Smallholder Farmers and Collective Action: What Determines the Intensity of Participation?

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1 INTRODUCTION

Smallholder organization in farmer groups is seen as an institutional solution to overcoming market failures and high transaction costs associated with market exchange in developing countries (Markelova et al. 2010). In addition, farmer organizations provide important platforms for capacity building, information and innovation in rural and agricultural settings (Bingen 2003). Recently, the promotion of farmer collective action has gained popularity in the context of the agri-food system transformation, as a response to stringent quality and food safety standards, contractual relationships and procurement systems (Narrod et al. 2009). For example, group contract arrangements can improve smallholder market power and ensure a more equitable distribution of benefits of contractual relationships (Key & Runsten 1999). Moreover, the presence of social capital may also reduce the likelihood of opportunistic behavior, such as extra-contractual marketing (Fafchamps 2004). There is, however, a need to better understand under what conditions and in what form collective action is useful and viable (Hellin et al. 2008, Markelova et al. 2010).

There are a number of factors determining the success of collective action. Apart from the external environment and specific types of products and markets, the group-specific institutional arrangements and characteristics play important roles (Markelova et al. 2010). For example, smaller groups achieve higher levels of internal cohesion, because it is easier to know and monitor other members. Larger groups, however, exploit higher economies of scale to reduce transaction costs, which is particularly important for marketing (Stringfellow et al. 1997). Another trade-off exists between inclusiveness and tight membership rules, which may increase the group's effectiveness but exclude the poorest from participation. Collective action depends also on the external and internal capacities in human, social and financial capital (Bingen 2003). Very little attention though has been given to how these group characteristics and other factors shape the commitment and contributions that individuals make towards achieving a shared goal.

Since costs and benefits of engaging in collective action may be perceived very differently by farmers, varying levels of participation are observed. In addition, without adequate mechanisms to punish defect behavior, farmers have an incentive to free-ride. The group makes a costly investment into farmers by providing services and inputs and it depends on its members to recompense these efforts by selling their products through the group so part of the revenues flow back to the group. When members do not honor this reciprocal contract, the success and viability of collective action may be seriously threatened. Moreover, smallholder market access is facilitated through the exploitation of economies of scale, the size of which depends on the magnitude of member participation. This makes the identification of determinants of commitment and participation intensity

central in the analysis of farmer collective action. This is of high relevance to smallholder collective action in developing countries. For example, Shiferaw et al. (2009) identified low volumes as one of the major limiting factors for the success of small-scale farmer marketing groups in Kenya.

This article analyses the determinants of commitment to collective action using the case of cooperatively organized small-scale banana producers in Kenya. The intensity of participation in group meetings and collective marketing as well as side-selling are used as proxies to measure the degree of individual commitment. We contribute to the research direction in several ways. We distinguish between different intensities of group participation in our analysis to provide a more nuanced picture of commitment to collective action. This helps to understand the complexity of collective action beyond the decision to participate or not. A number of empirical studies investigated why some farmers engage in collective and others do not (e.g.; Ferrara 2003, Shiferaw et al. 2009; Wollni & Zeller 2008). However, no distinction is made between group membership, participation, and the intensity of participation. Moreover, the analysis of determinants of participation intensities provides explanations why some members exhibit higher degrees of commitment to group activities than others. Highlighting constraints that prevent higher degrees of participation allows discussing possible measures for increasing participation and commitment, so that the potential of farmer groups can be fully realized.

The article is organized as follows. In section 2, we briefly introduce the concept of commitment to collective action from a theoretical perspective. In the same section we also provide background information on cooperatively organized banana farmers in central Kenya. In section 3, we describe the survey data and give descriptive statistics. The estimation results are presented and discussed in section 4 and 5. Section 6 concludes.

