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Factors Influencing the Performance of Farmer Groups in Eastern Uganda: A Study on the Agricultural Extension Approach and Advisory Services

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Abstract

The success of the farmer-led Agricultural Extension approach in Uganda relies heavily on the performance of farmer groups. This research investigates the factors that impact the performance of farmer groups in Eastern Uganda when accessing agricultural extension and advisory services from the National Agricultural Advisory Services. The study involved gathering data from 200 members belonging to 19 farmer groups in the region. The dependent variable in this study was the performance of the farmer groups, which was believed to be influenced by several factors, including individual members' objectives, participation culture, power distance, task structure, perceived equity, reward allocation, and engagement in group activities. The results of the study revealed that power distance and perceived equity had a statistically significant positive correlation with farmer group performance. On the other hand, group participation culture and task structure exhibited a statistically negative relationship with group performance. Additionally, the members of the farmer groups tended to attribute group losses to factors beyond the seasonality of group activities, the quality of farm inputs, and inadequate training provided by advisory service providers. To enhance support and collective participation within the community farmer groups, both the advisory service providers and farmer group members should leverage the political and social capital possessed by local leadership, groups, and community members. Recognizing that farmer groups are a subset of the larger community, this empirical study sheds light on the role of community culture in influencing the performance of farmer groups in smallholder farming communities.

Keywords: farmers, groups, agricultural extension, advisory services

Introduction

Farmer groups play a crucial role in transforming agriculture in Uganda, with the National Agricultural Advisory Services (NAADS) at the core of this transformation. NAADS, established as a semi-autonomous body in 2001, delivers publicly funded agricultural extension services to smallholder farmer groups. Farmer groups serve as important channels through which farmers access market and credit information, agricultural knowledge and technologies, and facilitate collective action towards common objectives related to service delivery and agricultural development support.

However, previous assessments of NAADS implementation and initial findings from this study indicate challenges within farmer groups. Many members are leaving the groups, while some

groups are becoming inactive or disbanding. Literature highlights several issues, including failure to meet member expectations due to limited involvement and production, exclusion of certain socioeconomic groups lacking necessary resources such as people with disabilities, youth, and women, power imbalances with male dominance in mixed groups, inadequate mobilization resulting in low participation in group activities, and divergent needs and interests stemming from cultural differences.

Additional challenges faced by smallholder farmer groups, as identified by Lutz and Tadesse (2017), include a lack of commitment and improper member selection. Voluntary and open membership can lead to free-riding, resource constraints, and reliance on external support, which hinder the performance of farmer groups. To address these challenges, Lutz and Tadesse recommend that farmer groups carefully target and select dedicated members who are willing to invest in potentially high-performing groups. The primary goals of most farmer groups revolve around improving incomes and food security, achieved through timely access to agricultural inputs and technologies.

Furthermore, Barham and Chitemi (2009) argue that farmer groups with strong internal institutions, active group activities, and access to natural resources tend to demonstrate better performance. Improved performance is primarily attributed to farmers' motivation, a supportive extension environment, and social inclusion in the implementation of group tasks. Therefore, this study focuses on examining the individual attributes of group members and how their participation context in group processes influences the performance of smallholder farmer groups in Uganda. Moreover, the study expands the discussion to encompass group dynamics and the associated processes, broadening the understanding of this important aspect.

The focus of this study is to investigate the impact of individual member attributes and group processes on the performance of smallholder farmer groups in Uganda. Specifically, the study aims to achieve two objectives: (1) analyze how the intention of individual members to join farmer groups affects the performance of these groups, and (2) explore the influence of group processes on the performance of smallholder farmer groups.

Methods

This study conducted research with 200 participants from Kyere, Olio, and Arapai sub-counties in Soroti district, Uganda. The selection of the study district and sub-counties aimed to examine farmer groups that had gained maturity through their participation. The study focused on 19 farmer groups that had been continuously operational in the district between 2001 and 2011. The participant selection process involved a combination of stratified random and purposive sampling techniques. A two-stage stratified sampling was used, with the sub-county and village as the first and second stages, respectively. The number of groups selected at the village level was proportional to the number of farmer groups in each sub-county. Within each group, participants were selected proportionally based on group size. The study also included key informants such as

