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The Exclusion Dilemma: How Women and the Poor are excluded from Collective Action and Implications for Development Policy

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Abstract

This paper focuses on the drivers of participation of smallholder avocado farmers in collective action initiatives. Collective action holds a vast potential to deliver food security and poverty reduction objectives because it enables the farmers to access benefits they would not otherwise get if they were acting individually. The study utilized primary data collected from 130 households randomly selected from both members and non-members of avocado producer and marketing groups in Murang'a County, Kenya. The findings reveal that membership in collective action was highly influenced by the scale of production, farming experience, resource endowment, access to information and gender. On the other hand, market price, group attributes including size, age, membership homogeneity, trust, and decision making influenced the intensity of participation in groups. These results point to the dilemma that those who need the benefits of collectives more-the poor and the women-are excluded from their participation, a trend that works against poverty eradication and women empowerment goals. The pro-poor policies need to create an enabling environment for the survival of collectives as well as foster inclusion of disadvantaged groups, such as the poor, youth and women.

Key words: *Collective action, collectives, producer and marketing groups, exclusion.*

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I. Introduction

The policy makers promote collective action as an organizational solution to the problem of weak social and economic position of the farmers in developing economies (Bijman and Hanisch, 2020; Groot Kormelinck, 2019). In these economies, meagre assets and resource constraints; market failures (such as high transaction costs and asymmetric information); difficulties in grasping the opportunities that are potentially available in agri-food markets; and exercising countervailing power often associated with social and policy context; are the determining factors of the situation of the smallholders (Doss, 2017). In this regard, and in the context of liberalization of agricultural sector, globalization of the agri-food systems, collective action is promoted as a means to reduce poverty and increase smallholders' empowerment in developing countries (Mojo et al., 2017). It is argued that collectively, the smallholders would mobilize resources and carry out activities in production and marketing processes that would otherwise not be achieved individually due to high transition costs, limited economies of scale, low competitive advantages and weak bargaining power (Fischer and Qaim, 2014; Mwambi et al., 2020). Collective action is instituted in the form of self-help groups, rotating savings and credit associations (ROSCAs), producer organizations, and cooperatives (Baden, 2013).

For both private and public sector, effective collective action forms an interface between the farmers and their social, institutional, and economic environments to promote greater efficiency and effectiveness in production and marketing processes: by identifying the opportunities (such as access to markets, resource and service provision to enhance incomes and build up assets); providing a forum for the farmers to articulate their needs and demands (for more transparency, accountability and risk reduction), and provide advocacy and lobbying functions (to represent the interests, voice and choice of the farmers for strengthened bargaining power and participation by the poor and the marginalised in decision making) (Abate, 2018; Alemu et al., 2018; Chagwiza et al., 2016; Groot Kormelinck et al., 2019). Thus, collectives enable farmers to (re)adjust to, keep pace with or cope with the changes in agri-food markets, agroecosystems and broader rural economies (Bijman, 2016). In light of this, collective action has been shown to improve agricultural productivity, market and value chain integration, reduce poverty, enhance incomes, food security and women empowerment (Ahmed and Mesfin, 2017; Arouna, 2018; Alemu et al., 2018).

For collective action to facilitate rural growth and development and positively impact on the welfare of the disadvantaged smallholder farmers, their membership profile must be inclusive and accrue benefits to the poor and the marginalised (Hilliováet *al.*, 2017). Collectives are associated with participative and democratic principles and are therefore perceived as more inclusive than other institutional innovations tailored for the rural poor such as contract farming (Verhofstadt and Maertens, 2015). Nonetheless, the less endowed farmers and the socially disadvantaged individuals such as women face significant constraints in participating in collectives (Baden, 2013; Fischer and Qaim, 2012). In cases where they have membership, their participation in group activities could only be passive or nominal, leading to under-contribution that negatively impacts on the subsequent accrual of collective benefits (Fischer and Qaim, 2012; 2014; Willy and Horn-Muller, 2013). As a result, exclusivity in the collectives may reduce their effectiveness, engender poverty, inequality and impoverishment of the marginalized groups. Thus, this may undermine the collectives as potential forces of inclusion and limit their capacity to reduce poverty and promote well-balanced pro-poor development objectives.

A strand of literature offers insights on the extent to which collectives are exclusive (Chagwiza *et al.*, 2016; Fischer and Qaim, 2012; Verhofstadt and Maertens 2015). The studies attribute the exclusivity of the collectives to household characteristics, structural mechanisms of the groups and characteristics associated with private and public sector (Bijman and Wijers, 2019; Cechin *et al.*, 2013; Verhofstadt and Maertens 2015). Some studies note that the poor and women are frequently disadvantaged due to their lack of resources such as assets, incomes, education or financial capacity (Bijman, 2016; Chagwiza *et al.*, 2016; Fischer and Qaim, 2012; 2014). The extent of participation in the collectives is linked with economic, human and social capital (Hilliováet *al.*, 2017). Resource endowments play a critical role as regards to barriers to collective action participation. These resources include: economic capital such as insufficient monetary resources (e.g. incomes and credit access), assets (such as land and livestock holdings); human capital (education and skills) and access to public utilities (such as infrastructure, extension services and information); (Chagwiza *et al.*, 2016; Fischer and Qaim, 2012; Hilliováet *al.*, 2017). Other studies note ‘middle class effect where the poorest and richest smallholders tend to be excluded from the collectives due to limited benefits they stand to gain in relation to their initial wealth (Fischer and Qaim, 2014). Thus, despite the democratic principles, the collectives are somehow exclusive.

The previous studies underpin exclusion from the collectives as the major setback to its contribution to developmental outcomes; However, the studies have been limited to evaluation of the effectiveness of the policies to reach the target farmers by employing either quantitative (Cechin *et al.*, 2012; Chagwiza *et al.*, 2016; Fischer and Qaim, 2012; 2014; Shumeta and D’Haese 2016; Verhofstadt and Maertens, 2014; Willy and Horn-Muller, 2013) or qualitative approaches (Bijman and Wijers, 2019). This study, employing qualitative and quantitative approaches, will focus on the collectives in Kenya using a representative case of avocado producer and marketing groups (PMGs) in Murang’a County, Kenya. Kenya recognises collective action as a potential mechanism for achieving the vision 2030 of food security, agricultural growth and rural development (Republic of Kenya, 2019). The policy aims to establish and support collectives into modern and vibrant business models in tandem with international principles of cooperatives of democracy, autonomy and inclusivity (ROK, 2019).

This study therefore underpins the assumptions of Bijman (2016) and Hilliováet *al.* (2017), that for collective action to effectively reach the disadvantaged farmers, they must include poor in at least one or the combination of the following three dimensions: (i) membership inclusiveness of the women and the poorest. (b) Access of the benefits by the poor and women either directly or through spill-overs (iii) Inclusivity of the poor and the women in decision making processes. As regards to this, the study will address the following questions: (i) Do farmers have an equal opportunity to acquire membership in the agricultural collective action initiatives? (ii) Do farmers stand an equal chance to participate in the collectives’ activities for subsequent accrual of collective benefits? The findings of this study would contribute to leverage the key entry points, priorities and opportunities for policy interventions to counteract and prevent exclusion in agricultural collectives.