2 BACKGROUND

(a) Commitment to collective action

Collective action is defined as voluntary action taken by a group of individuals, which invest time and energy to pursue shared objectives (Markelova 2010). It plays an important role in the context of family farms and agricultural production. For example, cooperative organization has helped to maintain the dominance of family farms in developed countries by offsetting some of their disadvantages related to size and bargaining power (Valentinov 2007). In developing countries the disadvantages of family farms are further exacerbated by various forms of market failure, which are particularly severe in areas with poor infrastructure and communication networks. As a result, smallholders face high transaction costs of market exchange that significantly reduce their incentives for market participation (Wiggins et al. 2010, Reardon et al. 2009). Through achieving economies of scale, farmer groups can countervail some of these disadvantages, particularly those concerning high external transaction costs and asymmetric market power.

Commitment is defined as acting towards fulfilling mutual, self-imposed or explicitly stated obligations. It has received much attention in the social sciences, particular in the fields of organizational behavior and rational choice (Robertson 1995). Organizational behavior focuses on the factors influencing the quality of an individual's involvement and performance in organizations; for example attitudes, identification with the group, its objectives and values, as well as loyalty and affection. Rational choice theory focuses on how an individual's choice is dependent on comparing expected benefits and costs of different alternatives. Proponents of rational choice theory argue that the success of collective action depends on the ability of individuals to make credible commitments. Rational, self-interested individuals will act to achieve their personal rather than group interests, and have an incentive to free-ride if they are given the opportunity to do so (Olson 1977). Therefore, forms of collective action have to implement mechanisms that punish opportunistic behavior, such as extra-contractual marketing; otherwise it will cease to exist if enough members are disloyal (Fulton & Adamowicz 1993). However, rational choice theory also acknowledges the presence of informal social mechanisms, such as norms, shared values, conventions, which make individuals not renege on a promise. Underlying both strands of literature is the notion that individuals with higher levels of commitment to collective action are more likely to contribute towards the achievement of shared goals.

(b) Collective action in the Kenyan banana sector

Recent developments in the Kenyan banana market provide an interesting example to analyze patterns of commitment to collective action. Banana and plantains provide an important source of food and income for millions of smallholders in East Africa and other developing countries (Arias et al. 2003). Over the past decades there has been a significant decrease in banana yields due to pests and diseases, which put a serious threat to household food and income security. Farmers have thus neglected banana production. The trend of declining yields has been reversed recently, partly due to the use of improved planting material and good agronomic practices, which was supported by government and non-government initiatives. At the same time, due to urbanization, a growing middle class and the expansion of supermarkets, demand for high-quality bananas is growing in Kenya.

Recognizing both the problem of persistent low yields on the one side and the large potential arising from growing demand for bananas on the other, a banana initiative was launched by Africa Harvest and TechnoServe – two international NGOs. Their goal was to raise rural household incomes and food supply by improving banana production and marketing through a joint approach covering the whole value chain. The basis of their initiative was the formation of small farmer groups dedicated to the production and marketing of fresh dessert banana. Groups were formed mostly by building on existing local networks and along social ties. Members agreed on a group constitution and voted on group leadership, consisting of up to five to seven leaders. Groups became legally registered, which was made a pre-condition for further NGO support. A range of extension and training services was provided by NGO field agents, covering issues of production, business skill and marketing. With improved access to innovation, information and markets, these efforts have facilitated a paradigm shift among banana farmers in central Kenya: banana is increasingly seen as a major cash crop. Over the past

decade smallholder producers have become more reliant on the cash income generated from banana sales. This has occurred especially in areas where farmers saw their incomes from coffee and other traditional cash crops decline (Wambugu and Kiome 2001).

Groups carry out a range of different activities: they hold regular meetings, carry out trainings and organize market days, where members sell their banana harvest collectively at designated collection centers. Participation in group activities is voluntary, though attendance and sales are often documented. Group meetings are held regularly; in most cases once per month. In the initial stages of group formation, member farmers were trained in group organization, leadership and group dynamics in order to build a solid and viable foundation of social capital for future activities. They were introduced to improved tissue culture (TC) planting material. Traditionally, bananas in Kenya are propagated by suckers from old plantations, a procedure through which pathogens are spread. TC banana plantlets are propagated in a lab, so that plantlets are free of diseases and pests. Moreover, farmers receive training on good agronomic practices, such as orchard establishment and management, disease and pest-identification, post-harvest handling, record keeping, marketing and negotiating skills.

