomplete contracts describes how firms govern under uncertainty (Grossman & Hart, 1986). Barzel differentiated between de jure and de facto rights, highlighting informal control over assets (Barzel, 1997). These ideas explain how FPOs allocate residual control rights, navigate customary claims, and distribute decision-making—informing both the Institutional Efficiency and Governance Design clusters.

(iv) Collective Action and Commons: Ostrom's research demonstrated that communities can develop self-enforcing institutions to manage common-pool resources (Ostrom, 1990). Her design principles—rules, monitoring, and graduated sanctions—show how local governance fosters durable

cooperation. These insights shape the Collective Governance and Institutional Design cluster, and also support the Sustainable Agriculture & Long-Term Resilience cluster, by embedding ecological stewardship within decentralised systems of accountability.

(v) Information Economics and Coordination Failures: Information asymmetry undermines coordination in agricultural markets. Akerlof's adverse selection, Stiglitz's moral hazard, and Arrow's theory of information as a public good explain why markets often fail in the absence of credible information (Akerlof, 1970; Arrow, 1974; Stiglitz, 1989). FPOs function as institutional correctives by aggregating information, building trust, and reducing search and monitoring costs. These roles are critical for market participation, livelihood security, and governance, while also mitigating externalities—such as underinvestment in public goods, quality standards, and rural infrastructure. This directly informs the Externalities & Institutional Failure and Income Security, Employment & Market Participation clusters.

(vi) Capabilities, Inclusion, and Livelihoods: Sen's capability approach reframes development as expanding substantive freedoms and agency, especially for marginalised groups (Sen, 1999). Acemoglu, Johnson, and Robinson argue that inclusive institutions prevent elite capture and foster downward accountability (Acemoglu et al., 2001; Acemoglu & Johnson, 2023). FPOs must embed these principles through democratic governance, quotas, and voice mechanisms. Simultaneously, NIE and information economics show how transaction cost reduction and trust-building enable market integration and secure livelihoods. FPOs enhance income security and employment through aggregation, better prices, and expanded credit access. Federated FPOs multiply employment along the value chain—from logistics and grading to processing. Together, these insights inform the Empowerment, Inclusion & Social Capabilities and Income Security, Employment & Market Participation clusters.

(vii) Institutional Dynamics and Evolution: Institutions evolve through layering, drift, and conversion. Petrović (2011) and Faghih & Samadi (2021) build on Thelen to show how FPOs blend policy incentives with community norms. Adaptive institutions also underpin resilience in the face of climatic and market shocks, aligning with the Sustainable Agriculture & Long-Term Resilience cluster. Moreover, evolving multi-level coordination with state actors strengthens state capacity, decentralisation & institutional intermediation.

While this framework is grounded in institutional economics, it integrates more theoretical traditions. Concepts from Simon (bounded rationality), North (path dependence), Ostrom (local governance), and Williamson (transaction cost logic) provide a comprehensive lens to view FPOs as hybrid, evolving, and embedded institutions. These theoretical mappings are summarised in Figure 7 and Table 1, which connect them to specific FPO governance outcomes.

3.1 Bibliometric Validation of Institutional Themes in FPO Research

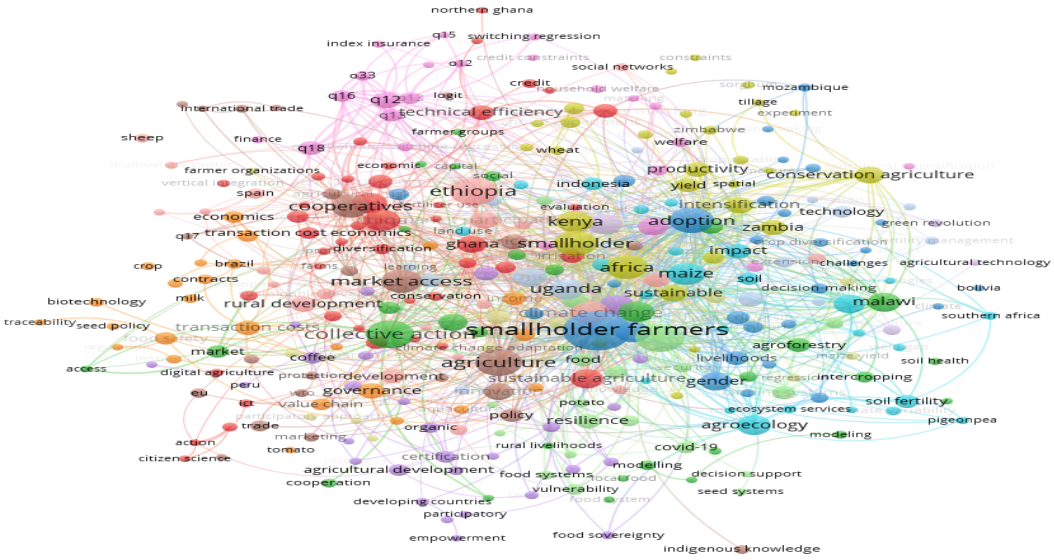
To ground the conceptual framework in contemporary academic discourse, this study employed a bibliometric and systematic literature review. Data were sourced from two major scholarly databases

- Web of Science (2,212 results) and Scopus (40 filtered results) - selected for their relevance to FPOs, institutional economics, and sustainable agriculture[5]. Using VOSviewer software, we generated keyword co-occurrence maps that revealed prominent thematic clusters, including transaction costs, collective action, governance, and market participation.

These visualisations not only validated the study's seven-cluster analytical framework but also underscored the enduring relevance of institutional economics in the FPO research landscape. The alignment between keyword clusters and theoretical domains affirms the conceptual integrity and empirical grounding of our approach.

Figure 1 presents a co-occurrence network centred on "smallholder farmers," illustrating thematic clusters across institutional and agrarian research. The blue-green cluster explores sustainable practices such as soil fertility, agroecology, and climate resilience. The red and brown clusters emphasise cooperatives, market access, and rural economics. Technical efficiency and credit form a pink cluster, while a central green cluster links governance, resilience, and collective action. Smaller clusters reflect emerging topics like indigenous knowledge, digital agriculture, and post-pandemic transformation. This thematic landscape confirms the multidimensional character of FPO research, and underscores the institutional and policy intersections that shape smallholder trajectories.

Figure 1: Overall Thematic Network of Research



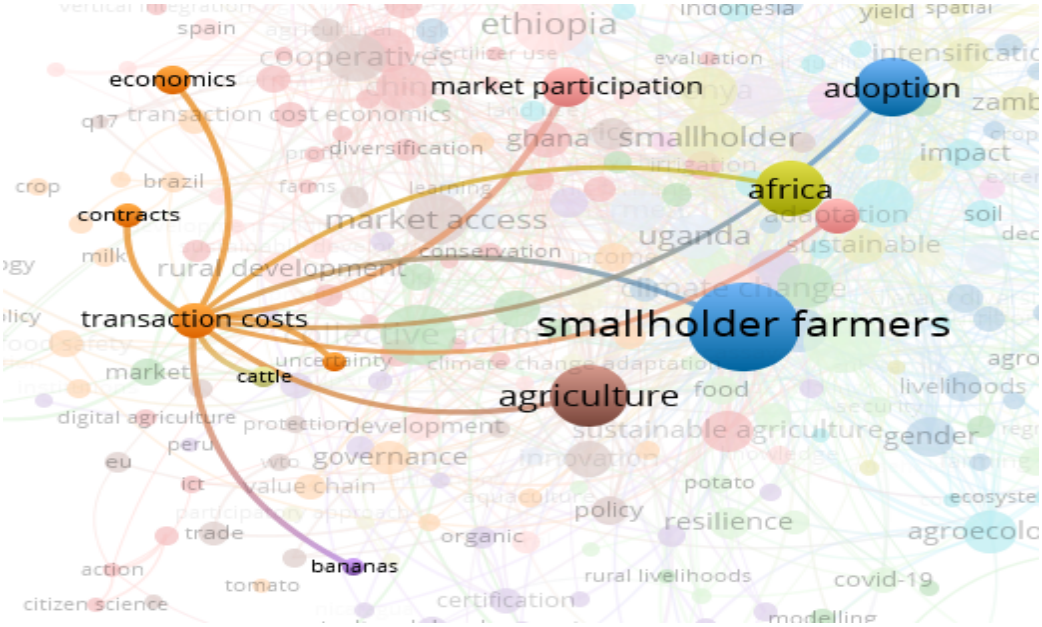
Source: Authors' visualisation using VOSviewer software based on Scopus and Web of Science data (2000–2024).

Figure 2 highlights the transaction cost thematic cluster as a central organising concept in institutional research on smallholder agriculture. "Transaction costs" appears as a prominent node, strongly linked to "contracts," "market access," "economics," and "rural development," underscoring its foundational relevance in explaining institutional inefficiencies among smallholders.

The cluster also includes regional and thematic extensions—particularly to "Africa," "adoption," and "governance"—indicating a strong empirical focus on technology adoption and institutional barriers in African contexts. The co-occurrence with terms like "resilience," "climate change," and

"agriculture" reflects the integrated concerns of sustainability, adaptive institutions, and long-term farmer welfare. This mapping directly corresponds with this paper's first thematic cluster: Transaction Costs and Institutional Efficiency, and confirms that these themes remain central to both theoretical discourse and applied empirical work in FPO research.

Figure 2: Thematic Cluster of Transaction Cost



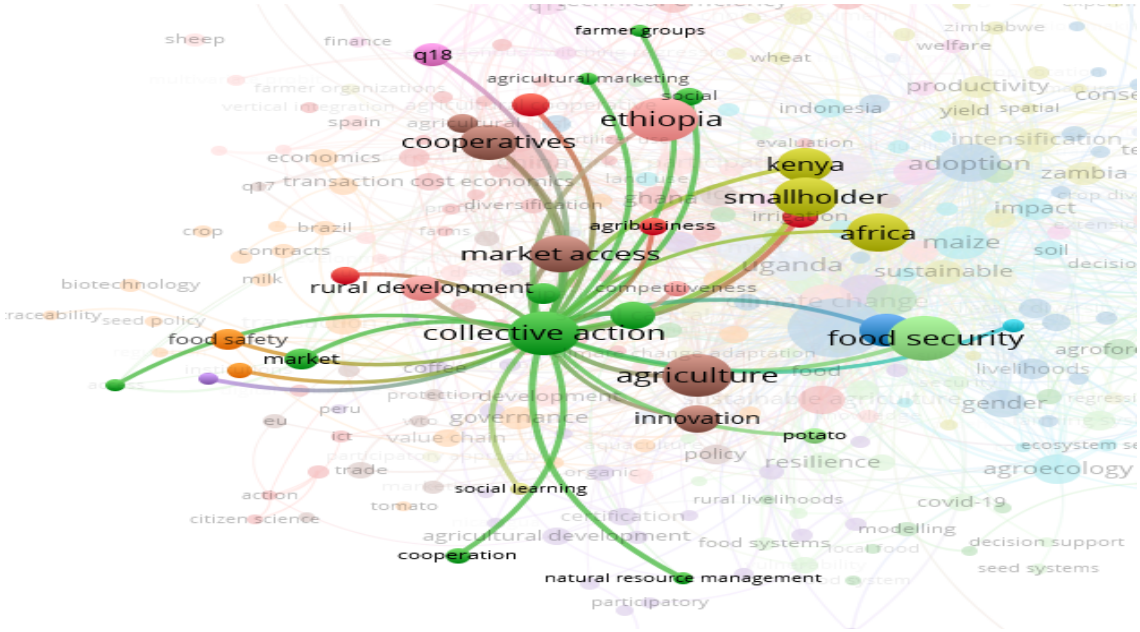
Source: Author's interpretation based on VOSviewer

Figure 3 visualises the centrality of "collective action" in the literature on smallholder agriculture and institutional development. Appearing as a dominant green node, collective action is closely linked with core concepts such as market access, cooperatives, food security, governance, agricultural innovation, and natural resource management. This indicates a widespread research consensus that collaborative approaches are crucial for empowering smallholders, improving bargaining power, and fostering inclusive growth.

Strong geographic clustering around terms like Ethiopia, Kenya, Uganda, and Africa highlights the empirical grounding of this theme in Sub-Saharan contexts, though its conceptual implications extend globally. Notably, terms such as rural development, social learning, certification, and cooperation suggest that collective action is seen as a vehicle not only for economic empowerment but also for social and ecological resilience.

This map directly validates our second thematic cluster, Collective Governance & Institutional Design, rooted in Ostrom's theory of self-organisation, Hodgson's institutional evolution, and Baviskar's emphasis on embedded rural institutions. It supports the argument that successful FPOs require not only structural efficiency but also participatory legitimacy, local knowledge, and cooperative governance mechanisms.

