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Cooperative-based extension models for collective youth engagement in smallholder agriculture

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Abstract

Bangladesh loses thousands of young people from agriculture each year to urban migration, yet the country's food system depends on smallholder production. Can cooperatives designed around youth preferences reverse this outflow? This research compared three cooperative extension models, traditional, hybrid, and youth-led, for their effectiveness in engaging young farmers aged 18-30 across four upazilas of Dhaka Division between November 2023 and August 2024. Youth-led cooperatives achieved engagement scores of 72.3% by the final quarter, compared to 56.8% for hybrid models and 31.7% for traditional cooperatives. Activity leadership participation reached 62.3% in youth-led models versus just 12.8% in traditional settings. Decision voting rates showed similar patterns. Youth-led cooperatives also generated 44.6% higher per-member agricultural income. Peer influence and autonomy in decision-making emerged as the strongest predictors of sustained engagement. These findings suggest that restructuring cooperative governance to give youth genuine leadership authority can substantially improve their retention in smallholder agriculture.

Keywords: Youth engagement, cooperative extension, smallholder agriculture, youth-led cooperatives, Bangladesh, rural youth, collective farming, peer influence, agricultural income, cooperative models

Introduction

Every season, Bangladesh's agricultural workforce gets a little older. Young people, those between 18 and 30, increasingly view farming as a last resort rather than a career choice, and migration to Dhaka's garment factories or construction sites seems to offer better prospects ^[1]. Yet the country's food production depends overwhelmingly on smallholder systems that need young labor and fresh ideas to remain viable.

Cooperatives have long been promoted as vehicles for collective action in agriculture, but most cooperative structures in Bangladesh were designed by and for older, established farmers ^[2]. Young members often find themselves in passive roles, attending meetings but not voting, contributing labor but not leading activities. This structural marginalization may accelerate rather than prevent youth exit from agriculture ^[3].

Research from Kenya and Uganda showed that youth-centered cooperative designs with age-appropriate governance, mentoring, and technology integration retained young members at rates 35-50% higher than traditional models ^[4]. But evidence from South Asia, where cooperative traditions and youth demographics differ, remains limited ^[5]. This research compared three cooperative extension models for youth engagement effectiveness in Dhaka Division. The objectives were to track engagement trajectories across model types, assess participation depth across multiple dimensions, and identify predictors of sustained youth involvement.

Theoretical Framework

The research applies Self-Determination Theory, which posits that intrinsic motivation depends on meeting three psychological needs: autonomy, competence, and relatedness ^[6]. In cooperative contexts, autonomy maps to decision-making authority, competence to skill development opportunities, and relatedness to peer connections. The theory predicts that cooperative models offering greater youth autonomy and peer relatedness will generate stronger and more sustained engagement than those maintaining hierarchical adult-dominated structures.

Material and Methods

Material

A longitudinal comparative design tracked 192 young farmers (aged 18-30) across three cooperative types in four upazilas of Dhaka Division: Savar, Dhamrai, Keraniganj, and Nawabganj. Participants were distributed as: traditional cooperatives (n = 64), hybrid models (n = 66), and youth-led cooperatives (n = 62). The research ran from November 2023 to August 2024 at the Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh. Quarterly surveys measured engagement, participation, and income indicators. Ethics approval was obtained from the Sher-e-Bangla Agricultural University Ethics Committee (Protocol SAU-EC/2023/073, October 2023) ^[7].

Methods

Youth engagement was measured through a composite 25-item index covering attendance, participation quality, initiative-taking, and commitment indicators. Participation depth was assessed across five dimensions: meeting attendance, decision voting, financial contribution, activity leadership, and market negotiation. Repeated-measures ANOVA compared quarterly trajectories across models. Agricultural income per member was tracked through

cooperative financial records. Multiple regression identified engagement predictors [8].

Ethical Considerations: Written informed consent was obtained from all participants in Bengali. For members aged 18-19, parental notification was provided though individual consent was sufficient under Bangladeshi research ethics guidelines. All cooperative financial data were anonymized during analysis.

Results

Table 1: Youth Participation Rates across Five Dimensions by Cooperative Model (%)

Dimension	Traditional	Hybrid	Youth-Led	F-value	p-value
Meeting Attendance	58.3	72.6	84.1	28.4	<0.001
Decision Voting	21.4	48.3	71.8	64.7	<0.001
Financial Contribution	34.7	52.1	68.4	31.2	<0.001
Activity Leadership	12.8	38.4	62.3	58.9	<0.001
Market Negotiation	18.6	42.7	58.9	42.1	<0.001

Youth-led cooperatives outperformed other models across all five participation dimensions (Table 1). The widest gap appeared in activity leadership, where youth-led members

participated at 62.3% compared to just 12.8% in traditional cooperatives. Decision voting showed similarly dramatic differences (71.8% vs 21.4%).

