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COLLECTIVE ACTION INITIATIVES TO IMPROVE MARKETING PERFORMANCE

Lessons from Farmer Groups in Tanzania

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ABSTRACT

The primary inquiry of this study is to identify and understand the underlying factors that enable smallholder farmer groups to improve their market situation. The specific objective of this paper is to examine to what extent certain group characteristics and asset endowments facilitate collective action initiatives to improve group marketing performance. This objective is approached through an evaluation of a government-led program in Tanzania, which is attempting to increase smallholder farmers' incomes and food security through a market-oriented intervention. Findings suggest that more mature groups with strong internal institutions, functioning group activities, and a good asset base of natural capital are more likely to improve their market situation. Gender composition of groups also factors in group marketing performance. It acts as an enabling factor for male-dominated groups and as a disabling factor for female-only groups. Structural social capital in the form of membership in other groups and ties to external service providers, and cognitive social capital in the form of intragroup trust and altruistic behavior are not significant factors in a group's ability to improve its market situation.

Keywords: Collective Action, Agricultural Marketing, Farmer Groups, Social Capital, Planned Change Initiatives, Tanzania

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James Barham¹ and Clarence Chitemi

1. INTRODUCTION

In recent years, the importance of smallholder agriculture has been greatly recognized, demonstrated by both the donor community and governments' pledge to engage in the requisite interventions to generate agricultural and economic growth. In poststructural adjustment Africa, this growing recognition has led to two major crosscurrents of theory and practice that now define the major policy directives concerned with boosting Africa's faltering agricultural economies. First, agricultural development will not occur without engaging smallholder farmers. Accounting for the overwhelming majority of actors in this sector, smallholder farmers must be made central to any strategy to revitalize not only the agricultural sector, but also the economy as a whole (Magingxa and Kamara 2003; Diao and Hazell 2004; Resnick 2004). The second current, which intersects the first, is that the major obstacle facing smallholder-led agricultural growth is lack of market access. Thus, the major proponents of market-led growth contend that enhancing market access for smallholders will lead to increased incomes and food security, more opportunities for rural employment, and sustained agricultural growth (Dorward et al. 2003; Stiglitz 2002; Poulton et al. 1998).

Market access proponents make a strong and attractive case that for small farmers to thrive in the global economy, it is necessary to create an entrepreneurial culture in rural communities where "farmers produce for markets rather than trying to market what they produce" (Lundy, Ostertag, and Best 2002, 19). From an implementation perspective, this means shifting the focus from production-related programs to more market-oriented interventions. This has placed renewed attention on institutions of collective action—most often realized through the structure of farmer groups—as an important and efficient mechanism for enhancing the marketing performance of smallholder farmers (Kariuki and Place 2005).

This study takes place within the context of these two crosscurrents of theory and practice. The primary inquiry of this study is to identify and understand the underlying factors that enable smallholder producer groups to improve their market situation. The specific objective of this paper is to examine to what extent certain group characteristics and asset endowments facilitate collective action initiatives to improve group marketing performance. This objective is approached through an evaluation of a government-led program in Tanzania, which is attempting to increase smallholder farmers' incomes and food security through a market-oriented intervention. Through the lens of a livelihoods approach, this program is attempting to improve the marketing performance of smallholder farmers by enhancing their stocks of human and social capital. This is being done by establishing new groups,

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strengthening existing groups, providing skills training in marketing and entrepreneurship, and by linking these groups to other chain actors to improve market relations and forge new business partnerships.

2. COLLECTIVE ACTION AND SOCIAL CAPITAL

The literature on collective action in theory and practice emerged from dissatisfaction and failures of many of the rural development programs of the 1960s and 1970s. The development paradigms of this period assumed that communities would willfully engage in collective activities, with little time and scrutiny given to understand under what condition will this happen or on how these actions might be sustained (Meinzen-Dick, Di Gregorio, and McCarthy 2004). Beginning with the work of Olson (1965) and followed by the works of Axelrod (1984), Uphoff (1986), and Ostrom (1990), a body of theory soon developed attempting to explain the enabling conditions for successful collective action outcomes.

Some of the greatest gains empirically and theoretically on the subject of collective action have been found in the field of natural resource management (NRM). Of particular importance have been the works of Wade (1988), Ostrom (1990, 1992) and Baland and Platteau (1996). Agrawal (2001) synthesized these works in an effort to identify a common list of enabling conditions for successful collective action outcomes. These conditions include (1) small group size; (2) clearly defined boundaries; (3) shared norms; (4) past successful experiences; (5) appropriate leadership; (6) interdependence among group members; (7) heterogeneity of endowments, homogeneity of identities and interests; and (8) low levels of poverty.

A review of collective action theory parallels the social capital literature. Uphoff and Wijayarathna (2000) highlight how structural forms of social capital (that is, roles, rules, procedures, social networks) *facilitate* mutually beneficial collective action and how cognitive forms of social capital (that is, norms, values, attitudes, and trust) are *conducive* for mutually beneficial collective action. The authors show how these forms of social capital brought about successful collective action measures in management of irrigation schemes. Other studies, such as Pretty and Ward (2001) and Krishna (2001), have similarly shown how human and social capital formation—often represented in community-based groups—have been pivotal in solving many of the communities' development problems, particularly in the areas of natural resource management.

While there is substantial evidence behind the importance of social capital to maintain and improve natural capital, far fewer studies examine how social capital is utilized for the purposes of collective action to improve the marketing performance of groups. This is particularly apparent when examining the extent that group characteristics may influence or determine certain marketing outcomes. The studies that do emerge are often looking at higher tier organizations, such as cooperatives or agribusiness enterprises. For example, Jones (2004) shows how interpersonal trust and wealth heterogeneity among cooperative members were enabling conditions for the success of the cooperative, especially during the first stages of cooperative formation. Johnson, Suarez, and Lundy (2002) show how social capital, as expressed through business firm relationships, contributed positively to firm productivity and performance. With little attention in the literature

given to the effects of social capital and other group characteristics/assets on the marketing performance of lower tier organizations such as producer groups, this paper contributes to this field of inquiry by testing a number of hypotheses.

Study Hypotheses

A total of eight hypotheses were derived from collective action and social capital literature to be tested to determine the extent that certain group assets and characteristics may affect a group's ability to improve its market situation. The following three hypotheses were derived from the social capital literature:

Hypothesis 1. Farmer groups with a high level of trust among members will be better positioned to improve their marketing performance.

Hypothesis 2. Farmer groups that exude more altruistic rather than self-interested behavior among members will be better positioned to improve their marketing performance.

Hypothesis 3. Farmer groups with more ties to other organizations in and outside of their community will be better positioned to improve their marketing performance.

The first two hypotheses deal with *cognitive* social capital and its effect on group marketing performance. The third hypothesis is concerned with testing the effects of *structural* social capital on group marketing performance. According to the literature, cognitive social capital should enable group to maximize their *existing* resources, whereas structural social capital should enable groups to access *new* resources (for example, information, innovations and technologies, service provision, credit, and so on.).

The next five hypotheses were derived from the collective action literature, based on the notion that farmer groups will be better positioned to improve their marketing performance if the group has some or all of the following attributes (noting that poverty is broadly defined to include varying levels of livelihood asset configurations—that is, natural, physical, financial, human, and social capital—accessible to groups to carry out collective action initiatives:

Hypothesis 4. Lower levels of poverty

Hypothesis 5. Smaller group size

Hypothesis 6. Past successful experiences

Hypothesis 7. Heterogeneity of endowments

Hypothesis 8. Homogeneity of identities and interests

3. BACKGROUND ON PROGRAM AND STUDY AREA

This study is approached through a “planned change initiative” called the Agricultural Marketing Systems Development Program (AMSDP). The program is being financed primarily through the International Fund for Agricultural Development (IFAD) and the African Development Bank (AfDB). The target beneficiaries are poor smallholder farmers, and the overarching goal is to increase their incomes and food security through improvements in market access. Within AMSDP, improving market access includes the following components: (1) reforming the regulatory and taxation system; (2) improving market infrastructure (for example, building more roads, postharvest facilities, and market centers); (3) establishing agricultural marketing information systems; and (4) strengthening producer groups and creating market linkages. The primary focus of this study has been the fourth component of the program.

This particular component was to be accomplished through a joint partnership between the district governments and nongovernmental organizations (NGOs). The main tasks of the NGOs—or partner agencies (PAs) as they are referred to in the program—are to train existing or newly formed producer groups in a number of capacity-building and marketing skills measures and where possible, to establish sustainable market linkages with other chain actors. AMSDP began in January 2004 with eight PAs implementing the program with producer groups in eight regions located in the northern and southern parts of Tanzania. The research site for this study is located in the northern highlands region of Tanzania. The study research partners were two local organizations participating in the role of PAs in the Arusha and Kilimanjaro regions: the Traditional Irrigation and Environmental Development Organization (TIP) and Faida Market Link Company Limited (FAIDA). TIP worked with producer groups in the district of Arumeru, and FAIDA worked with groups in the district of Hai. Although located in two different regions, the two districts actually border each other. Arumeru district surrounds the slopes of Mt. Meru—Africa’s fifth highest mountain—and Hai district is situated on the plains and lower slopes between Mt. Meru and Mt. Kilimanjaro—Africa’s highest mountain (Figure 1).

Figure 1. Regional map of Tanzania showing designated research sites



Source: Adapted from IFAD (2001, 3).