Banana market participation decisions are highly influenced by fixed transaction costs related to transportation and market information, which calls for farmer collective action in the banana sector (Ouma et al. 2010). In Kenya, bananas are traditionally marketed individually; the majority sells to mobile traders at the farm gate. Hence, groups also organize collective marketing. Bananas are delivered to designated collection centers were they are weighed, graded, bulked and sold. Banana sales and payments are documented. While farmers have to pay a small fee for group membership, they keep individual accounts; that is, sales revenues are distributed according to actual delivery. Members also pay a small fee for collective marketing: one shilling per kg is deducted by the group. Prices that members receive through the group exceed prices paid at the farm gate by 16%. However, additional transportation costs lower the net benefit of collective marketing. In addition, group payment is often delayed. Despite some of the disadvantages, members selling through the group were able to significantly increase their total household incomes through increased banana production, whereas those who continued selling at the farm gate did not. This suggests that those who benefit most in terms of access to innovation and training, are also more committed when it comes to marketing.

3 DATA AND METHODOLOGY

(a) Household survey

The data used in this study were collected in June and July 2009 in the central highlands of Kenya. Using a carefully designed and tested questionnaire, we conducted structured, household-level interviews with banana growers in the districts of Muranga, Nyeri, Embu, and Meru. These districts are located within the same agro-ecological zone, have similar access to road infrastructure, and are classified as high-potential banana-growing areas. We randomly sampled banana growers who are members of farmer groups as well as non-members for comparison of outcomes.

In order to select members, we first obtained a complete list of 240 banana farmer groups; out of these, 17 groups were randomly selected, which were located in different sub-locations. Within each group, around 12 members were randomly selected, resulting in a total of 201 group member observations. Three groups in the sample have not (yet) started collective marketing. As agro-ecological and socio-economic conditions vary across different banana-growing areas of Kenya (Qaim 1999), our sample is not representative for the country as a whole. However, the majority of members were found to be highly comparable to the majority of randomly selected non-members based on farm and household characteristics. Sample descriptive statistics for group members are provided further below.

(b) Descriptive statistics

Table 1 reports sample mean values of dependent and independent variables for all group members. Participation in group meetings is relatively high: 90% of group members have at least participated once in a group meeting. Group meetings were held 12 times during a year, and on average members participated in 7.6 of those meetings. Members sell 2.88 tons on average per year through the group. The standard deviation is relatively large at 6.60, which suggests that there are large differences in individual sales across members. Only 60% of members market their bananas through the group, while others sell their banana harvest to traders at the farm-gate or through alternative market outlets. On average, members selling through the group sell about 52% of their total banana sales through the group, while they sell the rest elsewhere.

Because it entails the uptake of new agricultural management practices, quality requirements and adoption of improved planting material, group participation can be treated similarly to technology adoption. To identify explanatory variables, we draw on the existing literature on program participation and technology adoption. The factors can be broadly categorized into farm, household and group characteristics, reflecting human, social and financial capital endowments that determine the willingness and ability of farmers to invest in and benefit from collective action. Variable values refer to a period of 12 months before May/June 2009. A few dependent variables require further explanation.

We used a subjective measure to assess exploitation by traders. Based on a four-point likert scale farmers were asked how severely they felt exploited by traders. One of the major advantages of group marketing is collective bargaining, so we expect members who feel exploited to exhibit higher participation, particularly in group marketing. We also included a variable measuring group size in terms of number of members: while small groups achieve higher internal cohesion, large groups realize higher economies of scale, which may influence the incentives to participate. The timing of payments is expected to negatively influence the decision to participate in group marketing. Members are mostly asset-poor, small-scale farmers, and thus likely to have a high preference for immediate cash when selling their harvest. However, with group marketing, delay in payments in possible, which might drive poorer farmers away from group marketing. Finally, group dummies were included to account for group fixed effects, such as the quality of leadership.

