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Research Application Summary

Determinants of participation in farmer organisations among smallholder farmers in Malawi

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Abstract

This study investigated the prevalence and the determinants of participation in farmer organisations among smallholder farmers in Balaka District, Malawi. The study explored these issues using a sample of cotton farmers in Malawi, to specifically establish which were the critical factors that determine smallholder farmer participation in these institutional arrangements. Data were gathered from 170 smallholder farmers (those participating and those not participating in farmer organisations.). The results of the comparison of means show that non-members had slightly larger household sizes and total land area. However, members were slightly older than non-members, more educated, and had a higher proportion of female –headed households than non-members. Members also had more assets like bicycles and were more likely to use permanent labour and casual labour than non-members. Members were also more diversified than non-members (grew more crops and engaged in small businesses). The probit analysis indicated that age and household size significantly affected the decision to participate in farmer organisations among smallholder farmers. Land holding size and diversification activities were found to negatively affect the probability of participation in farmer organisations while having a friend who was a member of a farmer organisation positively affected the probability of participation. The distance to markets also positively affected the probability of smallholder participation in farmer organisation.

Key words: Collective action, farmer organisations, Malawi, smallholder farmers

Résumé

Cette étude a examiné la prévalence et les déterminants de la participation à des organisations paysanes parmi les petits agriculteurs dans le district de Balaka, Malawi. L'étude a abordé ces questions en utilisant un échantillon de producteurs de coton au Malawi, afin d'établir les facteurs essentiels qui déterminent la participation des petits exploitants agricoles à ces arrangements institutionnels. Les données ont été recueillies auprès de 170 petits exploitants agricoles (ceux qui participent et ceux qui ne participent pas à des organisations paysannes). Les résultats de la comparaison des moyennes ont montré que les non-participants avaient légèrement les plus grandes tailles des ménages et de superficie totale. Ceux qui participent

à des organisations étaient légèrement plus âgés que les non-participants, plus instruits, et comptait une plus forte proportion de ménages dirigés par les femmes comparée au groupe des non-participants. Les petits exploitants agricoles qui appartiennent à une organisation ont également plus actifs tels que les bicyclettes et utilisaient la main-d'œuvre permanente et les ouvriers occasionnels que les non-participants. Les petits exploitants agricoles qui appartiennent à une organisation étaient également plus diversifiés que les non-membres (ont plus de spéculations et ont de petits business). L'analyse probit a indiqué que l'âge et la taille des ménages affectent de manière significative la décision des petits exploitants agricoles d'appartenir à des organisations paysannes. La superficie en terres possédée et la diversification des activités affectent négativement la probabilité de participation à des organisations paysannes, pendant que le fait d'avoir un ami qui est membre d'une organisation paysanne a affecté positivement la probabilité de participation. La distance aux marchés a aussi un effet positif sur la probabilité de participation des petits exploitants à une organisation paysanne.

Mots clés: Action collective, organisations paysannes, Malawi, petits exploitants agricoles

Background

Farmer organisations are becoming increasingly important because smallholder farmers are no longer assured of ready markets for their products in many developing countries. They now face volatile prices following the abolition or scaling back of public agricultural marketing systems which offered relatively stable, guaranteed pan-territorial and pan-seasonal prices. They also have difficulty accessing credit and inputs because state-run targeted credit and subsidised inputs programmes have either been abandoned or substantially scaled back in many developing countries including Malawi.

Farmer organisations are therefore being seen as a means of improving the functioning of agricultural markets as they facilitate collective action and vertical coordination in the production and marketing of agricultural output. This should help to reduce transaction costs, uncertainty and improve the functioning of the input and output markets. Hence, the expectation is that households that participate in farmer organisations would be more profitable and productive than those households restrained in subsistence agriculture.

Literature review summary

Due to the increased interest in collective-action mechanisms that overcome smallholders' marketing constraints, there has also been a growth in literature documenting the conditions under which collective action may be more or less effective in serving their members (Attwood and Baviskar, 1987; Collion and Rondot, 1998; World Bank, 2003; Sharma and Gulati, 2003; Reardon and Hopkins, 2005, Chirwa et. *al.,* 2005; Bernard *et al*., 2006).