group chairpersons, sub-county NAADS coordinators, former group members, and opinion leaders. These informants were chosen for their knowledge of the context and processes related to farmer groups. Data collection took place in October 2011, approximately four to nine years after the farmer groups' initial contact with the NAADS program. The findings of this study remain relevant to Uganda's agricultural extension services, as the program still plays a crucial role in planning and delivering services to smallholder farmer groups. The data collection methods included researcher-generated questionnaires, face-to-face interviews, and focus group discussions. Trained research enumerators conducted the data collection, following research ethics and respecting human subjects. The questionnaire underwent content validity review by agricultural extension experts, and a pilot test was conducted with 20 members of farmer groups not included in the final study. The survey gathered data on individual member objectives, group task structure, perceived equity, and group performance. Descriptive statistics and Cronbach's alpha were used to analyze key quantitative variables. Factor analysis was performed to identify factors contributing to group performance. Correlation coefficient analysis and linear regression analysis were used to examine the relationships between individual member objectives, group processes, and group performance. Overall, this study provides insights into the attributes of individual members and group processes that influence the performance of smallholder farmer groups in Uganda.

Results

The participation culture among farmer group members plays a crucial role in determining whether their involvement in group activities leans towards a collective or individual orientation. Table 1 provides an overview of the disparities between the needs and interests of individual members and the collective needs and interests of the group.

Table 1: Participation Culture of Farmer Group Members

Individualism and Collectivism	*N*	*Participation Culture*
		Mean (SD)
Collectivism		
Individual members are interested in seeing all members benefit	170	4.36 (0.98)
Individual members tend to prefer doing joint activities	151	4.25 (1.02)
Individual members would be comfortable working together with other group members on group tasks	171	4.13 (0.95)
Members have inner feeling of being part of the group	170	3.99 (1.15)
Individualism		
Individual members are more interested in personal benefits	165	3.87 (1.53)
Members frequently disagree with other group members	145	3.34 (1.52)
In the group, individual members tend to attain benefits without the support of other group members	163	3.22 (3.60)
In the group, decisions of individual members are not influenced by the decision made by the group	145	2.98 (1.58)

Farmer group members demonstrated a strong inclination towards collectivist participation culture, with scores ranging from 3.99 to 4.36. Conversely, their adherence to an individualistic participation culture was relatively lower, ranging from 2.98 to 3.87.

Table 2: perception of Power Distance Among Group Members

Group Decision Making	*N*	*Rating of Member Influence on Making Decision*	*Status/position of Active Participants in the Making Decision*
		Mean (SD)	
Major decisions made			
Enterprise to invest in/undertake	160	4.18 (0.79)	Chairperson
Meetings (frequency and venue)	138	3.84 (1.02)	Chairperson
Where and who stores produce	120	3.65 (0.84)	Chairperson
Tasks allocated			
Animal keeping(Goats/pigs)	152	3.72 (1.81)	Chairperson
Mobilising members	163	3.17 (1.25)	Chairperson
Crop field activities	143	3.11 (1.15)	Chairperson
Rewards distributed			
Distributing farm produce	140	3.61 (1.07)	Group members
Allocation of technologies	137	3.48 (1.12)	Group members
Seed distribution	150	3.48 (1.26)	Group members

According to Table 2, farmer groups primarily make decisions regarding enterprise investments, meeting venues, and storage locations for farm produce. The farmer group members exhibit a higher level of influence on these decisions, with scores ranging from 3.65 to 4.18. They also play a significant role in influencing the distribution of rewards, as indicated by scores ranging from 3.48 to 3.61. However, their influence on task allocations is relatively lower, with scores ranging from 3.11 to 3.72.

Table 3: Task and reward allocation

Criteria for allocating tasks and rewards (N =138)	*Extent Criteria Followed*		*Criteria for Allocating Tasks and Rewards*
Criteria for task allocation	*Very high (%)*	*High (%)*	*Mean (SD)*
Level of participation in activities	27	38.3	3.68 (1.15)
Subject to decision taken by the group meeting on task allocation	20.5	37.8	3.47 (1.18)
Level of education/qualification	16.7	33.8	3.35 (1.21)
Criteria for allocating rewards	*Very high (%)*	*High (%)*	

Level of participation in activities	34.9	37.2	3.89 (1.11)
Commensurate with member's resource contribution	27.2	33.8	3.58 (1.22)

Table 3 demonstrates that group tasks were assigned to members in a way that aimed to enhance group performance. Factors considered in task allocation included the level of participation in group activities (65%), decisions made during group meetings to establish task allocation criteria (58%), and the level of education (50%). The rewards allocated to group members were based on their level of participation in group activities (72%) and proportional to their resource contribution (61%). Moreover, the equitable distribution of rewards among members (62%) was determined by the individual members' performance in group tasks. These findings are summarized in Table 3.