4 DETERMINANTS OF PARTICIPATION IN GROUP MEETINGS

We first estimate a multinomial logit model of participation in group meetings. Group members were classified into three categories according to the number of times they participated in group meetings. Infrequent participants either attend once, twice or never. Frequent participants participate more often, up to nine times per year, but are not able or have no intention to attend regularly. Finally, there are members who attend regularly, ten times or more often. Estimation results are presented in columns (1) and (2) of Table 2. The coefficients are can be viewed as parameters of a binary logit model between frequent or regular participation to infrequent participation. The base category are the infrequent participants.

Column (1) compares frequent to infrequent participants. We find that the size of the banana orchard, yield, TC adoption and participation in other social groups are positively influence the decision to participate frequently. The effect of orchard size is curvilinear, which implies that bigger banana producers are less likely to participate frequently: the log-odds of participating frequently increase up to 1 acre and decreases thereafter. Having an irrigation system on the farm decreases the likelihood of participation; most likely because with the availability of irrigation water they have fewer problems of production, and thus a lower need for group services. Similar results can be observed in column (2), which compares regular to infrequent participants, although the effects of irrigation and social participation are not significant. In addition, the distance to the group meeting center also plays a role at higher participation frequencies: those who live further away are less likely to be regular participants. A significant gender bias against female members can be observed, since female members are less likely to be regular participants. Despite the fact that banana is traditionally a women's crop, women have numerous responsibilities as farmers and family caretakers, and thus may be less likely to attend meetings regularly.

5 DETERMINANTS OF PARTICIPATION IN GROUP MARKETING

We now estimate models of the quantity and the share of bananas sold through the group to identify the determinants of group marketing decisions. The dependent variables (quantity and share) are zero with a positive probability but strictly continuous over positive values. Tobit and double-hurdle models are appropriate to estimate such corner-solution responses. For the analysis the sample is confined to groups that regularly have market days at designated collection centers. A likelihood ratio test indicates preference of the double-hurdle over the tobit specification. The hurdle model implies that the decision to sell through the group and the decision of how much to sell are two separate decisions, made in a sequential manner. A heckman-selection model is estimated to test for possible selection bias, but the coefficient of the Inverse Mills Ratio is not significant at the 10% level. Hence, we accept the hypothesis of independence of the errors terms of the participation equation and the quantity and share equations and continue with the independent hurdle model.

Column (3), (4) and (5) in Table 2 report the estimation results of the hurdle model estimation for the decision to sell through the group, how much to sell through the group, and which share of total sales to sell through the group, respectively. Regarding the

decision to sell through the group, size of the banana orchard has a positive and significant effect; again following a curvilinear pattern. Hence, members with relatively small plantations and members with relatively large plantations are less likely to opt for group marketing. The former may not be able to provide enough quantity and quality to sell through the group, while the latter may have alternative, more profitable market outlets and, due to their plantation size, do not incur high external transaction costs when marketing individually. These results suggests that medium-sized banana growers benefit most from collective action and are thus more likely to be marketing through the group.

Banana yield has a positive and significant effect on the probability to sell bananas through the group. More productive farmers can be expected to produce under higher input regimes, and thus produce larger quantities and larger bunches, which are preferred by traders. The production of other cash crops, such as coffee and tea, has a positive impact on the decision for group marketing. Farmers who are engaged in farming for the purpose of income-generation beyond subsistence production are more likely take advantage of the marketing opportunities provided by the group. Surprisingly, female members are equally likely to participate in group marketing as male members.

