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Factors that influence participation in markets through collective action among smallholder maize farmers in Masindi district, Uganda

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In Uganda, smallholder maize farmers produce nearly 100% of the maize grain. However, these farmers sell their produce at low prices thus discouraging market participation. In addition, farmers are faced with several internal and external challenges like lack of market information and high observable and non-observable transaction costs. Several entities constructed a 3000 metric tons storage facility to help farmers bulk their produce and sell at better prices. The facility uses group formation to ensure increased market participation by smallholder maize farmers. However, since 1999, the facility has been underutilized. This study employed a cross sectional survey of 253 smallholder maize famers in Masindi district. The farmers were in two strata of participants in collective marketing through MSGGL and non-participants. Benefits of group membership include access to training, marketing, credit, storage, input supply and value addition. Group disagreements were the major threat to group activities mainly due to lack of trust, delayed payment, diversion from inputs and unequal distribution of inputs. Factors like income of farmer, number of extension visits received by farmer on maize production, distance to the nearest marketing centre and price per kilogramme offered in the last season significantly influenced the farmers' decision to participate in collective marketing. It is recommended that the extension system in Uganda be emphasized to train farmers on better methods of maize production and marketing to achieve quantity and quality requirements for better market participation. There is also need to establish more groups and collection centres in places more accessible to farmers.

Key words: Market participation, smallholder maize farmers, collective action.

INTRODUCTION

Liberalization of agricultural markets has led to the rise of a number of alternative market channels for smallholder farmers to sell their agricultural produce including maize. These market channels include private traders, relatives or neighbors, local markets, associations, co-operatives and private companies each offering its own price and sales service (Chirwa, 2009). Markets offer farmers the opportunity to specialize in agricultural production

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according to their comparative advantage and enable farmers to experience welfare gains from trade (Lowe, 2013).

It is argued that collective action in agricultural markets helps smallholders to reduce transaction costs for their market exchanges, obtain necessary market information, secure access to new technologies and tap into high value markets which would offer them a competitive advantage over large farmers and agribusinesses (Markelova and Meinzen, 2006). Collective marketing also assists smallholder farmers to meet quality requirements in modern markets, effectively use post-harvest technologies and by-pass middlemen and thus, enhance market access for smallholder farmers. However, collective action has a problem of inherent contradictions that exist between members in the group and between the groups themselves ranging from trust problems and opportunistic tendencies within the groups which pose sustainability challenges (Ton, 2008).

Smallholder farmers have difficulty meeting required quantity and quality standards limiting them from accessing markets used by large buyers and processors due to minimal organizational capacity, unfamiliarity with bidding processes, improper post-harvest handling methods and poor access to financial capital (Mwendya, 2012). In Uganda, smallholder maize farmers produce nearly 100% of the maize grain (UBOS, 2010); however, such smallholder farmers sell their produce to large and small scale traders at unfairly low prices (Archambault, 2004; Olapade et al., 2014). Much as there is an opportunity for smallholder farmers to fully participate in the marketplace exchanges, several internal and external challenges are encountered (Markelova and Meinzen, 2006). Smallholder maize farmers in Uganda have been found to mainly exercise collective action in three basic areas; production (39%), buying inputs (29%) and marketing (13%) (Naven, 2012).

Masindi Seed and Grain Growers Association Limited (MSGGL) with help from Uganda Development Trust (UDET), African Development Bank (ADB) and Masindi district local government constructed a 3000 MT storage facility to help farmers bulk their produce and sell at better prices (Mwendya, 2012). However, since 1999, the facility has been underutilized with the maximum produce ever received from the farmers just filling slightly more than a half of the facility thus leaving out farmers on the benefits of bulking and collective marketing. This disaggregated marketing has not enabled farmers to benefit from effective small holder farmer organizations as powerful economic engines for tapping into local and global market opportunities (Ochieng et al., 2018). A handful of existing farmers organizations have successfully served as vehicles for linking farmers to markets and for rural transformation (Kizito and Kato, 2018). There are also some interventions that have succeeded in sustainably integrating organized farmers into modern, local and global supply chains and markets (Cordaid, 2015). Therefore, this study examines limitations and drivers of success of collective action initiatives as a pathway to improving farmers marketing performance using MSGGL as a case study.