The justification for farmer organisations is their potential critical role in both delivery and coordination of services to smallholder producers (Dorward, 2004). These institutions facilitate collective action and vertical coordination in the production and marketing of agricultural

outputs and inputs. This coordination can help to reduce transaction costs related to the marketing of agricultural inputs and small marketable surplus emanating from a large number of widely dispersed producers. Collective marketing allows smallholder farmers to spread the cost of marketing, and enhance their ability to negotiate for better prices (Shiferaw, 2006). Through coordination of production and marketing activities farmer organisations could facilitate the access to better markets, reduce marketing costs and reduce the seasonal variability of prices.

Well organised farmer organisations can by-pass brokers or assemblers, rural wholesalers and transporters who procure directly from farmers and connect directly with the urban high value retailers and processors or exporters. In many rural areas, commercial inputs are either unaffordable or smallholder farmers face high transaction costs, which further undermines their ability to use such inputs. The high costs for small quantities resulting from high transaction costs and transport costs are likely to make investments in commercial inputs uneconomical to many smallholder farmers. Farmer organisation can facilitate the input and output market access and service delivery, thus promoting commercial activities and technological change in agriculture (Kindness and Gordon, 2001).

Study description

Data were collected through a standardised formal questionnaire and key informant interviews with the key players in the cotton sub-sector which included the companies buying cotton in Malawi (Great Lakes Cotton Company, Cargil Cotton, Iponga and Toleza Cotton Company) and other stakeholders e.g. NASFAM and Government. The questionnaire was initially pre-tested in Salima on 10 farmers before being administered to the farmers in the two targeted districts. Subsequently, the questionnaire was administered to randomly selected farming households in cotton growing areas of Balaka and Ntcheu districts of Malawi which included both members and non-members of farmer organisations. Data were entered, cleaned and analysed using Stata/SE 9 for Windows.

Research summary

A comparison of mean values for members and non-members. Table 1 provides the mean values of households who were classified as members and non-members of the farmer organisation. Quantitative variables were expressed as averages, whereas income diversification was reported as a percentage. Results indicate that members and non-members were not statistically different in terms of demographic characteristics such as age of the house-hold head, percentage of female-headed households and education while the variable house hold size which approximates the labour available to the household was statistically different between members and non-members. The average household size for the study area was five persons per household. The household size was slightly higher than the national average of 4.61 persons per household (NSO, 2004). The average age was generally high, around 44, but not statistically significant between members and non-members. Female headed households (percentages) were fewer which was consistent with the findings by Chirwa (2006) who reported that 19 percent of the households were female headed in the

Table 1. Comparison of Some Mean Variables between Members and non- members

Selected variable	Type of farmers (mean values)	
	Members	Non-members
Demographic variables		
Female headed households (%)	18.29	11.49
	-0.042	-0.034
Age of the household head	44.386	41.598
	-11.66	-15.58
Household size	5.264*	6.217*
	-2.1	-2.27
Farm assets		
Total area (acres)	4.012	4.597
	-1.98	-3.9
Value of manual tools (MWK)	2, 759.40	2, 908.20
	-4,224.28	-8,528.64
Use of inputs		
Use of labour (% using)	42.1	23
	-0.054	-0.045
Use of fertilizer (% using)	31.3	17.2
	-0.05	-0.04
Income diversification (%)		
Livestock Ownership	80.72	85.1
	-0.043	-0.038
Grows other cash crops	48.2.*	26.5*
	-0.053	-0.049
Small business	19.2	29.8
Household Income (MK)	-0.043	-0.049
Net household income	41,874.40**	30,935.28**
Net crop incomes	-32,745.70	-43,328.51
	35,608.72***	25,875.52***
Net crop (cotton) profit	-31,858.44	-36,112.25
	26,665.12**	18,361.71**
Casual labour income	-27,351.04	-33,995.79
	857.23	302.3
Business income	-3,046.85	-1,481.04
	3,748.19	4,080.46
Livestock income	-11,784.06	-11,732.70
	1,966.27***	505.75***
	-819.04	-282.06
Social capital (%)	90.3***	39
Past group experience= (1)	-0.032	-0.052
	94.8***	41.3
Friends in a FO =(1)	-0.026	-0.0531
Number of observations	82	87

Notes: The star indicate(s) that the difference between the sample means for the two groups is statistically different, where *, ** and *** indicates 99, 95 and 90% confidence level. Standard errors are in parenthesis

same district of Balaka. However this was lower than the national average of female-headed households as reported in the Integrated Household Survey (HIS, 2004). The IHS reported that 27 percent of the households were female-headed. The proportion of respondents who had attained primary school education was between 30 and 31 percent among members and non-members respectively. Farm size in this study was slightly higher than the national average land holding size. Non-members had slightly larger land holding sizes about 4.5 acres (2 ha) compared to members who had an average land holding sizes of 4 but the means were not statistically significantly different between members and non-members.

