

Enhancing Market Access for Smallholder Farmers in Indonesia: The Role of Managerial Capacity and Member Motivation in Collective Action within Farmer Groups

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Abstract

Smallholder farmers are pivotal to global food security yet encounter substantial obstacles in accessing competitive markets. The objective is to investigate the impact of managerial capacity and member motivation on collective action and market access among smallholder farmers in Indonesia. A survey was conducted with 249 kepok banana farmers belonging to farmer groups in Seruyan Regency, Central Kalimantan, Indonesia. Data were collected using a structured questionnaire that included demographic information and perceptions of managerial capacity, motivation, collective action, and market access. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to assess the relationships among the constructs. The results indicate that managerial capacity significantly enhances the role of farmer groups ($\beta = 0.494$, $p < 0.001$), while member motivation does not show a significant effect ($\beta = 0.076$, $p = 0.290$). The role of farmer groups significantly influences both collective action ($\beta = 0.616$, $p < 0.001$) and market access ($\beta = 0.240$, $p < 0.001$). Furthermore, collective action has a significant positive effect on market access ($\beta = 0.479$, $p < 0.001$). These findings underscore the critical role of farmer groups in organizing collective strategies to enhance market access. Managerial capacity is pivotal for successful collective action. Policymakers should strengthen farmer group institutions to foster collective action, reduce market barriers, and achieve sustainable agricultural growth.

Keywords

Agricultural development, economic resilience, institutional capacity, PLS-SEM.

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Introduction

Smallholder farmers play a critical role in ensuring global food security, providing approximately 80% of the world's food supply (FAO and IFAD, 2019; Lowder et al., 2019). Their contributions are particularly significant in developing countries, where agriculture remains the backbone of rural economies and a major source of livelihood. Despite their essential role in food production, smallholder farmers face numerous challenges in accessing competitive markets. These challenges significantly limit their participation in and benefits from broader agricultural value chains, thereby hampering income generation and economic resilience.

A multitude of factors constrain smallholder farmers' access to competitive markets. Limited resources, including inadequate credit, high

input costs, and insufficient market information, represent significant barriers (Courtois and Subervie, 2014; Kiveu and Ofafa, 2013; Magesa et al., 2014). These issues are further compounded by poor infrastructure and high transportation costs, which restrict farmers' ability to compete effectively and reduce profitability (Fan and Salas Garcia, 2018; Migose et al., 2018). Limited access to financial services hinders necessary investments in productivity and marketing strategies (Akpa et al., 2023), while geographic isolation diminishes market access and bargaining power (Untari and Vellema, 2022).

In Indonesia, many agricultural markets are characterized by oligopsony structures, where a few dominant buyers exert considerable influence over prices. Such market conditions often result in unfavorable terms for smallholder farmers. Collective marketing through farmer groups can

mitigate this imbalance by enhancing negotiation power and improving economies of scale (Mangan and Ward, 2024; Markelova and Mwangi, 2010).

However, in the absence of such collective strategies, smallholder farmers are placed at a considerable disadvantage compared to larger agricultural enterprises, which naturally benefit from scale efficiencies and market access. The fragmented nature of smallholder farming leads to high transaction costs and low bargaining power for individual producers. Moreover, even motivated farmers remain constrained when marketing efforts are uncoordinated, thereby limiting the effectiveness of individual initiative (Rhoads and Shogren, 1999).

Agricultural institutions such as cooperatives and farmer groups have shown significant potential in supporting economic development and enhancing smallholder farmers' competitiveness (Otekinrin et al., 2019; Siteo and Sitole, 2019). By leveraging collective action, these institutions help smallholders address challenges such as high transaction costs and limited bargaining power. Through pooling resources, coordinating production and marketing activities, and strengthening bargaining positions, collective action facilitates better access to market information and improves farmers' ability to secure higher prices for their products (Barrett, 2008; Markelova et al., 2009). Empirical evidence highlights that collective action enhances market access, thereby promoting economic resilience (Abdul-Rahaman and Abdulai, 2020; Aku et al., 2018).

Managerial capacity and member motivation are critical determinants of successful collective action within farmer groups. Motivation drives active participation in group activities, as members who perceive tangible benefits from their involvement are more likely to contribute meaningfully (Hartwell et al., 2024). However, motivation alone is insufficient. Without effective managerial support and well-defined collective marketing strategies, even highly motivated members may struggle to achieve significant outcomes (Mangan and Ward, 2024). Thus, the interplay between managerial capacity and member motivation is essential for understanding the effectiveness of collective action in enhancing smallholder farmers' market access.