Table 4: Participation in Group Tasks and Flow of Rewards

Participation in Task, Reward, and Equity System	*Involvement in Tasks*	*Member' Competence in Tasks*
	Mean (SD)	*Mean (SD)*
Participation in tasks		Rating participation
Piggery related activities	1.98 (1.17)	3.35 (1.19)
Goat keeping activities	1.82 (0.81)	4.18 (1.81)
Crop field activities	1.79 (1.92)	3.38 (1.20)
Reward system characteristics		Rating of reward system
Member having responsibility for group's performance		4.51 (0.82)
Member benefiting other members		4.51 (2.53)
Member's participation benefiting the group		4.43 (2.31)
Member is motivated to participate in group maintenance activities		4.40 (0.53)
Membership is sustained by the level of motivation		4.38 (0.63)
Member having attachment to group		4.34 (0.87)
Member benefited from other members' participation		4.28 (1.80)
Perceived equity		Rating standard equity
Treatment received from group (N=158)		3.81 (1.17)
Distribution of rewards to other group members (N=159)		3.71 (1.23)
Criteria used in allocating tasks in your group (N=161)		3.64 (1.29)
Group rewards to member (N=158)		3.59 (1.28)
Equity in social treatment, tasks & reward allocation (N=159)		3.53 (1.33)
Treatment of other group members (N=177)		3.53 (1.33)

Table 4 illustrates that farmer group members had low involvement in crop field, goat keeping, and piggery activities (M = 1.79 to 1.98). However, they demonstrated high competence in these

areas (M = 3.35 to 4.18). The flow of rewards among group members was very high (M = 4.28 to 4.51). Furthermore, there was a substantial flow of benefits (M = 4.28 to 4.51) and a high perception of equity (M = 3.53 to 3.81) among the group members.

Table 5: Level of Group Performance

Group Performance (N= 150)	Rating of Group Performance Mean(SD)
Members' commitment to groups activities	4.24 (0.72)
Member satisfaction with group outputs	3.53 (1.07)
Timely attainment of targets	3.43 (1.15)
Adequacy of mobilised resources	3.03 (1.50)
Frequency of member participation in group activities	2.06 (0.91)
Importance attached to group production output	
2008	3.54 (1.45)
2009	3.63 (1.46)
2010	3.61 (1.28)
2011	3.01 (1.63)

Table 5 demonstrates the high commitment of group members to participate in group activities (M = 4.24). Additionally, the importance of production outputs achieved by the groups received relatively high ratings from the members (M = 3.01 to 3.63).

Tables 6 through 8 present the results of correlation and regression analyses conducted to explore the relationship among individual member objectives, participation culture, power distance, group participation, group rewards, structure of tasks, perceived equity, and group performance. Factor analysis was performed to extract a correlation coefficient matrix of items associated with group performance. Through factor extraction with rotation, the initial 37 individual items were reduced to 7 factors or dimensions, which accounted for 73.3% of the total variance. The rotated component matrix was then generated, excluding items with factor loadings less than 0.4. Items with factor loadings of $\geq \pm 0.4$ that clustered together were identified, and a common theme was assigned to each factor or dimension. Furthermore, correlation coefficient analysis was employed to examine the relationships between the different factors, as summarized in Table 6.

Table 6: Correlation Coefficient of the Factors

Factors	Perceived equity	Structure of tasks	Group rewards	Power distance	Member participation	Individual member objectives	Participation Culture
Perceived equity	1						
Structure of tasks	.737** (P< .001, n=118)	1					

Group rewards	.657**(P< .001, n=153	.663**(P< .001, n=118	1				
Power distance	.791**(P< .001, n=162)	.766**(P< .001, n=118)	.662**(P< .001, n=153)	1			
Member participation	.835**(P< .001, n=162)	.877**(P< .001, n=118)	.753**(P< .001, n=153)	.911**(P <.001, n=177)	1		
Individual member objectives	.916**(P< .001, n=157)	.866**(P< .001, n=118)	.718**(P< .001, n=153)	.774**(P <.001, n=157)	.846**(P< .001, n=157)	1	
Participation culture	.653**(P< .001, n=162)	.806**(P< .001, n=118)	.598**(P< .001, n=153)	.905**(P <.001, n=172)	.875**(P< .001, n=172)	.600**(P< .001, n=157)	1
Group performance	.836**(P< .001, n=148)	.792**(P< .001, n=118)	.683**(P< .001, n=148)	.838**(P <.001, n=148)	.881**(P< .001, n=148)	.868**(P< .001, n=148)	.792**(P< .001, n=148)