Agroecology and Demographics of Study Area

The soils on the slopes of Mt. Meru and Mt. Kilimanjaro are volcanic and have high-to-medium levels of fertility. The regions have a bimodal rain pattern, with the “long” rains occurring between March and May and “short” rains between October and December (Haan 2001). On average, Hai district gets between 500 to 800 millimeters (mm) of rain per year, while Arumeru gets somewhat more, with averages for the district over 1,000 mm of rain per year (Mansoor and Piters 1999). Smallholders traditionally plant food crops during both seasons, but in recent years, the short rains have been unreliable, starting later than usual and often without the same level of rainfall as in the past. This is especially true for groups in lower elevation areas that include many of the groups in Hai district living on the plains between the mountain ranges.

The total area of Arumeru is 2,896 square kilometers (sq. km), with a population of 516,814 and a population density of 181 people per sq. km. Hai is a smaller district covering a total area of 2,186 sq. km, with a population of 259,958 and a population density of 117 people per sq. km. (R & AWG 2005). Of the 199 districts in Tanzania, both Hai and Arumeru are in the top 20 districts with the *lowest* levels of poverty. In Arumeru district, 18 percent of the households are

below the poverty line and 22 percent of the households are below the poverty line in the Hai district (R & AWG 2005).²

Farmer Group Selection Process

Based on IFAD's mandate to target the rural poor, AMSDP provided a list of criteria to be used by the PAs and district office in their selection of project areas and farmer groups. The criteria included the following:

- Project participants should already be involved in farming and/or trading.
- The average cropped area of smallholders within producer groups should not exceed 2 hectares (ha).
- About 50 percent of group members should be from the poorer households with an income below the poverty line.
- At least 40 percent of the beneficiaries of the group should be women and female-headed households.
- At least one crop with high market potential should have been identified for cultivation and local trade.
- Access roads to areas of production should exist and within reasonable reach from the main access road.
- A minimum critical mass should exist in relation to the proposed marketing activity with similar marketing aspirations.
- The group members should live and operate within walking distance of one another and be willing to collaborate in specific activities, such as training.

Even though the PAs were expected to use these guidelines in their selection process, both FAIDA and TIP admit it was impossible to meet all the criteria because of the reality facing smallholder farmers. The program aims to work with poor farmers who have crops with market potential and good access to roads. The problem is that in reality most poor farmers do not have crops with market potential and generally live in areas with poor road access. The PAs also had difficulty implementing the criteria because of local politics. Each district office (DO) had its own agenda when deciding which areas and groups should be chosen for the project, but the decision had more to do with pleasing the DO and its local constituents than meeting specified criteria.

In Arumeru district where TIP was operating, the DO chose the most politically expedient path by selecting a producer group from each ward.³ In some cases, an existing producer group was chosen to represent the ward. In other cases, smaller groups were told to provide representatives to establish a ward-level group. The decision by the DO to spread the project over the entire district may have pleased a wide array of constituents, especially during a presidential election year, but it provided a logistical and financial nightmare for TIP. The final set of

² In Tanzania, the basic needs poverty line for 2000/01 was set at 262 Tanzanian Shillings (TShs) per adult equivalent per day, which is the equivalent of US\$0.33 (R & AWG 2005).

³ Political divisions in Tanzania in descending order from the regional level (for example, the Kilimanjaro or Arusha regions) include districts, wards, villages, hamlets, and "ten cells" (blocks of 10 households within a hamlet).

groups that were selected met some of the criteria in terms of crops and areas with market potential, but, as a consequence, TIP had only a few groups with members who fit the criterion of coming from poorer households.

FAIDA also had to struggle over the selection process with the government authorities in Hai district. In this case, the DO decided that AMSDP would be a good follow up project to the Participatory Agricultural Development Project (PADEP), another government-led project that was currently operating in the district. From 2002 to 2006, PADEP established a number of village-level producer groups and provided production-oriented trainings, along with two years of agricultural input loans. PADEP also carried out some infrastructural improvement projects at the village level, dealing mostly with repairing traditional irrigation schemes. Given the fact that PADEP was production-related and AMSDP was market-oriented, it seemed to be an excellent match. Logistically, it also would have been easier to conduct training activities since most of the farmer groups were located in just four villages. The problem for FAIDA was that these groups had little potential in terms of marketable crops, and most of these villages were not located in areas with the appropriate agroecological conditions or proper infrastructure that would attract agricultural companies.

Partner Agency Training Activities for Farmer Groups

When PAs were first contracted to train farmer groups, there were few guidelines from AMSDP. Thus, each PA was given a certain level of flexibility to decide the subject content and how to conduct the different training activities. Nonetheless, FAIDA and TIP had more similarities than differences in their training content and style. There were a number of training activities that could be classified as group strengthening training. Although the timing or grouping of these training activities may have differed, both PAs essentially covered the following subject areas with their farmer groups:

- Group registration
- Communication and group dynamics
- Group record keeping
- Leadership
- Administrative and financial management
- Setting up a bank account
- Establishing action plans
- Establishing savings and credit cooperatives

Each PA also provided business awareness and marketing skills training that included such topic areas as:

- Farm record keeping
- Cost-benefit analysis
- Accessing market information
- Negotiating prices
- Choosing an enterprise and finding potential markets/buyers.
- Contract farming

Beyond these training activities, each PA also arranged study tours for group representatives to visit farmer-formed saving and credit cooperatives (SACCOs). Some of the groups also had the opportunity to go on production-related study tours to visit other farmers growing a particular crop with market potential or to visit agriculture research institutes to get training on modern farming/livestock techniques.

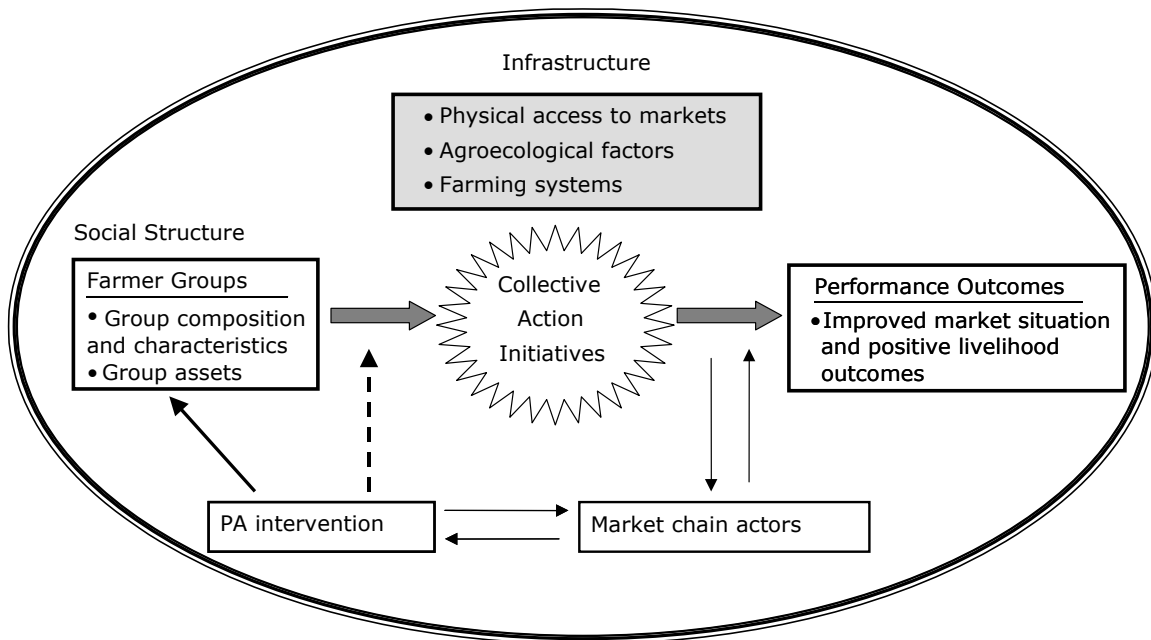
4. RESEARCH METHODS

To assess the effect of the intervention on producer group outcomes, a pretest-posttest research design was utilized (Johnson 1998). The pretest observations (that is, the first round of interviews) were conducted as the groups were undergoing training from the PAs. Six to eight months later at the conclusion of the intervention, the same groups underwent posttest assessment (that is, the second round of interviews) to ascertain any changes in their market situation. Because the study did not start before the intervention, considerable time was spent during the first interview to assess a group's baseline position on marketing and to allow sufficient room in the second round of interviews for the groups to comment on how the intervention had changed or had not changed their market situation.

Conceptual Model

A conceptual model was developed to understand and explain the flow of the planned change process under study. The model utilizes the terminology and perspectives of cultural materialism (Harris 1979). By including certain factors under the infrastructure and social structure, the model tries to separate and analyze the determining factors from the enabling or constraining factors that affect group marketing performance. The wider and determinate infrastructure encapsulates this planned change initiative and includes such factors as the smallholder groups' farming systems, the agroecological conditions under which they must work, and their physical access to markets—for example, distance to markets, access to feeder roads, conditions of roads, and so on (Figure 2).