Collective action in literature

Agricultural commercialization involves the transition from subsistence farming to more market oriented production which is measured as a ratio of percentage value of marketed output to total farm production (Omiti et al., 2009). However, transaction costs which are observable and non-observable costs associated with exchange of goods and services often makes market exchange procedures costly since the friction involved results into costs for effective transfer and enforcement of property rights (Jagwe et al., 2010). Institutions for collective marketing such as farmer organizations and co-operatives are transaction cost minimizing arrangements which may change and evolve with changes in the nature and sources of the transaction costs (Markelova et al., 2009; Williamson, 1985). These institutions are important for improved market access since they reduce most of the market failures that face smallholder farmers.

These institutions for improved market access form an important block in ensuring rural development and poverty reduction among smallholder farmers as it gives these farmers an opportunity to participate in the market with higher bargaining powers (Nyikahadzoi et al., 2013). Collective action is thus a practical solution to smallholder farmers in Asia and Africa to compete in high value markets especially from Europe and America. However, several attempts have failed to help farmers in some other cases with some institutions closing down after disappointing their farming members (Markelova et al., 2009). These mixed results from collective action have been blamed for the poor participation of some smallholder farmers in such institutions despite the enormous benefits that can be derived from collective marketing. Collective marketing through groups and co-operatives has in some instances also been reported to be too costly in all marketing activities (Fischer and Qaim, 2014).

MATERIALS AND METHODS

The study adopted a cross sectional survey design. The survey involved household interviews of 253 smallholder maize farmers in the district of Masindi from mid-western Uganda. The respondent selected was a household head in the family that produced and marketed maize either collectively or individually. Stratified sampling procedure was used to obtain the sample. The sampling frame was obtained from Masindi Seed and Grain Growers Limited which comprised of farmers that were marketing collectively and those marketing individually. From the sampling frame, a sample was then obtained using pairwise matching technique of sample selection. The respondents were paired by virtue of collective and individual marketing. For every farmer selected for interview from

the list of farmers participating in collective marketing with MSGGL, another farmer who markets individually would be obtained and interviewed using pairwise matching. Data was then analysed using descriptive statistics generated by SPSS computer software and this involved calculating means, standard deviations, percentages or frequencies. Non-parametric tests such as F-statistics, t-statistics and $\chi 2$ were done to establish existing statistical differences in characteristics of smallholder farmers that sold their maize produce individually and those that sold the maize collectively. The binary probit model was used to determine factors that influence participation in collective action. Estimates of the parameters in the model were by maximum likelihood estimation. This was because it guarantees consistent parameter estimates and correct large sample statistics. Chi-square distributions and log likelihood function were used to test overall model adequacy at specific significance levels.

Model and econometric issues

A binary probit was used to determine the factors that influence the decision of smallholder maize farmers to participate in collective marketing. This resulted into two groups; the first group composed of farmers who sold their maize collectively and the second group composed of farmers who sold their maize individually.
Taking Y_1 to represent the group of farmers who market collectively and Y_2 to represent the group that market individually, then the participation equation can be written as follows:

$$Y_1^* = \beta_{xi} + \varepsilon_i \quad (1)$$

Where Y_1^* is a latent variable which is the utility the farmer gets from marketing collectively.
Specifically, the probit model in stage one of estimation is stated as follows:

$$Pr\,(Y_1) = f(X_1, X_2, .., X_{10}, \varepsilon) \quad (2)$$

Where, Pr(y) is the probability of a farmer making a decision to market collectively, X_1 - X_{10} are variables that determine the participation in collective marketing and ε is the normally distributed error term.