This study explores how the managerial capacity and motivation of farmer group members influence their roles and how these roles impact collective action to enhance market access for smallholder

farmers. By focusing on the case of kepok banana (*Musa paradisiaca* L.) farmers in Seruyan Regency, Central Kalimantan, this research seeks to provide insights into the institutional factors that improve market access for smallholder farmers, contributing to their economic resilience and the sustainability of the agricultural sector.

The findings are expected to contribute to the literature on smallholder market access and collective action models by offering empirical evidence on the specific mechanisms through which managerial capacity and member motivation drive collective action. These insights aim to inform policies and practices that enhance the economic and social outcomes for smallholder farmers globally.

Materials and methods

Study area

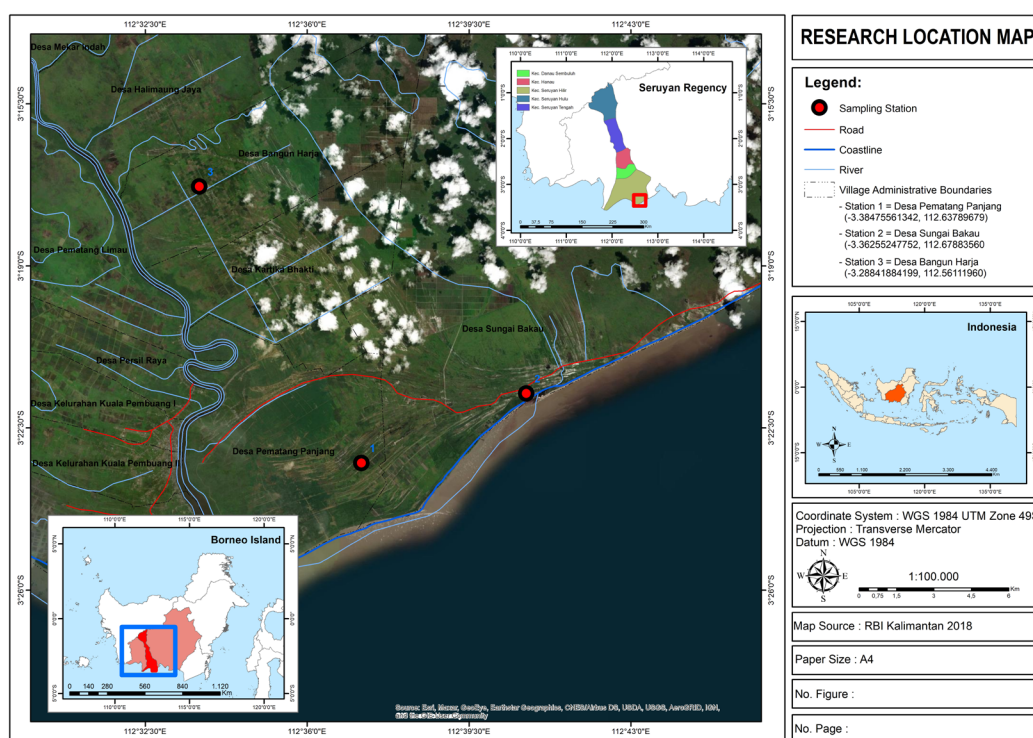
The study was conducted in Seruyan Regency, Central Kalimantan Province, Indonesia, a region recognized for its significant potential in kepok banana production and well-organized farmer groups (Statistics Indonesia, 2023). This setting provides an ideal context for analyzing the dynamics of collective action and its impact on market access. Geographically, Seruyan Regency is located between latitudes 00°77' to 30°56' South and longitudes 111°49' to 112°84' East (Figure 1).

Sampling procedure

A multistage sampling procedure was employed to select the study participants systematically. In the first stage, Seruyan Regency was purposively chosen based on its significant potential for kepok banana production and marketing activities. In the second stage, three villages (Sungai Bakau, Pematang Panjang, and Bangun Harja) were selected because of their active farmer groups. The final stage involved selecting respondents using Yamane's formula with a 5% margin of error (Yamane, 1973). The formula 1 is as follows:

$$n = \frac{N}{1 + N(e)^2} = \frac{655}{1 + (0.05)^2} = 249 \quad (1)$$

Where: n = sample size, N = population size (655 kepok banana farmers), and e = margin of error (0.05). Calculating the sample size yielded 249 respondents. These respondents were randomly selected from the 26 farmer groups within the three villages to ensure a representative sample and minimize selection bias.



Source: Authors' illustration based on the Indonesian Topographic Map (RBI)

Figure 1: Research location.