Figure 3: Thematic Cluster of Collective Action



Source: Author's interpretation based on VOSviewer

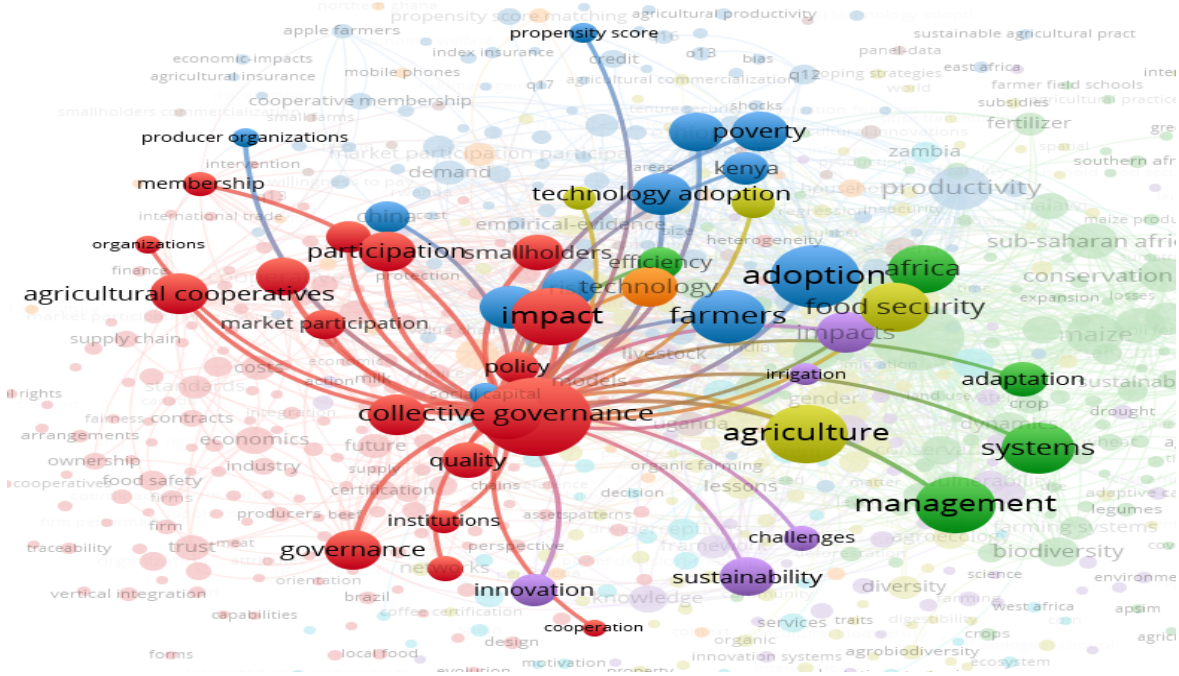
Figure 4 visualises the interconnected themes surrounding collective governance and its empirical and conceptual associations in agricultural research. The central node—collective governance—is surrounded by a dense web of related terms such as policy, impact, membership, agricultural cooperatives, and technology adoption. This cluster underscores how researchers have approached farmer institutions not merely as economic actors, but as socially embedded organisations requiring enabling governance structures.

The prominence of terms like producer organisations, standards, certification, market participation, and empirical evidence reflects a strong concern with institutional legitimacy, inclusivity, and evidence-based policy design. At the same time, the network connects to adoption, productivity, and systems, indicating a link between governance architecture and broader outcomes like sustainability, efficiency, and food security.

The appearance of country-level terms like Zambia, Kenya, and Africa affirms the empirical relevance of these themes in global South contexts - paralleling Indian realities where smallholders similarly face institutional voids and coordination challenges. The figure emphasises that for FPOs to succeed, collective governance must be embedded in supportive policy ecosystems, inclusive design norms, and cooperative legitimacy grounded in member participation and trust.

This co-occurrence cluster supports this study's thematic areas of Collective Governance & Institutional Design and Empowerment, Inclusion & Social Capabilities, reinforcing theoretical inputs from Ostrom, Birchall, Commons, and Hodgson. It also validates the need for participatory structures, policy integration, and feedback-based institutional innovation in the effective functioning of FPOs.

Figure 4: Thematic Cluster of Collective Governance



Source: Author's interpretation based on VOSviewer

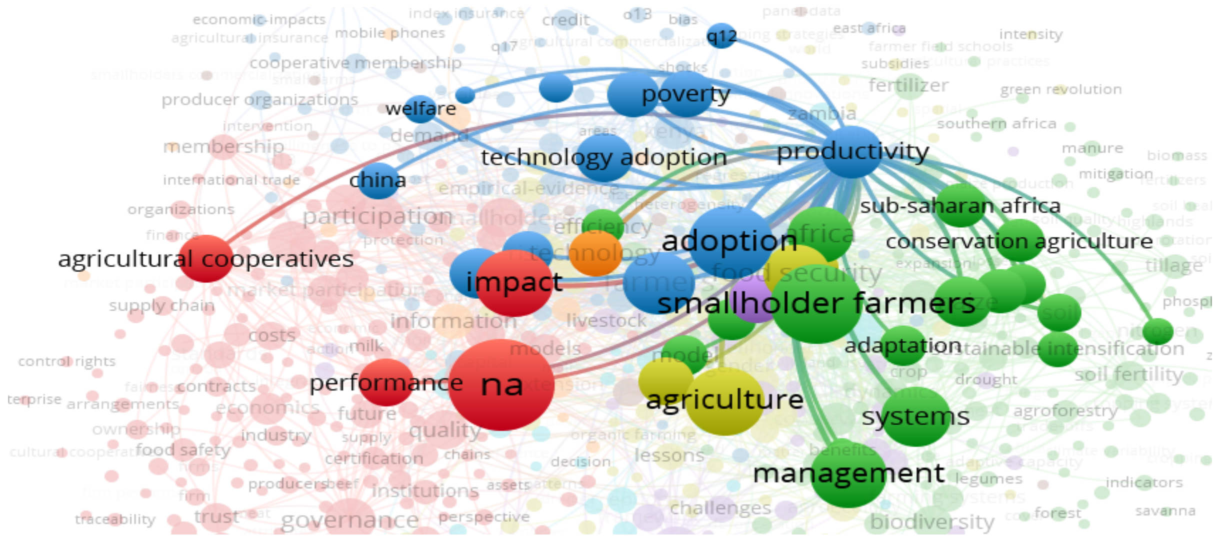
Figure 5 depicts a densely interconnected bibliometric map centering on the productivity and institutional transformation of smallholder agriculture. The green cluster reflects scholarly engagement with sustainable farming systems, including soil fertility, conservation agriculture, farm management, and adaptation strategies. These nodes underscore how environmental sustainability and resource use efficiency are core themes in smallholder literature.

A second, prominent blue cluster centres around productivity, technology adoption, and poverty reduction, indicating an evidence-backed focus on how innovation contributes to agricultural transformation. This cluster directly reinforces the logic behind our third thematic area: Empowerment, Inclusion & Social Capabilities, which views technology not merely as an input, but as an enabling tool contingent on institutional capacity and social inclusion.

The red cluster explores agricultural cooperatives, performance, governance, and quality, tying institutional structure to farm-level outcomes. This convergence affirms our clusters on Collective Governance & Institutional Design and Transaction Costs & Institutional Efficiency, as they both emphasise the role of group-based governance and institutional coordination in performance enhancement.

Overall, this visualisation strengthens the analytical coherence of the seven-cluster framework proposed in this study, by revealing how the academic literature converges around interdependent themes of institutional efficiency, empowerment, innovation, and sustainability. It validates our integrative approach that places FPOs at the intersection of these forces—grounded in Institutional Economics but responding to real-world ecological and organisational challenges.

Figure 5: Thematic Cluster of Productivity



Source: Author's interpretation based on VOSviewer

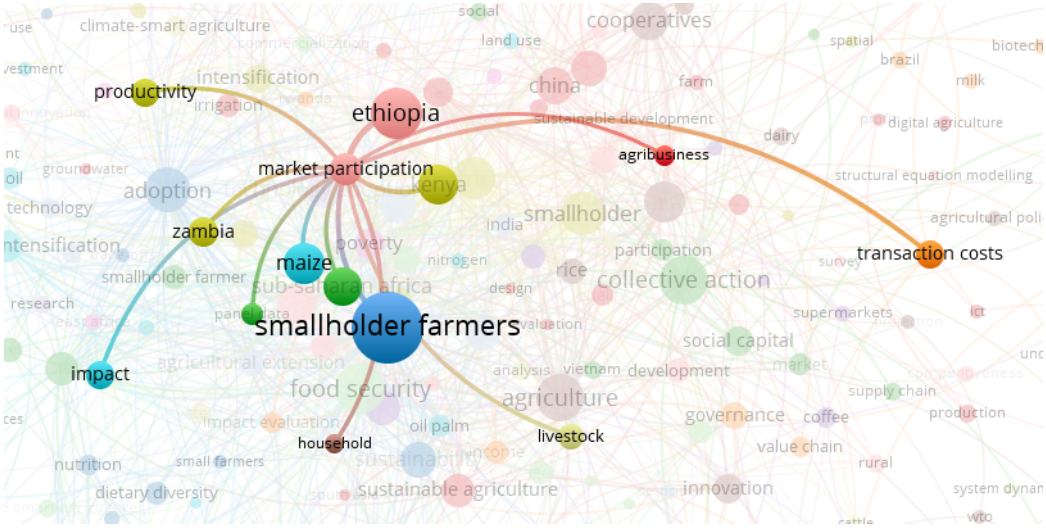
Figure 6 foregrounds market participation as a pivotal node in the bibliometric network, highlighting its centrality in research concerning smallholder transformation. Closely connected to smallholder farmers, market participation bridges institutional concerns with livelihood outcomes. Its proximity to terms like Ethiopia, Kenya, Zambia, maize, and livestock confirms a regional and commodity-specific research focus, particularly within Sub-Saharan Africa.

Importantly, the co-occurrence with transaction costs underlines a recurring institutional constraint faced by smallholders, ranging from high search and transport costs to weak bargaining power and limited access to market information. The link to agribusiness illustrates scholarly interest in value chain integration and the structural barriers small farmers face in accessing formal markets.

The thematic overlap with productivity and impact supports the thesis that market engagement is a key driver of technology uptake, resource investment, and livelihood improvements. Market participation functions as a mediating institution that links farm-level decisions with macroeconomic and policy-level determinants, thereby offering a potent lens for studying income generation, employment potential, and food system integration.

This map reinforces the inclusion of "Income Security, Employment & Market Participation" as a core thematic cluster in our study. It provides bibliometric validation for treating market access not merely as an economic output, but as an institutionally mediated outcome, shaped by governance quality, transaction efficiency, and collective agency.

Figure 6: Thematic Cluster of Market Participation



Source: Author's interpretation based on VOSviewer

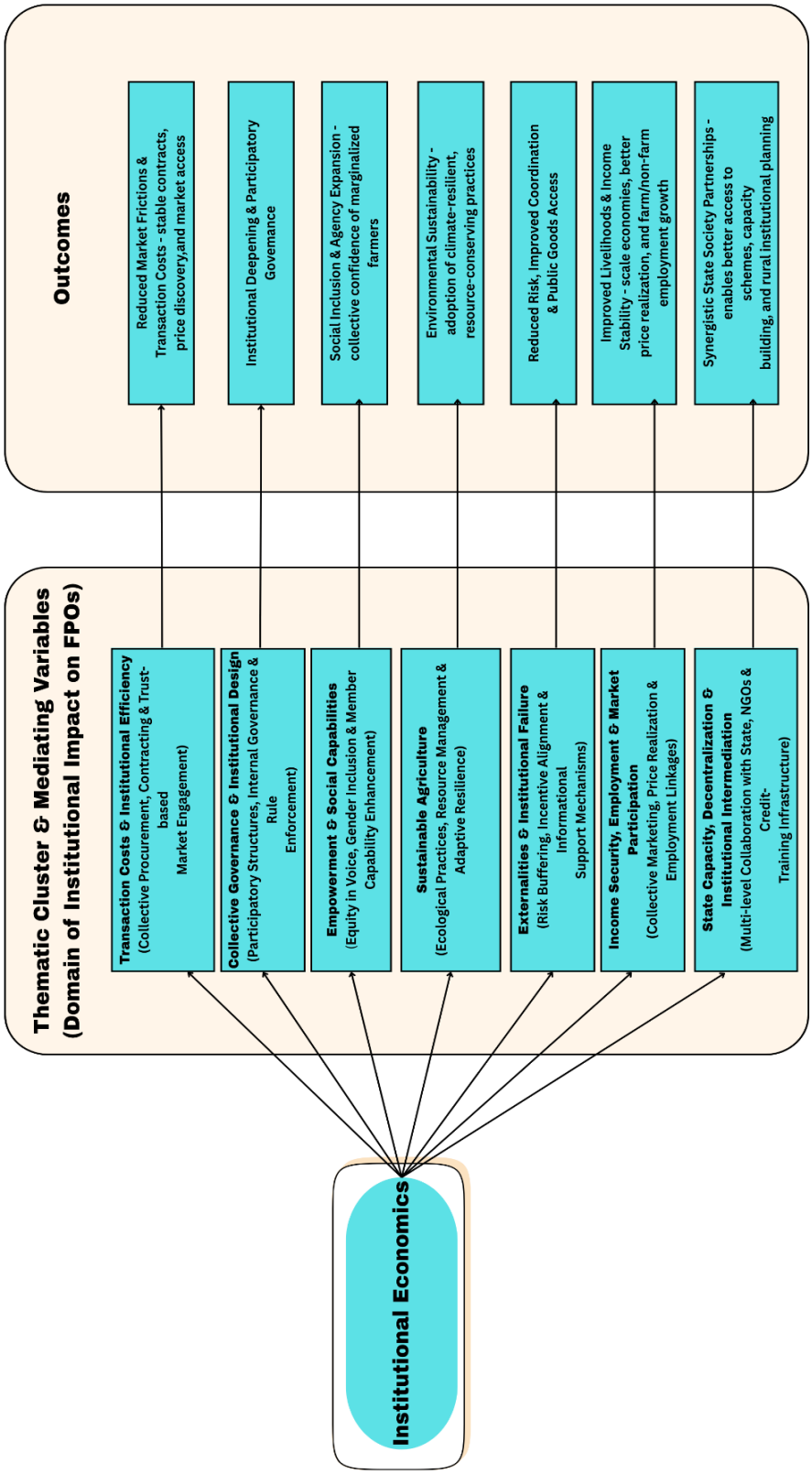
Together, these bibliometric insights validate that the seven thematic clusters developed in this paper are theoretically grounded. While the visual analysis reveals five dominant co-occurrence clusters, these align closely with the conceptual distinctions drawn from the core literature[6]. Importantly, the bibliometric patterns reinforce the multi-dimensional relevance of our analytical framework, linking institutional design, governance, transaction efficiency, sustainability, empowerment, and market integration.