1.1 The Concept of Exclusion and Application to Collective Action Policy

The term exclusion is mostly used within the concept of inclusive development and it is defined as lack of access to, or denial of, and lack of social and economic integration of individuals from different activities in their daily life (Adam and Potvin, 2016). The debate on exclusion can refer to different groups of marginalised or disadvantaged groups. The focus of this study is to particularly explore the different types of farmers as non-beneficiaries of the services provided by the PMGs. Underpinning a development perspective, debate on exclusion is centred around on whether the disadvantaged households have access to PMGs services. In order to provide a holistic and comprehensive analysis of exclusion, the conceptual framework of the study hinged on Williamson (1985) transaction cost economic theory (TCE) and Olson (2002) collective action theory. Transaction costs are the observable and unobservable variable and fixed costs of market exchange. The fixed costs include the costs of searching for a market exchange partner, and costs of screening, enforcement and supervision of exchange agreements. Variable costs depend on the volumes of the product traded. These costs

may prevent or reduce market exchange. In the face of market failures including information asymmetries, imperfectly defined property rights and risks exacerbate the transaction costs particularly for the resource constrained smallholder farmers (Fischer and Qaim, 2012). In the context of the globalised markets, smallholders are associated with higher transaction costs of obtaining credit, market information, procuring inputs and marketing their products (Mwambi et al., 2020). In this context, most marketing and production activities are carried out by groups (collectively). Presumably, this underpins the assumption that larger outcomes of pooled efforts can be achieved collectively than the sum of individual efforts (Gyau et al., 2017).

Owing to the incidence of transaction costs, the membership, participation and intensity of participation decisions may vary across the smallholder households (Fischer and Qaim, 2014). The variations can be attributed to differentials in the households' socio economic characteristics, production potentials, access to infrastructural utilities and institutional settings (Bijman and Wijers, 2019). Underpinning the two frameworks, the study would identify the drivers in the structural processes of the aforementioned factors, their interplay and contribution in excluding farmers from participating in collective action as shown in Figure (1) below. Thus, exclusion processes in PMGs are embedded and contingent upon the household socio economic characteristics, infrastructural and institutional factors and group characteristics. The (dis)effectiveness of these factors is dependent upon an enabling environment which includes the interactions and relationships between the collectives and their markets, government, and collective service providers (Mbeche and Doward, 2014). An exclusionary mechanism limits or denies access to resources, rights and capabilities for a particular group of individuals while promoting the same to another group (Adam and Potvin, 2016). In this case such deprivation excludes farmers either from membership, otherwise under contribution in group activities, thus impacting on their outcomes and subsequent structures

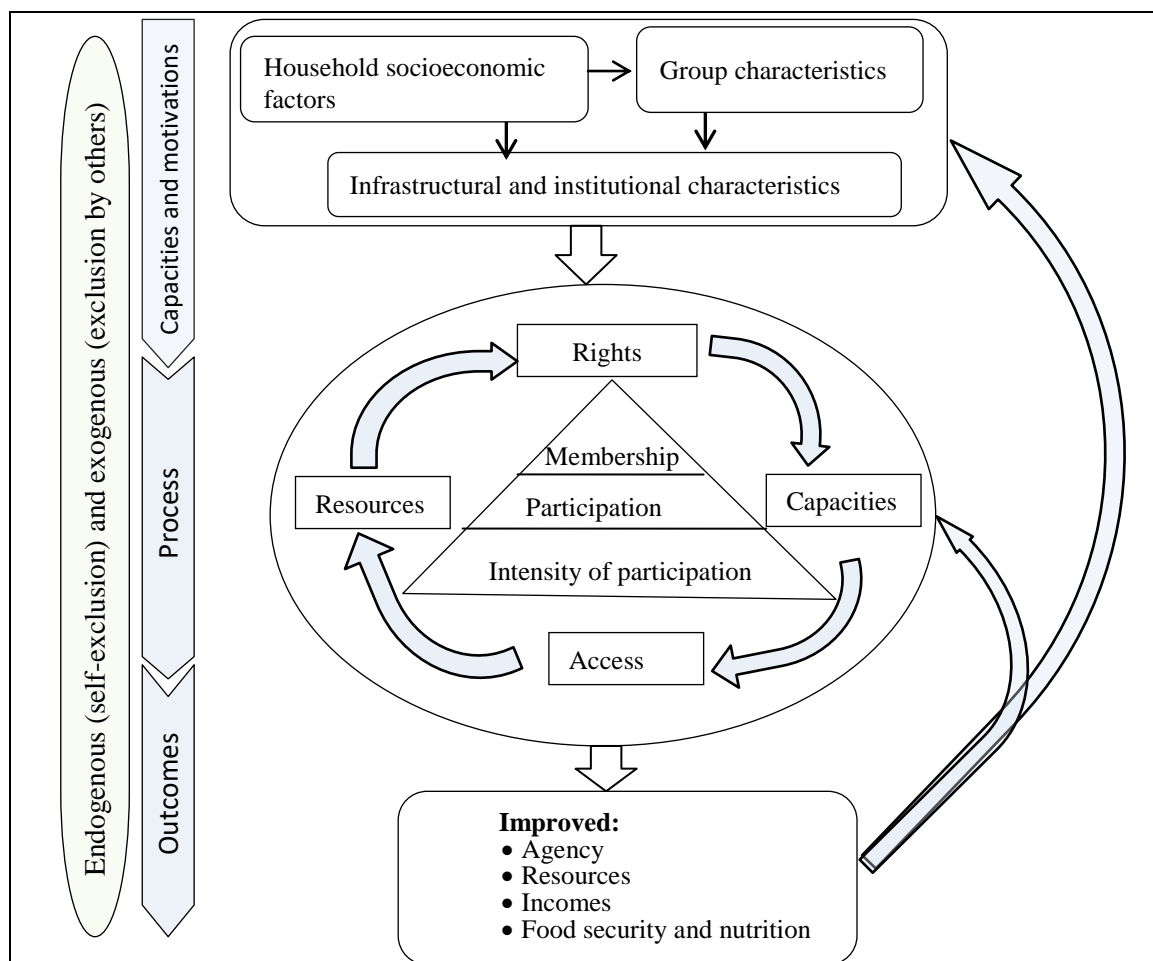


Figure 1: Conceptual framework for social and economic exclusion of farmers in collectives

Literature emphasises on the barriers and incentives associated with collective action participation as the main determinants of exclusion. These barriers and incentives are linked with the household's human, economic and social capacities. Economical capital includes savings, assets (such as land and livestock holdings); human capital (including education, skills and farming experience) and access to public utilities (such

as roads, water, extension services, information, inputs and markets). According to Fischer and Qaim (2012) collective action is only gainful in terms of cost-benefit ratio, and thus economic constraints indicate the inability to offset the upfront costs of membership such as membership fees, annual subscriptions and variable group operational costs. As regards to the participation of the vulnerable groups, Fischer and Qaim (2012) show that the cost of membership fees and share of contribution is inversely correlated with membership of female-headed households. Baden (2013) show that women are excluded from the formal economic objectives oriented collectives due to cultural social norms that limit their access to assets and resources, time and mobility constraints. In addition, the social norms that prohibit women from public speaking limit their participation in group meetings (Gyau et al., 2016). The government laws and regulations governing group registration procedures, membership conditions and criteria, nature of activities and mode of operations may as well exclude some groups of farmers (Baden, 2013). Some authors contradict that participation costs incentivise the exclusion of poor and women farmers (Shiferaw et al., 2011; Verhofstadt and Maertens, 2014).