Figure 2. Conceptual framework for research study



Farmer groups are represented under the social structure; this includes a number of factors that will affect a group’s ability to enact successful collective action initiatives (that is, the group’s asset configurations, composition, and characteristics). The PAs are intervening to enhance human capital in form of marketing skills, business acumen, and other group capacity trainings, which is represented by the solid line going from the PA directly to the social structure. Along with these training activities, the PAs are also providing some groups with market linkages to other chain actors; this is represented by the dotted line going to the collective action initiative, as well as the lines connecting PA intervention to market chain actors. Farmer groups are also carrying out collective action initiatives without direct linkages from the PA, which is represented by the lines connecting the collective action initiatives to the market chain actors. The performance outcomes represent the extent that groups have improved their market situation and resulted in positive livelihood outcomes for the members of their groups.

Study Sample

The sample for this study comprised 34 groups with a mean size of 35 members (Table 1). In terms of membership sampled, 37 percent of all the group members working with FAIDA and 29 percent of all the group members working with TIP participated in the first round of interviews. Thus, the total study sample represents 33 percent of all group members. These group members attended the group interviews and filled out questionnaires about themselves and their households.

Table 1. Group study sample

Sample details	FAIDA		TIP		Sample total	
	Number	%	Number	%	Number	%
Sample size	16		18		34	
Size of group						
Mean	32		38		35	
Range	15–40		20–150			
Total membership	507		678		1,185	
Total membership sampled	189	37	199	29	388	33

Dependent Variable: Group Marketing Performance

As the primary dependent variable of this study, a marketing performance rating (MPR) was constructed to ascertain the extent to which the groups showed any concrete signs that their market situation had improved through the project intervention. Each group was given a marketing performance rating ranging from 0 to 2, with 0 signifying no improvement, 1 signifying some improvement, and 2 signifying large improvement in their market situation. The MPR scale was established in the following manner:

No Improvement

Groups were given this rating if, from their own admission, they felt that the project intervention had led to little meaningful improvement in their market situation. Some groups did feel that the training activities were beneficial to them and that, given the right circumstances, they could have used these trainings to improve their situation. However, by the end of the study and project cycle, none of these groups could provide concrete examples of such trainings making a difference in their market situation.

Some Improvement

Groups were given this rating by showing that they had the ability to take the training activities and successfully put them into practice. Such groups were able to provide concrete examples of how their market situation had improved from participation in the project. Examples included increased sales and higher prices for existing products, more reliable sales markets through enhanced relational or formal contract farming arrangements, diversification into higher value crops, increased access to market information and bargaining power, involvement in postharvest value-adding activities, and participation and increased profits by involving themselves in more chain management activities.

Large Improvement

A few groups showed the ability to improve their market situation and did this at a level of success that separated them from the other groups. In most cases, these groups showed striking market improvements by initiating several collective action initiatives. As an example, one group shifted their production to more profit-making enterprises, shortened the market chain between the group and retailers by taking over transportation activities, and entered into farming contract arrangements with

an agribusiness—all of which has led to increased incomes and a more reliable market for their crops.

Explanatory Variables

Improved marketing performance is an outcome of a number of endogenous and exogenous factors. A number of explanatory variables affecting MPR were identified *a priori* based on the literature reviewed in the previous section.⁴ Table 2 categorizes the explanatory variables, by factor domains, in reference to the study’s conceptual model.

Table 2. Explanatory variables categorized by factor domains

Infrastructure	Social structure	Partner agency intervention
Market Access	Group Assets	Partner agency
Distance to market	Wealth ranking	Agency linkage
Road conditions	Education	
	Providers/Partners	
Agroecological Factors	Membership in other groups	
Commodity types	Altruism	
Reliable water source	Intragroup trust (three variables)	
Land	Group composition/characteristics	
	Group maturity	
	Group size	
	Activity level	
	Gender categories	
	Leadership by sex	
	Group Heterogeneity	
	Educational	
	Gender	
	Wealth	

The infrastructure domain takes into account the physical market access and agroecological factors, which are represented by five variables: distance to markets, road conditions, commodity types, reliable water source, and land. The distance to markets variable measures the distance from group meeting place to the major market in the region, which for the FAIDA groups is the town of Moshi in the Kilimanjaro region, and for the TIP groups it is the town of Arusha in the Arumeru Region. The “commodity types” variable refers to the crops grown by group members that were put forward as a possible agroenterprise venture, and delineates between those groups that grow traditional staple food crops (that is, cereals and legumes) to those groups dealing in other commodities (that is, vegetables, coffee, livestock, and rice). The social structure domain takes into account several explanatory variables that represent group assets, group

⁴See Appendix A for the detailed description of how the variables were constructed.

composition and characteristics,⁵ and group heterogeneity. Under the group assets heading, the “providers/partners” and “membership in other groups” variables are used to represent *structural* social capital⁶ and the altruism,⁷ and three intragroup trust variables (that is, general trust, help trust, and money trust) are used to represent *cognitive* social capital.⁸ The PA intervention domain takes into account which PA the farmer groups worked with and whether or not the groups were actively linked to other market chain actors in an effort to improve their market situation.

5. MARKETING OBSTACLES

During the first round of group interviews, each group was asked about the prevailing marketing issues that constrained their ability to improve their market situation. Table 3 provides a list of the most frequently mentioned marketing obstacles facing each of the PA groups.

Table 3. Marketing obstacles by partner agency groups

FAIDA marketing obstacles	TIP marketing obstacles
1. Bad roads/high transportation costs	1. Bad roads/high transportation costs
2. Low prices for produce	2. No special place to sell crops
3. No market information	3. Lack of capital
4. Lack of special measuring equipment	4. No reliable markets
5. Lack of storage houses	5. Lack of storage houses
6. No reliable markets	6. Unreliable agricultural inputs
7. Lack of capital	7. High customs duty in market place

⁵ The *group maturity* variable refers to whether a group existed prior to the intervention or was newly formed for the purposes of the intervention. The *leadership by sex* variable is the proportion of male to female elected leaders in a group. The *activity level* variable refers to the number of effectively operating internal activities that a group runs. The type of activities that they were involved in prior to the intervention, included rotating credit schemes, collective marketing, bulk input purchasing, labor-sharing activities, and group farms—for purposes of consumption or collective marketing but also including seedling nurseries and demonstration plots for experiential learning.

⁶ The *providers/partners* variable refers to the number of service providers and/or business partners the group has worked with prior to the intervention. In order not to bias results for groups that have been existence for a longer period of time, the total number of providers/partners was divided by the number of years of the group’s existence. The “membership in other groups” variable refers only to membership in other agriculture and development-oriented groups.

⁷ The “altruism” variable was based on group members playing a one-shot “public goods game” (PPG). Higher group scores represent more altruistic behavior, while lower scores represent groups with more self-interested behavior.

⁸ Three statements concerning *intragroup trust* were presented on the questionnaire using a three-point Likert scale, with participants responding that they (1) agreed with the statement; (2) felt neutral about the statement; or (3) disagreed with the statement. They responded to the following three statements: (1) most members in your group can be trusted (General Trust); (2) most members in your group are willing to help if you need it (Help Trust); and (3) in your group, members can generally trust each other in matters of lending and borrowing money (Money Trust). These answers were then coded from 1 to 3 and aggregated to the group level to provide three general measurements of intragroup trust. A full description of all the explanatory variables used in this study can be found in Appendix A.

Both FAIDA and TIP groups share some of the same marketing obstacles that include bad roads/high transportation costs, lack of storage houses, lack of capital, and no reliable market. The first three are self-explanatory but “reliable” market deserves more attention. Many of the groups talked about not having a reliable market. Groups were often asked how they would define a reliable market, and most definitions centered on having markets where the farmers could get a consistently fair or good price for produce year round. Coming from a state-led economy where marketing boards and fixed prices on staple crops was the norm until the early 1990s, many farmers still clearly remember the days of this form of a “reliable” market. But when groups were asked if they would prefer to return to this system, all groups rejected any notion of returning to the state-intervening marketing days. Every group preferred the open market economy where a farmer could produce and sell what she or he wanted, but many of the groups also expressed their frustration with volatile and low market prices, as well as with monopsonistic marketing channels (that is, many producers and only a few traders dominating the channel) for some of their commodities, especially cereals and legumes.

Marketing obstacles most frequently mentioned that were specific to the FAIDA groups included low prices for produce, no market information, and the absence of special measuring equipment. In regard to the third obstacle, the lack of special measuring equipment refers to the fact that most produce is bought and sold by volume rather than by weight. The major complaint of farmers involves the issue of *rumbesa*—large sacks used by rural assemblers and wholesalers. The sacks, which are filled with produce and closed using a stitched top layer of sack material, are fairly uniform and can hold approximately 80 kilograms of maize. But the top layer that encloses the sack varies by trader and can hold anywhere from 10 to 40 kilograms more. It is this top layer that causes the greatest amount of friction because farmers constantly accuse traders of underpaying them. This can be conveyed more clearly through a picture (Figure 3).

Figure 3. Onions packed in *rumbesa*



The government has attempted to tackle this issue on the behalf of farmers. During the course of this study, the government passed a law that requires all wholesale markets to start buying and selling produce by weight instead of by volume. But the law has yet to be implemented and faces fierce opposition by agricultural traders. The whole marketing system revolves around trade in volume—from the rural assemblers who pack the *rumbesa*, to the transporters who fix prices based on the number of *rumbesa* carried, to the wholesalers who buy and sell based on *rumbesa*, and even to the government's own system of taxation, which bases produce taxes on volume. Any effort to implement this new legislation will first require the government to completely overhaul its taxation system. But, at the present time, the government has neither the financial will to pay for the necessary measuring equipment nor the political will to confront the myriad chain actors who are vehemently opposed to these measures.