The farmer groups are semi-formal rural institutions commonly found across Indonesia. They typically operate at the village level and are recognized by local agricultural offices. These groups serve as platforms for collaboration among farmers, focusing on joint planning, training, input procurement, and collective marketing. Each group is usually led by a chairperson and conducts regular meetings to coordinate activities and resolve production or marketing issues collaboratively.

Data collection instrument

Data were collected using a structured questionnaire administered through face-to-face interviews. The questionnaire was organized into two primary

sections:

1. Demographic and Socio-Economic Information: Included age, gender, education level, land size, and farming experience.
2. Study Variables: Captured perceptions of managerial capacity, member motivation, the role of farmer groups, collective action, and market access.

Key variables, their associated items, and measurement scales are summarized in Table 1. Responses were recorded on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

Variable	Notation	Item	Scale 1-5
Managerial capacity	Man1	The farmer group consistently formulates an annual plan of activities	strongly disagree – strongly agree
	Man2	The farmer group assigns clear duties and responsibilities to each member	strongly disagree – strongly agree
	Man3	The farmer group ensures that activities are executed in accordance with the pre-established plans	strongly disagree – strongly agree
	Man4	The farmer group monitors and supervises the implementation of activities	strongly disagree – strongly agree
	Man5	The farmer group also conducts evaluations of the activities that have been completed.	strongly disagree – strongly agree

Source: Author processing, 2024

Table 1: Key variables and measurement scales (To be continue).

Variable	Notation	Item	Scale 1-5
Member motivation	Mot1	Did you join the farmer group because you want to receive guidance from the group	definitely not – definitely yes
	Mot2	Did you join the farmer group because you want easy access to the facilities provided by the group	definitely not – definitely yes
	Mot3	Did you join the farmer group because you want to improve my skills and knowledge through the group	definitely not – definitely yes
Role of the farmer group	Rule1	The farmer group always provides the latest information on kepok banana market prices	strongly disagree – strongly agree
	Rule2	The farmer group provides transportation facilities to market kepok bananas	strongly disagree – strongly agree
	Rule3	The farmer group encourages members to use technology in marketing kepok bananas	strongly disagree – strongly agree
	Rule4	The farmer group frequently holds meetings with external parties to discuss marketing cooperation for kepok bananas	strongly disagree – strongly agree
Collective action	Coll1	The farmer group often communicates with other farmer group members about kepok banana marketing strategies	strongly disagree – strongly agree
	Coll2	The farmer group often conducts joint planning for marketing activities	strongly disagree – strongly agree
	Coll3	The farmer group frequently shares resources (tools, information, funds) for kepok banana marketing activities	strongly disagree – strongly agree
	Coll4	The farmer group often organizes activities that involve the entire community or external parties to support kepok banana marketing	strongly disagree – strongly agree
Market access	Acc1	I have found it easier to enter new markets for selling kepok bananas	strongly disagree – strongly agree
	Acc2	I now have better access to distant markets where I can sell my produce	strongly disagree – strongly agree
	Acc3	I can quickly and comprehensively obtain relevant information about kepok bananas	strongly disagree – strongly agree
	Acc4	I am able to efficiently distribute my harvested kepok bananas to the market	strongly disagree – strongly agree

Source: Author processing, 2024

Table 1: Key variables and measurement scales (Continuation).

Data analysis techniques

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the SmartPLS software. SEM is a robust econometric modeling technique frequently employed for testing complex marketing theories and examining theoretical concepts in real-world situations (Benitez et al., 2019; Martínez-López et al., 2013). PLS-SEM was chosen for its advantages in handling small sample sizes and missing data, as well as its capability to manage both reflective and formative indicators (Hair et al., 2019; Lowry and Gaskin, 2014). This approach has also been adopted in recent empirical studies related to farmer groups and cooperatives. For instance, Iyioku et al., (2024) applied PLS-

SEM to analyze the motivational factors and social capital influencing farmer participation in cashew marketing cooperatives in Kenya. Similarly, Wang and Wang, (2024) employed PLS-SEM to examine how collective action capabilities affect economic performance in rural cooperatives in China. These examples underscore the method's relevance in capturing behavioral and institutional dynamics within smallholder farming systems.

