



IMPACT OF AGRICULTURAL COOPERATIVES ON SMALLHOLDER FARMERS' INCOME IN DEVELOPING COUNTRIES

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Abstract

Agricultural cooperatives play a critical role in improving the economic resilience of smallholder farmers across developing countries. This article provides an in-depth review of conceptual, theoretical, and empirical literature on how cooperative membership influences farmers' income. Using insights from Collective Action Theory, Transaction Cost Economics, and Social Capital Theory, the study demonstrates that cooperatives function as institutional mechanisms that reduce market failures, strengthen bargaining power, and expand access to inputs, credit, and extension services. Empirical evidence from Africa, Asia, and Latin America consistently shows positive income effects, with members benefiting from higher farm-gate prices, reduced production costs, and improved market participation. However, the review also highlights contradictory findings, noting that governance weaknesses, elite capture, uneven benefit distribution, and infrastructural deficits can limit cooperative effectiveness. The paper identifies key research gaps, including the need for longitudinal analyses, deeper exploration of gender disparities, and more robust inquiry into governance structures and emerging digital innovations. Overall, the review reinforces the potential of cooperatives as catalysts for income growth while emphasizing the contextual factors that shape their performance.

Keywords: *Agricultural cooperatives; smallholder farmers; income effects; collective action; & transaction costs.*

Introduction

Agricultural cooperatives have increasingly been recognized as pivotal institutional mechanisms for strengthening rural livelihoods in developing countries. Smallholder farmers, who account for more than 80% of agricultural producers in sub-Saharan Africa and nearly 70% in Asia, remain the backbone of global food systems, yet they often operate under severe structural constraints. These include limited access to affordable credit, weak bargaining power in fragmented markets, inadequate extension services, and exposure to highly volatile commodity prices (Narayanan, 2021; World Bank, 2020). Such barriers not only restrict their ability to engage effectively with dynamic agricultural markets but also perpetuate cycles of low productivity, vulnerability, and persistent poverty.

Against this backdrop, cooperatives are promoted as collective organizations that enable smallholders to pool resources, reduce transaction costs, and enhance their competitiveness. By coordinating production, facilitating access to timely information, and strengthening collective bargaining power, cooperatives help mitigate the disadvantages inherent in small-scale farming. Importantly, they also create platforms for farmers to engage in value addition, diversify income streams, and negotiate more favorable terms with buyers and suppliers. This institutional support is particularly critical in contexts where state-led agricultural interventions have weakened or where private-sector engagement remains limited.

The literature on cooperatives extends beyond direct economic outcomes to encompass broader dimensions of rural development. Scholars highlight that cooperative membership can improve household welfare through increased income stability, better access to inputs, and enhanced resilience against market shocks. Moreover, cooperatives often serve as vehicles for social capital formation, fostering trust, solidarity, and collective action among members. These intangible benefits can translate into tangible improvements in farmers' ability to withstand crises, adapt to climate change, and participate more meaningfully in policy dialogues.

At the same time, the cooperative–income relationship is not uniform across contexts. Empirical studies reveal that the effectiveness of cooperatives is mediated by factors such as governance quality, inclusivity, gender dynamics, and the broader institutional environment. Poorly managed cooperatives risk replicating existing inequalities or becoming captured by elites, thereby undermining their transformative potential. Similarly, external shocks—such as global price fluctuations or climate-induced disruptions—can erode the gains achieved through cooperative membership. Thus, while cooperatives are widely celebrated as instruments of empowerment, their success depends on the interplay between internal organizational capacity and external enabling conditions.

The paper synthesizes conceptual, theoretical, and empirical analyses from multiple regions to provide a holistic understanding of the cooperative–income nexus. It underscores the multidimensional pathways through which cooperatives influence rural livelihoods: from direct economic gains to indirect improvements in welfare, resilience, and market participation. By situating cooperatives within broader debates on agricultural development and rural policy, the review highlights both their promise and their limitations. Ultimately, cooperatives emerge not as a panacea but as dynamic institutions whose impact is contingent on context, governance, and the evolving challenges of global agricultural markets.