Another marketing obstacle mentioned by the FAIDA groups, but one that certainly applies to all groups, is a lack of market information, which refers to information on prevailing prices, quality standards, and quantity demands. Every group was asked how they obtained market information; four ways of getting this information were mentioned. The most common method was by simply talking to other people in the village—either from those who had already sold their produce at farm gate or to those who had recently returned from the market place. The second way was to go to the market themselves, but this often meant just accepting whatever prices the wholesalers or retailers were offering. The third way was to talk to rural assemblers/traders in the area, but the groups did say they rarely trusted the information provided.

The fourth way was through the use of technology, namely radios and mobile phones. In the study sample of 388 farmers, 91 percent own a radio and 38 percent own a mobile phone. It is also worth mentioning that every group had at least one member with a mobile phone, but few group members felt that these technologies were useful for accessing market information. There are weekly radio broadcasts that give market information on the major Tanzanian markets, but farmers considered this information totally useless because the markets concerned are outside their reach, and local prices in their area are rarely the same as in these larger markets. In regard to mobile phones, a few group members said that they used their phones to contact rural assemblers, wholesalers, or retailers—as well as relatives and friends who live near an area market—to find out about market prices, but this was more the exception than the rule.

Returning to other marketing obstacles, TIP-specific constraints include the lack of special place to sell crops, high customs duty, and unreliable agricultural inputs. Beginning with the third obstacle, many farmers are constrained by lack of access to timely and appropriate agricultural inputs (primarily fertilizers and pesticides). This constraint was vocalized most strongly by vegetable farmers who have great difficulties accessing the appropriate inputs to fight pests and disease. The other two obstacles—no special place to sell crops and high customs duty—are interrelated and deal with problems farmers face when trying to sell directly to wholesalers and retailers. If farmers go to the market to sell their crops to wholesalers or retailers, they must first pay tax to the marketing officials. Given what the farmers perceive to be high taxes, coupled with the transportation costs

incurred in bringing their produce to the market, many farmers would rather sell their crops to rural assemblers at the farmgate. However, any farmer wishing to sell directly to the consumer in these market places must obtain a permit to do so from the market officials. This precipitates the issue of having no special place to sell crops, first, because the permit is just one more cost that many farmers cannot afford, and, second, because many market places have reached their spatial capacity and are not issuing any more permits.

Gender-Specific Marketing Obstacles

During the group interview discussion on marketing obstacles, the question was posed as to whether or not there were specific constraints affecting men or women more directly. The most frequent response was that women were more affected by most of the marketing obstacles because they assume primary marketing responsibility in the household. More often than not, women will negotiate with rural assemblers over farmgate prices or go to the market to sell their produce to wholesalers and retailers. Several groups, particularly the female-only and female-dominated groups, provided some specific examples of the constraints they faced. The most frequent comment from women on specific marketing obstacles revolved around transportation difficulties. These included the high costs of hiring transport and, as a consequence, having to carry the produce to market themselves. This is exacerbated by the fact that even if their household owns a bicycle, it would be culturally inappropriate for a woman to ride it, and thus it is of no use as a means of transporting their produce. Another frequent constraint women face is harassment by market and health officials. Because they either can't afford permits or permits are not available, many women are forced to sell outside the market place, oftentimes nearby so that customers can see them. But, if market and health officials catch them, they confiscate the produce and forcefully remove the women from the area. As a consequence, many women complain of having to get up very early in the morning to sell produce before the market and health officials arrive.

Women also spoke about being burdened with productive and reproductive activities that gave little time to seek other market opportunities, which often forced them to sell their produce at whatever price buyers offered. Women also complained that erratic market prices were causing friction and conflict between them and their husbands, manifesting, for example, in situations where a husband anticipates a certain crop price and accuses the woman of withholding money if she returns from the market with less than expected. Some women said that this led to increased conflict in the household and, in some cases, to spousal abuse.

Matching Marketing Obstacles to Livelihood Constraints

On a conceptual level, the marketing obstacles that farmers face relate to a lack of livelihood assets that would allow them to overcome these constraints, which is particularly true for women. It is important to equate livelihood assets to certain marketing obstacles to ascertain the extent that the PA intervention of capacity training activities can be effective in overcoming their constraints and improving their market situation (Table 4).

Table 4. Livelihood asset constraints by farmer group marketing obstacles

Natural assets	Physical assets	Financial assets	Human assets	Social assets
Bad roads	No place to sell crops	High transport costs	No market information	No market information
No reliable market	Lack of measuring equipment	Lack of capital		Low prices for produce
Low prices for produce	Lack of storage houses Unreliable agricultural inputs	High market taxes Unreliable agricultural inputs		No reliable market

As the table shows, several of the marketing obstacles overlap with livelihood asset constraints. The marketing obstacles of no reliable market and low prices for produce are a function of a lack of both natural and social assets. Farmers must contend with a given set of agroecological conditions that will limit their ability to improve their market competitiveness. If farmers can only grow crops that lack market demand, it will be difficult for them to get good prices or secure a reliable market for their produce. But, there may be farmers with favorable agroecological conditions that only lack the marketing contacts (that is, social assets) that could secure them with better prices and a more reliable market.

Similarly, lack of market information is a combination of human and social asset constraints. To gain knowledge (that is, human assets) about prices, quality standards, and commodity demands requires developing relationships with chain actors who can provide them with reliable and timely information. Some of the livelihood assets match more clearly with specific marketing obstacles. For example, the obstacles of no place to sell crops, and lack of storage houses and measuring equipment are largely a function of physical asset constraints. Likewise, financial assets constraints match with marketing obstacles of high transport costs, high market taxes, and lack of capital. But when it comes to unreliable agricultural inputs, this issue could be a function of financial asset constraints (that is, not being able to afford the right inputs) and physical assets constraints (that is, being too far from market centers where they could access these inputs more easily). Obviously, it is difficult to make clear distinctions between these livelihood asset constraints and marketing obstacles, and there are number of interrelated assets and marketing obstacles that could be debated further. But, the primary purpose is to highlight the areas where the PA intervention may prove most successful in improving the market situation of the farmer groups. It must be remembered that the PAs were tasked with delivering capacity-building training (that is, enhancing human assets) and where possible, to link the farmer groups to other market chain actors (that is, enhancing social capital). As the next section of results shows, certain asset and attribute configurations made some of the groups better suited to benefit from the PA intervention.

6. RESULTS

Group Marketing Performance Results

Through a number of collective action measures, 19 farmer groups (56 percent) improved their market situation. Thirteen farmer groups had some market improvement with a MPR of 1, and six groups had large improvements with a MPR of 2. TIP fared better than FAIDA with two-thirds of their groups (67 percent) improving their situation whereas FAIDA saw less than half of their groups (44 percent) showing improvement. TIP also had five of their groups see large improvements in their market situation, whereas only one of the FAIDA groups had this outcome.

Table 5. Marketing performance rating by partner agency

Partner details	Marketing performance rating (MPR)			Total sample
	No improvement	Some improvement	Large improvement	
Partner agency				
FAIDA	9	6	1	16
TIP	6	7	5	18
Number of farmer groups	15	13	6	34

Underlying Factors Affecting Group Marketing Performance

A number of group assets, characteristics, and other explanatory variables were tested to ascertain how these might play a determining factor in group marketing performance. Tests of association and correlation (ANOVA and Pearson's R) were conducted to analyze the statistical significance of mean values between farmer groups (Table 6).⁹

⁹ While this paper goes beyond the traditional case-study approach to examining collective action with data analyses on 34 groups, this sample size is still not large enough to render statistically reliable results from multivariate analyses.

Table 6. Test of significance using ANOVA and Pearson's R

Explanatory Variables	N	F statistic	R statistic	P value	Test
Infrastructure					
Market access					
Distance to market	34		-0.175	0.322	Pearson's R
Road conditions	34	0.066		0.936	ANOVA
Agroecological factors					
Commodity types	34	4.670		0.005***	ANOVA
Reliable water source	34	19.806		0.000***	ANOVA
Land	32		0.097	0.596	Pearson's R
Social structure					
Group assets					
Wealth ranking	34		0.199	0.260	Pearson's R
Education	34		0.313	0.072*	Pearson's R
Providers/partners	34		-0.048	0.788	Pearson's R
Membership in other groups	32		0.068	0.710	Pearson's R
Altruism	34		-0.030	0.867	Pearson's R
General trust	32		-0.099	0.590	Pearson's R
Help trust	32		-0.033	0.859	Pearson's R
Money trust	32		0.049	0.792	Pearson's R
Group composition/characteristics					
Maturity	34	4.375		0.045**	ANOVA
Size of group ^a	33		0.106	0.557	Pearson's R
Activity level	34		0.579	0.000***	Pearson's R
Gender categories	34	0.411		0.747	ANOVA
Leadership by sex	34		0.281	0.108	Pearson's R
Group Heterogeneity					
Educational	34		-0.147	0.406	Pearson's R
Gender	34		0.182	0.304	Pearson's R
Wealth	34		0.073	0.681	Pearson's R
Partner agency intervention					
Partner agency	34	3.160		0.085*	ANOVA
Partner agency linkages	34	2.753		0.107	ANOVA

Notes: ***p < 0.01, **p < 0.05, *p < 0.10; due to the small sample size (n=34), all independent variables with a p value below 0.10 are considered statistically significant. These tests of significance are being used primarily to bring attention to certain variables that warrant further examination and discussion.