The analytical process adopted a two-stage approach to ensure the rigor and validity of the study's findings. The first stage involved evaluating the measurement model to confirm the reliability and validity of the constructs. Indicator reliability was assessed through factor loadings, where values greater than 0.5 were

considered acceptable (Hair et al., 2019). Internal consistency reliability was evaluated using Cronbach's alpha and Rho A, with thresholds set at values above 0.7 (Hair et al., 2019). Convergent validity was determined by calculating the Average Variance Extracted (AVE), where values exceeding 0.5 indicated sufficient convergence (Hair et al., 2019). Composite Reliability (CR) was also employed to verify internal consistency, with acceptable values set above 0.7 (Hair et al., 2019). Discriminant validity was confirmed through cross-loadings, ensuring that each item's loading on its designated construct was higher than its loadings on other constructs. The Fornell-Larcker criterion was applied to verify that the square root of each construct's AVE was greater than its correlations with other constructs, and the Heterotrait-Monotrait Ratio (HTMT) was used, with values below 0.90 indicating adequate discriminant validity (Hair et al., 2019).

Once the reliability and validity of the measurement model were established, the second stage focused on evaluating the structural model. Multicollinearity among predictor variables was examined using the Variance Inflation Factor (VIF), with acceptable values set below 3.00 (Hair et al., 2019). The model's explanatory power was assessed through the Coefficient of Determination (R^2), which quantifies the variance explained in the endogenous constructs. The effect size (f^2) was calculated to determine the impact of each exogenous variable on the endogenous variables, while predictive relevance (q^2) was assessed using the blindfolding procedure to evaluate the model's predictive accuracy (Hair et al., 2019).

To test the significance of the hypothesized relationships (Figure 2), a bootstrapping procedure with 5,000 subsamples was performed. This procedure provided estimates of standard errors and t-statistics for the path coefficients, enabling robust inferences regarding the direct and indirect effects among the constructs (Hair et al., 2019). This comprehensive analytical approach ensured

the validity and reliability of the results, thereby enhancing the robustness of the study's conclusions.

Figure 2 shows the conceptual framework of the study, outlining the relationships between managerial capacity, member motivation, the role of farmer groups, collective action, and market access. The hypothesized relationships are grounded in organizational behavior and collective action theory, as discussed by Markelova and Mwangi (2010), Hartwell et al., (2024), and supported empirically by Mangan and Ward (2024). These theoretical foundations support the relevance of the model in analyzing the internal drivers of farmer group performance.

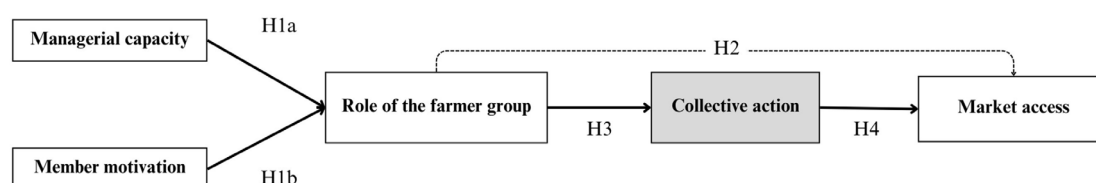
Results and discussion

Demographic characteristics of respondents

The study surveyed a total of 249 kepok banana farmers from three villages in Seruyan Regency, Central Kalimantan: Bangun Harja, Sungai Bakau, and Pematang Panjang. The demographic characteristics of the respondents provide valuable insights into the socio-economic context of the farmers involved in this study, as shown in Table 2.

A significant majority of the respondents were male (86.8%), reflecting the gender dynamics within the agricultural sector in the region. The largest age group was between 36 and 45 years (33.7%), indicating a mature farming population with potentially substantial experience. Educational attainment was generally low, with over half of the respondents (55.0%) having only completed elementary school, and a small fraction (3.2%) possessing university-level education.

Regarding farming experience, half of the farmers (50.60%) had between 6 to 10 years of experience, while 39.76% had five years or less. Landholding sizes were predominantly small, with 51% of farmers owning less than 2 hectares, classifying them as smallholders. These demographics highlight



Source: Authors

Figure 2: Conceptual framework of the study.

Characteristic		Frequency	Percentage (%)
Sex	Male	216	86.75
	Female	33	13.25
Age	< 25 years	24	9.64
	26-35 years	60	24.10
	36-45 years	84	33.73
	46-55 years	54	21.69
	> 55	27	10.84
Farming experience	< 5 years	99	39.76
	6–10 years	126	50.60
	> 10 years	24	9.64
Education level	No formal education	2	0.80
	Elementary school	137	55.02
	High school	102	40.96
	University	8	3.21
Land size	< 2 Ha	127	51.00
	2-4 Ha	88	35.34
	> 4 Ha	34	3.65

Source: Author compilation, 2024

Table 2: Demographic characteristics of survey respondents.

the challenges faced by smallholder farmers in terms of resources and access to education, which may influence their capacity for collective action and market engagement.