Conceptual Review

Agricultural Cooperatives

Agricultural cooperatives are voluntary, member-owned, and member-controlled organizations designed to provide economic services such as bulk input procurement, credit access, storage, processing, and market linkage (Birchall, 2019). These organizations are grounded in democratic governance principles, ensuring that members participate actively in decision-making processes and share equitably in generated benefits.

Cooperatives create economies of scale that individual farmers cannot achieve alone. By aggregating inputs and outputs, they reduce per-unit costs, enhance negotiation power in input and output markets, and create networks that improve members' access to information and innovation. They also establish market stability by offering structured channels for produce sales, thereby reducing dependence on middlemen who often distort prices to the disadvantage of smallholders. Overall, agricultural cooperatives function not only as economic units but also as social and institutional platforms that enhance rural community cohesion.

Smallholder Farmers

Smallholder farmers are producers operating on limited landholdings, typically less than 2 hectares, characterized by low capital intensity and heavy reliance on family labor (FAO, 2018). In most developing countries, smallholders form the backbone of food production systems, yet they remain disproportionately vulnerable to systemic market and climatic risks. Their limited asset base restricts their ability to invest in improved technologies, mechanization, or high-quality inputs, while their small-scale production often provides little leverage in competitive markets. These farmers also experience pronounced information asymmetries and high exposure to price fluctuations. Consequently, smallholders depend heavily on collective institutions like cooperatives to overcome barriers to input access, financial services, extension support, and profitable market opportunities. Their characteristics underscore the importance of strengthening institutional arrangements that can enhance productivity, stabilize incomes, and support long-term livelihood sustainability.

Income Effects

“Income effects” refer to the measurable changes in household revenue directly attributable to cooperative membership, including farm-gate price gains, reduced input costs, value addition, and improved market participation (Abate et al., 2014). Income effects can manifest through multiple channels: higher output prices due to collective marketing; lower production costs through bulk procurement; and increased productivity from access to credit, training, and improved technologies. Beyond direct financial returns, cooperatives can generate indirect income effects such as reduced vulnerability to market shocks, improved access to reliable buyers, and enhanced capacity for long-term planning. These effects collectively contribute to stabilizing household earnings and strengthening farmers' resilience to economic uncertainties. Assessing income effects provides a useful lens for understanding the broader socio-economic contributions of cooperatives to rural development.

Table 1 summarizes the conceptual review relevant to the study of agricultural cooperatives and their impact on smallholder farmers' income. It summarizes definitions, key features, benefits, practical examples, challenges, and references for each concept. The concise format highlights the main attributes of agricultural cooperatives, smallholder farmers, and income effects,

providing a clear overview for understanding their roles, interactions, and contributions to rural economic development.

Table 1: *Conceptual Overview of Agricultural Cooperatives, Smallholder Farmers, and Income Effects*

Concept	Definition / Explanation	Key Features	Benefits	Examples / Applications	Challenges / Limitations	References
Agricultural Cooperatives	Member-owned, voluntary, economic & social services	Democratic, pooled resources, collective decision	Lower costs, better market access, bargaining power, rural cohesion	Fertilizer supply, crop marketing groups	Weak leadership, low participation, limited capital, external shocks	Birchall (2019)
Smallholder Farmers	Small land, low capital, family labor, high risk	Labor-intensive, low investment, local markets	Access to inputs, credit, training, productivity	Small maize, cassava, vegetable farms	Limited market power, price fluctuations, low tech adoption	FAO (2018)
Income Effects	Revenue changes from cooperative membership	Direct & indirect income, resilience, planning	Stable earnings, higher productivity, reduced risk	Bulk marketing, credit programs	Unequal benefits, dependency, market volatility	Abate et al. (2014)

Source: *Author's Tabulation*

Theoretical Review

The paper is anchored on a number of theories. First, it adopts the *Collective Action Theory*, which posits that individuals collaborate to overcome shared challenges when mutual benefits outweigh individual costs (Olson, 1965). In agricultural settings, smallholders frequently encounter problems such as limited market access, high input prices, and weak bargaining positions. These challenges are often too large for farmers to address individually. Cooperatives therefore serve as platforms for coordinated action by enabling farmers to pool resources, consolidate production, and strengthen their market position. Through collective aggregation, joint procurement, and unified sale of produce, cooperatives help farmers achieve economies of scale that are unattainable at the individual level. Collective action also reduces vulnerability, increases negotiation power, and provides a structured system for enforcing rules and distributing benefits. This theory helps explain why farmers voluntarily join cooperatives and how cooperation translates into measurable improvements in income.