RESULTS AND DISCUSSION

Farmer group formation and participation in collective marketing

93% of the farmers who participate in collective marketing belong to a farmer group that is affiliated to MSGGL. Most of these groups were formed by Masindi District Farmers Association (MADFA) and National Agricultural Advisory Services (NAADS) especially as special interest groups most of which are at the parish level. These groups included; Ntoma farmers group, Pakanyi united farmers group, Abesigangeine farmers group, Dembe farmers group, Fica seeds farmers group, Kahembe farmers group, Kimina farmers group, Kiruli farmers group, Kisarizi farmers group, Kisindizi farmers' co-operative, Nyakakoma farmers group, Tukore farmers group, Umoja farmers group and Watikarasheri farmers group. According to Ton (2008), smallholder farmers need to look for ways of fostering co-operation and collective action if they are to compete in any liberalized economy. Such farmer organizations help market smallholder farmers' produce, lobby for effective market institutions and advocate for proper government policies. However, farmers need to be mobilized to form such organizations which according to Alemu and Meijerink (2010), can be done by government and other several development partners. From this study, it was revealed that several organizations have helped in the formation of the above farmer organizations that are affiliated to MSGGL.

From the results in Table 1, 90% of the farmers had their groups formed with the help of MDFA, followed by 7% who had their group formed with the help of Non-governmental organizations such as ActionAid, Joseph Initiatives and Build Africa and the remaining 3% started their group with the help of NAADS, FICA and community initiatives. The findings were consistent with Nyikahadzoi et al. (2013) who revealed that group formation facilitation and farmer advisory is essential in the process encouraging farmers to overcome the limitations that smallholder farmers face in market access. In Masindi, the district farmers association was responsible for the formation of the farmer groups through a memorandum with MSGGL using democratic principles. However, Agaba and Ariko (2011) reported weak linkages and partnerships between farmer organizations and other service provider organizations involved in other services like group formation, provision of extension services and credit.

Group activities

Farmers who belonged to the group reported different activities carried out at the group level to help in market access of maize as shown in Table 2.

From the study, the activities of these groups were found out to include; marketing, bulking, training, storage, savings and credit, value addition and provision of inputs such as fertilizers on credit. These according to Ton (2008), are important attributes of a farmer group if the group is to ensure survival of the members in the liberal economy. The author further explains that savings and credit is an important ingredient since it helps the organization get immediate source of money for members who may require money to meet their immediate expenses especially medical and school fees.

Group disagreements

From the results, 29% of the farmers were reported to have ever had disagreement in their group as compared to 71% who had never had any form of disagreement. The disagreement had varying causes of which 66% reported were due to lack of trust, 8% reported were due to opportunistic tendencies of some members, 5% reported were due to delayed payment, 5% reported

Table 1. Organizations involved in group formation.

Organization	Percentage response (n=133)
Masindi District Farmers Association	90
National Agricultural Advisory Services	1
FICA seeds	1
Non-governmental organizations	7
Community initiative	1

Source: Field data (2014).

Table 2. MASSGL activities that benefit farmers.

Activity	Percentage farmers' response (n= 133)
Training	96
Marketing	96
Bulking	92
Credit facility	87
Storage facilities	7
Input supply	3
Value addition	1

Source: Field data (2014).

Table 3. Causes of group disagreements.

Cause of disagreement	Percentage response (n=133)
Lack of trust	66
Opportunistic tendencies	8
Delayed payment	5
Low prices	5
Unconfirmed claims	5
Failure to pay credit	5
Unequal distribution of inputs	3
Diversion from objectives	3

Source: Field data (2014).

were due to low prices paid for the maize after a long waiting period, 5% reported were due to unconfirmed claims, 5% reported were due to failure of some members to pay credit advanced to them, 3% reported were due to unequal distribution of seeds and fertilizers and lastly another 3% reported were due to diversion of the group leadership from the original objectives. This showed that the major cause of disagreements in farmers groups is lack of trust which in most cases comes from the leaders of the group who are usually empowered with the authority to implement most of the decisions of the whole group (Table 3).

The above findings are consistent with Naven (2012) and Ton (2008), who found out that the major causes of disagreement among farmer groups that posse a great challenge to the sustainability of collective action include; lack of trust, opportunistic tendencies and delayed payment.

Disagreement solving approaches

Different approaches were used to solve group member disagreements. Of the farmers who reported disagreement in their groups, 82% used transparency approach by calling all group members and sorting out all the issues in their presence, 12% reported to have solved the disagreement by addressing the issue to the administration, 3% reported to have used the annual general meeting and the other 3% reported to have used the group executive to solve the disagreement. The findings were in agreement with Mwendya (2012) who

Table 4. Disagreement solving approaches used by farmer groups.