Measurement model evaluation

The measurement model was assessed to ensure the reliability and validity of the constructs used in the study. Reliability was evaluated using Composite Reliability (CR) and Cronbach's alpha. According to (Hair et al., 2019), both CR and Cronbach's alpha values should exceed the threshold of 0.70 to indicate high internal consistency. As presented in Table 3, all constructs met this criterion, demonstrating satisfactory reliability.

Construct	Composite Reliability (CR)	Cronbach's Alpha	AVE
Managerial capacity	0.894	0.884	0.743
Member motivation	0.799	0.761	0.630
Role of the farmer group	0.865	0.846	0.682
Collective action	0.887	0.887	0.746
Market access	0.889	0.889	0.750

Source: Author compilation, 2024

Table 3: Reliability and validity assessment of constructs.

Convergent validity was assessed by examining the Average Variance Extracted (AVE) for each construct. Chin (2010) recommends that AVE

values should be above 0.50 to confirm that the constructs adequately capture the relevant variance. As shown in Table 3, all AVE values exceeded 0.50, confirming convergent validity.

Discriminant validity was evaluated using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. The Fornell-Larcker criterion requires that the square root of each construct's AVE be higher than its correlations with other constructs. The HTMT ratio should be less than 0.90 to indicate adequate discriminant validity (Hair et al., 2019). Both criteria were met in this study (Table 4 and 5), confirming that each construct was distinct from the others.

The cross-loading analysis further supported discriminant validity, which examines whether each measurement item loads more significantly on its assigned construct than on any other constructs (Chin, 2010; Hair et al., 2019). According to the criteria, an indicator should exhibit the highest loading on its own latent variable to confirm discriminant validity. As illustrated in Table 6, all items demonstrated higher loadings on their respective constructs compared to loadings on other constructs. For instance, items measuring Managerial Capacity loaded strongly on that construct, with loadings ranging from 0.65 to 0.98, while their loadings on other constructs were considerably lower.

Constructs	Managerial capacity	Member motivation	Role of the farmer group	Collective action	Market access
Managerial capacity	0.862				
Member motivation	0.051	0.794			
Role of the farmer group	0.498	0.101	0.826		
Collective action	0.449	0.099	0.616	0.864	
Market access	0.307	0.105	0.536	0.628	0.866

Source: Author compilation, 2024

Table 4: Discriminant validity (Fornell–Larcker criterion).

Constructs	Collective action	Managerial capacity	Market access	Member motivation
Managerial capacity	0.499			
Market access	0.707	0.408		
Member motivation	0.091	0.100	0.107	
Role of the farmer group	0.700	0.563	0.603	0.107

Source: Author compilation, 2024

Table 5: Heterotrait–monotrait ratio (HTMT).

Variable	Collective action	Managerial capacity	Market access	Member motivation	Role of the farmer group
Acc1	0.528	0.348	0.845	0.176	0.460
Acc2	0.559	0.275	0.846	0.056	0.426
Acc3	0.545	0.359	0.897	0.072	0.484
Acc4	0.541	0.300	0.875	0.062	0.486
Coll1	0.862	0.428	0.540	0.089	0.563
Coll2	0.865	0.385	0.543	0.127	0.480
Coll3	0.883	0.362	0.546	0.074	0.537
Coll4	0.845	0.374	0.539	0.055	0.547
Man1	0.461	0.891	0.350	0.062	0.450
Man2	0.356	0.898	0.347	0.065	0.437
Man3	0.430	0.859	0.376	0.027	0.466
Man4	0.277	0.795	0.173	0.016	0.350
Mot1	0.117	0.061	0.130	0.979	0.117
Mot2	-0.004	-0.065	-0.034	0.646	0.016
Mot3	0.033	0.043	0.027	0.717	0.032
Rule1	0.499	0.442	0.452	0.053	0.833
Rule2	0.444	0.349	0.331	0.076	0.779
Rule3	0.452	0.361	0.386	0.121	0.811
Rule4	0.612	0.471	0.560	0.089	0.876

Source: Author compilation, 2024

Table 6: Cross-loadings of measurement items.

These results confirm that each item correlates most strongly with the construct it is intended to measure, satisfying the requirements for discriminant validity through cross-loadings (Hair et al., 2019). The distinctiveness of each construct is thereby established, reducing concerns about multicollinearity and ensuring that the constructs are measuring separate concepts within the model.

Collectively, the reliability and validity assessments including internal consistency reliability, convergent validity, and discriminant validity indicate that the measurement model is robust. These validations provide confidence in the constructs used and support the progression to the structural model assessment, where the hypothesized relationships between the constructs can be examined with a solid foundation (Shrestha, 2021).