It also used the *Transaction Cost Economics (TCE)* theory. According to Transaction Cost Economics, farmers face high transaction costs in accessing markets. These include the costs of searching for buyers, negotiating prices, and enforcing contracts (Williamson, 1985). For smallholders who operate on a limited scale, these costs can be extremely burdensome and may discourage them from participating in formal markets. Cooperatives help reduce these costs by providing centralized market functions. When farmers market their produce collectively, they benefit from lower search costs through access to market information. Negotiation costs decrease because cooperatives bargain on behalf of all members. Enforcement costs are

minimized through standardized rules, shared contracts, and established institutional frameworks. Reducing transaction costs increases the net margins farmers receive, which directly contributes to higher household income. TCE therefore provides a strong justification for why cooperative membership improves economic outcomes, especially in environments where markets are fragmented and institutional support is weak.

Moreover, the paper utilized the *Social Capital Theory* which emphasizes the role of trust, shared norms, and social networks in enhancing cooperation. Cooperatives cultivate trust, norms, and networks that enhance information sharing and coordinated behavior among members (Putnam, 2000). Regular meetings, group activities, and joint responsibilities strengthen relationships among farmers and reduce the likelihood of opportunistic behavior. When trust is high, farmers are more willing to share information, adopt innovations, and participate actively in cooperative programs. Social capital also lowers monitoring costs because members are motivated by mutual respect and shared interest. In addition, strong networks within cooperatives help farmers access credit, extension services, and market opportunities. This theory highlights how non-economic factors such as trust and social cohesion play a key role in improving the economic performance of cooperatives.

Comparative Analysis of Cooperative Membership and Farmer Income

Africa

A substantial body of research across African countries shows that cooperative membership positively affects farmer income. Abate et al. (2014) found that Ethiopian cereal farmers experienced an income increase of 14 to 20 percent when they belonged to cooperatives. The authors attribute this to better prices, improved bargaining power, and access to reliable buyers. Similarly, Wanyama et al. (2015) observed that Kenyan dairy cooperatives significantly improved farmers' monthly earnings. These cooperatives offer services such as milk collection, quality testing, transportation, and stable market arrangements. Such support reduces losses and increases returns for members. In Nigeria, Olagunju et al. (2020) reported higher profitability for cassava farmers who belonged to cooperatives. Shared processing facilities help reduce post-harvest losses, while collective marketing ensures more stable prices. These studies collectively show that cooperatives help African farmers overcome barriers such as infrastructure deficits, weak bargaining power, and market volatility.

Asia

In South Asia, cooperatives play a central role in reducing credit and market constraints faced by smallholders. Markelova and Meinzen-Dick (2009) found that Indian horticulture cooperatives helped farmers secure higher prices and reduce post-harvest losses through collective handling, sorting, and packaging. These cooperatives often facilitate access to distant and high-value markets. Evidence from Bangladesh demonstrates similar benefits. Rahman and Alam (2019) reported that rice farmers in cooperatives achieve higher incomes because they gain group access to modern machinery, improved seed varieties, and training opportunities. Mechanization services provided through cooperatives increase yields while reducing the labor burden. The findings from Asia suggest that improving technology access and strengthening market integration are major pathways through which cooperatives raise farmer incomes.

Latin America

Latin American cooperatives are among the most documented in global literature. For example, Costa Rican coffee cooperatives allow smallholders to participate in specialty and premium markets, which results in income increases above 25 percent (Méndez et al., 2017). These cooperatives support quality enhancement, certification, and direct engagement with international buyers. In Peru, quinoa cooperatives enhance both income and overall welfare through organic certification and export opportunities (Arce, 2019). These cooperatives coordinate logistics, quality control, and marketing services that individual farmers cannot manage alone. The Latin American evidence demonstrates the transformative role cooperatives play in linking farmers to global value chains and improving value addition. Figure 1 shows that cooperative membership boosts farmer income by enabling collective bargaining, shared resources, and improved market access.