Disagreement solving approach	Percentage response (n=133)
Open discussion involvement	82
Administration	12
Group executive members	3
Annual general meeting	3

Source: Field data (2014).

Table 5. Challenges faced by farmers that participate in collective marketing.

Challenge faced	Percentage response (n=133)
Delayed payment	73
Lack of trust	10
Transaction costs	5
Group requirements	4.5
Low prices	4.5
Lack of groups	1
Lack of information	1
Lack of privacy	1

Source: Field data (2014).

found out that transparent leadership is essential for successful collective marketing especially on instances where better paying markets are not secured by the leadership of the group, and also when payment delays, farmers should be told of the causes of delayed payment and call on them to be more patient (Table 4).

Ton (2008) also shows the importance of formal and informal rules in the management of farmer groups in order to ensure proper performance of the group. Ton (2008) further emphasizes that such rules should be implemented without using courts and judges to avoid disagreements. Ton et al. (2010) also emphasized the need for regular group meetings to fine tune internal management and transaction modalities with members and non-members of the group so as to build trust and sustainability of the group.

Challenges of collective marketing

Despite the values that farmers get through collective marketing, farmers who were participating in collective marketing advanced some of the challenges they were faced with among the groups through which they come to market collectively and these challenges are summarized in Table 5.

The findings are consistent with Mwendya (2012) who contended that the procedures at the storage facility take some time as they go through the bidding process. This delays the money and also the produce has to be sorted and graded with part of the produce that does not meet the standards getting rejected. Also Nyikahadzoi et al. (2013) found out that trust which the group heavily depends on takes long to develop and needs facilitators to foster it. Robbins et al. (2004) also noted the success of collective marketing hinges on the willingness of farmers to adopt decision making and management systems that are based on trust and common goals and challenges. There is also need for the members of the group to carry out most of the postharvest activities at the farm so as to reduce on the activities carried out at the collection center.

Factors that influence the decision to participate in collective marketing

Results of the probit model shown in Table 6 indicated that 74.7% of the variation in the dependent variable which is the decision to market collectively was explained by the model. Results of the model also indicated that annual income of the farmer, number of extension visits received by the farmer in relation to maize production, distance to the nearest maize marketing or collection centre and price per kilogramme of the maize offered in the last season significantly influenced the farmers' decision to participate in collective marketing at 1% level of significance.

Results showed that an increase by one in number of extension visits to farmers increased the probability to

Table 6. Probit model estimates of determinants to participate in collective marketing.

Variable	Coefficient	Marginal effect
Gender (male/female)	0.325 (0.469)	0.063
Age (years)	0.029 (0.020)	0.006
Education of respondent (years)	-0.013 (0.073)	-0.002
Household size (number of people)	0.002 (0.071)	0.0004
Land size (acres)	0.047 (0.039)	0.009
Experience in maize production (years)	-0.002 (0.024)	-0.0003
Annual income (Uganda shillings)	-1.08^{7} (4.08^{8}) ***	-2.09^{8}
Number of extension visits (number of visits)	0.419 (0.188)**	0.081
Distance to the nearest marketing center (Kms)	0.122 (0.022)***	0.024
Price per kilogram of maize (Uganda shillings)	0.009 (0.002)***	0.002
Constant	-9.598 (1.921)***	
	Number of observations	190
	LR $chi^2(10)$	178.17
Probistic regression	Prob> chi^2	0.0000
	Log likelihood	-30.16911
	Pseudo R^2	0.7470

*, **, *** Represents significance at 10, 5 and 1% levels respectively, in parentheses are standard errors.
Source: Field data (2014).

market collectively by 8.1%. An increase by one unit in the price per kilogram of maize offered at the collective centre increased the probability to market collectively by 0.2%. Therefore, farmers who had more extension visits and those who were informed that the price offered at the collective centre was better and high were more likely to take part in collective marketing. This was because having more extension visits is expected to increase the knowledge of the farmers about the benefits of collective marketing thus attracting farmers to use collective marketing strategy to market some of their maize produced. Most importantly, these extension visits are the sources of information and learning on the benefits of collective markets, thus the positive influence. This was consistent with Nyikahadzoi et al. (2013) who found out that farmer participation in knowledge exchanges with extension agents and facilitators helps farmers to learn more about various topics in the promotion of maize value chain in Burkina Faso and Zimbabwe respectively.