Structural model evaluation and hypothesis testing

After confirming the measurement model's adequacy, the structural model was evaluated to examine the hypothesized relationships among the constructs. Multicollinearity among the predictor variables was assessed using the Variance Inflation Factor (VIF) and tolerance levels. According to Hair et al., (2011), VIF values exceeding 5 indicate significant collinearity issues, while Collier (2020) suggests that tolerance values greater than 0.10 are preferable. Becker et al., (2015) argue that collinearity can be a concern at VIF values as low as 3. In this study, all VIF values were below 3, as shown in Table 7, indicating that multicollinearity was not a concern and the model's estimates were reliable.

Endogenous variable	Predictor variables	VIF
Role of farmer group	Managerial capacity	1.003
	Member motivation	1.003
Collective action	Role of farmer group	1.000
Market access	Role of farmer group	1.612
	Collective action	1.612

Source: Author compilation, 2024

Table 7: Variance inflation factor (VIF) values.

Once the measurement model was assessed correctly, and the subsequent SEM analysis was deemed reliable (Shrestha, 2021), the structural paths were examined to determine the relationships between the study constructs and their statistical significance. The determination coefficients (R^2) were calculated to assess the amount of variance in the endogenous constructs explained by the predictor variables. According to Hair et al., (2019), R^2 values of 0.25, 0.50, and 0.75 indicate

weak, moderate, and substantial explanatory power, respectively. The R^2 values in this study are presented in Table 8. The R^2 values indicate that the model has moderate explanatory power for the endogenous variables. Predictive relevance (Q^2) was assessed using the blindfolding procedure, with values greater than zero indicating adequate predictive accuracy (Hair et al., 2019). All Q^2 values were above zero, confirming the model's predictive relevance.

Effect sizes (f^2) were calculated to evaluate the impact of each exogenous variable on the endogenous variables. (Hair et al., 2019) suggest that f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively. The effect sizes are presented in Table 9. The results indicate that managerial capacity has a large effect on the role of the farmer group ($f^2 = 0.326$), while member motivation has a small effect ($f^2 = 0.008$). The role of the farmer group strongly influences collective action ($f^2 = 0.612$), and collective action has a medium effect on market access ($f^2 = 0.250$).

The hypothesized relationships between the constructs were tested using path coefficients and their significance levels through a bootstrapping procedure with 5,000 subsamples (Hair et al., 2019). The results presented in Table 10 and Figure 3 indicate that managerial capacity has a significant positive effect on the role of the farmer group ($\beta = 0.494$, $t = 8.631$, $p < 0.000$), supporting the hypothesis that effective managerial skills enhance group functionality. In contrast, member motivation does not significantly influence the role of the farmer group ($\beta = 0.076$, $t = 1.059$, $p = 0.290$), suggesting that motivation alone may be insufficient without opportunities for meaningful engagement

Construct	Q^2	R^2	Adjusted R^2	Criteria
Role of the farmer group	0.166	0.253	0.252	Moderate
Collective action	0.279	0.380	0.379	Moderate
Market access	0.318	0.430	0.428	Moderate

Source: Author compilation, 2024

Table 8: Coefficient of determination (R^2) and Predictive Relevance (Q^2).

Endogenous variable	Exogenous variables	f^2	Effect vize
Role of farmer group	Managerial capacity	0.326	Large
	Member motivation	0.008	Small
Collective action	Role of farmer group	0.612	Large
Market access	Role of farmer group	0.063	Medium
	Collective action	0.250	Medium

Source: Author compilation, 2024

Table 9: Effect sizes (f^2) of predictor variables.

or managerial facilitation. The role of the farmer group significantly influences collective action ($\beta = 0.616, t = 12.966, p < 0.001$) and market access ($\beta = 0.240, t = 3.385, p = 0.001$). Furthermore, collective action also exerts a significant positive effect on market access ($\beta = 0.479, t = 7.062, p < 0.001$). These findings confirm that strong internal group dynamics and coordinated efforts are essential to improving access to competitive markets. The results underscore the pivotal role of managerial capacity in strengthening farmer group functions, which in turn fosters effective collective action and facilitates improved market access for smallholder farmers.