Well-endowed farmers, that is, older, socially networked and educated farmers living in accessible geographic locations, are more likely to join collectives (Mojo et al., 2017) and participate in collective activities (Fischer and Qaim, 2014; Maindi et al., 2020). Past positive experiences and perceptions (Gyau et al., 2016) and provision of free inputs would incentivise farmers to join and participate in collective activities (Fischer and Qaim, 2012). Credit access with the group as the collateral and provision of subsidised inputs intensifies participation in collectives (Fischer and Qaim, 2014). However, the market price and delay of payments for the collective good could exclude the farmers due to the severe liquidity constraints they face (Fischer and Qaim, 2014). The authors assert that well-endowed farmers benefit more from the collectives than poorer farmers, leading to exclusion of the later.

Some authors use transaction costs economics framework to explain collective action membership and participation. Blanc and Kledal (2012) report that Mexican farmers spend more time in coordination and exchange processes in the collectives, and the income received is not satisfactory. Fischer and Qaim (2014), reports that the stringent transaction requirements imposed by buyers contribute to opportunistic behaviour among the group members. The author notes that higher scope of production and higher market surplus tend to intensify member participation in the collectives. Similarly, households with more adult individuals are more likely to participate more in group activities due to availability of labour (Mukundi et al., 2013).

Social cohesion, reciprocity, trust, effective communication, cooperation and coordination among the group members (bonding social capital); other farmer groups (bridging social capital); and the service providers and markets (linking social capital) stimulate collective action and reduce transaction costs in enforcing contractual agreements and bargaining power (Minah et al, 2019). Social relations and interactions depend on the group sizes (Fischer and Qaim, 2014). Large group sizes may enhance scale economies but promote anonymity tendencies and opportunistic behaviours while small groups of about 14 to 20 members tend to be cohesive (Markelova et al., 2009). The shared values and norms, which often result from membership in networks and groups especially among farmers with a long history of working together, are likely to be more inclusive (Mbeche and Doward, 2014). Homogeneity of members in socio economic status enhances group stability and cohesion, and thus encourages reciprocity incentives (Cechin et al., 2013).

Exclusion of the smallholder in the collectives may be attributed to various causes. The collectives in pursuit of a strong marketing position and a good a reputation would impose a competitive strategy over inclusiveness (Bijman and Wijers, 2019). When a collective choses a competitive strategy it focuses on increasing investment for innovation, increasing product quality and quantity, and product development and marketing (Bijman, 2016). Thus, these collectives impose a selective/closed membership policy. Open membership could lead to reduced provision of equity capital, heterogeneity in volume and quality of deliveries, which would negatively affect the members' incomes and weaken the bargaining position of the collectives in the oligopsonistic markets (Bijman and Wijers, 2019). Evidence from the literature aforementioned shows that most of the studies focus on inclusion in terms of membership (Chagwiza et al., 2016; Mojo et al., 2017; Shiferaw et al., 2011). Evidence on participation of the farmers in various group activities is still lacking (Fischer and Qaim, 2012; Gyau et al., 2016). This study therefore will fill the gap by analysing the determinants of farmer membership, participation and intensity of participation in collective activities using a representative case of PMGs in Murang'a County, Kenya.

II. Materials And Methods

2.2 The Study Area and Sampling Design

The study was conducted in the Central region of Kenya in Murang'a County. The county is located at latitudes 0° 34'; 1° 7'S and longitudes 36°; 37° 27'E. It lies between 914m above sea level in the East and 3,353m above sea level to the West along the slopes of Aberdare Mountains. With the total population of 1,056,640 and an average household size of 3 individuals, the area covers 2,523km with a density of 419 persons per km². The arable land is 2,135km² with the total acreage of 180,225 under food crop farming and 42,980 hectares under

cash crop production. The average farm size of the households is 1.4 acres and thus the area constitutes about 70 per cent smallholders. The main agricultural activities in the area include cash crop (coffee, tea, avocados, French beans), subsistence food crop farming (cabbages, beans, potatoes, maize) and livestock keeping majorly dairy farming. Murang'a County anchors its economy on smallholder agriculture. The proximity of the county to major urban markets such as Nairobi and Thika with local and export outlets and a total of 192 agro-processing factories provide opportunities for agricultural development.