On the other hand, price per kilogram of maize received in the last season positively influenced participation in collective marketing because unit prices have a direct effect on the income of farmers. When prices are high, farmers are motivated to produce more and get more income for use in production and meeting of other family needs and livelihoods. Thus farmers will always look for better prices to improve their standards of living which makes price crucial in the process of decision making especially in the area of marketing. This is consistent with literature that farmers are always attracted to marketing channels offering better prices (Muganga Kizito and Kato, 2018). This study in Uganda found out that more farmers were attracted to collective marketing since it offered better prices than other marketing channels.

Results further showed that a unit increase in the distance to the nearest marketing centre increased the probability to market collectively by 2.4%. This was because on average, all farmers who participated in collective marketing get transport to the collective centre at subsidized prices which make more sense for farmers who are travelling long distances. This is because farmers from long distances take advantage of the transport provided by the organisation which is usually subsidized; and is in agreement with Mwendya (2012) that after harvesting, groups of smallholder maize farmers bulk each farmer's maize and together choose the cheaper means of transport to the store from either private means or using the association to collect the maize. Fischer and Qaim (2014) also found out that farmers who stay near places with improved infrastructure such as roads tend to market their agricultural produce individually at better prices, thus not motivated to market collectively. This was because improved infrastructure facilitates more buyers to reach the farmer with better prices.

Contrary to the *a priori* expectations, it was found that a one shilling increase in income reduced the probability of farmers to participate in collective marketing by 20.9%. This is because as incomes increase, farmers tend to shift from subsistence farming to commercial farming which involves opening up more land and producing large quantities of maize which can be marketed individually at good prices without going through the hurdles of bulking with smallholder farmers. This is in agreement with the findings of Ton et al. (2010), that bulking is a very

strategic practice that helps smallholder farmers producing sunflower to collect their produce together and bargain for better prices from bulk buyers like Mukwano in Uganda.

CONCLUSION AND RECOMMENDATIONS

Reasons like lack of trust, stringent requirements, delayed payments, lack of groups, lack of information, high costs, lack of interest, almost same price and time consuming were found to be responsible for continued reluctance of farmers to participate in collective marketing. On the other hand, better prices, reliable markets, availability of training and extension, availability of credit and availability of input loans were motivation to farmer's participation in collective marketing. Collective marketing agencies should aim at building central collection and storage points in each participating sub-county or any other strategic point as nearer as possible to the farmers.

Prices offered at the collection center significantly influenced the proportion of the maize marketed collectively and the decision to market collectively. It is recommended that agencies that are involved in collective marketing should offer premium prices for good quality maize which in turn would encourage other farmers to get involved in bulking and collective marketing.

From the study results number of extension visits was found to be significant, therefore it is recommended that the government should continue the policy of putting more efforts on agricultural extension and training at all levels of Sub County, district and Ministry of Agriculture Animal Industry and Fisheries to ensure availability of market information to farmers. The extension system in both public and private arena should be strengthened and a section be established to ensure that active farmer groups are dealt with instead of only dealing with model farmers as the current status of operation wealth creation and NAADS is. This would equip farmers with post-harvest handling techniques that are vital for participation in collective marketing.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Agaba A, Ariko JO (2011). Increasing Market Opportunities for Smallholder farmers through Partnerships with Buyers. Available at: http://www.snv.org/sector/agriculture

Alemu D, Meijerink G (2010). The Ethiopian Commodity Exchange (ECX): An overview. Available at: https://www.wur.nl/upload_mm/1/2/5/7d3089b2-a92a-4b3b-a2b7-c1f7074365c0_Report4Alemu280610.pdf

Archambault S (2004). Capacity and organizational deficiencies in the effort of Ugandan farmer groups to supply beans and maize–the perspective of a large buyer. Uganda Journal of Agricultural Sciences 9(1):785-790.