Yanduri and Siddayya, (2024) emphasize that managerial competencies are pivotal determinants of organizational success. Research by Ton et al. (2015) supports this notion, highlighting that managerial capacity fosters effective resource utilization, coordination, and strategic planning, which are critical for collective marketing. Similarly, Prabhavathi et al. (2023) find a significant correlation between managerial skills and improved financial performance and sustainable growth in farmer organizations. By equipping leaders with targeted training programs and practical experience, this study demonstrates the transformative potential of managerial capacity in enhancing group functionality. Moreover, Markelova and Mwangi, (2010) argue that leadership, when combined with enabling environments, drives successful collective action, reducing transaction costs and enhancing market access for smallholder farmers. The significant positive influence observed

in this study reinforces the vital role of leadership in overcoming market challenges, fostering cohesive group efforts, and ensuring the sustainability of agricultural practices. Collectively, these findings emphasize that managerial capacity serves as the backbone of effective farmer groups, enabling them to navigate complex market dynamics and secure economic resilience.

Interestingly, while managerial capacity significantly influenced the role of the farmer group, member motivation did not exhibit a statistically significant impact. This finding suggests that motivation alone may not be sufficient to enhance group performance if it is not accompanied by structured opportunities for engagement and institutional support. Motivated members may still be hindered by limited decision-making authority, unclear roles, or a lack of inclusive governance mechanisms within the group. These barriers can suppress the active participation necessary for translating motivation into meaningful contributions.

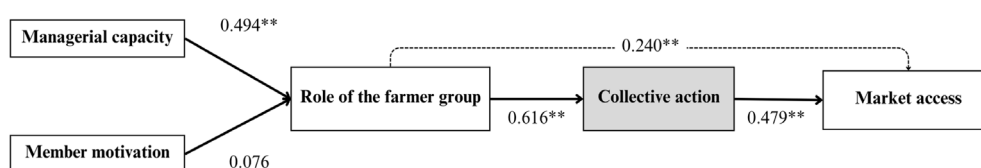
Furthermore, the strong influence of managerial capacity may indicate a compensatory effect, whereby effective leadership and planning structures reduce reliance on individual motivation. In such contexts, a capable management team may drive group functionality through top-down mechanisms, setting objectives and ensuring execution, even if member participation remains passive. While this may ensure short-term effectiveness, long-term sustainability and group cohesion could be at risk if member engagement remains superficial.

These findings align with the observations

Relationship	Path coefficients (β value)	t-value	p-value	Hypothesis supported
Managerial capacity > Role of the farmer group	0.494	8.631	0.001	Yes
Member motivation > Role of the farmer group	0.076	1.059	0.290	No
Role of the farmer group > Collective action	0.616	12.966	0.001	Yes
Role of the farmer group > Market access	0.240	3.385	0.001	Yes
Collective action > Market access	0.479	7.062	0.001	Yes

Source: Author compilation, 2024

Table 10: Path coefficient and hypothesis testing.



Note: * and ** denote a 5% and 1% significance level, respectively
Source: Authors

Figure 3: Structural model results.

of Mangan and Ward (2024), who argue that collective success depends not just on willingness but on the structural capacity to act. Similarly, Hartwell et al., (2024) emphasize that during periods of institutional stress, the absence of participatory mechanisms can nullify even strong intrinsic motivation. Hence, efforts to strengthen the role of farmer groups should focus not only on managerial skill-building but also on creating systems that empower member voices and engagement.

The study also found that the role of the farmer group significantly influences collective action, which in turn has a substantial positive impact on market access. This highlights the pivotal role of farmer groups as facilitators of collective action, enabling smallholder farmers to overcome market barriers. Konja and Abdulai (2024) identified collective market action as a means of enhancing farm performance, noting that by pooling resources and coordinating efforts, farmer groups can access markets that would otherwise be inaccessible to individual farmers. Similarly, Bikkina et al. (2018) found that collective efforts, such as resource pooling and information sharing, help farmers overcome logistical and financial constraints.

Farmer groups serve as critical platforms for enhancing collective bargaining power, which is essential for negotiating better terms with buyers and reducing transaction costs. According to Markelova and Mwangi (2010), collective action enables smallholder farmers to leverage their collective strength to secure better prices, improve market linkages, and reduce the risk of exploitation by intermediaries. This aligns with findings from Ssajakambwe et al. (2020), who emphasize that coordinated group efforts can help farmers establish long-term contracts with large-scale buyers, fostering greater market stability and income security.

Moreover, strong internal governance within farmer groups plays a crucial role in sustaining effective collective action. Groups with clear operational guidelines, transparent decision-making processes, and active member participation are more likely to achieve their goals (Barham and Chitemi, 2009). This study's findings also emphasize the importance of leadership and institutional maturity in ensuring that collective efforts translate into tangible market benefits. As Fischer and Qaim (2012) suggest, fostering trust and cohesion within groups enhances their ability to address logistical challenges and exploit high-value market opportunities.