Other farm assets proxied by the value of manual tools owned by the household were not statistically different between members and non-members. The use of hired labour was, however, statistically significant different between members and non-members (42 percent among members compared to 23 percent among non-members). The results of the study also indicated that in terms of income diversification activities such as livestock ownership and operating a small business, there were no statistically significant differences between members and non-members. But there were statistically significant differences between members and non-members in terms of cash crop diversification. Members were more diversified, with (48) reporting growing other cash crops compared to members who reported 26.5 percent. An econometric analysis will shed more light on the significance of these indicative relationships.

The social capital variables (past group experience and having friends in a farmer organisation) were also statistically different between members and non-members. Similarly, the distance to markets was statistically different between members and non-members.

Econometric estimation: Probit estimation. Table 2 present the results of the probit determinants of smallholder farmer participation. The equation identifies the critical variables that influence the household decision to participate in farmer organisations. The result show that household size significantly affected the decision to participate in farmer organisations. We hypothesized that, the higher the number of household members, the more likely the household participated in farmer organisations.

The results of the model also show that the household decision to participate in farmer organisations was also influenced by household resources and opportunity costs. Note that the latter was proxied by growing of other crops which may constitute a fixed cost in terms of the time available to participate in farmer organisation. These variables were hypothesised to negatively affect participation. Consistent with expectation, the availability of alternative sources of income reduced the likelihood of participation. Other cash crops income and business income was negatively correlated with the likelihood of participation although the business income and livestock income was not statistically significant.

Other variables listed in Table 2 that are hypothesised to affect household specific fixed transaction costs to market entry included age of the household head, education of the household head, the gender of the household head, land ownership and ownership of farm

Table 2. Determinants of smallholder farmer participation: Marginal effects

Variable	Coef.	t
Gender of the household	-0.168	(-0.41)
Age of the respondent	0.0944	(1.42)
Age_sq	-0.000876	(-1.25)
Household size	0.121	(1.81)
Primary_ education	-0.0945	(-0.28)
Secondary_ education	0.575	(1.14)
Total land size household	-0.0626	(-1.10)
Ownership of hand sprayer	0.978*	(2.15)
Ownership of a bicycle	0.408	(1.45)
Whether owns livestock	-0.346	(-1.02)
Whether grows another cash crop	-0.603*	(-2.23)
Whether operates a small business	-0.503	(-1.62)
Agricultural training	0.559	(1.76)
Experience in collective action	0.0170	(0.21)
Distance to market	0.206*	(1.96)
Has friends in a the farmer organisation	1.646***	(4.39)
Constant	-3.731*	(-2.05)
Observations	170	

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Dependent variable is = 1 if participates, 0 otherwise

agricultural tool. A higher level of education of the household head is hypothesised to lead to increased capacity to process production technology related and market related information and better negotiating skills in market transactions Therefore , the higher the level of education of the household head, the more likely the household will participate in farmer organisations. The coefficient in our equation is positive but not significant. In addition, gender of the head of the household is hypothesised to be inversely related to the probability of participation i.e. male-headed households have higher probability of participating in farmer organisation than female-headed households. In our model this variable was not statistically significant. ‘

The ownership of land was negatively related to the probability of participation in farmer organisations probably due to the low profitability of cotton. These results are similar to those reported by Bernard *et al.* (2009) in Ethiopia who found that those smallholder farmers with larger land sizes were less likely to participate in cooperatives.

The social capital variables (group experience) and whether the household head had friends who belonged to a group was hypothesised to positively affect the likelihood of participation. We expect that households with group experience (past experience in collective action) to have a higher probability of participating in farmer organisations than those without group experience. But in our case this variable was not statistically significant. Similarly we expected households with friends who belonged to farmer organisation to have had a higher probability of participation than those households who did not have friends in a farmer organisation. Consistent with this expectation, the variable was positive and highly significant.

Finally among the factors that were hypothesised to influence the household decision to participate in farmer organisations related to household specific variable transaction costs was the distance to market which was expected to have a direct impact on the cost of transporting produce. The distance to market captures the transaction costs that may be scale related. It is thus hypothesised that the longer the distance to the market (the higher the costs of transport), the higher the probability of participating in farmer organisations of cotton in order to reduce the costs of transport through bulking. During field work, it was observed that Farmer organisation had provided its members with transport for their products. The variable distance to market was infact highly significant and positive as expected.

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