^aThe "size of group" statistic excludes one group because it acts as an extreme outlier. This group has 150 members, and including them would disproportionately affect the results.

There are six variables that are statistically significant ($p < 0.10$) and two other variables that are marginally significant ($p < 0.11$). Those variables most strongly associated with improved marketing performance include reliable water source, activity level, and commodity types. Group maturity, partner agency, and education variables are also statistically significant factors in improved marketing performance. Likewise, PA linkages and leadership by sex show some association with improved performance that warrants further examination.

7. DISCUSSION

The following tables provide descriptive statistics of the significant factors associated with improved group marketing performance, which are categorized by the factor domains of the study's conceptual model (that is, Infrastructure, Social Structure, and PA Intervention).¹⁰ A marketing performance rating (MPR) is represented for groups with no market improvement as 0; for groups with some improvement as 1; and groups with large market improvement as 2. Groups are also shown by "market improvement" that classifies groups into those that did and did not improve their market situation.

Table 7. Infrastructure variables associated with improved marketing performance

Explanatory variables	Marketing performance rating			Market improvement		
	0	1	2	No	Yes	% Improved
Reliable water source						
Yes	3	9	6	3	15	84
No	12	4	0	12	4	25
Commodity types						
Cereals/legumes	10	4	0	10	4	29
Coffee	2	0	1	2	1	33
Livestock	3	1	1	3	2	40
Rice	0	1	1	0	2	100
Vegetables/fruit	0	7	3	0	10	100

Reliable Water Source

Eighty-four percent of the groups with market improvements had a reliable water source. There is little question that when groups rely solely on rainfed agriculture, they face a more limited range of opportunities to exploit market potentials and improve their situation. It is also worth noting that all six groups with a MPR of 2, or large market improvements, had access to a reliable water source. This is not to say that such improvements cannot be made, as evidenced by the four groups that were able to do this without a reliable water source. But in all of these cases, water was not as much of a limiting factor to improving their marketing performance as it was to other groups. In two such cases, the chosen commodity did not require a reliable water source. The first group increased their bargaining position and sales by breeding modern variety chickens; and the second group rented a grain storage house and sold their maize at higher prices later in the season. The other two groups in this sample entered a contract with an agricultural company to grow artemisia.¹¹ This company had already decided on the territorial area for artemisia production, for which, though based partially on area percentages of rainfall, the two major factors were proper soil types and the availability of land. Both groups

¹⁰See Appendix B for a full description of the explanatory variables by group marketing performance.

¹¹Artemisia, or *Artemisia annua*, is an herbal plant that is processed into artemisinin, which is used in the treatment of malaria.

were located in the chosen production area, and both had access to land for expanded production.

Commodity Types

This variable proved to be statistically significant because certain crops have greater market potential, especially in local markets. Cereals and legumes, particularly maize and beans, are the traditional staple food crops for many smallholder growers. When these staple food crops are grown on a large scale with an eye toward regional and international markets (that is, Kenya and Uganda), they offer substantial market potential. But, most farmer groups lack both the production scale and the market contacts to exploit these regional and international markets. Only 4 of 14 groups promoting cereals/legumes as an agroenterprise improved their market situation. Even this finding is misleading, since two of these groups improved their market situation by entering in contracts with agribusinesses—one group growing artemisia and the other growing flower seeds—essentially replacing part of their maize and bean crop with these cash crops. The other two groups improved their market situation through maize: one by storing its maize crop in bulk and attaining a higher price later in the season, the other by a combination of bulk purchasing (of hybrid seed and fertilizer) and collectively marketing the harvest to a new buyer. These two groups succeeded because of their capacity to mobilize the required capital investments at the beginning of the growing season, which for most of the groups in this study is beyond their present capacity.

Another significant finding is that all ten groups promoting vegetables and fruits saw their market situation improve. The more obvious reason for the success of these groups lies in the substantial market demand for these crops, but the less obvious reason is that it appears the PA training was particularly suited to exploiting market potentials of the commodities in question. Training in such areas as cost-benefit analysis and negotiation skills allowed many of the groups to reorient their production to the more profitable vegetable and fruit crops and to use their newly acquired negotiation skills to bargain for higher prices. But these findings also point to the larger issue of agroecology and farming systems. Many farmers grow cereals and legumes because it is simply what the land can support, especially where there is no reliable water source and they must rely solely on rainfed agriculture. This can be more clearly understood by distinguishing between groups growing traditional food crops and those growing the other, higher value and nonstaple food crops. Only 29 percent of the groups growing staple food crops have a reliable water source while 70 percent of the groups growing nonstaple food crops have a reliable water source. With the existing natural asset constraints, many of the groups growing cereals and legumes are simply not in a position to pursue a variety of marketing strategy alternatives that would allow them to exploit existing and emerging market potentials, even with the most well-intentioned training programs.

Table 8. Social structure variables associated with improved marketing performance

Explanatory variables	Marketing performance rating			Market improvement		
	0	1	2	No	Yes	% Improved
Activity level	0.53	1.46	2.17	0.53	1.68	
Maturity						
Newly formed groups	8	6	0	8	6	43
Existing groups	7	7	6	7	13	65
Leadership by sex	0.49	0.60	0.71	0.49	0.64	
Education	6.6	7.1	7.6	6.6	7.2	

Activity Level

An important finding under the social structure domain is that groups with a greater number of activities were more likely to improve their market situation. Eighty-four percent of the groups with improved marketing performance had at least one group activity. Even more telling is that 10 out of 19 groups with market improvement had two or more activities, whereas none of the groups with no market improvement had more than one group activity. Although not quite expected, this finding makes sense in the context of marketing performance. When observing the groups in this study, there is a certain vitality that exists in groups that have functioning group activities. It gives groups an ongoing sense of identity and purpose that defines the group beyond the projects in which they are participating. Furthermore, sustaining these activities requires the group to establish internal institutions to guide the effective coordination and mobilization of group resources. Such traits can be particularly useful for groups attempting to leverage group resources quickly to meet emerging market potentials.

Group Maturity

The maturity of the group refers to whether groups were newly formed at the beginning of the project or already existing. Sixty-five percent of the existing groups (13 out of 20) were able to improve their market situation compared to less than half of the newly formed groups (43 percent). This finding is associated with the "activity level" variable as well, since those with maturity and functioning group activities will be better positioned to mobilize group resources and take advantage of emerging market opportunities than groups that have just started and lack such experience in both resource mobilization and coordination. For the newly formed groups that did improve their market situation, four groups did so by entering in contract arrangements with agribusinesses. Under this situation, they were less in need of a cohesive or mature group, and relied instead on the strength and connections of their leaders, as well on the right agroecological conditions to meet the agricultural companies' criteria and the PA's help in establishing these linkages.

Leadership by Sex

The data show that groups with a greater ratio of male to female leaders are more likely to improve their market situation. A related finding is that even though there are not many differences among the gender categories, the one exception is the

category of male-dominated groups.¹² Where the rest of the categories show a fairly even mix of groups with and without improvement, in the category of male-dominated groups, 75 percent of the groups (six out of eight) showed improved marketing performance. These findings show that female-only groups often find themselves in a disadvantaged position compared to their male counterparts when it comes to searching for and accessing new markets for their existing products, and possibly even more so in pursuing new products, as would be found under contract arrangements. One reason these “new market” resource channels are easier to access by men is that they are more likely to be approached by agricultural companies or other chain actors wanting to do business. Men are approached more than women because it is assumed—often wrongly—that they are the primary producer in the household and thus deemed the primary decision-maker in such areas as contract arrangements or service provision delivery. This also stems from the fact the more men are in position of authority in the villages, either as elected or traditionally selected community leaders. External change agents (that is, agribusinesses, agricultural extension, community development officers, NGOs) usually approach community leaders first when looking to start new projects or enterprises, particularly when introducing new products and new market opportunities.

Education

The findings under education prove to be statistically significant with those groups with no market improvement having averaged less than seven years of schooling, versus those groups with improvement having averaged over seven years of schooling. This is important because it reveals that groups whose members have some secondary education were more likely to improve their market situation over groups where members have only primary education. Furthermore, given the fact that this intervention dealt primarily with human capacity training, groups with higher education levels were most likely able to absorb more content and put more ideas into practice to improve their market situation.

Table 9. Partner agency intervention variables associated with improved marketing performance

Explanatory variables	Marketing performance rating			Market improvement		
	0	1	2	No	Yes	% Improved
Partner agency						
FAIDA	9	6	1	9	7	44
TIP	6	7	5	6	12	67
Partner agency linkage						
Linked	3	7	3	3	10	77
Not linked	12	6	3	12	9	43

¹²See Appendix B for the full description of gender category variables by group marketing performance.

Partner Agency and Agency Linkages

As previously mentioned, each partner agency had varying levels of success improving the marketing performance of the respective farmer groups. TIP fared better than FAIDA with two-thirds of its groups (67 percent) improving their situation whereas FAIDA saw less than half of its groups (44 percent) showing improvement. TIP also had five of its groups show large improvements in their market situation, whereas only one of the FAIDA groups had this outcome. TIP and FAIDA together were involved in actively linking thirteen groups to other chain actors. Ten of these groups (77 percent) that were actively linked improved their market situation. The reason for TIP's higher success rate can be explained by the fact that more of their groups had at their disposal a greater share of collective resources that could be harnessed to affect positive change in their market situation. More often the case than not, TIP groups were better educated, had more internal cohesion (as represented by the greater number of group activities and level of maturity), were endowed with more natural assets (that is, more land and reliable water sources), and worked with commodities that had greater market potential. These asset differences between TIP and FAIDA also explain why TIP had more opportunities to actively link their groups to other chain actors. TIP initiated linkages of nine farmer groups with other chain actors (seven led to an improved market situation), whereas FAIDA initiated linkages of four farmer groups with other chain actors (three led to an improved market situation).