Table 6 demonstrates statistically significant relationships between various factors and group performance. Perceived equity ($r = 0.836$, $p < 0.001$), structure of tasks ($r = 0.792$, $p < 0.001$), group rewards ($r = 0.683$, $p < 0.001$), power distance ($r = 0.838$, $p < 0.001$), member participation ($r = 0.881$, $p < 0.001$), individual member objectives ($r = 0.868$, $p < 0.001$), and participation culture ($r = 0.792$, $p < 0.001$) are all significantly correlated with group performance. This suggests that higher levels of task structure, individual member objectives for joining farmer groups, member participation in group activities, participation culture within the farmer group, and equitable perceptions are associated with greater group performance within farmer groups, and vice versa.

To measure these factors, summated Likert-type scale values were created. Group performance was assessed based on members' commitment to group activities, satisfaction with group outputs, timely target attainment, adequacy of mobilized resources, and frequency of participation in group activities. Individual member objectives were represented by the purpose of joining groups, such as acquiring knowledge and skills, obtaining improved seeds and animal breeds, securing food for the family, meeting financial needs, engaging in social interaction, and supporting HIV/AIDS patients.

Perceptions of participation culture were operationalized through items related to members' interest in working with others, personal benefits gained, interest in seeing all members benefit, comfort working together, frequency of disagreements with other members, sense of belonging to the group, obtaining benefits without group support, and influence in decision making. Power

distance was assessed by rating the extent of group members' influence in major group decisions, including meeting frequency, venue selection, savings and credit schemes, enterprise investments, and produce storage. Group participation in activities was evaluated based on regular involvement and members' commitment to group activities.

Group rewards were defined by farmers' perceptions regarding satisfaction with group outputs, personal benefits received from other group members, benefits provided to other members, overall group benefits from individual participation, continued participation commitment, and a sense of pride in belonging to the group. Structure of tasks was measured by members' perceptions of their involvement level, competence, and influence in group activities. Perceived equity was assessed through members' perceptions of task allocation criteria, reward distribution to other members, rewards received personally, treatment within the group, and treatment of other group members.

Table 7: Descriptive Statistics of Factors used in Regression Analysis

Factor used in regression analysis	N	M (SD)
Members' individual objectives	135	3.86 (1.38)
Participation culture	160	3.77 (1.54)
Power distance	145	3.58 (1.15)
Group participation	137	1.86 (1.30)
Group rewards	160	4.42 (1.36)
Structure of tasks	138	3.50 (1.18)
Perceived equity	159	3.48 (0.82)
Group performance	150	3.26 (1.07)

A majority of participants, approximately 75% (N = 135), reported that they had achieved their objectives for joining farmer groups. Furthermore, 89% (N = 160) exhibited a high level of collectivist participation culture, and 81% (N = 145) experienced a significant power distance within the groups. However, their actual participation in group activities was relatively low (M = 1.86), indicating room for improvement. On the other hand, they perceived very high levels of group rewards (M = 4.41) and showed moderate involvement in the structure of tasks (M = 3.64). As for group performance, 83% (N = 150) reported a moderate level of performance (M = 3.26).

Table 8: Performance Regressed on Selected Social Dynamic Factors

Model	Unstandardized coefficients		Standardized coefficients		
	B	*Std. Error*	*Beta*	*t*	*p*
(Constant)	5.963	1.067		5.591	<0.001
Individual objectives	0.128	0.117	0.153	1.095	0.276
Participation culture	-1.184	0.181	-0.489	-6.541	<0.001
Power distance	0.437	0.179	0.186	2.433	0.017
Members' participation in activities	0.245	0.164	0.150	1.500	0.136
Group rewards	0.092	0.093	0.050	0.995	0.322

Structure of tasks	-0.264	0.112	-0.221	-2.350	0.021
Perceived equity	0.249	0.100	0.243	2.503	0.014
Model Summary					
F=91.727					
df = 7/110					
p = <.001					
R Square = .854					
Adjusted R Square = .844					
Std. Error of the Estimate = .476					