However, the success of farmer groups as facilitators of collective action is not without challenges. Weak leadership, lack of resources, and unequal benefit distribution can undermine group effectiveness (McLeay et al., 1996). Addressing these challenges requires targeted interventions, such as capacity-building programs for group leaders and the provision of financial and technical support to enhance group functionality. Bikkina et al., (2018) highlight the need for external support from governments and NGOs to strengthen group structures and provide access to critical resources, ensuring the sustainability of collective market initiatives.

The positive impact of collective action on market access is consistent with findings by Anania and Towo (2016), who reported that farmer groups in Tanzania enhanced market access and improved bargaining power through structured collective strategies. Liu et al., (2019) advocate for capacity-building initiatives within agricultural institutions to enhance smallholder farmers' bargaining power and market access. By investing in leadership development and managerial training, farmer groups can improve their organizational structures and strategic capabilities, leading to better collective action outcomes.

Moreover, the role of collective action in promoting sustainable agricultural practices is significant. Research indicates that participation in collective organizations positively influences farmers' decisions regarding the adoption of soil and water conservation measures, thereby enhancing their resilience to climate change (Jia et al., 2024). This is further supported by findings from the MASIPAG network in the Philippines, which emphasizes the importance of self-reflection and critique among farmer organizations to adapt and thrive in changing agricultural landscapes (Jack et al., 2022).

This study provides valuable insights into the roles of managerial capacity and member motivation in enhancing collective action and market access. However, several limitations must be acknowledged. The research was geographically limited to kepok banana farmer groups in Seruyan Regency, which may reduce the generalizability of the findings to other crops, regions, or organizational contexts. In addition, the study only examined two internal factors—managerial capacity and member motivation—while omitting other potential influences such as financial access,

technology adoption, and institutional support from governments or NGOs. Future studies should consider incorporating these variables to better capture the multidimensional nature of collective action.

Another limitation stems from the use of self-reported data, which may introduce response bias, particularly in measuring subjective constructs such as motivation and managerial effectiveness. Although PLS-SEM is robust against measurement error, triangulating results with qualitative or observational data in future research would improve validity. Moreover, the study did not include a gender perspective, despite evidence that collective action often affects men and women differently due to cultural and structural inequalities. The study focused solely on farmers who are active members of producer groups, which may limit the generalizability of the findings to unaffiliated farmers. The relatively small size of farmer groups may influence internal dynamics and group performance, potentially enhancing coordination but limiting economies of scale. Future studies should include both affiliated and non-affiliated farmers to provide a broader understanding of collective action dynamics.

The study contributes to the literature by providing empirical evidence on the specific mechanisms through which managerial capacity influence collective action and market access. It highlights the need for policies and interventions that focus on building the managerial skills of farmer group leaders and encouraging active participation among members. Such efforts can lead to more effective collective strategies that enhance the competitiveness of smallholder farmers in the market. Future research should aim to address the identified limitations by exploring additional factors that may influence collective action and market access, considering different agricultural contexts, and incorporating gender analyses. By doing so, researchers can develop a more holistic understanding of how to support smallholder farmers through effective farmer groups and collective action initiatives.

Conclusion

The findings demonstrate that managerial capacity is a critical determinant of a farmer group's success in facilitating collective action and improving market access. Specifically, effective leadership and management practices significantly enhance the group's functionality, enabling it to organize

and implement collective strategies more efficiently.

Conversely, member motivation alone was not found to have a significant impact on the role of the farmer group. This finding supports earlier discussions suggesting that motivation, while important, may not be sufficient in the absence of structured engagement mechanisms, inclusive governance, or clear participation channels. When opportunities for meaningful involvement are limited, even highly motivated members may remain passive or disengaged.

The implications of these findings are substantial for policymakers, development practitioners, and stakeholders involved in agricultural development. Enhancing managerial capacity within farmer groups through targeted training programs and capacity-building initiatives can empower leaders to drive collective action effectively. By focusing on these institutional capacities, interventions can facilitate collective strategies that overcome market barriers, increase bargaining power, and improve the economic resilience of smallholder farmers.

Future research should address the limitations of this study by expanding the geographic scope to include diverse agricultural contexts and crop types. Incorporating additional variables such as access to financial services, technological adoption, and external support can provide a more comprehensive understanding of the factors influencing collective action and market access. Moreover, integrating a gender perspective is crucial, as the effects of collective action on women farmers remain underexplored. Investigating how gender dynamics affect participation and benefits within farmer groups can inform more inclusive and equitable strategies.

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