Building on this dual-method validation, Section 3.2 elaborates on each of the seven thematic clusters (See Figure 7 and Table 1) through a detailed review of institutional economic thought. This structured synthesis enables us to draw actionable insights for the design and evaluation of FPOs, while anchoring our analysis in both theoretical traditions and empirical realities.

The seven clusters are not arbitrary classifications; rather, they emerge organically from the conceptual lineages and practical challenges outlined in the preceding sections. Each cluster isolates a distinct institutional function—namely, transaction costs and institutional efficiency; collective governance and institutional design; empowerment, inclusion, and social capabilities; sustainable agriculture and long-term resilience; externalities and institutional failure; income security, employment, and market participation; and state capacity, decentralization, and institutional intermediation—and aligns it with the strand of theory most relevant for its diagnosis and enhancement.

In doing so, the framework provides a coherent lens to understand FPOs as hybrid institutional forms operating at the intersection of state, market, and community in India's agrarian economy. What follows, therefore, is a detailed unpacking of these seven mutually reinforcing domains, beginning with the problem of transaction costs and institutional efficiency.

Figure 7. Conceptual Framework Linking Institutional Economics Theories to FPO Design, Performance and Legitimacy



Source: Authors' interpretation based on literature review

Table -1: Institutional Economics Foundations for FPOs – Seven Thematic Clusters, Core Thinkers, Key Insights, and Applications

Sl No	Thematic Cluster	Key Contributors |	Key Institutional Insights	Practical Application for FPOs
1	Transaction Costs & Institutional Efficiency	(Bardhan, 1989; Coase, 1937; de Vries, 2023; Magnusson & Ottosson, 2009; North, 1990; Petrović, 2011; Shirley, 2005; Singh, 2021; Uphoff, 1986; Vatiero, 2021; Wäckerle, 2014; Williamson, 1985; Akzar et al., 2024; Ciliberti et al., 2020; Do Nascimento Miguel, 2024; Duong, 2025; Lalitha et al., 2024; Liang et al., 2020; Mnisi & Alhassan, 2021; Snider et al., 2017; Tardiff, 2015; Thapa et al., 2023; Wildberg & Möhring, 2021; Williamson, 1985; Yang & Liu, 2012)	FPOs as hybrid organisations that internalise and minimise transaction costs, use both formal contracts and informal norms to coordinate exchanges and manage risk under uncertainty. Adaptive efficiency matters—early frictions are investments in specialisation and trust.	Design transparent contracts, digital platforms, shared logistics, and member incentives that channel transaction costs into organisational learning and durable market relationships. Monitor for residual frictions as indicators of institutional maturity and not just inefficiency.
2	Collective Governance & Institutional Design	(Agarwal, 2001, 2010; Baviskar, 2007; Hayek, 1945; Hodgson, 2006; Jossa, 2019; Ostrom, 1990; Parthasarathy, 2003; Shah, 1996; Tandon, 1996; Uphoff, 1986;Olson,1965; Bhanot et al., 2021; Ciliberti et al., 2020; Dary & Grashuis, 2021; Grashuis, 2018; Grashuis & Martinez-Georges, 2024; Hideto Dato et al., 2020; Hua, 2025; Jia & Huang, 2011; Liang et al., 2015, 2020; Liang & Hendrikse, 2013; Lombardi & Moschella, 2017; Ma & Zhu, 2020; Morfi et al., 2021; Y. Zhang & Hui Huang, 2014)	Collective action works when participatory rule-making, member-driven monitoring, and nested institutions align formal structures with informal norms. Avoid lock-in and elite capture through adaptive, locally grounded governance.	Institutionalise member voice: transparent board elections, inclusive by-laws, rotational leadership, active grievance systems, and capacity-building for marginalised groups. Regularly audit governance for capture or procedural drift. Foster flexibility to adapt to evolving member needs.
3	Empowerment, Inclusion & Social Capabilities	(Agarwal, 2010; Arrow, 1963; Banerjee & Duflo, 2011; Dreze & Sen, 2013; Kannan, 2011; Sen, 1999; Banerjee et al., 2001; Bhanot et al., 2021; Cavicchioli et al., 2019; Han & Liang, 2025; Merlingen et al., 2001; Musinguzi et al., 2018; Myrdal, 1970; Paul & Chakrabarti, 2011)	Institutions should expand real agency, not just procedural inclusion. Capabilities, voice, and substantive empowerment for women, youth, and marginalised groups are essential. Safeguards against tokenism and elite dominance must be proactive.	Embed gender and caste quotas, targeted skills programs, peer mentoring, and accessible communication (local language, simplified rules). Create mechanisms for feedback, rotational representation, and independent audits of participation and benefit-sharing. Recognise cultural contexts in design.
4	Sustainable Agriculture & Long-Term Resilience	(Nadkarni., 2001; Ostrom, 1990; Rodrik, 2008; Bhanot et al., 2021; Boillat et al., 2012; Duong, 2025; Krumbiegel & Tillie, 2024; Liang et al., 2020; Möhring & Finger, 2022; Paul & Chakrabarti, 2011; Widadie et al., 2021; Wildberg & Möhring, 2021)	Sustainability arises from context-specific, evolving institutions that embed ecological goals into FPO governance. Collective risk-sharing, local knowledge, and adaptive feedback are essential	Integrate ecological literacy, diversify crops, community-managed resources, and participatory adoption of climate-smart practices into FPO strategies. Use feedback loops and monitoring to continually calibrate

			for resilience against climate and market shocks.	sustainability targets. Incentivise long-term ecological stewardship.
5	Externalities & Institutional Failure	(Arrow, 1963; Lele, 1975; U. Patnaik, 2007; Raj, 1984; Simon, 1957 , Rath, 2016; Bahaj, 2020; Do Nascimento Miguel, 2024; Duncan & Nolan, 2020; Gersch, 2018; Goeyvaerts, 2023; Grashuis & Franken, 2025; Guo et al., 2024; Lence et al., 2007; Liang & Hendrikse, 2013; Lombardi & Moschella, 2017; Mérel & Sexton, 2012; Olesen, 2003; Snider et al., 2017; Y. Zhang & Hui Huang, 2014)	FPOs emerge to correct market failures: public goods deficits, information asymmetries, weak service delivery. Institutions buffer members via internal dispute resolution, pooled risk, and collective bargaining, but must guard against coordination breakdowns and dependency.	Establish robust systems for contract enforcement, price discovery, collective dispute resolution mechanisms, and partnerships for public good delivery (storage, insurance, extension). Institutionalise feedback loops to detect emerging externalities or legacy inefficiencies.
6	Income Security, Employment & Market Participation	(Bagchi, 1995; P. Patnaik, 2003; Polanyi, 1944; C. H. H. Rao, 1985; Veblen, 1899; Sen, 2016; Bahaj et al., 2022; Banerjee et al., 2001; Bhanot et al., 2021; Hansen & Sørensen, 2025; Krumbiegel & Tillie, 2024; Lence et al., 2007; Merlingen et al., 2001; Patrick, 2023; Roy & Thorat, 2008)	FPOs as anchors for rural livelihoods: income and employment stability require collective aggregation, price pooling, value-addition, and exposure to diversified markets. Democratic governance ties social inclusion directly to income security and market power.	Prioritise aggregation, risk-sharing, stable marketing contracts, value-addition infrastructure, and real-time price information. Foster inclusive employment through FPO services. Embed transparent price pooling and enable non-farm livelihood expansion for members.
7	State Capacity, Decentralisation & Institutional Intermediation	(Kannan, 2011; Bardhan, 1989; Dreze & Sen, 2013; Lele, 1975; Varshney, 2002; Banerjee et al., 2001; Bhanot et al., 2021; Callison & Levin, 2016; Ciliberti et al., 2020; Grashuis, 2020; Grashuis & Franken, 2025; Grashuis & Magnier, 2018; Hua, 2025; Jana et al., 2014; Lence et al., 2007; Liang et al., 2020; Skevas & Grashuis, 2020; Smyth et al., 2001; S. Zhang et al., 2020; Zhao et al., 2023)	FPO viability depends on a supportive, well-coordinated institutional ecosystem: enabling policies, decentralized support, state-market-civil society convergence, and adaptive learning. Avoid overregulation and dependency traps; favour embedded autonomy and nested governance.	Build multi-level alliances: seamless FPO access to credit, technical support, and infrastructure via coordinated government/NGO/local body action. Institutionalise convergence forums (e.g., regular district-level councils). Encourage diagnostic, evidence-based feedback for continual policy adjustment.

Source: Compiled by the authors based on the bibliometric analysis and a further in-depth systematic literature review

3.2 Institutional Foundations for FPO Viability: Seven Thematic Clusters

This section elaborates the seven interlinked thematic clusters outlined above. Taken together, these clusters provide a comprehensive framework to analyse the institutional architecture of FPOs, integrating concerns of efficiency, equity, resilience, and decentralised governance.

3.2.1 Transaction Costs and Institutional Efficiency

Transaction costs—the costs of negotiating, monitoring, and enforcing exchanges—are foundational to FPO viability (Coase, 1937; North, 1990). As hybrid institutions, FPOs internalise these frictions by aligning incentives and norms through governance structures that minimise market inefficiencies (Williamson, 1985).

FPOs reduce ex-ante costs via collective bargaining and templated contracts, streamlining negotiation and enforcing de facto control where formal property regimes are weak (Grossman & Hart, 1986; Hart, 1987; Barzel, 1997). They manage ex-post hazards—such as shirking or quality dilution—through relational contracts and reputational enforcement, as seen in Mahagrapes' quality-assurance protocols[7]' (Williamson, 1985; Roy & Thorat, 2008).

The 'Doubling Farmers' Income' (DFI) report highlights FPOs as a response to high transaction costs by recommending aggregation, logistical coordination, and collective access to credit and infrastructure (DFI, 2018). FPOs thus embody Coase's model of firms as cost-minimising arrangements under uncertainty. This perspective aligns with Gulati et al. (2022), who argue that FPOs offer institutional avenues to overcome market failures and high transaction costs, but their efficacy depends on coordinated policies, streamlined governance, and ecosystemic support beyond symbolic promotion.

Contemporary scholars expand this view. Wäckerle (2014) frames institutions as affective-cognitive constructs; Vatiero (2021) emphasises power asymmetries in relational contracting; and de Vries (2023) shows how localised rule interpretation shapes FPO governance. Magnusson and Ottosson (2009) warn against rigid cooperative legacies, calling for adaptive institutional design. Petrović and Krstić (2011) distinguish adaptive from evolutionary efficiency, arguing that rising complexity may indicate institutional maturation, not failure. This explains why early-stage FPOs face high coordination costs before stabilising.

Field evidence from Kerala supports these insights. Singh (2021, 2022) shows that digital procurement and shared infrastructure help reduce costs. Yet, Bardhan (1989) cautions that without political safeguards—like member-driven audits and grievance redress—decentralised entities risk elite capture. Recent policy scholarship underscores this logic.

Thus, transaction cost economisation in FPOs is not so much about eliminating frictions as about harnessing them to build trust, specialisation, and resilience. Effective FPOs blend formal rules (contracts, incentives) with informal norms (social capital, local enforcement) to navigate institutional voids and deliver sustainable value.

3.2.2 Collective Governance & Institutional Design

Participatory governance and institutional design underpin both the legitimacy and operational resilience of FPOs. Collective governance refers to how members share authority, create and revise rules, and hold leadership accountable—balancing decentralised decision-making with coherent organisational direction.

Elinor Ostrom's foundational principles—such as clearly defined boundaries, participatory rule-making, monitoring, graduated sanctions, and nested structures—offer mechanisms to sustain cooperation (Ostrom, 1990). Mancur Olson's logic of collective action warns that rational individuals may shirk responsibility in large groups unless selective incentives or sanctions are in place (Olson, 1965). These insights converge: institutional design matters because it mitigates free-rider problems and enables accountability.

In practice, this means regular General Body Meetings, inclusive voting, federated boards (e.g., by village or crop), and by-laws that codify participatory rule-making and resource use. These mechanisms institutionalise voice, embed trust, and deliver selective benefits necessary for cooperation.

Institutions are not static. Hodgson (2004) and Commons (1934) stress that institutional rules are historically embedded, path-dependent, and negotiated through collective will. Hayek's (1945) theory of dispersed knowledge supports decentralised rule-making, while Buchanan (1975) emphasises constitutional constraints and voluntary cooperation as preconditions for collective enterprise.

de Vries (2023) adds that governance requires shared interpretations and local legitimacy, while Magnusson & Ottosson (2009) caution against path-locked cooperative legacies that resist innovation. Ménard sees FPOs as hybrid institutions, balancing state regulation, market pressures, and community norms (Shirley & Ménard, 2005). O'Hara (2022) calls this a structural contradiction—FPOs must pursue efficiency while upholding democratic production relations.