Dependent Variable: Level of group performance. Regression equation: $Y_{performance} = 5.963 - 0.489$ (participating culture) + 0.186 (power distance) - 0.221 (structure of tasks) + 0.243(perceived equity)

The results of the regression analysis reveal that there is a significant negative relationship ($\beta = -6.541$, $p < 0.001$) between participation culture and group performance, which may appear counter-intuitive. However, this negative relationship can be better understood by considering the significant negative relationship ($\beta = -2.35$, $p = 0.021$) that also exists between participation culture and the structure of tasks performed by farmer groups. On the other hand, power distance ($\beta = 0.186$, $p = 0.017$) and perceived equity ($\beta = 0.243$, $p = 0.014$) show a significant positive relationship with group performance. These findings suggest that a higher level of power distance and perceived equity within the group are associated with improved group performance.

Discussion and Conclusion

The success of group performance can be measured by the orientation of members' participation culture. A collective orientation, where group members are motivated to work together for the common goals and interests of the group, is indicative of a strong participation culture. Conversely, an individualistic orientation, where group members prioritize their personal interests over the group's interests, tends to undermine group performance. This is often manifested through the formation of cliques, internal conflicts, and disunity, which negatively impact the overall performance of the group.

In the context of farmer groups, individual members tend to exert more influence on decisions related to investment choices and meeting arrangements, as these decisions directly affect their ability to improve production outcomes. Group leaders, particularly chairpersons, play a dominant role in decision-making, often employing directive leadership styles to ensure task performance by group members. The structure and allocation of tasks within the group are primarily determined by group norms and the leader's priorities. Group leaders perceive group members as individuals with low abilities to perform required tasks necessitating continuous giving of appropriate directives in order to improve group performance (Dimock & Devine, 1994). When individuals gain power they experience satisfaction, confidence, and security. On the contrary anxiety, fear, and loss of confidence are experienced upon losing power. Power imbalance among members of a group creates emotions that greatly impact group performance (Lawler & Thye, 1999; Turner & Stets, 2006).

The distribution of rewards within farmer groups is heavily influenced by the participation and influence of group members. When individuals gain power and influence within the group, they experience satisfaction, confidence, and security. Conversely, losing power can lead to anxiety, fear, and a loss of confidence. The imbalance of power within a group can significantly impact group performance and the emotions experienced by its members.

Individuals join groups that align with their personality and preferences, seeking social support that may be lacking when working in isolation. However, it is important to recognize that some individuals may be attracted to groups where they can manipulate the dynamics to their advantage, rather than seeking collective progress. This opportunity, for example, allows the few elite participating in groups to dominate and control leadership of such groups (Forsyth, 2006).
This dynamic can lead to the dominance of a few elite members who control leadership positions within the group. This further reinforces the strength of individualistic tendencies in farmer groups; personal interests supersede group interests and needs (Turner & Stets, 2006).

While group members demonstrate high competence in both crop field and animal keeping activities, their involvement in crop field activities tends to be lower compared to goat keeping and piggery-related activities. Animal keeping is often regarded as prestigious and a measure of wealth in many communities, contributing to higher participation in such activities. This finding is also consistent with Dimock and Devine (1994); Forsyth (2006) argued that group members tend to be more committed to group activities when the efforts and energy invested in activities yields satisfactory output. Additionally, group members experience a high flow of rewards within the group, which serves as a motivating factor for their continued participation in group activities. The emphasis on equity within the group also acts as a motivational factor, fostering participation and collaboration among group members. Traditionally, in Uganda, animal keeping is considered prestigious to pastoral tribes including the Iteso people of Soroti district and households with farm animals is considered a measure of wealth in most communities in Uganda (Okoboi, 2016).

However, despite the commitment of group members to participate in group activities, group performance can be hindered by factors beyond their control, such as inadequate mobilized resources, untimely attainment of targets, and conflicts between group and individual member household activities. This leads to a lower frequency of participation in group activities. These challenges highlight the presence of individualistic attitudes among farmer group members, which can impede group performance.

Recommendation

To enhance group performance, it is recommended that farmer group institutional development initiatives incorporate community participation culture and appropriate mechanisms for structuring group tasks. By promoting a strong participation culture and providing guidance on task allocation, farmer groups can improve their collective efficacy and overall performance.

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