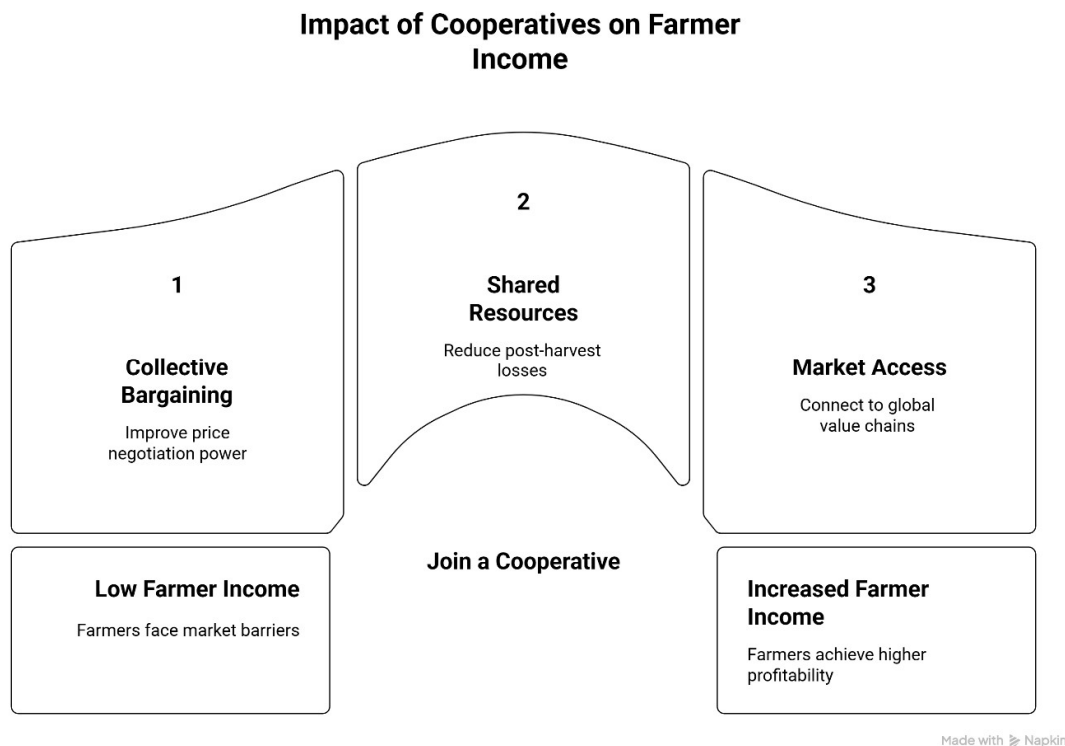


Figure 1: *Impact of Cooperatives on Farmer Income*

Clearly, while many studies provide evidence of positive impacts, some reveal mixed or limited effects. Francesconi and Heerink (2011) argued that the benefits of cooperative membership depend heavily on governance quality. Cooperatives that suffer from weak management, poor transparency, or elite capture may not improve incomes meaningfully. In such contexts, members may not fully participate or may lose confidence in the institution. Mojo et al. (2017) also reported mixed performance among Ethiopian cooperatives. In some cases, leadership challenges and inadequate capital limited the ability of cooperatives to provide essential services such as input procurement or market support. These findings suggest that cooperative success is

not guaranteed and depends on leadership quality, member commitment, and strong internal governance structures.

Mechanisms through which Cooperatives Influence Income

One of the most direct channels through which cooperatives enhance smallholder farmers' income is through improved access to markets and stronger bargaining positions. By pooling produce, cooperatives enable farmers to supply markets in larger and more consistent volumes, which increases their attractiveness to buyers and reduces dependence on informal intermediaries. This collective approach reduces the asymmetry of power that typically characterizes smallholder transactions with traders. As a result, cooperative members often secure higher and more stable farm-gate prices. Shiferaw et al. (2014) emphasize that collective marketing increases price transparency, enhances market information flow, and reduces exploitation, thereby contributing to higher net returns for cooperative members.