Indian scholars deepen this view. Uphoff (1986) and Baviskar (2007) show that grassroots governance depends on intermediary institutions, local trust, and civic norms. Deshpande & Reddy (1990) reveal how caste hierarchies and elite capture can distort formal cooperativism, while Agarwal (2001, 2010) shows that gender equity requires explicit quotas and women's leadership development.

Recent livestock studies reinforce this: adoption of artificial insemination correlates with trust in intermediaries and reliability of delivery systems (Seth et al., 2025). The DFI Committee differentiates FPOs from cooperatives by emphasising entrepreneurial flexibility under company law—but warns of mission drift if profit motives overtake member interest (DFI, 2018).

Kannan (1998) and Parthasarathy (2003) highlight how high-trust environments like Kerala allow embedded governance that blends democratic process with social protection. Sutradhar (2024) finds that, in Assam, community memory and cultural legitimacy shape FPO endurance. Jossa (2019) champions socialist cooperativism, where decentralised ownership and democratic surplus-sharing improve efficiency and equity. Shah (1996) warns that participatory ideals collapse without operational clarity and managerial skill. Nair (1987) shows that local institutions often prioritise social cohesion over legal compliance, highlighting the importance of cultural intelligibility.

In summary, robust FPO governance requires:

a) Transparent and inclusive decision-making through elections, by-laws, and federated structures;

b) Cultural legitimacy embedded in norms and leadership customs;

c) Balancing equity and efficiency via hybrid governance models;

d) Adaptive architecture that resists lock-in and responds to evolving needs;

e) Safeguards against exclusion, including quotas, grievance mechanisms, and support for marginalised groups.

Together, these design principles and governance practices produce democratically resilient and operationally effective FPOs—capable of sustaining cooperation amid structural constraints and market volatility.

3.2.3 Empowerment, Inclusion & Social Capabilities

This cluster frames FPOs not just as economic entities but as vehicles for inclusive agency and social transformation. Drawing on Sen's capability approach, development entails expanding substantive freedoms for historically excluded groups—women, landless labourers, and lower castes—through institutionalised participation (Sen, 1999; Dreze & Sen, 2013).

Arrow's social choice theory warns of elite dominance and preference cycling in collective decision-making (Arrow, 1951, 1963), while Simon's bounded rationality (1957) stresses the need for simple, accessible rules. Together, they justify mechanisms like rotational leadership, participatory by-laws, and inclusive voting protocols to democratise governance.

Acemoglu and Robinson caution that unchecked power leads to extractive structures; downward accountability tools—like member audits and grievance redressals—are essential to prevent elite capture (Acemoglu & Johnson, 2023; Acemoglu et al., 2001). Birchall (2001) supports member-centric mutualism, arguing that equity ownership can embed empowerment in institutional design.

Bergstrom et al. (1986) show that interdependent preferences and altruism lower coordination costs and foster inclusive cooperation. Ayres and Veblen warn against symbolic inclusion that lacks genuine agency (University of California, 1963; Veblen, 1899). FPOs must, therefore, embed empowerment not only in governance architecture but in everyday practice.

Gandhi's Gram Swaraj, Kumarappa's economy of permanence, Upadhyaya's Antyodaya and Ray's new organizing principles of the economy and society offer ethical imperatives for decentralised, moral economies (Gandhi, 1947; Kumarappa, 1948; Upadhyaya, 1965; Ray, 2024).

Empirical studies confirm these foundations. Deshpande and Reddy (1990) and Agarwal (2001, 2010, 2018, 2020) show that caste and gender distort participation unless corrected by quotas, leadership training, and land rights. Banerjee and Duflo (2011) emphasise contextual institutional nudges. Schmid (1978) argues for assessing institutional outcomes by distributional fairness.

Structural inequalities persist. Drèze & Sen (2002), Ramachandran (2000), and Nair (1987) emphasise cultural legitimacy and local resonance over formal compliance. Global studies by Gijselinckx (2014), Ostrom (1990), North (1990), and Coase (1937) underline that inclusive governance fosters trust, adaptability, and durability.

In sum, empowerment and inclusion are constitutive of FPO governance. They must be embedded not as procedural formality but as lived, evolving institutional ethos.

3.2.4 Sustainable Agriculture & Long-Term Resilience

This cluster explores how FPOs act as institutional vehicles for sustainable agriculture and resilience, particularly among smallholders in fragile agroecological zones. Drawing from Ostrom's principles for governing commons—defined boundaries, collective choice, monitoring, and nested enterprises—FPOs enable participatory irrigation schemes, agroecological practices, and community-run seed and compost banks (Ostrom, 1990).

However, sustainability demands ongoing adaptability. Deshpande and Reddy's study of *Pani Panchayats* (local self-governance institutions for water resources) reveals how success can falter when participation weakens and feedback loops fail (Deshpande & Reddy, 1990). This supports O'Hara's argument that ecological concerns must be embedded in institutional DNA, not added as afterthoughts (O'Hara, 2022). Similarly, Ménard and Shirley highlight the role of nested institutions and feedback systems in sustaining performance (Shirley & Ménard, 2005).

Rodrik (2008) critiques standardised templates, urging context-sensitive models aligned with local agroecologies. FPOs embody this by tailoring sustainability strategies—crop diversification, soil health, and water management—to regional realities. Myrdal's theory of circular causation underscores that ecological deficits often co-occur with social and institutional vulnerabilities, requiring integrated solutions (Myrdal, 1970).

Polanyi (1944) and Whalen (2021) argue that markets must be socially embedded; FPOs anchored in local ethics and collective accountability counter unsustainable commodification. Veblen and Commons likewise stress that institutions evolve through social learning and shared norms, not just formal mandates (University of California, 1963).

Indian thinkers reinforce these views. Nadkarni (2001) calls for internalising environmental costs via land-use and pricing reforms. Shah (1996) and Rao et al. (2016) emphasise decentralised monitoring, ecological literacy, and inclusive safeguards. Banerjee and Duflo (2011) offer empirical backing for adaptive, feedback-driven institutional designs.

Environmental justice literature deepens this by stressing equity. Boyce and James (2002) warns of elite-driven ecological decisions that exclude poor communities. Pimbert (2009) and Pretty (2008) advocate for deliberative, community-led models, while Patel (2012) frames FPOs as platforms for resisting extractive agri-food systems. Empirical evidence from Shah and Rao et al. confirms that hybrid FPOs—combining ecological mandates with local legitimacy—are more resilient. Sustainability thus requires embedding environmental stewardship into norms, leadership, and incentives.

By integrating Ostromian self-governance, Rodrikian contextuality, Myrdalian coordination, and Indian ecological thought, this cluster positions FPOs as adaptive institutions of resilience, rooted in community, ecology, and justice.

3.2.5 Externalities & Institutional Failure

This thematic cluster examines how FPOs, as hybrid institutions, address systemic market failures—such as public-goods deficits, negative externalities, information asymmetries, and coordination breakdowns—that disproportionately affect rural agricultural economies.

Arrow's impossibility theorem highlights the challenge of aggregating individual preferences into collective decisions that satisfy fairness, rationality, and non-dictatorship simultaneously (Arrow, 1963). FPOs must navigate this institutional dilemma by designing governance mechanisms that reflect diverse member interests without sacrificing organisational coherence.

Arrow's broader work on uncertainty and public goods further explains how unregulated markets fail to provide essential services—such as price discovery, risk-pooling, and infrastructure—especially where benefits are non-excludable or coordination-intensive (Arrow, 1963, 1974). In contexts of environmental risk and shared resource dependence, FPOs consolidate dispersed knowledge, facilitate credible market signals, and foster cooperative risk-sharing frameworks.

Akerlof's "market for lemons" and Stiglitz's theory of moral hazard expose how thin rural markets suffer from adverse selection and opportunistic behaviour (Akerlof, 1970; Stiglitz, 1989). FPOs counteract these failures by developing reputation-based enforcement, peer monitoring, and quality standardisation, thereby lowering transaction costs and re-establishing trust-based exchanges.

In addition, Simon's bounded rationality highlights the cognitive and informational limits that restrict smallholders' market participation (Simon, 1957). FPOs alleviate these burdens by offering advisory services, mobile-based market information, and structured peer learning, enabling more informed and equitable participation.

Ménard and Shirley emphasise nested institutions in correcting coordination failures (Shirley & Ménard, 2005). FPOs fulfil this role by aggregating procurement, input distribution, and storage—functions that neither state nor market actors perform efficiently. These polycentric governance mechanisms support contractual enforcement and decentralised oversight.

In India's rural economy, Mellor argues that FPOs are crucial intermediaries for linking smallholders to growth processes through economies of scale and service delivery (Mellor, 2017). Raj similarly notes that decentralised planning alone cannot overcome spatial and social heterogeneity, calling for institutional sensitivity to local agrarian diversity (Raj, 1984; Jacob, 2024).

Patnaik warns that, in the absence of institutional buffers, smallholders face acute vulnerability to price shocks, indebtedness, and resource depletion (Patnaik, 2007). FPOs act as redistributive platforms—strengthening bargaining power, stabilising income through pooled pricing, and advocating for support schemes like MSP.

Thomas argues for expanding the reach and scope of cooperative credit societies to service the rural economy (Bagchi, 2022; Thomas, 1930). Rath traces the decline of India's cooperative credit system to political interference, regulatory rigidity, and member alienation, stressing the importance of autonomy and participatory governance in new-generation FPOs (Rath, 2016). Likewise, de Vries's

situational logic reveals that legacy inefficiencies persist unless institutions formalise adaptive learning via feedback loops (de Vries, 2023).

Comparative lessons from Earl's analysis of Canada's United Grain Growers show that cooperatives must continuously evolve to withstand deregulation and external shocks, warning against institutional stasis and misaligned policy regimes (Earl, 2019).

Together, these insights affirm that FPOs function as institutional correctives to market failure—provisioning public goods, facilitating collective action, and redistributing access to essential services. Robust FPO design demands trust-building norms, inclusive governance, learning systems, and context-specific public goods delivery. In doing so, FPOs reinforce both economic efficiency and distributive justice within agrarian institutional ecosystems.

3.2.6 Income Security, Employment & Market Participation

This cluster explores how FPOs enhance rural income stability, employment, and durable market participation—especially for smallholders vulnerable to systemic shocks. FPOs are conceptualised not merely as intermediaries, but as embedded socio-economic institutions.

Karl Polanyi's critique of disembedded markets warns that markets divorced from social safeguards generate precarity (Polanyi, 1944). In India's liberalised regime, deregulation and subsidy withdrawal have eroded smallholder protections. FPOs counteract this by re-embedding market exchange within norms of reciprocity and collective action. Veblen's analysis of elite domination further affirms that participatory governance is key to preventing capture and ensuring fair distribution (Veblen, 1899).

Hanumantha Rao's vision of decentralised, employment-focused development resonates in FPOs that link members to local value chains (Rao, 1985). Banerjee and Duflo show that simple, context-sensitive nudges—like reducing complexity—can reshape livelihood behaviours (Banerjee & Duflo, 2011), reinforcing the value of institutional design.

Sen's emphasis on institutional stabilisers—MSPs, cooperative credit, and decentralised procurement—is reflected in FPO functions like pooled marketing and collective storage. Patnaik contends that FPOs mitigate rural distress by restoring access to bargaining power and essential services amid policy retreat (Patnaik, 2003). Bagchi critiques capital–labour asymmetries, which democratic FPOs address through inclusive governance and equitable access (Bagchi, 1995).

Chand, as also Kannan and Raveendran, underscore that employment-led rural transformation requires decentralised institutions to counter India's jobless industrial growth (Chand et al., 2022; Chand, 2023; Kannan & Raveendran, 2009). FPOs serve as anchors for non-farm diversification, value addition, and local labour mobilisation.

Post-Keynesian Institutional Economics views FPOs as regional stabilisers during macroeconomic shocks, buffering employment and consumption cycles (Whalen, 2022). Hodgson's path-dependence theory affirms the payoff of early investments in governance, trust, and feedback (Hodgson, 2006), seen in FPOs' rotating leadership and capacity-building. India's DNP 2024 reinforces this

trajectory—mandating price transparency, minimum price guarantees, and value-addition grants — enhancing FPOs' economic role.

In sum, FPOs operate as engines of inclusive transformation, stabilising livelihoods by institutionalising decentralised governance, value-linked employment, and reciprocal exchange (Polanyi, 1944; Veblen, 1899; Whalen, 2022).

3.2.7 State Capacity, Decentralisation & Institutional Intermediation

This cluster examines how FPOs' performance and sustainability depend on the institutional ecosystem—state capacity, civil society, and intermediary actors. FPOs are not self-contained market units but embedded organisations shaped by multi-level governance, policy environments, and support systems.

Bardhan (2002) warns that decentralisation without accountability can enable elite capture. However, when designed effectively, it fosters participatory development by embedding decision-making in local norms. For FPOs, panchayats, SHGs, and cooperatives act as platforms for mobilisation, governance, and dispute resolution (Singh, 2021).

Drèze and Sen (2013) argue democratic outcomes stem not only from state action but civic engagement. FPOs thus require participatory membership to shape leadership and strategies. Birchall's theory of member-centric mutualism demands that FPOs align economic goals with democratic inclusion (Birchall, 2001, 2002). Singh (2022) critiques top-down FPO regimes for alienating members and stifling innovation, whereas decentralised tools—like digital platforms and federated credit—have enabled scale without eroding accountability.