8. HYPOTHESES REVISITED

In this section, the study hypotheses are revisited to ascertain the extent that they can be supported or rejected based on the results of the bivariate analyses. The first set of hypotheses is discussed under the heading of group assets, and the second set of hypotheses is discussed under the heading of group composition and characteristics.

Hypotheses Relating to Group Assets

Farmer groups will be better positioned to improve their marketing performance if the group has some or all of the following attributes:

- High level of trust among members (Hypothesis 1) ¹³
- More altruistic rather than self-interested behavior (Hypothesis 2)
- More ties to other organizations in and outside the community (Hypothesis 3)
- Lower levels of poverty (Hypothesis 4)¹⁴

¹³ The first three hypotheses are concerned with assessing the effects of social capital and were tested using the following variables: General trust, Help trust, Money trust, and Altruism (as indicators of cognitive social capital); and Providers/Partners and Membership in other groups (as indicators of structural social capital).

¹⁴ This hypothesis was tested by using the following variables: Wealth ranking, Reliable water source, Land, Education, and Commodity types. These variables encapsulate four of the five livelihood assets (physical, natural, financial, human).

Beginning with the hypothesis relating to levels of poverty, bivariate analysis highlighted the importance of natural assets—water and commodity types—as significant and meaningful factors toward improved marketing performance. Likewise, groups with more years of schooling, especially those where the majority of the members had some secondary education, were more likely to improve their market situation. Surprisingly, group wealth ranking (a measure of groups’ physical and financial assets) did not prove to be a significant factor in a group’s ability to improve their market situation. These findings lead to a partial support of Hypothesis 4, which can be stated as follows: better educated groups with a good stock of natural capital and favorable agroecological conditions (that is, reliable water source, commodity types) will be better positioned to improve their marketing performance.

A similar conclusion, however, cannot be put forward in regard to the social capital hypotheses, whether in the form of structural or cognitive social capital. In the bivariate analysis, neither the proxy indicators for cognitive social capital (that is, intragroup trust and altruistic behavior) nor the proxy indicators for structural social capital (that is, membership in other groups and providers/partners) were proven to be statistically significant factors to improved marketing performance. These findings do not, however, counter the hypothesis that trust among members is an important attribute toward successful collective action initiatives. Averaging the three intragroup trust scores, groups with no market improvement had a total trust score of 2.48, and groups with market improvement had a trust score of 2.49. Since these scores are virtually the same, they are not statistically significant; more importantly, however, they show that practically *all groups* have a high level of trust among their members.

Hypotheses Relating to Group Composition and Characteristics

The second set of hypotheses states that farmer groups will be better positioned to improve their marketing performance if the group has some or all of the following attributes:

- Smaller group size (Hypothesis 5)
- Past successful activities (Hypothesis 6)¹⁵
- Heterogeneity of endowments (Hypothesis 7)
- Homogeneity of identities (Hypothesis 8)¹⁶

Group size did not have any affect on group marketing performance, and thus, there is no evidence in this study to support the hypothesis that smaller farmer groups will be better positioned to improve their market situation over larger groups. In regard to the Hypothesis 6, it is clear from the bivariate analysis that the “group maturity” and “activity level” variables are positively associated with a group’s ability to improve its market situation. The association was particularly strong for the “activity level” variable. Some set of rules must be followed in order

¹⁵ Hypothesis 6 was tested using the Maturity and Activity Level variables. These two variables act as proxy measures for functioning internal institutions and, by their extension, for the types of activities these groups are capable of doing.

¹⁶ Hypotheses 7 and 8 were tested using the following variables: leadership by sex, gender composition categories, and the three heterogeneity variables (that is, educational, gender, wealth).

to run successful and sustainable group activities, even more so when a group is running multiple group activities. The positive association of group maturity to improved marketing performance bolsters this finding. A far greater number of the groups in existence before the project intervention were able to implement collective action initiatives to improve their market situation. Whereas mature groups had a set of formalized or informal institutions to guide group behavior and action, the same cannot be said for the newly formed groups. It is the combination of functioning internal institutions and successful group activities that provide the confidence and willingness for groups to take on new initiatives, and thus it is one of the major reasons that these groups were able to take the PA trainings and put them into practice to improve their market situation.

In terms of the heterogeneity/homogeneity hypotheses, none of the heterogeneity variables in the bivariate analysis proved to be statistically significant. There is no evidence from this study sample to support the hypotheses that heterogeneity of endowments or homogeneity of identities will better position groups to improve their market situation.

A final finding that does not fit as neatly within the sets of hypotheses but is important nonetheless is that groups with a higher proportion of male to female leaders in the group were more likely to improve their market situation. Many female-only and female-dominated groups (in regard to group gender composition) find themselves in a disadvantaged position compared to their male counterparts when it comes to searching for and accessing new markets for their existing products and possibly even more so in pursuing new products as would be found under contract arrangements. Due to culturally ascribed gender roles, women assume a greater share of the responsibility over their households' production and reproduction activities. Given these responsibilities, many women simply do not have time to spend searching out new market opportunities. This is compounded by the fact that women do not have the same sociopolitical networks that men have, all of which makes it more difficult for them to access new resources and services that could lead to new market opportunities.

9. STUDY CONCLUSIONS

In the final summation of these findings, it is appropriate to return to the conceptual model guiding this study. Within the infrastructure domain, the two driving forces to improved marketing performance are determined by the commodities being promoted as an agroenterprise (that is, growing nonstaple food crops) and whether or not the groups have a reliable water source to depend on. The findings of this study support the premise that groups endowed with favorable agroecological factors, such as a reliable water source, good lands and soils, and crops with inherent market potential, are far better positioned to improve their market situation. When farmer groups are endowed with this core set of natural assets, a great number of marketing strategy alternatives are made available to them, whereas groups lacking these natural assets will find their marketing strategy alternatives severely limited.

It is from this perspective that variables in the social structure domain can play an enabling role in a group's ability to take advantage of existing and emerging market opportunities. The enabling factors in the social structure domain

found to be positively associated with improved marketing performance included: maturity of the group, number of group activities, a higher proportion of male leaders, and better educated groups. Many of the groups that improved their market situation had in place the appropriate mechanism for mobilizing group assets and action, with confidence from previous positive experiences to see new initiatives carried out to their conclusion. The PA intervention in the form of direct market linkages was also an important factor in group market success. But it should be noted that in most cases the PA was able to link these groups to agribusinesses because they were endowed with assets that made the partnership worthwhile for the agribusiness. These assets included having a reliable water source and the appropriate lands and soils to grow their crops. This final factor bolsters the premise of the primacy of the infrastructure. Having the right agroecological conditions played a determining factor in the PA's ability to link these groups to other market chain actors.

Reconsidering the Planned Change Initiative

The PA intervention attempted to improve the marketing performance of smallholder farmer groups by providing group strengthening and marketing skills training and, where possible, to link these farmer groups to other market chain actors. At the heart of this intervention is the PA's attempt to create a culture of entrepreneurship—the mantra being that farmers need to produce for markets rather than trying to market what they produce. On one level, it is about training farmers to be more business-oriented, to think of their crops as commodities, and to organize group activities as business enterprises. On another level, it urges the farmer groups to take more chances and become less risk-averse.

Understood from this perspective, the PA intervention is a classic example of the education model of social change, in which the basic premise is that the way a person behaves can be altered by changing the way she or he thinks. Bernard (1995, 24) explains some of the pitfalls of this particular behavioral change model.

“The model is based on the idea that thought causes behavior. If you want to change people's behavior, the reasoning goes, you have to change how they think: teach men to use condoms; teach women to use birth control devices; teach everyone to wash their hands after defecating. The educational model of social change creates a lot of employment for researchers and development project workers, but it doesn't produce much in the way of desired change. This is because behavioral change (the supposed dependent variable) often doesn't depend on education (the supposed independent variable). In fact, it's sometimes the other way around. When women have access to well-paying jobs outside the home, they tend to lower their fertility. Once that happens, an antinatality culture develops.”

Keeping with this example, well-paying jobs would equate in this study with farmer groups endowed with good lands, access to a reliable water source, and commodities with market potential. With such natural assets, these groups are already in a better position to improve their market situation. If such groups could be assured that calculated risks would not lead to unrecoverable shocks to their livelihood systems, there is a greater likelihood that a culture of entrepreneurship would develop naturally. This is where the PA intervention can, and did, have an

immediate and possibly lasting impact. By strengthening groups and their marketing skills, many of the groups endowed with a core set of natural assets were given the confidence to seek out and exploit new market opportunities. However, even with these determining forces at work, the role of the social structure as an enabling or constraining factor should not be disregarded. Even if groups are endowed with natural assets, constraining social structures (such as a lack of internal institutions to guide group behavior and action, or discriminatory external institutions that place women at a disadvantage when seeking new market opportunities) will make these groups far less likely to succeed in marketing initiatives to improve their livelihoods.