The degree of subjectively felt exploitation by intermediary traders has a positive and significant effect on group marketing: the less farmers feel subject to exploitation the more likely they are to opt for group marketing. Distance to the collection center has a negative but not significant effect on the decision for group marketing. This might be explained by the local availability of cheap public transport. As expected, the timing of group payments negatively influences the decision to market through the group.

After members decided to market bananas through the group, they decide on how much to sell. The determinants of this decision are shown in column (4). We find that banana yield and size of the banana orchard have positive effects on the decision of how much to sell. Higher levels of education also positively influence the quantity of sales. The production of other cash crops decreases group sales; a possible explanation being that farmers producing other cash crops do not prioritize on selling banana. Members participating in other social groups are expected to sell more through the group. They are likely to have a higher general trust in collective action, because of their positive past experiences and successes, and higher familiarity with group dynamics. Group size has a negative effect on the quantity of sales, which might be explained by greater difficulties in monitoring, which may increase incentives for side-selling, and less close social ties.

Column (5) shows estimation results of the second stage of the double-hurdle model for share of total sales made through the group, and thus also includes only those who decided to sell through the group. Age, the level of education and household size positively influence the share of total sales made through the group. Group size and delayed payment both seem to decrease the share. Hence, disadvantageous group characteristics exacerbate the problem of side-selling. These results imply that the extent side-selling depends primarily on personal characteristics that are likely to influence attitudes towards collective action, and group-specific factors, such as institutional arrangements that generate incentives for free-riding.

6 CONCLUSION AND OUTLOOK

Collective action in farmer groups is an important strategy for smallholders to remain competitive in rapidly changing environments. The major objective of this article was to expand the commonly used concept of farmer group participation, mostly measured as a binary choice variable, by distinguishing between different intensities of participation. Since individual commitment and contributions in terms of time and energy are crucial for the success and viability of collective action, we sought to identify what causes differences in participation intensities across group members. Survey data from central Kenya was used to analyze how human, social and asset capital endowments as well as group characteristics determine participation intensities in collective action among small-scale banana farmers. The frequency of participation in group meetings, the quantity of individual group sales, and the extent of side-selling were used as proxies to measure individual commitment to cooperative organization. The groups considered were recently formed with the support of NGOs, in order to improve farmers' access to new banana (TC) technology, related extension, and high-value output markets.

Multinomial logit and double-hurdle regression were applied to model participation in group meetings and collective marketing. The results showed that the extent of specialization on banana production, related productivity and technology adoption are positively associated with the intensity of participation in group activities. Distance to the collection center negatively affects the intensity of participation at higher levels. Also, members who participate in other social groups are more likely to exhibit higher involvement in group activities, which may reflect their general trust in collective action and stronger social ties. Group size reduces the frequency of participation, which suggests that close social ties are important for participation in collective action.

We further find that, while women are less likely to attend meetings at a regular frequency, they are equally likely to sell through the group and also sell as much as men. Delayed payment of group marketing has a negative effect on the decision to sell through the group. Payment can take up to three to five days in some cases. The majority of group members are asset-poor, small-scale farmers, and it is likely that they face liquidity constraints, which makes direct cash paid at the farm-gate the more attractive option. We also find that members with lower degrees of perceived exploitation by traders are also more likely to participate in group marketing. This result may reflect a general trust in traders that extends to group trading partners as well. Low commitment to group marketing, measured in the extent of side-selling, seems to be primarily influenced by personal characteristics, such as age and education, which shape attitudes as well as group characteristics and institutional arrangements. Farm size and productivity do not emerge to play a role for commitment.

The analysis presented in this article fills an important research gap on the determinants of varying commitment to collective action among smallholder farmers in developing countries. In the literature on cooperative organization in agricultural sectors of developed countries, success and survival of collective action of has found to be often threatened by opportunistic behavior of group members, such as extra-contractual marketing. Cooperative organizations in developing countries face additional threats if their members are constrained of higher levels of participation. In the case of banana farmer groups in Kenya, specialization on banana production, productivity and

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technology adoption emerged to be highly important determinants of commitment to group marketing and other activities. Hence, for the farmer it is not necessarily a decision to participate in group activities or not, but a decision or ability to expand and intensify banana production and make necessary banana-specific investments, which make involvement in product-specific farmer groups worthwhile.