The DFI Report (2018) reframes the state as an orchestrator of decentralised institutional scaffolding through instruments like credit guarantees, equity infusion, CACMP hubs, and capacity-building. This aligns with Ménard and Shirley's concept of nested institutional arrangements (Shirley & Ménard, 2005), where state infrastructure interacts with local norms.

Institutional design must also ensure political credibility. Börner et al. (2004) define adaptive state capacity not just in terms of resources, but responsiveness and credible long-term investment. Kannan advocates for state–community compacts centred on inclusive development and institutional learning (Kannan & Raveendran, 2009).

Varshney (2002) shows that civil society networks amplify FPOs' bargaining power and visibility. Similarly, Lele, Rao, and Deshpande & Reddy advocate for meso-level coherence between grassroots bodies and formal policy (Lele, 1975; Rao, 2007; Deshpande & Reddy, 1990). Radhakrishna (2020) cautions that liberalisation without safeguards marginalises smallholders. FPOs must act as institutional buffers—embedding market action in collective accountability (Patnaik, 2007).

Faghih and Samadi (2021) offer a lens of institutional evolution—layering, drift, and conversion—to explain how FPOs reconcile policy incentives, norms, and constraints. This calls for iterative recalibration of governance and member relations. These dynamics are captured in the Theory of

Member-Centric Mutualism, integrating Coase's institutional logic, Williamson's hybrid governance, Ostrom's polycentricity, and Sen's capability approach (Coase, 1937; Ostrom, 1990; Sen, 1999; Williamson, 1985). Whalen's systems thinking and Raina's institutional learning models affirm FPOs as platforms for context-driven adaptation (Whalen, 2022; Pal, 2003).

Hollingsworth & Boyer (1997) and Picciotto (1995) argue that neither markets nor states alone can overcome coordination failures at scale. FPOs, if supported by enabling ecosystems, mediate this gap by fostering autonomy, accountability, and adaptive governance.

In conclusion, the state's role is not dominance but orchestration—facilitating decentralised, capacitated, accountable structures. The viability of Indian FPOs rests on a dual imperative: robust institutional scaffolding and vibrant member-driven governance.

3.3 Toward an Integrated Governance Framework for FPOs

This section integrates the seven thematic clusters into a conceptual governance framework that links institutional theory with policy relevance. It enables scholars and practitioners to assess FPO performance across domains of design, function, and context. The framework draws from institutional pluralism—from Veblen and Commons to Ostrom and Sen—and is empirically grounded in the Kerala case.

3.3.1 Mapping Clusters to Performance Domains: Each thematic cluster aligns with a core performance domain crucial to FPO effectiveness. These mappings clarify how institutional logics shape governance outcomes (Table 2).

Table 2: Mapping Thematic Clusters to FPO Performance Domains

Sl No.	Thematic Cluster	Mapped Performance Domain	Analytical Focus
1	Transaction Costs & Institutional Efficiency	Institutional efficiency	Reduction of market frictions and enhancement of stable exchange
2	Collective Governance & Institutional Design	Participatory governance	Internal accountability and inclusive rule-making
3	Empowerment, Inclusion & Social Capabilities	Social inclusion and agency	Enhancement of member voice and representation
4	Sustainable Agriculture & Long-Term Resilience	Ecological sustainability	Resilience through environmental stewardship
5	Externalities & Institutional Failure	Collective coordination and public goods access	Shared risk management and provisioning of public goods
6	Income Security, Employment & Market Participation	Livelihood security and economic integration	Enhanced bargaining and value realisation
7	State Capacity, Decentralisation & Institutional Intermediation	Institutional embeddedness and state synergy	Multilevel support and systemic coherence

Source: Authors' synthesis based on institutional economic frameworks and empirical fieldwork

These mappings offer diagnostic value and serve as foundations for measurable indicators and policy levers.

3.3.2 Synergies and Systemic Interlinkages: Though distinct, clusters interact systemically. Reducing transaction costs enhances participatory governance and skill development. Inclusive design improves environmental compliance. Effective state intermediation builds institutional trust and buffers external shocks. These interdependencies demand a holistic lens, recognising FPOs as adaptive responses to agrarian complexity, not static market actors. This perspective aligns with institutional pluralism, where hybrid forms evolve via layering, drift, and conversion (Samadi & Faghih, 2021), stressing contextual fit over formal optimality.

3.3.3 A Nested Conceptual Schema for FPO Governance: Drawing on Williamson's four-level institutional schema (Williamson, 1996), FPOs are seen as hybrid, polycentric entities operating across three nested levels:

a) *Micro-Incentive Layer (Firm-Level Governance):* Informed by incomplete contract theory and property rights, this layer includes incentive-compatible designs like equity shares, patronage bonuses, and redistribution mechanisms (Barzel, 1997; Grossman & Hart, 1986; Hart, 1987). The aim is alignment between member behaviour and collective goals, incorporating trust and local norms.

b) *Meso-Governance Layer (Organisational Design):* Here, Ostrom's design principles, Sen's capability approach, and Birchall's mutualism model inform democratic decision-making, transparency, and social legitimacy (Birchall, 2002; Ostrom, 1990; Sen, 1999). Hodgson's path-dependence lens underscores governance as iterative and shaped by learning (Hodgson, 2006).

c) *Macro-Institutional Layer (Political Economy Interface):* This includes the legal-policy infrastructure and broader civic environment. Bardhan, Acemoglu, and Sen emphasise decentralised accountability, inclusive institutions, and public action (Acemoglu & Johnson, 2023; Bardhan, 2002; Dreze & Sen, 2013). Tools such as e-NAM, digital payments, infrastructure, and regulatory compliance shape FPO trajectories.

This schema identifies leverage points—contracts, governance, or public policy—that enhance sustainability. Ramachandran and Patnaik remind us that institutional design must resist commodification without social safeguards (Ramachandran, 2000; Patnaik, 2003).

3.3.4 Empirical Operationalisation: Kerala Case: Kerala serves as a testbed for the seven-cluster framework. Qualitative insights and structured surveys translated each cluster into measurable indicators. These were compiled into composite indices, enabling cross-sectional benchmarking and longitudinal tracking (Appendix Tables 2 & 3).

Our findings show that Kerala FPOs excel in participatory governance and coordination (Clusters 2 & 5) but lag in empowerment and sustainability (Clusters 3 & 4). This underscores systemic interdependencies. The results support Petrović and Krstić's theory of adaptive efficiency:

institutional frictions are not inefficiencies but investments in trust and routine (Petrović & Krstić, 2011).

Kerala's success reflects its civic capital. Local panchayats, cooperative traditions, and digital platforms facilitated governance innovation and market access (Kannan, 2011). This affirms Varshney's argument that institutional capacity is rooted in associational strength, not merely formal policy (Varshney, 2002).

4. Empirical Validation of an Institutional Economics Lens on FPOs

Unlike prior evaluations that focus narrowly on financial or operational metrics, our approach captures the institutional complexity of FPO functioning—linking enablers and barriers to transaction costs, governance, social capability, ecological resilience, externalities, market participation, and state intermediation. The findings validate three key propositions:

(a) Institutional ambidexterity defines FPOs—they serve as sites of both empowerment and constraint.

(b) Layered governance is critical—FPOs navigate intersecting state, market, and community systems.

(c) Embedded reform is vital—sustainable performance requires deep social anchoring beyond formal compliance (Polanyi; Ostrom).

This multidimensional model offers a scalable tool for assessing FPO performance across diverse institutional landscapes.

Appendix Table 1 profiles 12 sample FPOs in Kerala across 59 variables, mapped to seven thematic clusters. A key finding is Kerala's strong path dependency, illustrating how FPOs often evolve from older cooperatives and benefit from civil society networks, responsive local governments, and departmental convergence.

The FPOs in our study generally exhibit high institutional maturity—profitability, digital integration, and supply chain participation. Yet challenges persist – minimal youth involvement, fragmented landholdings, and aging leadership ("tired horses"). Despite this, Kerala's grassroots ecosystem reflects resilience rooted in social capital and decentralised capacity.

4.1 Interpretation of Thematic Institutional Clusters Based on Composite Indexes

Table 3 synthesizes the Kerala findings by cluster, using Enabler, Barrier, and Aggregate indices across Members (n=52) and BoDs (n=38).

Table 3 Comparative Index Summary of Thematic Institutional Clusters Influencing FPO Performance - Perspectives from Members and Board of Directors

Sl No.	Thematic Cluster	Member (Index)			Board of Directors (Index)		
		Enabler	Barrier	Aggregate	Enabler	Barrier	Aggregate
1	Transaction Costs & Institutional Efficiency	75	57	66	83	69	76
2	Collective Governance & Institutional Design	86	93	89	85	81	83
3	Empowerment, Inclusion & Social Capabilities	78	61	70	69	56	53
4	Sustainable Agriculture & Long-Term Resilience	97	75	86	85	38	61
5	Externalities & Institutional Failure	94	82	88	90	81	86
6	Income Security, Employment & Market Participation	86	80	83	95	69	82
7	State Capacity, Decentralisation & Institutional Intermediation	86	65	76	90	56	73

Source: Field survey conducted by the authors among 52 Members and 38 Board of Directors of FPOs in Kerala in June-July 2025[8]

i. *Transaction Costs & Institutional Efficiency:* Members report moderate gains (66) via collective input and marketing, but face credit frictions, price volatility, and weak logistics. BoDs (76) highlight digital tools and coordination gains. These patterns confirm Coase's and Williamson's views on hybrid institutions reducing transaction costs, albeit incompletely (Coase, 1937; Williamson, 1985).

ii. *Collective Governance & Institutional Design ;* High member scores (89) reflect transparent elections, public disclosures, and leadership accountability. BoDs (83) note SOPs and training but cite elite dominance and irregular meetings. Ostrom's and Commons' theories affirm this layered maturity within Kerala's democratic culture (Ostrom, 1990; Commons, 1934).

iii. *Empowerment, Inclusion & Social Capabilities:* Moderate scores (Members: 70; BoDs: 53) point to training and NGO support, but reveal that elite capture, youth disempowerment, tokenistic gender inclusion, and exclusion of oral tenants[9] remain barriers. The findings confirm Ostrom's emphasis on social capital and Sen's focus on capability building . Polanyi's concept of embeddedness is critical here—structural inequalities are socially rooted, and mere inclusion mechanisms fail without genuine empowerment.

iv. *Sustainable Agriculture & Long-Term Resilience:* Members report high enablers (97), citing composting, seed banks, and pest alerts, but note gaps in climate strategy and water planning (86). BoDs offer a more pessimistic view (61). This disparity reflects an implementation asymmetry. Top-down sustainability measures lack embeddedness, reaffirming Polanyi's socio-ecological critique and Ostrom's emphasis on nested ecological governance. Kerala's

environmental vulnerability demands institutional coupling between ecological practices and market planning.

v. *Externalities & Institutional Failure:* High enabler indices (Members: 88; BoDs: 86) arise from collective sales, dispute resolution, and buyer partnerships. Still, intermediaries, payment delays, and contract failures persist. These align with North's institutional persistence and Stiglitz's market failure mitigation theories (North, 1990; Stiglitz, 1989). Kerala FPOs operate as ambivalent institutions, both offsetting and suffering from weak external institutions. Their maturity is evident, but full insulation from systemic failures remains elusive.

vi. *Income Security, Employment & Market Participation:* Moderate–high performance (Members: 83; BoDs: 82) reflects value addition, price pooling, and aggregation. Yet missing buyer contracts, price volatility, and brand weakness limit stability. Williamson's and Grossman & Hart's contract theories help explain persistent risk exposure (Grossman & Hart, 1986).

vii. *State Capacity, Decentralisation & Institutional Intermediation*: Enabler scores (Members: 76; BoDs: 73) cite Panchayat links, credit access, and Krishi Bhavan support. Yet bureaucratic delays, weak convergence, and compliance burden hinder coordination. This paradox—decentralised structure with centralised inertia—supports Buchanan and Hayek's arguments for localised autonomy and knowledge (Buchanan, 1975; Hayek, 1945).

5. Discussion and Conclusions: Institutionalising the Future of FPOs in India

FPOs in India are no longer peripheral; they signify a shift in how rural institutions are imagined and governed. Drawing on our framework and field insights, this section synthesises theory, evidence, and policy.

(i) Global Resonance and Institutional Legacy

Globally, institutional economics has shaped farmer collectives by embedding cooperation, governance, and adaptive learning. Foundational thinkers—Veblen, Commons, North, and Ostrom—demonstrated how shared norms and institutional rules reduce transaction costs and support enduring cooperation. Notably, Ostrom's eight design principles and North's "rules of the game" remain influential in cooperative reforms.

These ideas are evident in practice: Rwanda's coffee[10] cooperatives apply Ostrom's principles to ensure local accountability and transparency, while Vietnam's rice collectives employ inclusive mechanisms to curb elite capture (Francesconi & Wouterse, 2022; Powell, 2011). Thailand's farmer organisations reflect Sen's capability approach, fostering sustainability and farmer agency (Nicolas Faysse, 2018; Widadie et al., 2021).

Comparative insights from Africa, Latin America, and Asia show that FPOs thrive when economic coordination is linked to research, policy, and grassroots governance. Rooted in the *Farmer-First*

ethos, such collectives bridge institutional gaps and co-create innovations for resilient, sustainable agriculture (Scoones & Thompson, 2009). These cases affirm that robust FPOs are institutionally enabled—not spontaneously formed—and evolve through bricolage and layering in response to neoliberal shifts, environmental stress, and digital transformation.