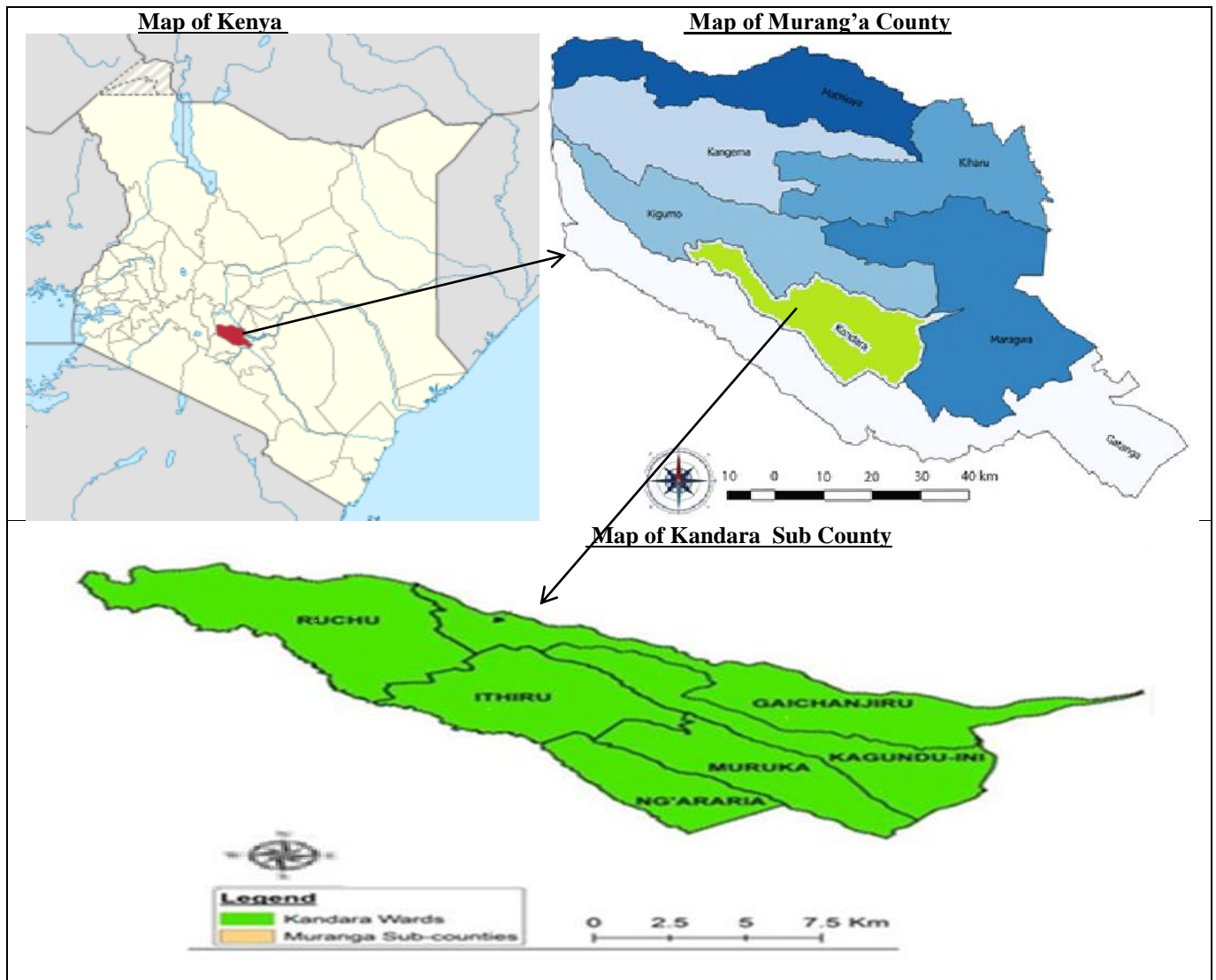


Figure 2: Map showing Murang'a County and Kandara Sub County

The county was purposefully selected due to its predominance of collectives, which account for about 60 per cent of the national's total collectives. In line with this, the county government promotes collectives as a potential mechanism to transform agriculture into modern business and alleviate poverty. The cross sectional data used for this study was collected among 130 households in February-March 2017 by well-trained enumerators. A representative sample for this study was purposefully derived from Kandara Sub County based on the widespread and numerous active agricultural collectives than the rest of the county. A multistage sampling approach was employed to select respondents from the two villages of each of the respective six wards (Muruka, Ruchu, Ithiru, Kagundu-ini, Gaichanjiru and Ng'araria) of the study area. Qualitative data was drawn using in-depth group discussions and key informants with the aid of checklists. Using household survey, the quantitative data was collected with the aid of the structured questionnaire and the unit of analysis was the sampled household heads.

2.3 Analysing Household's Membership in Collective Action

The first objective of the study is to analyse the determinants of PMG membership decision. The decision to PMG membership is associated with potential benefits and costs, which may vary across different households (Fischer and Qaim, 2012). The costs include membership registration fees, annual subscriptions, costs of coordination and marketing, opportunity costs of participation in group meetings. On the other hand, benefits include better access to input and output markets at competitive prices, improved and modern technologies, training and information. A household decision to Join PMGs can be modelled in a random utility framework ((Singh et al., 1986). Hence PMG membership can be modelled as a binary choice decision, with the assumption that utility maximization is subject to household resource constraints (Fischer and Qaim, 2012). The actual utility level of each household is unobservable U_i . The observable part of the utility function can be expressed as

$$V_i(\delta X_i), \text{ Where } U_i = V_i(\delta X_i) + u_i \quad (1)$$

The vector X_i includes household and farm characteristics such as asset endowments, proxies for human and financial capital. The unobservable utility of a household is represented by an error term u_i which is assumed to be identically and independently distributed with mean zero. A household will choose to become a PMG member if the utility (U^y) derived from participation is higher than the utility (U^z) derived from nonparticipation. The propensity of a household being a member of PMG is given by $P(u_i < \delta X_i)$. Thus the membership can be modelled using probit model which can be estimated as:

$$P(N_i = 1) = P(u_i < \delta X_i) = \delta X_i + u_i \quad (2)$$

Where $N_i = 1$ if $U_i^y > U_i^z$ and $N_i = 0$ if $U_i^y < U_i^z$.

Households face varying transaction costs stemming from asymmetries in access to information, assets, services and markets leading to differential market behaviour (Barret, 2008). The household's choice whether to join PMG depends on the comparison of costs and benefits, hence household comparative advantage.

2.4 Analysing Household's participation in collective activities

The double hurdle approach was used to model both participation and intensity of participation in collective activities on selected variables. The double hurdle model holds that a household makes two sequential decisions, i.e. decision to participate (whether the household is a zero type) that precedes the decision on intensity of participation (given that the household is not a zero type) in which the variables influencing each decision would vary (Greene, 2012). The distinctive feature of the model is the censored zero, where a household with group membership could select not to participate in a particular group activity depending on their circumstances (Engel and Moffatt, 2014). Furthermore, double hurdle permits for estimation of the zero type participants and the probability of the subject's censored zero to depend on their characteristics.

Heckman model is an alternative two stage model, however, it counts zeros as unobserved values rather than as an optimal choice as in the case of double hurdle approach. Tobit model also incorporates censored zero, however, it allows the two decisions to be modelled as one equation. Double hurdle model is less restrictive and models the two decisions using two equations (Engel and Moffatt, 2014). The model is specified as follows:

$$Z_{i1}^* = w_i' \alpha + v_i, \quad v_i \sim N(0,1) \quad (3)$$

$$Y_{i2}^* = x_i' \beta + u_i, \quad u_i \sim N(0, \sigma_u^2) \quad (4)$$

Where equation 3 and 4 are selection and outcome equations respectively with the respective threshold of $Z_{i1}^* > 0$ and $Y_{i2}^* > 0$. Z_{i1}^* is the binary participation decision variable in a given activity coded as a yes, 1 or a no, 0. The activities in this case include collective sales, group contributions and subscriptions and group meeting attendance. Y_{i2}^* denotes intensity of participation in collective activities in this case proportion of collective sales and annual contributions and number of group meetings attended. w_i' and x_i' are the vectors of explanatory variables, while β and α are vectors of explanatory variables. v_i and u_i are error terms assumed to be independent and distributed as $v_i \sim N(0, 1)$ and $u_i \sim NN(0, \delta^2)$ respectively. The probability density function (pdf) of the observed outcome equation y_i is therefore, the pdf of the latent variable on condition that it is observed in Equation (5).

$$(y_i | x_i) = f(y_i^* | y_i^* > 0, x_i) = \frac{f(y_i^* | x_i)}{p(y_i^* > 0 | x_i)} = \frac{\sigma^{-1} \Phi\left(\frac{y_i - x_i' \beta}{\sigma}\right)}{1 - \Phi\left(\frac{0 - x_i' \beta}{\sigma}\right)} = \frac{1 \Phi\left(\frac{x_i' \beta - y_i}{\sigma}\right)}{\sigma \Phi\left(\frac{x_i' \beta}{\sigma}\right)} \quad (5)$$

In this study, estimating the outcome equation, the simple linear regression of the observed variable y_i on x_i above would yield to biased estimates of beta. This is because the error term would be correlated with the independent variables. To allow for Heteroskedasticity and non-normal error structure will ensure that maximum likelihood estimates does not lead to inconsistent estimates if the assumption of normally distributed errors does not hold. The parameters in the outcome model will be estimated using maximum likelihood procedures as follows:

$$L(\alpha, \beta, h, \emptyset) \Pi_0 \left[1 - \Phi(w_i' \alpha) \Phi\left(\frac{x_i' \beta}{\sigma_i}\right) \right] \times \Pi_1 \left[(1 + \emptyset^2 y_i^2)^{-\frac{1}{2}} \Phi(w_i' \alpha) \sigma_i^{-1} \emptyset \left(\frac{T(\emptyset y_i) - x_i' \beta}{\sigma_i} \right) \right] \quad (6)$$

Where Π_0 and Π_1 represent the censored zero and positive observations for y_i , and $\emptyset(\cdot)$ and $\Phi(\cdot)$ are the standard normal cumulative and density functions respectively. According to Jensen and Yen (1996) in order to adjust for the Heteroskedasticity of the error term, the variance of the errors is allowed to vary across observations by specifying it as a function of a set of continuous variables and is applied to Equation (7):

$$\sigma_i = \exp(z_i' h) \quad (7)$$

Where z_i' is a vector of exogenous variables and h is a column parameter vector. To assess the impact of the regressors on participation and intensity of participation, it is necessary to analyze the marginal effects of the selected variables. According to Jensen and Yen (1996) the intensity of participation conditional on participation is computed as:

$$E(y_i | y_i > 0) = \Phi\left(\frac{x_i' \beta^{-1}}{\sigma_i}\right) \int_0^\infty \left(\frac{y_i}{\sigma_i \sqrt{1 + \sigma^2 y_i^2}} \Phi\left(\frac{T(\emptyset y_i) - x_i' \beta}{\sigma_i}\right) \right) \partial y_i \quad (8)$$

Where \emptyset and Φ , respectively are the probability density function and the cumulative density function of the standard normally distributed random variable. For continuous variables, these marginal effects will be used to calculate elasticities at the sample means. For the discrete or categorical variables, the marginal effects are used to calculate percentage changes in the dependent variable when the variable shifts from zero to one *ceteris paribus*. (Jensen and Yen, 1996).