However, although a trend for greater crop specialization among small-scale farmers in Kenya and other Sub-Saharan countries can be observed, they are still often highly diversified, as they generate farm income from a variety of agricultural activities, such as various cereal crops, vegetables, fruits, dairy and other crops (Kimenju & Tschirley 2008). They are also often engaged in number of non-agricultural activities outside the farm as well. Considering time constraints, particularly of women, farmers who generate a relatively small proportion of their total income from one particular crop may not find that the efforts of participating in a group that promotes this crop outweigh the benefits. These considerations derive an important policy recommendation. Under certain conditions it may be reasonable for small-scale farmer groups to not focus only on the promotion of a single crop, but instead diversify their portfolio of services to include a range of other agricultural products as well. Group formation is often initiated externally by government and NGO agents to promote the dissemination of particular crop-specific technologies. In the case of banana groups in Kenya this had led to forms of collective action that focus on one crop only. In very few cases banana group activities were expanded to mango and rabbit meat production through the initiative of the members.

Product diversification is a well known strategy in corporate marketing. Although being potentially motivated by different reasons, product diversification of cooperative organizations can similarly increase profitability, manage risk, and enhance access to new markets. It would further economize on transaction costs and increase benefits for small-scale, highly diversified farmers. However, for successful product diversification external support is needed to build up human skills and provide necessary technologies and extension.

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Variable	Description	Obs.	Mean	S.D.	Min	Max
Dependent variables						
Meetings	No. of group meetings participated in the last 12 months	201	7.60	7.14	0	52
D_meetings	Member participates in group meetings (1=yes, 0=no)	201	0.90	0.30	0	1
Sales	Sales in tons of banana made through the group past 12 months	172	2.88	6.60	0	51
D_sales	Member is selling through the group (1=yes, 0=no)	172	0.60	0.49	0	1
Share	Share of sold bananas sold through the group from total sales	172	0.52	0.43	0	1
Independent variables						
Land holdings	Total land owned by household in acres	201	3.22	2.99	0.13	20
Motorized	Household owns car, pick-up, or motorbike (yes=1, no=0)	201	0.19	0.40	0	1
Phone	Household owns mobile phone (yes=1, no=0)	201	0.92	0.28	0	1
Irrigation	Household uses irrigation (yes=1, no=0)	201	0.39	0.49	0	1
Banana area	Banana plot size in acres	201	0.44	0.46	0.03	3.71
Yield	Banana output in t/acre	201	11.30	9.52	0	42.42
TC	Household has TC banana	201	0.75	0.44	0	1
Cashcrop	Household produces cash crops (e.g., coffee, tea, cotton, etc.)	201	0.61	0.49	0	1
Female	Group member is female	201	0.45	0.50	0	1
Education	Education of member in years of schooling	201	9.06	4.45	0	18
Age	Age of member in years	201	53.84	14.24	21	88
Non-farm activity	Member pursues non-farm activity (yes=1, no=0)	201	0.21	0.41	0	1
Household size	No. of household members	201	4.70	2.09	1	15
Social participation	Household participates in other groups (yes=1, no=0)	201	0.85	0.36	0	1
Perceived exploitation	Group member feels exploited by intermediaries (severely=1 to not at all=4)	200	2.10	1.14	1	4
Distance	Distance to group meeting place or collection center	201	1.83	1.60	0.01	10
Group size	No. of members in the group	172	53.13	21.46	25	103
Payment	Member receives delayed payment (yes=1, no=0)	172	0.43	0.49	0	1

Source: own survey data

Table 2: Determinants of participation in group meetings, collective marketing and side-selling