These international patterns reinforce Kerala's findings: resilient FPOs arise from embedded, co-evolving relationships among communities, markets, and the state.

(ii) Field-Level Diagnostics and Constraints

Field data from Kerala reveal FPOs as both institutionally promising and structurally fragile[11]. Some other examples include:

- *MahaGrapes*[12] in Maharashtra, which exemplifies transaction-cost reduction and relational contracting, using traceability, member-led committees, and residue monitoring to ensure compliance—an application of Williamson's governance logic and reputational enforcement.
- AMUL's federated model reflects Acemoglu and Robinson's (2013) idea of inclusive institutions through internal transparency, benefit-sharing, and democratic participation.
- *Kudumbashree's*[13] women-led initiatives in Kerala apply Sen's capability approach by integrating agroecology, financial access, and decentralised skill-building.

Yet several systemic constraints persist:

- Capital scarcity limits aggregation, infrastructure, and value-chain integration, forcing dependence on intermediaries.
- Legal ambiguity between the Companies Act and cooperative laws creates friction in registration, taxation, and audits[14] (Buchanan & Tullock, 1962; Neti, 2022).
- Social hierarchies distort governance, enabling elite control over BoD selection and weakening accountability.
- Inadequate monitoring, weak digital systems, and poor board training fuel free-rider issues and erode trust.

These constraints suggest that FPO sustainability requires not just technical fixes, but institutional recalibration: clear rule frameworks, democratic governance, and context-specific support to build adaptive capacity.

(iii) Role of the State and Intermediaries

The Indian state and international actors act as *institutional intermediaries* that shape the rules, capacities, and legitimacy of FPO ecosystems. National schemes—such as the 10,000 FPO Programme, e-NAM, and the DNP—aim to lower transaction costs and digitise market access through structured incentives. Yet, regulatory overreach, fragmented facilitation, and digital asymmetries often exclude smaller or remote FPOs.

International bodies provide complementary scaffolding. The Tata-Cornell Institute (TCI) uses digital traceability to monitor active FPOs, operationalising bounded rationality through data-based

governance[15]. The FAO's cooperative templates and World Bank financing reflect Birchall's mutualism and Arrow's risk mitigation logic, respectively. However, these models must adapt to India's diverse institutional contexts to avoid technocratic overdesign.

Our Kerala fieldwork highlights the importance of nested institutions. Panchayat-linked FPOs, embedded in local governance and trust networks, benefit from civic intermediation and participatory planning—demonstrating how decentralised institutions can amplify state effectiveness.

(iv) Institutional Roadmap: A Five-Pronged Reform Strategy

Sustaining India's FPO movement requires not only capital and technology but institutional reform rooted in adaptive design, inclusion, and feedback. Based on field insights and institutional theory, five strategic priorities emerge:

- *Simplify governance and ensure regulatory coherence:* Fragmented oversight and legal ambiguity raise transaction costs and erode trust. A semi-decentralised facilitation council can align national policies with local realities.
- *Build internal capacities and embed inclusive governance:* Elite dominance[16], weak leadership[17], and token gender roles undermine accountability[18]. Ostrom and Simon recommend modular training, simplified decision rules, and quotas to democratise governance (Singh,2023).
- *Finance institutional resilience through patient capital:* Capital gaps block value addition[19]. Transaction cost logic supports pooled lending, credit guarantees, and reputation scoring to ensure liquidity and scaling (Nikam et al., 2023).
- *Enable embedded diagnostics and reflexive feedback:* Adaptive institutions require learning loops[20]. District-level think tanks (Jose & Chathukulam, 2025) and a national FPO observatory[21] can track inclusion, governance, and performance for real-time policy correction.
- *Foster polycentric and multi-sectoral alliances:* FPOs thrive in polycentric governance systems with civic intermediation[22]. Federated structures foster co-produced accountability and innovation across state, civil society, and markets.

(v) Institutional Implications of the Seven-Cluster Framework:

The Kerala study translated seven institutional clusters—transaction costs, governance, inclusion, sustainability, externalities, income security, and state intermediation—into diagnostic enabler and barrier indices. Each cluster maps onto a core performance domain: transaction cost reduction fosters stable exchange; participatory governance builds accountability; gender agency advances empowerment; ecological resilience depends on sustainable practices; externality management supports public goods access; income security rests on market integration; and effective state intermediation ensures coherence and embeddedness. These clusters are interlinked—e.g., reducing transaction costs depends on good governance; income gains require both inclusion and institutional scaffolding. This framework offers a context-responsive lens for designing resilient, scalable FPOs.

(vi) FPOs as Co-Evolving Institutional Forms:

FPOs must be understood not as static legal entities but as dynamic, co-evolving institutional forms, continuously shaped by "working rules" negotiated through collective learning, adaptation, and embedded social norms. Their long-term viability rests on how well incentives, governance structures, and member capabilities are aligned within supportive institutional ecosystems.

This calls for institutional convergence, not replication—merging the participatory ethos of cooperatives with the managerial discipline of corporate models, supported by decentralised training, inclusive governance, and reflexive policy feedback. A harmonised governance architecture must enable region-specific pathways while maintaining coherence across national objectives.

FPOs are far more than market aggregators. At their best, they are anchors of rural democratisation, ecological stewardship, and livelihood resilience—realising the constitutional promise of economic justice and decentralised development. Their future role aligns with India's Viksit Bharat @2047 vision and the SDGs—especially on poverty, gender equity, livelihoods, and climate resilience.

Realising this potential requires policy actors to embrace embedded autonomy, institutional pluralism, and context-responsiveness—hallmarks of institutional economics. FPOs, in this light, are not policy endpoints but living institutions capable of transforming India's agrarian future through collaboration, inclusion, and innovation.

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Appendix

Appendix Table 1: Comprehensive Profile Variables of 12 Sample FPOs in Kerala

Sl. No.	Key Variable	Summary Description
1	Name and Year of Incorporation	Registered between 2017–2022; all names associated with localities.
2	Legal Form	9 are FPO companies; 3 are cooperatives.
3	Board Composition	10% Women; Youth nil; SC/ST nominal presence.
4	Board Size	Average of 10 members.
5	Board Meeting Frequency	Monthly meetings held (12/year).
6	AGM Participation Rate	60–70% of members attend AGMs annually.
7	CEO Qualification	MBA, B.Sc. Agri, Agri-Business Management.
8	Key Staff Positions	CEO, Accountant, Quality Controller, Marketing Officer.
9	No. of PT Staff	12 total; members are paid on a piece-rate basis (even members join)
10	Office Ownership	Yes, office space is owned.
11	Number of Active Members	Approx. 350 per FPO.
12	District & Sub-District Presence	Each FPO is named after and operates within its local district/sub-district
13	Member Involvement	Members function as owners; active involvement.
14	Member Education Programs	Regular programs are conducted.
15	Training Exposure	4–5 trainings per FPO, including interstate exposure visits.
16	Equity Capital	Ranges from ₹2,000 to ₹5 lakhs.
17	Profit Status	Profit-making entities; breakeven crossed.
18	Net Profit/Loss	₹30 lakhs annual average net profit.
19	Annual Turnover	₹150 lakhs/year.
20	Gross Turnover/Month/Member	Approx. ₹4,570 per member per month.
21	Key Commodities/Products	Banana, Tapioca, Jackfruit, Pineapple, Millets, Fruits, Vegetables, Honey
22	Broader Commodity Type	Dairy, Spices, Meat, Food Products
23	Product Basket Diversity	Multi-commodity focus with integrated offerings.
24	Commodity-Activity Link	Value chain linkages evolving; not fully developed.
25	Collective Activities	Input procurement, marketing, processing
26	Dominant Marketing Channel	Trader-driven; direct marketing is also active.
27	Price Discovery Method	Negotiation is the primary method.
28	Presence of Formal Contracts	Only 10% have formal contracts; gradually improving.
29	Direct Market Access	Yes, some direct sale channels are in place.
30	Market Constraints	Market entry and competition barriers reported.
31	Use of ICT Tools	Good usage, especially social media & digital comms.
32	Type of Digital Tools	WhatsApp, e-commerce platforms.

33	Accounting Software	Yes, used for financial management.
34	ERP/Digital Accounting	ERP and digital accounting have been adopted.
35	Use of UPI/Digital Finance	UPI and online banking are actively used.
36	Mobile Network Availability	Yes, connectivity is present in offices.
37	Aggregation Centres Present	Yes, 70% of FPOs use them.
38	Ownership of Aggregation Centres	Yes, owned by FPOs.
39	Storage Capacity	Avg. 10 metric tonnes.
40	Processing Unit Presence	8 out of 12 FPOs have units.
41	Equipment Ownership	Yes, essential tools & machinery owned.
42	Types of Infrastructure	Includes land, buildings, and vehicles.
43	Infrastructure Utilization	High, approx. 80% of owned infrastructure is used.
44	Promoting Agency	Mostly NGOs.
45	NGO/CSO Support	Yes, both technical and managerial.
46	Panchayat Engagement	Full engagement from Gram Panchayats.
47	LSG Support	Good support in infra, finance, and convergence.
48	Govt. Dept Linkages	Strong linkages with Agri/Horti Depts.
49	District-Level Representation	Yes, FPOs participate in district-level committees, headed by the District Collector, coordinated by DGM NABARD (One coordination Committee is in operation at the State Level)
50	Number of Govt. Schemes Accessed	Multiple schemes accessed across FPOs.
51	Types of Schemes Accessed	Input, credit, subsidy; support staff mobilise schemes.
52	Scheme Mobilisation Staff	Dedicated persons in some FPOs.
53	Grievance Redressal Mechanism	Exists; often mediated by 'Parish Vicars'.
54	Agroecological Practices	Yes, reflected through the adoption of organic farming and water harvesting measures (reinforced by the state-led push for pesticide-free farming).
55	Climate Resilience Practices	Initiated (e.g., millet cultivation)
56	Innovation Adoption	Yes, examples are reported, but networking remains weak.
57	Operational Constraints	Networking and market reach are challenges.
58	Debt Burden	Avg. ₹50 lakhs loan burden per FPO.
59	Access to Credit	Yes, loans from financial institutions.

Note: Data in Appendix Table 1 are aggregated averages of 12 FPOs, validated collectively in a review meeting where all FPOs confirmed accuracy. This process enhances both reliability and representativeness.

Source: Based on annual reports of 12 FPOs, and discussions with FPO Board of Directors and CEOs.

Appendix Table -2: Index of FPO Institutional Performance: Farmer Perceptions across Enabler and Barrier Dimensions (n=52)

Mediating Variable (Practice/Mechanism): These mediating variables reflect member-experienced enablers or barriers that directly influence FPO performance.

Thematic Cluster 1: Transaction Costs & Institutional Efficiency

[Institutions reduce transaction costs and improve coordination; role of property rights and local knowledge in reducing operational frictions].

Sl No	Mediating Variable (Practice/Mechanism)	Likely Impact	Nature	Index*
1	Collective purchase of inputs	Reduces input cost	Enabler	4
2	Joint marketing of produce	Increases price realisation	Enabler	5
3	Aggregation of members produce before sale	Reduces per-unit marketing cost	Enabler	4
4	Centralised transport coordination	Reduces logistics costs	Enabler	3
5	Access to bulk discounts through input tie-ups	Lowers input costs	Enabler	4
6	Timely distribution of inputs	Minimises planting delays	Enabler	5
7	Shared machinery (e.g., harvesters, graders)	Reduces fixed costs	Enabler	4
8	Warehouse/storage facility availability	Reduces post-harvest losses	Enabler	4
9	Digitised procurement and accounting systems	Reduces error and corruption	Enabler	3
1	Delay in Labour availability	Causes uncertainty	Barrier	1
2	Price manipulation by local middlemen	Increases transaction risk	Barrier	4
3	Inadequate market intelligence (e.g., price signals)	Suboptimal sales decisions	Barrier	4
4	Frequent last-minute price fluctuations	Creates uncertainty	Barrier	2
5	Poor internal record-keeping	Reduces trust and efficiency	Barrier	5
6	Limited bargaining power with traders	Lowers income margins	Barrier	2
7	High cost of input credit	Adds financial burden	Barrier	5

Thematic Cluster: 2. Collective Governance & Institutional Design

[Internal organisational processes, member engagement, rule enforcement, and leadership structures that shape participatory governance and internal accountability]

Sl No	Mediating Variable (Practice/Mechanism)	Likely Impact	Nature	
1	Transparent election of Board/office bearers	Builds trust, reduces elite capture	Enabler	5
2	Clear bylaws and rulebook shared with all members	Enhances procedural clarity	Enabler	5
3	Leadership accountability mechanisms (e.g., feedback forums)	Improves responsiveness	Enabler	5
4	Regular and well-attended General Body Meetings (GBMs)	Encourages member voice	Enabler	4
5	Member representation in key decisions	Strengthens ownership	Enabler	4
6	Rotation or term limits for board positions	Prevents dominance by a few	Enabler	3
7	Training for board and office bearers on governance roles	Increases professionalism	Enabler	5
8	Public disclosure of FPO financials	Promotes transparency	Enabler	5
9	Functioning grievance redressal system	Boosts internal legitimacy	Enabler	4
1	Poor attendance in meetings	Weakens collective oversight	Barrier	4
2	Board not responsive to member concerns	Erodes trust and motivation	Barrier	4
3	Domination by a few individuals or families	Leads to capture and exclusion	Barrier	5