The explanatory variables used in the study were drawn from the existing collective action literature (Fischer and Qaim, 2012, 2014; Gyau et al 2016; Shumeta and D'Haese, 2016; Sinyolo and Mudhara, 2018; Verhofstadt and Maertens, 2015). They include household socioeconomic characteristics such as household size, education, age and gender, as farm size, livestock holdings, off farm income and assets; infrastructural and institutional characteristics including distance to the paved roads and markets, access to piped water and information; and group characteristics such as group size, origin and age, trust index, fine existence, trust and membership density.

III. Results And Discussion

3.1 Socio economic descriptive statistics of the sampled households

Table 2 presents the household characteristics which are important to contextualise the farmer's participation behaviour in the collectives. Most of the farmers were male headed households. The mean age of 64 years old with 2 people per household, majority being the aged parents, who were economically active in agricultural activities. A finding that Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALFC), Murang'a County (2019) attributed to the outmigration of the young people to urban settings in search for other economic opportunities. This may have implications on labour allocation and agricultural productivity. The results indicate that the smallholdings generate a mean gross income of 215568.43 per annum per adult equivalent, measured in 2015 prices using the consumer prices index (CPI) (Kenya National Bureau of Statistics, KNBS, 2015). With a household size of 3 individuals, father, mother and children, this translates to about \$1.86 per day per person, which is below the international poverty cut-off line (\$ 1.90). The large standard deviations indicate high disparities in the households' assets and incomes among the farmers.

In regard to education, most of the farmers had a mean of 8 years which is the primary school level. The mean size of land holding and TLU was 2 hectares and 4 TLU respectively. The mean farming experience on the collective product, in this case avocado was 17 years, with a mean of 14 trees which traded at 48 Kenyan shillings (KES) per kilogramme. Despite the proximity to roads, markets, extension services, information and water, the rugged terrain of the county increased the costs of accessing these services. Access to credit was also very low, thus this limited the ability of the farmers to meet the costs of inputs, meet the standard and quality requirements of the products and participation in their target markets. These constraints also encouraged farm gate selling to intermediaries at extremely low prices. Majority of the farmers had group membership in at least one group or social network. Credit constraints and the high costs of agricultural utilities incentivise the farmers to join collectives in order to access credit with a group as collateral as well as share production and marketing costs and risks.

Table 1: Description and descriptive statistics of the sampled households

Description/measurement		Mean/ proportion	SD	Expected sign
Dependent variables				
Group membership	1 if a farmer has membership in a group	0.80		
Participation	Participation in group activities (1=yes)			
Collective sales	Participation in collective sales (1=yes)	0.42		
Group meetings	Participation in group meetings (1=yes)	0.72		
Group contributions	Participation in group contributions (1=yes)	0.74		
Intensity	Intensity of participation in collective activities			
Collective sales	Proportion of surplus sold collectively (kg)	0.37	0.42	
Group meetings	Number of group meetings attended	7.59	12.95	
Group contributions	Total annual group contributions (KES)	0.91	0.28	
Independent variables				
Demographics and household characteristics				
Gender	Gender of household head (1=male)	0.81	-	±
Age	Age of the household head (years)	64.03	11.17	±
Education	Number of years of formal education	8.47	4.80	±
Household size	Number of household members (adult equivalents)	2.31	0.96	+
Farm size	Size of landholding (acres)	2.2	1.41	+
Main crop land size	Main crop land size (acres)	0.41	0.46	
Farming experience	Experience in main crop farming (years)	17.49	9.63	+
Tropical Livestock Units	Tropical Livestock Units (TLU)	4.43	0.42	+
Main crop harvest quantity	Quantity of the main crop harvested (kg)	3140.21	5630.02	+
Marketable surplus	Proportion of main crop marketable surplus (kg)	85.69	16.47	+
Main crop price	Price per unit of collective main crop sales (KES/kg)	48.12	24.21	+
Hired labour	Farmer hired labour (1=yes)	0.72	-	
Off farm income	Farmer engages in non-farm activity (1 = Yes)	0.79	-	-
Assets	Asset endowments (KES)	426871.96	183471.84	±
Household income	Household income per adult equivalent (KES)	215568.43	168984.16	±
Infrastructural and institutional characteristics				
Distance to paved road	Distance from farm to motor able road (km)	0.42	0.50	+
Distance to tarmac road	Distance from farm to tarmac road (km)	1.38	1.28	+
Distance to extension	Distance to extension service providers (km)	2.7	1.59	±
Distance to market	Distance to the nearest agricultural market (km)	2.55	1.53	+
Pipe water	Distance to piped water (km)	0.26	0.53	+
Information	Information sources (number)	6.77	3.45	+
Membership density	Membership in other social networks (Number)	1.40	0.80	+
Credit	Access to credit (1 = Yes)	0.17	-	+
Group characteristics				
Group size	Number of active group members	42.82	34.21	-
Group age	Duration the group has existed (years)	6.22	9.22	+
Homogeneity index	Member social and economic homogeneity (index)	0.36	0.16	+
Trust index	Trustworthiness of the group members (index)	0.43	0.90	+
Decision making	Activeness in group decision making (index)	0.80	0.12	+
Fine existence	Imposing fines for non-compliance (1 =yes)	0.52		+
Time of payment	Timely payments for collective sales (1=yes)	0.40		+
Free inputs	Free inputs received through the group (1 =yes)	0.83		±

SD=Standard deviation; KES=Kenyan shillings; km=kilometres; SD=standard Deviation

Most of the groups had existed for at least 6 years with a mean of 42 members. The members were relatively moderately heterogeneous in social and economic background and showed low levels of trust. The conditions would compromise with the functionality and stability of the groups. Majority of the members participated in making group contributions particularly the membership registration fees and annual subscriptions. This may be explained by the need to retain the membership for the sake of receiving free inputs through the group as indicated on Table 1. Similarly, most of the members participated in group meetings, with a mean attendance of 7 meetings of the total 12 scheduled monthly meetings. The high attendance rates can be attributed to member inclusivity in decision making as indicated by the decision making index. In addition, imposing of fines for non-

attendance underscores the importance of group meetings in planning and implementing production and collective marketing processes, conflict resolution and leadership checks.

However, member participation in collective marketing and the corresponding amount of group sales was very low. This trend undermines the primary objective of the collectives that was attributed to untimely payments where about 60 per cent of the members decried the delay of payments for their deliveries.