There is a final point that should be made categorically: even the most organized and trustworthy groups, equipped with the best marketing skills trainings possible, will have small likelihood of improving their market situation without the requisite set of natural assets. Any intervention that confuses the determinacy of the social structure over the infrastructure will not produce, as Bernard says, the desired change (Bernard 1995, 24). The matter comes down to distinguishing between the determining factors and factors that will enable or constrain successful marketing performance outcomes. At the end of the day, telling farmers that they should become rural entrepreneurs—that they should be exploiting market opportunities rather than being exploited by the market—will fall quickly on deaf ears if the asset base and group capacity that are required to engage in the market activities are simply missing.

This does not mean that market-oriented interventions should only target “wealthy” farmers and exclude the poor. It means that promoters of this approach must be far more realistic about the time frame by which to expect poor smallholder farmers to make substantive gains in their market situation. This certainly requires a project cycle period beyond the typical three years, and it will involve substantial asset building in natural and financial capitals (e.g., rotating credit schemes), alongside such human and social capital building as promoted in AMSDP. This also necessitates change agents to have the appropriate methods and tools to assess farmer group’s asset levels and resource mobilization capacity. Without these tools, it will always be difficult to discern the level of risk groups should be willing to take and the type of collective action initiatives most appropriate to bring about significant improvements to their market situation. This is all the more crucial since one of the more dangerous assumptions made by market advocates is that promotion of market-oriented interventions will lead to greater food security; yet, it is all too clear that failed attempts to engage the market are more likely to lead to greater food insecurity and other detrimental livelihood outcomes.¹⁷

¹⁷ See Barham (2007) for a more lengthy discussion on programmatic and policy recommendations for engaging smallholder farmers in agro-enterprise development initiatives.

APPENDIX A

Description and Values of Explanatory Variables

Table 1. Group asset variables by description and value

Explanatory variables	Description	Value
Physical and natural assets		
Group wealth ranking	Aggregated score taken from individual group members based on household ownership of physical, natural and financial assets	Continuous: Composite index scores between 2.00 and 4.33 The higher the score, the higher the group asset level
Reliable water source	Majority of group members having access to reliable water source	Discrete: 0 = No 1 = Yes
Land	Aggregated and average score taken from the total amount of land (owned and rented) by group members	Continuous: Number of acres
Social capital assets		
Cognitive social capital		
Intragroup trust	Three questions concerning trust aggregated to provide three scores for each group	Continuous: Scores between 1 and 3 The higher the score, the higher the trust
Group altruism	Group score based on playing the Public Goods Game (PGG)	Continuous: Score between 0.46 and 1 The higher the score, the higher the altruistic behavior
Structural social capital		
Providers/Partners	Service providers and other partners that group has worked with and/or currently working with	Continuous: The total number of providers divided by number of years of group's existence Score between 0.44 and 2
Membership in other groups	Membership in other agriculture and development-oriented groups	Continuous: Total number of ties to other groups

Group Wealth Ranking

Wealth ranking techniques have been widely used in social science research for assessing household and individual wealth, especially when it is difficult to obtain income and expenditure data (Spring et al. 1996; Brandt and Spring 1998; Grandin 1988). A number of studies comparing wealth ranking techniques to income, expenditure, and other wealth-related data have proven these techniques to be a reliable and valid way to measure wealth (Adams et al. 1997; Temu and Due 2000). This ranking was established by aggregating individual's wealth ranking to the group level. Individual wealth rankings were modeled after those established in a joint World Bank and Government of Tanzania study (Narayan 1997) that utilized a number of participatory approaches for establishing regional wealth rankings for all of Tanzania, which included the regions of Arusha and Kilimanjaro. This provided

the foundation by which further details were added based on discussions with test-pilot groups and crosschecked with key informants.

One particular area of depth that was added was the development of a material asset index. The first step was asking the participants to circle all items owned by their household from a predefined list. Items were chosen for the questionnaire that could be used to improve farm productivity (that is, hand hoe, oxen plough, processing machine, and tractor) and marketing (that is, bicycle, cart, motorcycle, car, truck, radio, mobile phone, and television). Using Anthropac (Borgatti 1992) for the analysis of unidimensionality, a Guttman scale was established to assess and assign material wealth (Guest 2000). Eight household items (hand hoe, radio, bicycle, cart, oxen plough, mobile phone, television, processing machine) produced a high unidimensionality score with a coefficient of reproducibility (CR) of 0.95 and coefficient of scalability (CS) of 0.62. These scores strongly indicate that all items are a composite measure of one underlying concept (Bernard 1995).¹⁸ A material asset index score (1 to 8) was then assigned to each group member. The material asset index score along with further considerations, which is shown in Table 2, were used to assign each group member a final wealth ranking score from 1 to 5.

¹⁸The coefficient of reproducibility (CR) is a measure of the unidimensionality of the items in a scale. By convention, a CR of 0.90 or higher is accepted as evidence that a set of items have scaled unidimensionality (Guest 2000; Bernard 1995). There is, however, one problem with the CR. A high CR is "sensitive to extreme marginal distributions in terms of both items and individuals so that a high CR can be achieved even in random data" (Guest 2000, 351). In order to deal with extreme responses, Menzel (1953) developed the coefficient of scalability (CS), which can be interpreted as a proportion reduction in error (PRE) statistic. To the extent that the scale has fewer errors than expected by chance, the CS moves toward 1.0. Although there is no definitive score, CS of 0.60 or higher is generally considered an acceptable level of error (Guest 2000, 351).

Table 2. Wealth ranking criteria for group members

Wealth ranking	Inclusion criteria
Very Rich	Material asset index: 7–8 Over 10 acres of land Usually owns one or more of the following: car, tractor, motorbike May own a store Owns several homes Plants on time Uses commercial fertilizer Owns over 50 head of cattle and goats/sheep
Rich	Material asset index: 5–6 Four to nine acres of land Owns a motorbike May own a small shop Owns a home Plants on time Uses commercial fertilizer Owns over 30 head of cattle and goats/sheep
Average	Material asset index: 3–4 Two to three acres of land Usually owns a home Usually plants on time Usually uses fertilizer, mix of commercial and animal manure Owns around 2 to 3 head of cattle and 3 to 6 goats/sheep Does not usually sell labor May do some small trading in crops/livestock
Poor	Material asset index: 1–2 One acre of land or less May not own a home Does not usually plant on time Does not use commercial fertilizer No cattle and a few goats/sheep Must sell labor some of the time
Very Poor	Material asset index: 0–1 Less than ½ acre of land Does not own a home Does not plant on time Does not use fertilizer Owns little to no livestock Must always sell labor

Reliable Water Source

Each group was assigned a score of 0 or 1 based on the group's access to a reliable water source. This was ascertained by individual members' answers to the self-administered questionnaire, field observations, and discussions with group members and key informants. In most cases, a reliable water source meant that majority of group members had access to irrigation for their crops, or where groups

felt that they could rely on the rainfall, as was the case with two groups in high elevation and precipitation areas.

Group Altruism

Each group member was assessed on whether she or he exuded more self-interested or more altruistic behavior toward the rest of the group. This individual assessment was then aggregated to the group level to get a group altruism score. To assess various levels of individual altruistic behavior, each group played a one-shot Public Goods Game (PGG). The PGG is well known within the field of experimental economics and has been applied in several cross-cultural studies (Gurven 2004; Henrich 2000). In this adaptation of the PGG, each group member is given ten tokens (square pieces of paper) each worth 50 Tanzanian Shillings (TShs), thus totaling TShs 500 (or the equivalent of US\$0.40). Each member is given the option of contributing none, some, or all her/his money to the group fund. Any money that is contributed to the group fund will be doubled and then shared equally among all members. To clarify the possible outcomes, three scenarios are explained to the group: (1) all contribute everything to the group fund, and thus double their money with each member getting back TShs 1,000 (roughly half a day's wage); (2) no one contributes anything to the group fund, thus holding onto their original sum of TShs 500; and finally (3) most members contribute everything, and a few members contribute nothing. This final option is further explained to the group through an example. If seven players contribute everything and three players contribute nothing, the total amount in the group fund will be TShs 3,500. Once doubled it becomes TShs 7,000, which divided equally leaves each member with TShs 700, except for the three players that contributed nothing. Each of these players will end up with their original sum of 500 that they did not contribute plus the 700 from the group fund, thus totaling TShs 1200.

Faced with these scenarios, the PGG game shows how free-riding and self-interested behavior can be rewarded, but not without negative consequences to the rest of the group. Once all the options have been explained, each member makes her/his contributions in private to the group fund. The tokens the member chooses not to contribute are then turned over on the spot for monetary remuneration. All this insures confidentiality with only the final tally of group fund contributions made to the group and the final amount in the group fund divided equally. Group altruism scores are based on the group's total contribution to the fund, and ranged from 0.58 to 1, with lower scores revealing groups with more self-interested members and higher scores revealing groups with more altruistic-minded members.

Intragroup Trust

Three statements concerning intragroup trust were presented on the questionnaire using a three-point Likert scale, with participants responding that they (1) agreed with the statement; (2) felt neutral about the statement; or (3) disagreed with the statement. They responded to the following three statements:

- Most members in your group can be trusted.
- Most members in your group are willing to help if you need it.
- In your group, members generally do *not* trust each other in matters of lending and borrowing money.