	Participation in meetings (Multinomial regression model)						Collective marketing decisions (Double-Hurdle regression)					
	(1) Frequent vs. infrequent participants			(2) Regular vs. infrequent participants			(3) Decision to sell through the group			(4) Decision how much to sell through the group[b]			(5) Decision what share to sell through the group[b]
	Coefficient		S.E.[a]	Coefficient		S.E.[a]	Coefficient		S.E.[a]	Coefficient		S.E.[a]	Coefficient		S.E.[a]
Land holdings	-0.015		(0.148)	-0.045		(0.134)	0.007		(0.059)	0.031		(0.370)	-0.003		(0.011)
Motorized	-0.560		(0.722)	-0.242		(0.655)	0.688	*	(0.393)	-0.035		(1.213)	-0.072		(0.058)
Irrigation	-1.378	**	(0.706)	-0.572		(0.642)	0.768		(0.624)	2.426		(3.397)	0.057		(0.066)
Banana area	4.894	***	(1.588)	3.490	**	(1.499)	1.367	**	(0.657)	[c]20.118	***	(2.836)	0.077		(0.102)
Banana area2	-2.376	***	(0.721)	-1.587	**	(0.649)	-0.406	**	(0.183)	excluded			-0.012		(0.030)
Yield	0.081	***	(0.040)	0.068	*	(0.036)	0.033	*	(0.018)	[c]20.113	***	(4.371)	-0.004		(0.003)
TC	1.916	***	(0.678)	2.292	***	(0.843)	0.410		(0.486)	-1.556		(3.618)	0.018		(0.058)
Cashcrop	-0.381		(0.606)	0.810		(0.641)	0.715	**	(0.310)	-5.270	**	(2.376)	-0.031		(0.066)
Female	-1.087		(0.819)	-1.138	*	(0.605)	0.304		(0.266)	0.114		(1.732)	-0.076		(0.082)
Education	-0.067		(0.088)	-0.022		(0.067)	-0.077	*	(0.042)	0.242		(0.175)	0.013	*	(0.007)
Age	0.000		(0.023)	-0.012		(0.024)	0.007		(0.012)	-0.012		(0.080)	0.003	*	(0.002)
Non-farm activity	1.045		(0.799)	0.316		(0.815)	0.435		(0.418)	0.105		(4.178)	-0.034		(0.099)
Household size	0.023		(0.131)	-0.075		(0.146)	-0.041		(0.096)	-0.149		(0.539)	0.034	***	(0.010)
Social participation	2.408	**	(0.974)	1.153		(0.788)	0.191		(0.448)	12.140	***	(4.539)	0.095		(0.113)
Exploit	0.019		(0.300)	0.216		(0.226)	0.373	***	(0.099)	-1.987		(1.499)	0.041		(0.025)
Distance	-0.119		(0.556)	-1.130	***	(0.405)	-0.248		(0.209)	0.985		(2.827)	-0.001		(0.057)
Distance2	-0.024		(0.082)	0.119	***	(0.041)	0.012		(0.029)	-0.107		(0.446)	0.000		(0.010)
Group size	-2.195	***	(0.197)	-2.221	***	(0.200)	-0.064	***	(0.020)	-0.294	**	(0.125)	-0.004	***	(0.001)
Payment							-3.467	***	(0.554)	0.225		(5.648)	-0.187	***	(0.045)
Constant	93.536	***	(8.962)	96.368	***	(9.206)	2.170		(1,659)	-26.9484	**	(14.252)	0.796	***	(0.263)
Group dummies	included			included			included			included			included
Sigma										4.739	***	(0.479)	0.239	***	(0.015)
Observations	200						171			120			120
LR chi2(34)	117.5						68.54			135.8			62.3
Prob>chi2	0.000						0.000			0.000			0.001
(Pseudo) R2	0.271						0.344						

Note: *, **, and *** denote significance at the 10%, 5%, and 1% level respectively; Source: own survey data

[a] Cluster robust standard errors, [b] Conditional on positive banana sales through the group

[c] Coefficient of log(depvar)