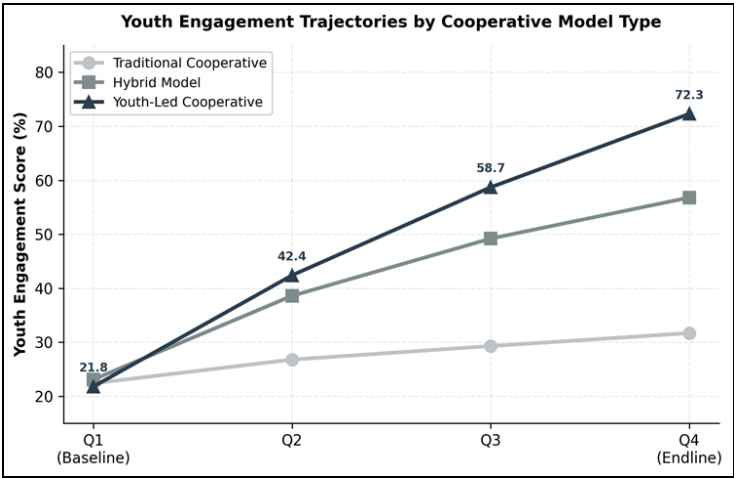


Fig 1: Youth engagement score trajectories across four quarters by cooperative model type

Youth-led cooperatives showed steep engagement gains from Q1 to Q4 (21.8% to 72.3%), while traditional

cooperatives plateaued early. The hybrid model fell between the two, with moderate growth tapering after Q3.

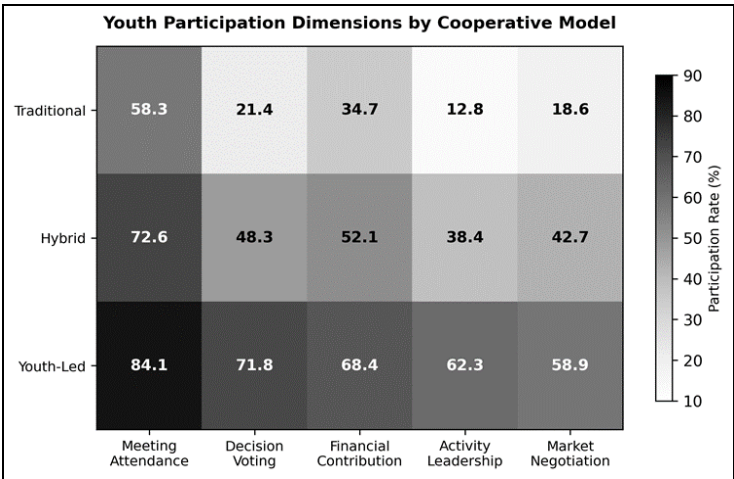


Fig 2: Youth participation intensity across five dimensions by cooperative model

The darkening gradient from traditional to youth-led models confirms deeper participation across all dimensions. Traditional cooperatives show high meeting attendance but low scores on decision-making and leadership, indicating passive rather than active membership.

Discussion

The results strongly support the hypothesis that youth-centered cooperative governance improves engagement. The 40.6 percentage-point gap in engagement scores between youth-led and traditional models by Q4 exceeds differences reported in East African research ^[4], possibly because Bangladesh's cooperative traditions create particularly rigid hierarchies that youth-led models disrupt more dramatically ^[9].

The participation pattern in traditional cooperatives, high attendance but low decision voting and leadership, describes what Arnstein ^[10] termed tokenistic participation. Young members show up but have no real voice. Youth-led models appear to convert attendance into genuine authority, which Self-Determination Theory predicts will sustain motivation over time ^[6].

The 44.6% income advantage in youth-led cooperatives likely reflects both better market negotiation by motivated members and the efficiency gains from having active decision-makers rather than passive attendees. This economic benefit may prove the strongest argument for restructuring cooperative governance.

Limitations

Self-selection into cooperative types may bias comparisons. The nine-month tracking period captures initial engagement but not long-term retention. Urban-proximate upazilas near Dhaka may not represent remote rural cooperative dynamics. Income differences could reflect pre-existing capacity rather than model effects alone.

Conclusions

Youth-led cooperatives substantially outperformed traditional and hybrid models in engaging young farmers across all measured dimensions. Genuine decision-making authority and peer leadership opportunities drove the strongest engagement gains. The cooperative model also generated higher agricultural income per member. Extension agencies and cooperative development programs should invest in youth-led governance structures rather than simply recruiting young people into existing adult-dominated organizations. Peer influence networks and autonomy in decision-making should be designed into cooperative constitutions from the outset rather than added as afterthoughts.

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