These answers were then coded from 1 to 3 and aggregated to the group level to provide three general measurements of group trust.¹⁹ Trust questions represent qualities of cognitive social capital and were adapted from the World Bank's Social Capital Assessment Tools (SOCAT).²⁰

Structural Social Capital

Two variables—"providers/partners" and "membership in other groups"—were selected as indicators of structural social capital.²¹ The first variable captures the aspect of "bridging" social capital, and thus deals with the extent that groups have ties or relations with other actors or organizations outside of their community. These ties or relations are more vertical in nature and offer opportunities for the group to access and obtain *new* resources. The second variable captures the aspect of "bonding" social capital, and thus deals with ties and relationships within their community. These ties and relationships are more localized and horizontal in nature, and offer opportunities to maximize *existing* resources. But, the conceptual divide between bonding and bridging capital is not always so straightforward, since many of these other groups may also have the ability to access new resources and thus make it possible that belonging to other groups will serve both the purposes of enhancing bonding and bridging social capital. For purposes of this study, the most important point to make when considering these social capital variables is to distinguish between structural social capital and cognitive social capital. These are divided in Table 1 with structural social capital indicators being "providers/partners" and "membership in other groups," and the cognitive social capital indicators being the three intragroup trust variables and group altruism.

¹⁹The answers to the third trust question concerning matters of money were recoded to fit the scale, with lower scores representing low trust and higher scores representing high trust among the members.

²⁰SOCAT can be accessed at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTSOCIALCAPITAL/0,,contentMDK:20193049~menuPK:994384~pagePK:148956~piPK:216618~theSitePK:401015,00.html>.

²¹These are recognized indicators of structural social capital in the World Bank's Social Capital Assessment Tools, or SOCAT (see the previous footnote).

Table 3. Group composition variables by description and value

Explanatory variables	Description	Value
Education	The average number of years of schooling for each group	Continuous: Number of years of schooling
Gender		
Group categories	Each group classified into one of four gender categories based on membership, leadership, and decisionmaking	Nominal: 1) Female-only groups 2) Female-dominated groups 3) Male-dominated groups 4) Gender-balanced groups
Leadership by sex	Proportion of male to female elected leaders in the group	Continuous: Score between 0 and 1 0—All female group 0.5—Balanced leadership 1—All male group < 0.5—Female majority > 0.5—Male majority

Groups by Gender Categories

Groups were classified into four basic gender categories. These designations were based on group membership, the leadership structure, and the decisionmaking dynamics of the leaders.

- Female-only groups
- Female-dominated groups, whereby the majority of the members are women, and the majority of the leaders are women who make the important decisions or guide the group.
- Gender-balanced groups, where there is a balance of both female and male members and male and female leaders who make decisions involving the group, but neither sex dominates.
- Male-dominated groups, whereby the majority of the members are men and majority of leaders are men who make the important decisions and guide the group.

Table 4. Group characteristics variables by description and value

Explanatory variables	Description	Value
Group size	Number of active members based on data collected during 2nd interview	Continuous: Number of group members
Activity level	The number of internal activities that groups are currently doing apart from the project intervention	Continuous: Total number of activities per group
Maturity	Newly formed group versus groups that have been in existence for a longer period of time	Discrete: 0 = Groups in existence for two years or less 1 = Groups in existence for three years or more

Table 5. Group heterogeneity variables by description and value

Explanatory variables	Description	Value
Educational	Coefficient of variation, which is the standard deviation divided by the mean score of the years of schooling of members	Continuous: Score between 0 and 1.13 The higher the score, the more the educational heterogeneity
Gender	Proportion of male members to female members	Continuous: Score between 0 and 0.76 The higher the score, the more the gender heterogeneity
Wealth	Coefficient of variation, which is the standard deviation divided by the mean score of member's wealth ranking	Continuous: Scores range from 0.13 to 0.46 The higher the score, the more the wealth heterogeneity

Group Heterogeneity

The coefficient of variation was used to measure educational and wealth heterogeneity. The coefficient of variation is one of the most commonly used statistics by organizational researchers for assessing the effects of group-based demographic diversity (Bedeian and Mossholder 2000). Gender heterogeneity was measured using a proportions statistic. Again, organizational researchers commonly use this statistic to assess the effects of heterogeneity on group behavior and actions (Williams and Mean 2004).

Table 6. Market access variables by description and value

Explanatory variables	Description	Value
Distance to market	Distance from group meeting location to the major regional market	Continuous: Distance in kilometers
Road conditions	Road conditions from group meeting place to major markets	Ordinal 0 = Bad 1 = Average 2 = Good
Commodity types	The primary crops grown and selected by groups to improve their market situation	Nominal: 1) Cereals/legumes 2) Fruits/vegetables 3) Livestock 4) Coffee 5) Rice
Partner agency	The two partner agencies working with the farmer groups	Nominal: 1) FAIDA 2) TIP
Partner agency linkages	Whether or not partner agencies actively linked producer groups to other chain actors	Nominal: 0 = No 1 = Yes

Distance to markets and road conditions

These two variables represent physical access to markets, and thus consider this variable from an exclusively geographical and infrastructural perspective. The “distance to markets” variable measures the distance from group meeting place to the major market in the region, which for the FAIDA groups is the town of Moshi in the Kilimanjaro region, and for the TIP groups it is the town of Arusha in the Arumeru Region. The “road condition” variable was built on an ordinal scale with the following delineations:

- *Good road conditions:* Group meeting place is 2 kilometers or less from a paved road that connects to the major regional market.
- *Average road conditions:* Group meeting place and surrounding area connected by gravel road. Road is fairly flat and accessible most of the year.
- *Bad road conditions:* Group meeting place and surrounding area connected by dirt road only. Road is uneven, difficult to maneuver, and may not be passable during the rainy seasons.

Commodity Types

Each group has certain crops that their members grow that were put forward as possible crops to promote as a viable agroenterprise. It was important to make some demarcation between these crops since some have more marketable qualities. The crop headings also highlight the different farming systems available to the groups. The cereals/legumes category represents traditional staple food crops and includes maize, beans, millet, pigeon peas, and sunflower. The other categories encompass a number of higher value and nonstaple food crops, and include fruits/vegetables, livestock (that is, raising dairy cows and chickens), coffee, and rice.

Partner Agency and Agency Linkages

The “partner agency” variable is categorized under market access because the PAs are attempting to enhance the marketing skills of the farmer groups in the hope that groups will undertake collective action initiatives to improve their market situations. Given some of the differences in the training activities, there is the expectation that each PA will have varying results in improving the marketing performance of their respective farmer groups. Likewise, PAs are also active in linking farmer groups to other chain market actors, and thus both their market linkage success and failures will impact groups’ marketing performance.

APPENDIX B
Full List of Study Variables by Group Marketing Performance

Table 1. Infrastructure variables by group marketing performance

Explanatory variables	Marketing performance rating			Market improvement		
	0	1	2	No	Yes	% Improved
Distance to market	31.73	22.54	27.33	31.73	24.05	
Road conditions						
Bad	6	2	3	6	5	45
Average	6	5	3	6	8	57
Good	3	6	0	3	6	67
Reliable water source						
Yes	3	9	6	3	15	84
No	12	4	0	12	4	25
Commodity types						
Cereals/legumes	10	4	0	10	4	29
Coffee	2	0	1	2	1	33
Livestock	3	1	1	3	2	40
Rice	0	1	1	0	2	100
Vegetables/fruit	0	7	3	0	10	100
Land	3.55	3.04	3.53	3.55	3.26	

Table 2. Social structure variables (group assets) by group marketing performance

Explanatory variables	Marketing performance rating			Market improvement	
	0	1	2	No	Yes
Wealth ranking	3.13	3.17	3.45	3.13	3.26
Education (years in school)	6.6	7.1	7.6	6.6	7.2
General trust	2.56	2.60	2.45	2.56	2.55
Help trust	2.59	2.69	2.52	2.59	2.63
Money trust	2.28	2.28	2.34	2.28	2.30
Altruism	0.86	0.87	0.85	0.86	0.86
Providers/partners	0.63	0.95	0.76	0.76	0.85
Membership in other groups	4.14	3.33	5.17	4.14	3.94

Table 3. Social structure variables (group characteristics) by group marketing performance

Explanatory variables	Marketing performance rating			Market improvement		
	0	1	2	No	Yes	% Improved
Maturity						
Newly formed groups	8	6	0	8	6	43
Existing groups	7	7	6	7	13	65
Size of groups	31.40	29.77	35.40	31.40	31.33	
Activity level	0.53	1.46	2.17	0.53	1.68	
Gender categories						
Female-dominated	2	0	1	2	1	33
Female-only	1	2	0	1	2	67
Male-dominated	2	4	2	2	6	75
Gender balanced	10	7	3	10	10	50
Leadership by sex	0.49	0.60	0.71	0.49	0.64	

Table 4. Social structure variables (group heterogeneity) by group marketing performance

Explanatory variables	Marketing performance rating			Market improvement	
	0	1	2	No	Yes
Educational heterogeneity	0.35	0.32	0.27	0.35	0.30
Gender heterogeneity	0.47	0.49	0.58	0.47	0.52
Wealth heterogeneity	0.23	0.25	0.25	0.23	0.25

Table 5. Partner agency intervention variables by group marketing performance

Partner details	Marketing performance rating			Market improvement		
	0	1	2	No	Yes	% Improved
Partner agency						
FAIDA	9	6	1	9	7	44
TIP	6	7	5	6	12	67
Agency linkage						
Linked	3	7	3	3	10	77
Not linked	12	6	3	12	9	43

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