Access to affordable agricultural credit remains one of the most significant constraints facing smallholders in developing countries. Cooperatives play a critical role in mitigating these constraints by facilitating credit access through group lending schemes and partnerships with financial institutions. These schemes allow members to invest in improved seeds, fertilizers, and machinery. Fischer and Qaim (2014) found that the availability of cooperative-based credit reduces liquidity constraints and encourages adoption of modern inputs, which results in improved yields and higher income levels. Additionally, cooperatives procure inputs in bulk, which lowers the unit cost of inputs and increases the profitability of members. The combined effect of credit access and reduced production costs significantly enhances overall farm income.

Cooperatives frequently serve as conduits for extension services and technical training, which strengthens farmers' managerial and agricultural skills. These services may include agronomic training, pest and disease management, financial literacy, and post-harvest handling practices. Bernard et al. (2013) highlight that cooperative-based extension programs often lead to substantial improvements in farm productivity, which directly translates into higher incomes. The collective structure of cooperatives also facilitates knowledge sharing among members, allowing farmers to adopt innovations more rapidly and minimize costly farming mistakes. Through continuous capacity building, cooperatives improve long-term productivity and competitiveness for smallholder farmers.

Value addition is another key mechanism through which cooperatives increase income. Many cooperatives invest in processing technologies and storage facilities that enhance the value of raw agricultural products. For example, dairy cooperatives may acquire milk cooling tanks that allow farmers to supply milk of higher quality, and cassava cooperatives may use mechanized graters and dryers to produce processed cassava that fetches higher prices. Ogunleye and Oladejo (2020) report that such investments enable producers to participate in more lucrative markets and reduce post-harvest losses. Cooperatives that enforce quality standards and adopt value addition strategies create opportunities for farmers to earn premium prices and diversify income streams.

Despite the generally positive findings regarding the role of cooperatives in enhancing farmer income, the literature reveals several contradictions and nuanced outcomes. Not all studies report uniformly positive effects. In some cases, the benefits appear to be unevenly distributed. Research indicates that wealthier or more educated farmers often capture a disproportionately larger share of the income gains associated with cooperative membership, leaving smallholder or

less-educated farmers with minimal improvements (Hellin et al., 2009). This suggests that structural inequalities within cooperatives can limit the inclusiveness and equitable impact of these institutions.

The effectiveness of cooperatives is also heavily influenced by internal management dynamics. Weak leadership, corruption, low levels of member participation, and insufficient capital frequently undermine the capacity of cooperatives to deliver their intended benefits (Francesconi & Wouterse, 2020). These internal challenges can reduce trust among members and limit the cooperatives' ability to engage in collective bargaining or access financial and input resources efficiently.

External factors play a critical role in shaping the outcomes of cooperative membership. Environmental shocks such as droughts, floods, or pest outbreaks can significantly reduce crop yields and the potential income gains from cooperative activities. Market volatility, including fluctuating commodity prices, can erode expected profits, particularly for farmers who rely heavily on a single crop or product. Inadequate infrastructure, including poor roads, limited storage facilities, and weak supply chains, further constrains the ability of cooperatives to effectively aggregate produce, access broader markets, and negotiate favorable prices.

Taken together, these findings suggest that while cooperatives have the potential to improve farmer income, their impact is context-dependent and moderated by both internal governance and external environmental and economic conditions. Policy interventions and cooperative development programs must address these structural and contextual challenges to ensure that benefits are broadly shared among members and resilient to external shocks.

Conclusion

The literature overwhelmingly supports the position that agricultural cooperatives play a significant role in improving smallholder farmers' income in developing countries. Through collective action, reduced transaction costs, enhanced bargaining power, access to credit, and value addition, cooperatives help farmers overcome structural market inefficiencies. However, the magnitude of these benefits varies depending on governance quality, resource capacity, market context, and member participation. Further rigorous, longitudinal, and gender-sensitive research is required to deepen understanding and strengthen cooperative-based rural development strategies.

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