4	Non-participatory decision-making processes	Alienates ordinary members	Barrier	5
5	Lack of clarity on member rights and responsibilities	Creates confusion and disengagement	Barrier	5
6	Infrequent communication between the board and members	Breaks accountability loops	Barrier	5
7	Absence of formal accountability mechanisms	Promotes misuse of authority	Barrier	5
8	Poor record-keeping of meeting minutes and resolutions	Weakens traceability	Barrier	5
9	Elite members monopolising procurement or benefits	Breeds inequity	Barrier	5
10	Low awareness among members about the governance structure	Limits meaningful participation	Barrier	4
Thematic Cluster: 3. Empowerment, Inclusion & Social Capabilities [Member empowerment, skill development, gender and caste inclusion, and institutional support systems that enable more equitable and capable participation in FPOs]				
1	Skill training for members, including women and youth	Enhances capacity and agency	Enabler	5
2	Capacity building by an NGO or facilitating agency	Strengthens organisational know-how	Enabler	5
3	Special training for Board members from marginalised groups	Improves inclusive governance	Enabler	2
4	Regular awareness campaigns on FPO roles and entitlements	Builds informed participation	Enabler	5
5	Functional literacy training for members	Improves decision-making capacity	Enabler	5
6	Support for first-time participants (e.g., women/youth orientation)	Reduces entry barriers	Enabler	4
7	Reserved representation for women or SC/ST in governance	Institutionalizes inclusion	Enabler	2
8	Peer learning visits to other FPOs	Builds confidence and leadership	Enabler	5
9	Dedicated support staff for training follow-up	Reinforces learning retention	Enabler	4
1	Women's participation is still tokenistic	Symbolic, not substantive inclusion	Barrier	1
2	Illiteracy limits effective participation	Reduces voice and oversight	Barrier	5
3	Over-dominance by male leaders in meetings	Suppresses diverse viewpoints	Barrier	1
4	Lack of materials in the local language or dialect	Limits training effectiveness	Barrier	5
5	Exclusion of tenant farmers or landless people from benefits	Weakens equity and legitimacy	Barrier	4
6	Cultural norms restricting women's mobility or participation	Limits involvement in decision-making	Barrier	4
7	Gender-insensitive meeting timings or locations	Disincentivizes attendance	Barrier	5
8	Absence of gender/disability-inclusive planning	Reduces reach and relevance	Barrier	1
9	Youth are not offered leadership roles	Stagnates innovation	Barrier	2
10	Training programs are too technical or one-off	Lowers retention and usability	Barrier	5
11	The perception that only elites benefit from NGO programs	Breeds disillusionment	Barrier	5

Thematic Cluster: 4. Sustainable Agriculture & Long-Term Resilience [Ecological practices, risk mitigation systems, adaptive strategies, and environmental governance mechanisms that influence the long-term resilience of FPOs and their members]				
1	Promotion of organic/natural farming inputs	Enhances soil health and sustainability	Enabler	5
2	Dissemination of pest/disease alerts via WhatsApp or mobile groups	Reduces crop losses	Enabler	4
3	Crop diversification initiatives	Reduces dependency risk	Enabler	5
4	Training on climate-resilient agronomic practices	Enhances adaptive capacity	Enabler	5
5	Seed banks or local seed saving initiatives	Ensures input security	Enabler	5
6	Encouragement of agroforestry or mixed farming	Builds ecological stability	Enabler	5
7	Support for water-efficient technologies (e.g., drip irrigation)	Enhances water sustainability	Enabler	5
8	Collective composting or bio-input production	Lowers input costs and builds ecology	Enabler	5
9	Inclusion of sustainability goals in FPO business planning	Aligns market with ecology	Enabler	5
1	No climate adaptation strategy	Exposes members to weather risks	Barrier	3
2	Absence of water conservation measures	Heightens vulnerability in dry spells	Barrier	5
3	Overuse of chemical inputs is encouraged by local suppliers	Degrades soil and ecosystem health	Barrier	4
4	Lack of early warning systems (pest, flood, drought)	Leads to preventable crop loss	Barrier	5
5	Inadequate training on sustainable practices	Limits behaviour change	Barrier	5
6	Monoculture crop focus due to market incentives	Increases long-term risk	Barrier	4
7	Weak institutional linkages to weather or agricultural advisories	Reduces preparedness	Barrier	5
8	Limited support for transitioning to organic farming	Slows the adoption of sustainable methods	Barrier	2
9	Short-term profit focus of FPO leaders	Ignores long-term ecological risks	Barrier	3
10	Poor storage for organic or perishable produce	Leads to high post-harvest loss	Barrier	5
11	No inclusion of sustainability indicators in performance evaluation	Weakens ecological accountability	Barrier	3
Thematic Cluster: 5. Externalities & Institutional Failure [Market distortions, regulatory voids, informal power structures, and coordination gaps that disrupt the FPO's ability to function as a fair and stable collective institution]				
1	Dispute resolution through general body meetings	Reinforces trust and fairness	Enabler	5
2	Collective or bulk selling to reduce price volatility	Enhances price stability	Enabler	5
3	Partnership with institutional buyers (e.g., government, NGOs)	Reduces market risk	Enabler	4
4	Use of written contracts with buyers and vendors	Improves transaction security	Enabler	5
5	Access to price and demand information	Reduces exploitation by intermediaries	Enabler	5
6	Inclusion of default handling clauses in contracts	Protects members against losses	Enabler	4
7	Linkage with legal aid or mediation services	Strengthens institutional redress	Enabler	5

8	Monitoring of buyer behaviour through feedback or ratings	Encourages fair trade practices	Enabler	5
1	Delayed payments from buyers	Weakens trust and financial stability	Barrier	2
2	Continued dominance of local intermediaries	Undermines collective bargaining	Barrier	5
3	Price deduction without explanation by buyers	Creates a perception of unfair trade	Barrier	5
4	Lack of enforcement of buyer contracts	Exposes members to non-payment risk	Barrier	5
5	Frequent changes in government procurement rules	Adds unpredictability	Barrier	5
6	Bureaucratic delays in subsidy or scheme benefits	Disrupts financial planning	Barrier	1
7	Collusion between local traders and external agencies	Weakens FPO market position	Barrier	5
8	Absence of regulatory support for enforcing price transparency	Fosters asymmetric information flows	Barrier	5
9	Political interference in FPO decision-making	Undermines autonomy	Barrier	4
10	Disputes over land, infrastructure, or market space	Delays collective operations	Barrier	5
11	Lack of insurance or safety nets against buyer default	Heightens vulnerability	Barrier	5
Thematic Cluster: 6. Income Security, Employment & Market Participation [Economic outcomes for members shaped by market linkages, aggregation efficiency, buyer contracts, price stability, and employment generation through the FPO ecosystem]				
1	Direct marketing linkages with local or institutional buyers	Improves price realisation	Enabler	4
2	Aggregation of produce enabling bulk sales	Increases bargaining power	Enabler	5
3	Facilitation of MSP procurement or government market linkage	Ensures price floors	Enabler	3
4	Buyer contracts guaranteeing a minimum price	Reduces income uncertainty	Enabler	3
5	Market information is shared regularly with members	Helps members time sales better	Enabler	5
6	Pre-season marketing planning with members	Strengthens collective decision-making	Enabler	5
7	Price pooling or average pricing mechanism	Stabilises incomes across members	Enabler	5
8	Processing or value addition facilities (grading, packaging, etc.)	Enhances price premium	Enabler	5
9	Local employment through FPO operations (e.g., sorting, packaging)	Adds livelihood opportunities	Enabler	5
1	The price offered by FPO is not better than the open market	Reduces member motivation	Barrier	5
2	Lack of buyer guarantee contracts	Increases post-harvest market risk	Barrier	4
3	Delays in payment after sales	Weakens income security	Barrier	3
4	Insufficient quantity aggregation	Fails to attract bulk buyers	Barrier	2
5	Lack of market diversification (overdependence on one buyer)	Heightens vulnerability	Barrier	5
6	No access to premium or certified markets (organic, export, etc.)	Limits income-enhancing potential	Barrier	4
7	FPO is unable to store and time sales	Results in distress selling	Barrier	4
8	Absence of tools for price discovery or comparison	Allows trader manipulation	Barrier	5
9	Weak brand identity of FPO products	Lowers buyer interest	Barrier	5
10	Middlemen re-enter through informal channels	Dilutes direct marketing gains	Barrier	5

Thematic Cluster: 7. State Capacity, Decentralisation & Institutional Intermediation [The responsiveness, accessibility, and institutional support provided by the state and intermediary agencies, including regulatory facilitation, service delivery, and convergence with FPO goals]				
1	Easy access to subsidised credit via government banks or NABARD	Enables timely investment	Enabler	4
2	Regular contact with local agriculture officers or extension agents	Improves technical awareness	Enabler	5
3	Timely registration and renewal of FPO under the Companies Act	Maintains legal continuity	Enabler	5
4	Support from state agencies for FPO business planning and DPRs	Strengthens long-term viability	Enabler	5
5	Availability of facilitation by NGOs or cluster-based business organisations (CBBOs)	Eases navigation of bureaucracy	Enabler	5
6	Inclusion in state procurement or public distribution schemes (e.g., PDS, ICDS)	Expands market access	Enabler	2
7	Participation in government FPO federations or umbrella networks	Enhances collective voice	Enabler	5
8	Timely release of scheme funds or subsidies	Builds trust in state support	Enabler	4
9	Assistance in documentation for government schemes	Reduces barriers to access	Enabler	4
10	Financial or technical support from Gram Panchayat /Block Panchayat/District Panchayat	Strengthens local ownership of FPO	Enabler	4
11	Allocation of local government plan funds for FPO infrastructure	Enables asset creation	Enabler	4
12	Panchayat facilitation in FPO registration/documentation	Reduces bureaucratic friction	Enabler	4
13	Convergence between the Panchayat agriculture plan and FPO activities	Aligns local development with collective farming	Enabler	5
14	Joint initiatives (e.g., agro-processing unit) co-owned by LSGs and FPOs	Enhances local economic linkages	Enabler	4
15	Regular interface between the FPO office bearers and the Panchayat Standing Committee	Improves responsiveness	Enabler	5
16	Support from church/CSO-based farmer outreach networks	Enhances farmer mobilisation	Enabler	5
17	Long-term handholding by civil society (e.g., women's groups, cooperatives)	Builds trust and resilience	Enabler	5
18	Use of Kudumbashree or other SHG networks to mobilise marginalised farmers	Expands participation	Enabler	5
1	Political interference in Panchayat-level FPO affairs	Undermines autonomous governance	Barrier	1
2	Difficulty accessing government schemes	Frustrates member expectations	Barrier	5
3	Delays in FPO registration, renewal, or compliance	Interrupts operations	Barrier	2
4	Complex documentation and digital hurdles for scheme application	Excludes small/marginal farmers	Barrier	2
5	Lack of awareness among members about relevant schemes	Results in underutilization	Barrier	5
6	Non-cooperation from local officials or agricultural staff	Hinders FPO-state collaboration	Barrier	4
7	Political favouritism or elite capture in scheme allocation	Breeds inequity and resentment	Barrier	5
8	No convergence between line departments (agriculture, irrigation, etc.)	Reduces institutional efficiency	Barrier	1

9	Absence of grievance redressal mechanisms for scheme delays	Weakens institutional credibility	Barrier	1
10	FPO not included in state/district agriculture planning	Marginalises collective enterprises	Barrier	5
11	Delays in subsidy reimbursement for FPO-led input supply	Strains financial flows	Barrier	4
12	Conflict between Panchayat priorities and FPO business plans	Creates duplication or resource mismatch	Barrier	5
13	Selective support to politically aligned FPOs	Breeds perceptions of unfairness	Barrier	5
14	Civil society over-dependence without FPO capacity-building exit plan	Leads to dependency	Barrier	4
15	Lack of convergence between NGO and government-led FPO efforts	Causes fragmentation of support	Barrier	5
***For Enablers: 1= Strongly Disagree, 5 = Strongly Agree. For Barriers: 1 =Strongly Agree , 5 = Strongly Disagree**				

Appendix Table -3: Index of FPO Institutional Performance: Board of Directors' Perceptions across Enabler and Barrier Dimensions (n=38)

Thematic Cluster 1: Transaction Costs & Institutional Efficiency

These mediating variables reflect the Board of Directors–experienced enablers or barriers that directly influence FPO performance.