3.2 Membership composition patterns in agricultural collectives

The interviewed group members indicated that the collectives facilitate in access of services including input and output market access, information, training, market and price information, credit and savings. The main collective benefits, according to the interviewed farmers were; easy access to government and NGO support collectively and thus reduction of the costs on inputs, extension and information. However, both collective members and non-members identified poor and corrupt group leadership, free riding and poor cooperation, and incoordination as the main constraints facing the marketing groups. The stringent production and marketing requirements, limited scope in individual decision making on production and marketing processes and delayed payments for collective deliveries were also major disincentives for participation.

Table 2: FGT poverty indices according to collective action membership status

FGT index	Pooled sample	Members	Non-members
Poverty headcount index	0.37	0.25	0.12
Poverty gap index	0.17	0.13	0.28
Poverty severity index	0.10	0.08	0.21

International poverty line: - KES 92.4 (2015) or US\$1.90 (2011 PPP) per day per capita.

Lower Middle Income Class poverty line: - KES 155.7(2015) or US\$3.20 (2011 PPP) per day per capita.

KES-Kenyan Shillings.

Table 2 presents the Foster, Greer and Thorbecke (FGT) poverty indices (Foster et al., 2010) disaggregated according to group membership. The international poverty cut-off line used was of KES 92.4 (2015) \$ 1.90 (2011 purchasing power parity, PPP) per day per capita while adjusting the lower-bound poverty line to 2015 prices. As shown in Table 3, the poverty headcount index, which is the proportion of the population below the poverty line, indicates that poverty is more prevalent among the farmers who are group members. The poverty gap index, a measure of the intensity of poverty, indicates that the poor households would have to increase their current income levels by 17 per cent to lift them out of poverty. The poverty gap index was low among the group members (0.13) compared to non-members (0.28), indicating the role of the collectives in reducing poverty. The poverty severity index, which indicates inequality, was low for collective members, at 0.08 compared to non-members who had 0.21, implying that farmer groups have a potential of reducing income inequality (Sinyolo and Mudhara, 2018). However, the inequalities among the members can have implications on group participation and patronage decisions.

Table 3 shows the collective action membership patterns disaggregated according to selected socio economic characteristics. The findings indicate that in the study area, most of the farmers lie at the poverty line while the lower middle income class earners were very few. The farmers across the classes of income are fairly represented in membership. The farmers who earn less than \$ 1.90 a day constitute of the majority non-members, implying that incomes can affect the decision to join the collectives. Although, the majority constitute of the farmers the poverty line, the farmers below the poverty line were slightly more than the lower middle class income earners. The finding corroborates with Fischer and Qaim (2012) middle class effect that the poorest and richest are least likely to have membership in collective action.

As regards to education, the farmers who had obtained at least primary level of education were slightly more than the ones with secondary education. However, farmers who had post-secondary education were very few in Murang'a County and hence their membership in groups. In regards to land size, about 84 per cent of the farmers own a land size of more than 1 hectare, and constitute the majority of the members in the collectives. While Farmers with a land size of more than 2.5 hectare were more, those who were group members were less by 0.02 per cent as compared to the farmers with less than 1 hectare of land size. The incomes and land size and membership patterns are in consistent with Bernard and Spielman (2009) and Mojo et al. (2017) who found a U shaped curvilinear relationship between the probability of group membership and land size. Similarly, majority of the farmers who have legal ownership of land through registration were group members.

Table 3 shows that majority of the farmers active in agricultural activities are between the ages of 50 to 80. A finding that is consistent with Njeru et al. (2015) that most individuals below the age of 55 years perceive agriculture as an unattractive, high risk and low return economic activity, and thus leading to an increased rural-urban migration in search of better economic opportunities. In line with this, the Sacco Societies Regulatory

Authority, SASRA, (2019) indicates the youth constitute of about 25 per cent of the farmer based cooperatives, however not for agricultural purposes but for banking and credit access purposes.

Table 3: Decomposition of the sampled households according to group status

		Pooled sample	Members	Non-members
Poverty indices	Poverty headcount index (<\$1.90)	0.37	0.25	0.12
	At poverty line (\$ 1.90)	0.42	0.33	0.09
	Lower middle Class (\$3.20)	0.23	0.23	0.00
Age	Between 36 and 50	0.09	0.07	0.02
	Between 50 and 65	0.53	0.43	0.10
	Between 65 and 80	0.30	0.24	0.06
	More than 80 years	0.08	0.07	0.01
Land size	Less than 1	0.18	0.15	0.03
	Between 1 and 2.5	0.59	0.44	0.15
	More than 2.5	0.25	0.13	0.11
Education	Primary (1-8)	0.50	0.39	0.11
	Secondary (9-14)	0.41	0.34	0.07
	College (>15)	0.03	0.02	0.01
Land tenure	Own with title	0.87	0.71	0.16
	Own without title deed	0.13	0.09	0.04
Membership density	Membership in 1 group	0.30	0.26	0.06
	More than 1 group	0.70	0.74	0.02
Gender	Male	0.81	0.67	0.14
	Female	0.19	0.13	0.06

International poverty line: - KES 92.4 (2015) or US\$1.90 (2011 PPP) per day per capita.

Lower Middle Income Class poverty line: - KES 155.7(2015) or US\$3.20 (2011 PPP) per day per capita.

KES-Kenyan Shillings.

The farmers aged between 50 and 65 constitute the majority of the group members. The finding is a concern to the Republic of Kenya (ROK, Ministry Of Industry, Trade and Co-Operatives State Department of Co-Operatives, 2019) that the agricultural collective membership constitute of the aging population, who lack capacity to adopt and use new farming technologies to improve productivity and participate in markets. The collectives were dominated by males. The finding is consistent with SASRA (2019) that overall males constituted of 60 per cent males and 34 per cent females, and according to ROK (2019), the agricultural collectives constituted of 30 per cent females. The exclusion of women, particularly in agricultural collectives is attributed gender biases in households and communities that limit their access and control to land and capital, time constraints and mobility (Njuki, 2016). Membership in social networks is a proxy for social capital, and the results show that farmers who were group members participated in other social networks.

3.4 Differences between collective action members and non-members

Table 4 presents the differences in means between group members and non-members. The group members, compared to their counterparts were older, had higher level of education, more assets, both farm and household incomes and assets.

Table 4: Summary statistics of sampled group members and non-members

	Members	Non-members	t-value	P-value
Gender	0.84	0.70	0.755***	0.006
Age	64.00	62.40	0.755	0.844
Education	8.56	8.07	0.473	0.904
Household size	2.29	2.40	-0.554	0.311
Farm size	2.20	2.40	1.420***	0.008
Main crop land size	0.46	0.21	2.677***	0.004
Farming experience	16.26	23.61	-3.765***	0.000
Main crop harvest quantity	2942.85	3944.29	2.581***	0.001
Marketable surplus	2567.66	3697.59	-0.827***	0.002
Hired labour	0.19	0.18	0.939***	0.006
Main crop price	13.53	7.01	-1.192***	0.000
off farm income	0.13	0.12	1.415*	0.023
Assets	865243.36	784010.19	0.420	0.985
Farm income	309471.41	299708.92	0.211	0.877
Household income	431136.87	403034.85	0.385	0.596
Distance to paved road	0.59	0.62	-0.206	0.303
Distance to tarmac road	1.40	1.27	0.408	0.910
Distance to extension	2.63	3.09	-1.355	0.233
Distance to market	2.49	2.67	-0.517***	0.008
Distance to electric supply	0.19	0.17	0.150	0.763
Pipe water	0.19	0.14	0.446	0.780
Information	1.25	1.04	-1.713***	0.000
Credit	0.19	0.20	-1.719***	0.000

*p < 0.1; **p < 0.05; *** p<0.01 respectively

The findings also reveal that there were significant differences between group members and non-members as regards to farm size, quantity of the main crop (avocado in this case), marketable surplus, market price, hired labour and off farm income. In addition, the significant differences were observed between group members and non-members in access to market, credit and information. The differences may have implications on the farmer's membership decision, participation and intensity of participation in collective activities.