Chirwa EW (2009). Determinants of marketing Channels among Smallholder maize farmers in Malawi. Working Paper 3, University of Malawi, Chancellor College.

Cordaid (2015). Smallholder farmers organization models in Uganda and Kenya. Successful models, Best Practices and Lessons learned. Veco-East Africa, Arusha Tanzania. Available at: https://docplayer.net/60081713-Smallholder-farmer-organizational-models-in-uganda-and-kenya-successful-models-best-practices-and-lessons.html

Fischer E, Qaim M (2014). Smallholder farmers and collective action: What determines the intensity of participation? Journal of Agricultural Economics 65(3):683-702.

Jagwe J, Machethe C, Ouma E (2010). Transaction costs and smallholder farmers' participation in banana markets in the Great Lakes Region of Burundi, Rwanda and the Democratic Republic of Congo. African Journal of Agricultural and Resource Economics 5(311-2016-5548):302.

Lowe CH (2013). Determinants of maize marketing decisions for smallholder households in Tanzania. Doctoral Dissertation, Kansas State University.

Markelova H, Meinzen-Dick R (2006). Collective Action and Market Access for Smallholders: A summary of findings. In: Research workshop on collective action and market access for smallholders. Cali, Colombia.

Markelova H, Meinzen-Dick R, Hellin J, Dohrn S (2009). Collective action for smallholder market access. Food Policy 34(1):1-7.

Muganga Kizito A, Kato E (2018). Does linking farmers to markets work? Evidence from the World Food Programme's Purchase for Progress satellite collection points initiative in Uganda. African Journal of Agricultural and Resource Economics 13:311-312.

Mwendya A (2012). Bulking as a promising strategy for market access by smallholder farmers: A case study of Masindi District Farmers Association, Presented at CAADP African Forum, Tunis, Tunisia (November 12-16 2012). Uganda National Farmers Federation (UNFFE). Available at: http://www.hubrural.org/base_documentaire.html?lang=en

Naven D (2012). An introduction to collective marketing by smallholder farmers. Proceedings of the Regional Workshop on an Integrated Policy Approach to Commercializing Smallholder maize production in Eastern Africa. Nairobi- Kenya. Available at: http://www.fao.org/fileadmin/templates/esa/Workshop_reports/Smallholders_2012/FAO_smallholder_workshop_report.pdf

Nyikahadzoi K, Siziba S, Mango N, Zamasiya B, Adekunhle AA (2013). The Impact of Integrated Agricultural Research for Development on collective marketing among smallholder farmers of Southern Africa. Asian Journal of Agriculture and Rural Development 3:393-3965.

Ochieng J, Knerr B, Owuor G, Ouma E (2018). Strengthening collective action to improve marketing performance: Evidence from farmer groups in Central Africa. The Journal of Agricultural Education and Extension 24(2):169-189.

Olapade M, Flolinch M, Hul-Vargas R, Maruyama (2014). Strengthening Producer Organizations to unleash productive potential of smallholder farmers in Uganda. Available at: http://www.worldbank.org/content/dam/Worldbank/Feature%20Story/Africa/afr-markus-olapade.pdf

Omiti JM, Otieno DJ, Nyanamba TO, McCullough EB (2009). Factors influencing the intensity of market participation by smallholder farmers: A case study of rural and peri-urban areas of Kenya. African Journal of Agricultural and Resource Economics 3(1):51-82.

Robbins P, Bikande F, Ferris S, Kleih U, Okobi G, Wandschneider T (2004). Collective marketing for smallholder farmers: Manual 4: The territorial approach to rural agro-enterprise development. CIAT.

Ton G (2008). Challenges for smallholder market access: a review of literature on institutional arrangements in collective marketing.

Ton G, Opeero DM, Sietze V (2010). How Do We Get it to the Mill? A Study on Bulking Arrangements that Enable Sourcing from Smallholders in the Ugandan Vegetable Oil Chain.

Uganda Bureau of Statistics (UBOS) (2010). Uganda Bureau of Statistics: Statistical Abstract.

Williamson OE (1985). The Economic Institutions of Capitalism. New York, NY, The Free Press.