	Mediating Variable (Practice/Mechanism)	**Likely Impact**	**Nature**	Index*
1	Coordination of bulk procurement to reduce member input costs	Reduces cost variability and improves trust	Enabler	4
2	Inventory and logistics optimisation for output aggregation	Increases efficiency and coordination	Enabler	4
3	Digital recordkeeping to minimise transaction errors	Improves auditability and transaction tracking	Enabler	5
1	Difficulty in aligning procurement timing with member needs (e.g., sowing)	Leads to inefficiencies and dissatisfaction	**Barrier**	3
2	Inadequate transport infrastructure for moving goods efficiently	Increases transaction costs and delays	**Barrier**	5
3	Frequent price fluctuations due to a lack of market data integration	Reduces the ability to plan aggregation and sales effectively	**Barrier**	3
4	Low member compliance with collective sale agreements	Undermines price negotiation power and trust	**Barrier**	4
Thematic Cluster 2: Collective Governance & Institutional Design				
1	Timely disclosure of board decisions to the general body	Enhances transparency and member trust	**Enabler**	5
2	Regular board training on governance roles and legal compliance	Improves decision quality and accountability	**Enabler**	5
3	Use of standard operating procedures (SOPs) for board functioning	Promotes consistency and reduces ambiguity	**Enabler**	5
4	Board evaluation and self-assessment practices	Supports leadership improvement and course correction	**Enabler**	3
5	Conflict resolution mechanisms between the board and general members	Maintains cohesion and trust in leadership	**Enabler**	4
1	Dominance of a few individuals in board decision-making	Reduces inclusivity and weakens collective ethos	**Barrier**	5
2	Irregular board meetings or low quorum	Weakens governance functioning and responsiveness	**Barrier**	5

3	Lack of clarity in the division of responsibilities among board members	Leads to inefficiency and internal confusion	**Barrier**	2
4	Political interference in board composition or functioning	Compromises autonomy and credibility	**Barrier**	5
Thematic Cluster 3: Empowerment, Inclusion & Social Capabilities				
1	Leadership mentoring programs for women and youth members	Builds second-line leadership and enhances inclusion	Enabler	2
2	Representation quotas for women and marginalised groups in board committees	Improves diversity and voice in decision-making	Enabler	3
3	NGO- or CSO-supported capacity-building programs for directors	Strengthens soft skills, leadership, and governance abilities	Enabler	5
4	Use of mother tongue or inclusive language in meetings and documents	Facilitates participation from less-educated members	Enabler	5
1	Tokenistic presence of women on the board without real power	Limits genuine empowerment and reinforces structural bias	**Barrier**	1
2	Low confidence or participation by young or less-experienced board members	Reduces contribution diversity and innovation	**Barrier**	2
3	Cultural norms discourage women from speaking in meetings	Suppresses voice and marginalises perspectives	**Barrier**	5
4	Board dominance by local elite or upper castes	Reinforces exclusion and hinders participatory governance	**Barrier**	5
Thematic Cluster 4: Sustainable Agriculture & Long-Term Resilience				
1	Initiating partnerships with agencies promoting sustainable agriculture	Builds ecological credibility and long-term resilience	Enabler	5
2	Promotion of organic inputs and certification programs	Enables premium markets and reduces input risks	Enabler	4
3	Use of ICT tools (e.g., WhatsApp alerts on pests/weather)	Strengthens preparedness and minimises losses	Enabler	4
4	Board-led awareness campaigns on soil health and water conservation	Deepens member commitment to sustainability	Enabler	5
5	Integration of climate resilience in business plans	Improves risk assessment and continuity planning	Enabler	4
1	Limited knowledge among board members about climate-smart practices	Reduces capacity to lead sustainability transitions	**Barrier**	3
2	Lack of incentives for members to adopt ecological practices	Slows behavioural shift toward sustainability	**Barrier**	3
3	Absence of board-level sustainability benchmarks or indicators	Weakens accountability for long-term resilience	**Barrier**	2
4	Dependence on chemical-intensive farming due to market or input pressures	Undermines agroecological objectives and increases vulnerability	**Barrier**	2
Thematic Cluster 5: Externalities & Institutional Failure				
1	Establishment of internal dispute resolution committees	Reduces internal conflicts and builds organisational stability	Enabler	3
2	Collective bulk selling strategies to stabilise prices	Protects members from market volatility and price crashes	Enabler	5
3	MoUs or agreements with reliable institutional buyers	Reduces risk of default and ensures payment predictability	Enabler	5
4	Periodic review of buyer performance and grievance logs	Enhances buyer accountability and trust	Enabler	5
5	Board facilitation of timely payment follow-ups with buyers	Strengthens financial liquidity for members	Enabler	5
1	Delayed payments from institutional buyers	Strains FPO's cash flow and member trust	**Barrier**	5

2	Influence of powerful intermediaries disrupting collective sales	Undermines aggregation efforts and bargaining power	**Barrier**	5
3	Lack of effective legal mechanisms to address buyer default	Leaves FPO vulnerable to external exploitation	**Barrier**	3
4	Parallel informal trade channels operating within the member base	Creates leakage and disincentivises collective marketing	**Barrier**	4
Thematic Cluster 6: Income Security, Employment & Market Participation				
1	Facilitating direct linkages with local and institutional buyers	Improves price realisation and reduces dependency on middlemen	Enabler	5
2	Organising aggregation for bulk sales and processing	Enables higher margins and scale economies	Enabler	5
3	Providing market intelligence and pricing data to members	Supports informed sales decisions and planning	Enabler	5
4	Introducing value-addition initiatives (e.g., grading, packaging)	Increases employment opportunities and member income	Enabler	4
5	Setting up rural retail outlets or collection centres	Enhances market participation and accessibility	Enabler	5
1	Lack of assured buyers for members' produce	Increases income uncertainty and post-harvest losses	**Barrier**	4
2	Failure to compete with open market prices	Undermines trust and discourages participation	**Barrier**	4
3	Delays or inefficiency in aggregation and dispatch	Leads to market rejection and lower earnings	**Barrier**	3
4	Limited access to cold storage and transportation infrastructure	Reduces shelf life and profitability	**Barrier**	4
Thematic Cluster 7: State Capacity, Decentralisation & Institutional Intermediation				
1	Regular coordination with the Agriculture Department officers	Enhances access to schemes, training, and expert advice	Enabler	5
2	Support from local government (Panchayat) for infrastructure or services	Strengthens convergence with local development and visibility	Enabler	5
3	Handholding by NGOs or CSOs for compliance and reporting	Builds administrative capacity and sustainability	Enabler	5
4	Timely access to subsidised inputs and credit via government channels	Reduces member financial strain and improves trust in FPO	Enabler	4
5	Leveraging convergence across departments (Agriculture, Irrigation, Finance)	Expands resource access and coordination	Enabler	4
1	Delay in FPO registration or renewal processes	Hampers formal functioning and financial access	**Barrier**	2
2	Lack of clarity or overload in compliance requirements	Reduces time for field operations and increases administrative burden	**Barrier**	2
3	Poor responsiveness from local agricultural offices	Weakens link to state support and undermines motivation	**Barrier**	5
4	Limited inclusion of FPOs in panchayat-level planning or budgeting	Misses an opportunity for embedded institutional support	**Barrier**	4
***For Enablers: 1= Strongly Disagree, 5 = Strongly Agree. For Barriers: 1 =Strongly Agree , 5 = Strongly Disagree**				

Notes

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[1] Throughout this paper, the term 'FPOs' is used as a broad, inclusive category to refer to all forms of collective institutional arrangements created by and for farmers. This includes but is not limited to Farmer Producer Companies, agricultural cooperatives, self-help group federations, and other mutualistic organizations engaged in agricultural production, marketing, and support services. While FPOs in the Indian policy context often refer to legally registered producer companies under the Companies Act, our conceptual framework encompasses all democratic, farmer-led institutions that aim to empower marginal and smallholder farmers by enabling collective action in market and institutional spaces.

[2] The three-stage design ensured (a) refinement of survey instruments through stakeholder consultation, (b) real-time triangulation of seminar insights with primary data, and (c) incorporation of the paper reviewers' recommendations to enhance validity and contextual relevance.

[3] The sample was not intended for performance evaluation of FPOs in Kerala but to assess the proposed methodology and conceptual framework; hence, a limited number of respondents - 52 FPO members and 38 board directors across 12 FPOs were selected purposively. The second field study, conducted in June–July 2025, was undertaken in response to reviewer comments during the journal's peer-review process.

[4] Cognitive interviews are a pre-testing technique used in survey design to evaluate how respondents understand, interpret, and mentally process questions, helping researchers refine wording and structure to improve clarity and validity.

[5] From this larger body of literature, 81 core articles were selected and cited across the seven thematic clusters

[6] While the bibliometric analysis revealed five dominant co-occurrence clusters, the seven thematic domains constructed in this study are informed by a broader body of theoretical and empirical literature. These additional categories—such as externalities, institutional failure, and state capacity - reflect key concerns in the Institutional Economics tradition that may be underrepresented in keyword networks but are central to understanding FPO governance in the Indian context and beyond.

[7] Mahagrapes is a successful grape-exporting FPO consortium in Maharashtra, India, known for its stringent quality-assurance systems, including residue monitoring, batch-wise traceability, and adherence to international phytosanitary standards to ensure export-grade produce (Roy & Thorat, 2008).

[8] The thematic indices presented in Table 3 are derived from composite scores based on stakeholder perceptions of mediating variables (enablers and barriers) across seven institutional clusters. The detailed list of variables, their qualitative interpretations, and index values used for constructing these thematic indices are provided in Appendix Tables 2 and 3. Appendix Table 2 reflects FPO member responses; Appendix Table 3 captures perceptions of Board Directors.

[9] Oral tenancy refers to informal, unwritten land lease arrangements that remain outside legal frameworks. As Eswaran (1990) shows in the case of Kerala's Kuttanad region, such tenancies, though widespread, lack legal enforceability and institutional support, often excluding tenants from formal credit systems and state entitlements.

[10] The first author taught at the National University of Rwanda (1999–2011), gaining insights into farmer collectives' role in post-genocide reconstruction, and served on the Academic Board of AERC, visiting several African countries. The second author studied farmer collectives during an eight-day field visit to Rwanda as part of the 2023 Commonwealth Local Government Conference. These experiences inform this paper's perspectives.

[11] The authors presented a paper at the 18th ICA Asia-Pacific Conference on 'The Political Economy of Cooperatives in Kerala.' To prepare this paper (Jose & Chathukulam, 2024), the authors conducted extensive fieldwork in Kerala, engaging with stakeholders of Farmer Collectives. Over the last three decades, the second author has undertaken more than 100 major research projects mostly on Local Self Government institutions & rural development across India. The authors' field observations in Kerala and across India also contribute to the arguments in this section.

[12] The authors did a telephonic interview with Sachin Korde, Technical Manager, MahaGrapes, Pune Maharashtra on November 23 and 25, 2024.

[13] Kudumbashree integrates microfinance, skill-building, and agro-ecology through women-led participatory structures linked to the Panchayati raj system, enhancing agency and environmental stewardship (Chathukulam & Thottunkel, 2010).

[14] Discussions with 35 Board of Directors (BoDs) from 12 FPOs revealed widespread frustration with complex bureaucratic procedures. Many shared personal stories about their FPOs, with some preferring FPOs to avoid the hurdles of registration under the Registrar of Cooperative Societies. They stressed the need for procedural simplification. As one BoD noted, *"License Raj Persists in Indian agriculture."* While the new economic policy ended 'license raj' in other sectors, its impact has yet to reach agriculture, leaving FPOs to face frequent bureaucratic challenges (interviews on July 3,4,5,17,18 and 26, 2024).

[15] TCI's real-time tracking platform supports FPO-level decision-making by reducing uncertainty—an application of bounded rationality in institutional governance (TCI, 2024).

[16] Elite capture often translates to the influence of vested interests in many FPOs. In Kerala, political parties frequently leverage these collectives to advance their political agendas.

[17] FPOs face significant challenges in recruiting qualified Chief Executive Officers (CEOs). All 12 FPOs reported difficulties in finding suitable candidates with professional qualifications and experience. Human resource planning is urgently needed, as staff turnover is high, and those who do join often leave within a short period. During the critical early stages of FPOs development, capable CEOs are essential

but remain unavailable. One major factor cited is the low salary offered, which, as revealed by some FPOs, is only ₹25,000 (less than $300) per month (interviews on July 3,4,5,17,18 and 26, 2024).

[18] Among the 12 FPOs we visited, none were women-led. Of the 35 BoDs we met, only six were women, representing less than 20% female participation. Similarly, SC/ST representation was minimal. These findings highlight the pressing need for inclusive governance in FPOs. Proper training for BoDs in business management is essential, as is fostering transparent and efficient management practices. Data from the TCI similarly underscores poor management issues among FPOs in India (interviews on July 20, 21,25,27,28, and 30 2024).

[19] Interviews with older FPOs in August 2024 revealed significant challenges in resource mobilization after government support ended, and banks were reluctant to lend to both FPOs and individual farmers. Farmers noted negative bank attitudes during FGDs held from August 22 to 24, 2024, and similar concerns emerged at the CRM seminar on November 1–2, 2024. However, by mid-2025, sample respondents opined that farmers who joined FPOs secured loans more readily than individual applicants and noted a marked improvement in credit access through collectivization.

[20] Our interviews revealed that all the FPOs operate as stand-alone entities, with no coordination among them. There was unanimous agreement on the need for a district-level coordination center, with suggestions to establish links with Local Self-Governments (LSGs) (interviews on August 13, 14,15,17,18, and 20, 2024). Similarly, majority of the farmers agreed the need to establish links with LSGs. (FGDs with farmers on August 22, 23, and 24, 2024). The seminar at CRM on Farmer Collectives (1 and 2, November 2024) also reached a similar conclusion, recommending the formation of a district-level think tank.

[21] In our interviews, all respondents expressed that they lack the time for research and are unaware of market trends and international business opportunities, which are essential for farmers. One BoD emphasized, "This is the era of the knowledge economy; knowledge is power, and knowledge is money" (interviews on August 13, 14,15,17,18, and 20, 2024). Similarly, 52 farmers highlighted the need to align crop cultivation with market demand (Three FGDs with farmers on August 22, 23, and 24, 2024).

[22] BoDs of FPOs emphasized that during the initial stages, collaboration with exporters is crucial, as there is much to learn about international marketing (interviews on August 13, 14,15,17,18 and 20, 2024).