3.5 Determinants of group membership

Table 5 presents the probit estimates on the factors influencing the membership of the farmers in agricultural collectives. As expected, the results show that male headed households have a likelihood of having membership in the collectives. The results corroborate with Bernard and Spielman (2009) and Mojo et al. (2015) that female farmers face constraints in accessing land, credit, time and limited mobility, thereby reducing their incentives for participation. On the contrary, Fischer and Qaim (2012) in Kenya, Sinyolo and Mudhara (2018) in South Africa found no association between gender and group membership.

An increase in the size of land holding by 1 hectare increased the likelihood of having group membership by almost 6.3 per cent. The results uphold other studies (e.g. Balgah, 2018; Fischer and Qaim, 2012; Ito et al., 2012) which allude that the bigger farm sizes may be wealthier and have a high potential for agricultural expansion, and possibly generate higher net benefits arising from lower average fixed costs of group membership. This implies that farmers with small sizes of landholding are likely to self-exclude from participating in the collectives. Other similar studies, however, found a negative correlation between land size and group membership (Chagwiza et al., 2016; Verhofstadt and Maertens, 2014).

Interestingly, farming experience was negatively correlated with group membership. This suggests that more experienced farmers opted to work individually probably because of enhanced capacity in production and marketing processes. The results revealed that having more main crop quantity was positively and significantly correlated with the likelihood of being a group member. Similar results have been reported among coffee farmers in Ethiopia (Shumeta and D'Haese, 2016) and banana farmers in Kenya (Fischer and Qaim, 2012). Comparably, the quantity harvested, marketable surplus and market price show a positive and significant association with group membership. This may be explained by the economies of scale that may be realised through bulky selling and reduced average fixed costs of production, marketing and group membership.

Table 5: Probit results for collective action membership

	Coefficient	SE	AME	p-value
Household size	-0.103	0.028	-0.009	0.745
Education	0.046	0.006	0.004	0.541
Gender	0.044***	0.001	0.004	0.005
Age	0.024	0.020	0.016	0.240
Farm size	0.740*	0.028	0.063	0.024
Farming experience	-0.315***	0.006	-0.027	0.000
Off farm income	-0.257	0.176	-0.201	0.212
Main crop farm size	0.119	0.007	0.010	0.146
Main crop quantity	0.231*	0.008	0.020	0.019
Quantity harvested	0.002*	0.551	0.000	0.012
Main crop marketable surplus	0.089*	0.003	0.008	0.023
Main crop market price	0.436***	0.010	0.037	0.000
Household income	0.503**	0.194	0.122	0.010
Off farm income	1.172	0.681	0.163	0.085
Assets	0.220	0.406	0.019	0.642
Distance to paved road	1.135***	0.037	0.097	0.009
Distance to the market	0.187***	0.005	0.016	0.000
Distance to tarmac road	0.682***	0.019	0.059	0.002
Distance to extension	-0.789***	0.023	-0.068	0.003
Pipe water	0.057***	0.094	0.262	0.005
Information	0.461***	0.014	0.040	0.005
Constant	-0.470	2.439		0.847
LR χ^2 (21)	95.25			
Prob> χ^2	0.000			
Pseudo R ²	0.700			

p<0.01, *p<0.05, *p<0.1; SE= Standard Error, AME=Average Marginal Effect

As shown on Table 5, the findings show a positive and significant impact on the proxies selected for access to infrastructural utilities including distance to the nearest paved and tarmac roads. In line with the findings of Fischer and Qaim (2012) and Maindi et al. (2020), infrastructural access reduces transaction costs and opportunity costs of time in accessing input and output markets and obtaining timely information. The likelihood of group membership increases by 1.6 per cent with an increase in proximity to the market by 1 unit. The finding deviates from Verhofstadt and Maertens (2014) and Ahmed and Mesfin (2017) who found an inverse relationship between distance to the market and group membership. Distance to piped water is correlated with increased likelihood of group membership. In addition, access to extension services increased the probability of group membership. The finding is in line with Sinyolo and Mudhara (2018), who points out that extension services ease the access to information, knowledge and awareness of the benefits of group membership. Finally, farmers who had better access to information have a high likelihood of having membership in the collectives.

3.6 Determinants of participation and intensity of participation in collective activities

Table 6 presents the double hurdle results for participation and intensity of participation in group activities. The results indicate the first hurdle of the model of whether or not to participate in group activities including making annual contributions and subscriptions, collective sales and group meetings. The second hurdle decision indicates the intensity of participation in group activities which include the amount of annual contributions, quantity of group sales and the number of group meetings attended. In regard to annual contributions, an increase in education of the farmer by one year reduces the chances of participating in annual contributions by about 1.2 per cent. However, education has no relation on the amount of annual contributions made. The finding indicate a form of self-exclusion because education empowers farmers to understand market dynamics and benefits of networking (Gyau et al., 2016), and subsequently educated farmers will consciously not contribute to any group subscriptions. Increasing land size is positively associated with contribution of group subscriptions. However, farm size has no effect on the amount of contributions. This may be attributed to the fixed costs of group participation. An increase in asset endowments lowers the propensity of making contributions, and no effect on the amount of group contributions.

Regarding the market price, increasing the price of main collective crop per kg would increase the likelihood of the farmers to contribute to the annual group subscriptions. Better price incentivise the farmers to retain group membership for collective marketing purposes so as to earn better returns. As expected, off farm income has a positive and significant association with participation in group contributions. Off farm incomes help to address the liquidity constraints the farmers face (Maindi et al., 2020). However, there was no association between off farm income and the amount of annual contributions. Distance to the market and access

to pipe water had a positive and significant effect on making the contributions and the amount of contributions made. The finding was expected because public utilities reduce transaction costs in production and marketing processes, and thus, inaccessibility of the services are disincentives that exclude the farmers from collective action. On membership density, members who participated in other groups and social networks had a high likelihood of contributing finances for group operations, but no effect on the amount of money contributed.

Table 6: Double hurdle results for participation and intensity of participation in groups

	Group Contributions		Collective sales		Group Meetings	
	Decision to contribute	Share of contribution	Decision to sell collectively	Quantity of collective sales	Decision to attend group meetings	Number of meetings attended
Household size	0.002	0.004	0.060	0.060	0.808	0.757
Education	-0.012**	-0.004	-0.041*	0.032*	-0.309	-0.380*
Gender (female)	0.076	0.039	-0.042*	0.042	0.316	0.375
Age	-0.0803	-0.008	-0.130	0.130	-0.149*	-0.016*
Farm size	0.050**	0.318	0.052**	0.042**	-0.706	0.404**
Livestock holdings	0.916	0.006	-0.705	-0.703*	0.000	0.000
Main crop price	0.416**	0.075	0.423**	0.004*	0.932	0.075
Off farm income	0.000**	0.032	0.578	-0.872***	-0.451	0.408
Assets	-0.117**	0.034	-0.709	0.038	-0.228*	0.098*
Distance to paved road	0.931	0.001	0.003*	0.202*	0.230*	0.148
Distance to market	0.066***	0.025**	0.131	0.034	0.187***	0.082***
Pipe water	-0.125*	0.010**	-0.061*	0.006**	0.716	0.645
Group size	0.002	0.000	0.022**	0.003***	0.020	0.030
Group age	0.015**	-0.008***	0.001	0.012	0.875***	0.104***
Trust index	0.956**	0.008**	0.078	0.148	0.036	0.092***
Fine existence	0.322**	0.009**	0.054**	0.280***	0.083	0.189*
Homogeneity index	0.246	0.112	0.105	0.177	0.311***	0.292**
Decision making index	0.788***	0.129***	0.127	0.678	0.383*	0.179**
Membership density	0.051*	0.167	0.033	0.089*	0.103	0.872
LR χ^2 (19)	133.10	190.77	87.35		35.74	136.15
Prob> χ^2	0.000	0.00	0.000		0.000	0.000
Pseudo R ²	0.843	0.74	0.693		0.5801	0.167

**p<0.01, **p<0.05, *p<0.1 respectively. The values shown on the table are average marginal effects (AME).

Social networks are sources of leveraging social capital which minimizes opportunistic behaviours (Vanni, 2014). The findings show a positive relationship between group age and the likelihood of contributing to annual contributions and the amount of contributions (see table 7). Older groups understand the importance of collective marketing and thus the need to not only retain membership but also offset the group expenses for continuity of operations in order to accrue the collective benefits. Trust in fellow group members and leaders, service providers, extension service providers and community members had a positive and significant relationship with making of group contributions as well as the amounts contributed. Trust enhances social ties and cohesion and reduces uncertainty of reciprocity of internal cooperation which motivates the farmers to self-select to participate (Marklova et al., 2009).

Comparably, inclusion of members in decision making index enhances the chances of making the group contributions and the amount of contributions made. Participation of members in decision making is a proxy of internal democracies that builds a positive identity and instils a sense of belonging and loyalty and hence reciprocity (Willy and Holm-Müller, 2016). Lastly, as expected, fine existence had a positive association with group contributions and the amount of contributions made. Imposing of fines coerces members to participate and at the same time reduces opportunistic behaviour among the non-compliant members.

On the collective sales, as expected, education is bidirectional and a unit increase in education by one year reduces the chances of participating in collective sales by 4.1 per cent and the amount of sales made by 3.2 per cent respectively. In line with Gyau et al (2016), more educated household heads are knowledgeable on the benefits of collective marketing and hence they self-exclude consciously from participating probably because of past experiences on group marketing. Male headed households are 0.042 times more likely to participate in group sales. Consistent with Baden (2013), limited access to land and capital and time-constraints lowers the

incentives for market participation among the female headed households. On the farm size, an increasing farm size increases the likelihood of participating in collective marketing days and the amount of collective sales made.

Larger farm sizes have capacities to expand and produce more marketable surplus and thus bulky production provides incentives to sell collectively at lower fixed costs (Fisher and Qaim, 2014). Likewise, the price of main collective crop per kilogramme had a positive and significant association with participation in group sales and the quantity of sales made. Upholding the findings of Fischer and Qaim (2014), lower prices may enhance side-selling to competitor outlets who offer better prices. As hypothesized, proximity to the paved road by one kilometre increased the chances of making group sales by 0.3 per cent and 20.2 per cent more of the amount of collective sales made. Access to piped water had a positive and significant association with participation in collective sales and the quantity of group sales.

The group size had a negative significant effect on participation in group sales and the quantity of collective sales. Larger group sizes promote anonymity tendencies among the members and thereby promote opportunistic tendencies, thus lowering cooperation and coordination incentives (Markelova et al., 2009). As expected, imposing of fines for non-compliance among the members was positively correlated with group sales as well as the quantity of group sales. The finding corresponds with Wollni and Fischer (2014) who pointed out that fines reduce side selling among the group members especially when other competing outlets offer better prices. Increase in membership increases the quantity of collective sales by 8.9 per cent. Social networks enhances social capital, which facilitates to increase reciprocity, dissemination and sharing of information and collective decision making, thus minimising side-selling (Vanni, 2014).

The findings on regards to whether or not the members participate in group meetings and the number of meetings attended are shown on Table 6. The findings show that an additional one year in age decreases the propensity of participating in meetings by 14.9 per cent and the number of meetings attended by 1.6 per cent. Aged farmers are well informed of the importance of social networking and group management, thereby, they deliberately self-exclude from participation (Gyau, et al., 2016). Similarly, the farm size had a positive effect on the number of meetings attended. The asset endowments had a negative and positive effect on attending group meetings and the number of meetings. Assets provide a form of capital for individual networking and marketing thus may increase incentives for self-exclusion from participating in groups (Bijman and Wijers, 2019). Likewise, proximity to the paved road and market increases the propensity for group meeting attendance as well as the number of meetings attended. In regards to group age, as expected, members with a longer history of interactions were more likely to participate in group meetings and attend more of the scheduled meetings. More homogeneous members in socio economic background are 31 per cent more likely to participate in group meetings. Homogeneity among the members enhances interactions, trust and cohesion which reduces social costs in decision making processes (Poteete and Ostrom, 2004). Similarly, increasing decision making had a positive relationship with participation in group meetings.

IV. Conclusion And Policy Implications

This study employed both qualitative and quantitative approaches to assess the causes of social and economic exclusion in membership, participation and intensity of participation in collective activities among farmers in Murang'a County, Kenya. The Probit model was employed to estimate the determinants of group membership, and double hurdle approach for the decision to participate and intensity of participation in group activities. The results identified the collective benefits as, access to services, inputs and output markets at reduced costs. The constraints facing the groups were poor and corrupt leadership and free riding and incoordination challenges. The major disincentives of collective action were; stringent production and marketing requirements, limited scope in decision making among the farmers on production and marketing processes as well as delayed payments for collective product deliveries.

Most of the group members identified were classified below the poverty line thus emphasising the importance of the collectives in reducing poverty. The poverty gap index and poverty severity gap was low among the members as compared to group members, indicating the potential of the collectives to reduce inequalities. The middle class effect in membership was observed. On probit results, the significant determinants of group membership were; gender, farm size, main crop scale of production, market price, household incomes, education and information. While double hurdle results revealed that, gender, education, access to roads, piped water and market, market price, group size, trust, decision making and trust influenced participation and intensity of participation.

From the findings, the following policy implications can be drawn. First, there is need for the policy makers to incentivise and train the farmers before group formation or through existing groups so as to understand the importance of the groups to increase membership. Second, in order to enhance women participation, there is need for gender mainstreaming by targeting and providing incentives, sensitising the farmers and partners to transform gender norms and reduce the amount of time spent on group activities. It is

important to take measures and improve roads, access to pipe water and markets to reduce transaction costs in production and marketing processes. Besides, there is need to train farmers on product quality and standard requirements to intensify collective marketing in high value markets. Importantly, the collective buyers need to pay the farmers in time to reduce the incidences of side selling. The policy also should focus on creating enabling conditions with farmer groups besides offering leadership skills to improve group governance and democratic decision making in order to enhance member loyalty and patronage. Lastly, it is advisable to engage, build and promote the already existing community groups with a history of interactions, shared norms and values, which could enhance trust, cohesion and hence reciprocity incentives.

Endnotes

¹Collectives, groups and collective action are used synonymously in the paper

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