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Elisabeth Marija Fischer "Determinants and Impacts of Smallholder Collective Action in Kenya", Georg-August University of Goettingen, 2012

Summary

1. Problem definition

Smallholders in developing countries face numerous constraints that keep them from taking advantage of market opportunities. Because they often live in poverty and remoteness, on less than a hectare of land with poor road and market infrastructure, they face high costs of market exchange. In order for smallholders to compete with large-scale farms and benefit from the observed and ongoing transformation of the agri-food sector, institutional solutions are necessary that address the small scale problem. One potential option is through farmer collective action. However, the existing literature has not yet sufficiently identified the explicit mechanisms and dynamics by which collective action generates benefits for men and women. In three related artic1es, this research investigates how farmer groups facilitate access to input and output markets by reducing transaction costs, thereby promoting intensification and commercialization of small farms. It addresses the existing research gap by analyzing determinants, participation dynamics and impacts of farmer groups, using the case of smallscale banana producers in Kenya.

Previous empirical work has shown that market participation decisions among East-African farmers are highly influenced by fixed transaction costs, which provides a motivation for market-and production-oriented collective action (Ouma et al. 2010). In Kenya, recently established farmer groups initiated by two local non-governmental organizations (NGOs), TechnoServe and Africa Harvest, introduced institutional change in the national banana market chain with the objective to improve food security and farm incomes in the region. Within such groups, farmers can more easily access clean tissue culture (TC) banana planting material, get agronomic and market information, negotiate better prices and gain access to urban, high-value markets through collective selling. However, the marketing performance of these groups is unclear, and commitment varies greatly between members. Gender issues are partly left unaddressed by NGOs and group leadership. These issues pose serious threats to the groups' viability in the long run.

2. Research questions

According to the problem definition and identified research gaps, four research questions are formulated:

(1) Are producer groups inclusive and do they benefit the poor and women?

(2) What are the broader impacts of participation in producer groups on market access, technology adoption, and household welfare?

(3) What determines farmers' intensity of participation in producer groups?

(4) Do producer groups contribute to marginalize women's position within agriculture?

3. Research objective

The overall research objective of this study is to understand the particular mechanisms that affect participation and benefits for men and women in farmer associations. This will allow the formulation of policy recommendations to help guide the design and implementation of successful and inclusive collective action.

4. Methodology

The formulation of research questions and hypotheses are based on theoretical work and empirical findings from previous studies. The data generation process, in particular survey and questionnaire design was made specifically to answer the research questions. Hypotheses are tested using farm household survey data and suitable econometric methods to derive inference.

5. Data and empirical strategy

A unique data set is used was collected in 2009 in the central highlands of Kenya in Central and Eastern provinces. Before going to the field for data collection, questionnaires were carefully designed and pre-tested. Enumerators were intensively trained to approach farmers and ask questions in a sensitive yet consistent way and were given an interview manual that guided them through the questionnaire.

Structured, household-level interviews were conducted with banana growers in the districts of Muranga, Nyeri, Embu, and Meru. These districts are all located within the same agro-ecological zone, have similar access to road infrastructure, and are classified as high-potential banana-growing areas. Banana growers who are members of farmer groups as well as non-members for comparison were randomly sampled. In order to select members and non-members, stratified random sampling was used. First, a complete list of 240 banana farmer groups was obtained; out of these, 17 groups were randomly selected, which were located in different sub-locations. Within each group, around 12 member households were randomly selected, resulting in a total of 201 group member observations. In the same 17 sub-locations, 137 non-members were also randomly selected. As these non-member households are located in areas where farmer groups operate, they are exposed to the initiative and might potentially be affected by spillover effects. In order to have a more robust control group, 10 sub-locations in the same districts but without any group activities were identified. In these control regions, another 106 banana growers were randomly selected.

Thus, the total sample consists of 444 banana-growing households, including group members, non-members in regions where groups operate, and farmers (non-members) in control regions where no groups operate. As agroecological and socioeconomic conditions vary across different banana-growing areas of Kenya, our sample is not representative for the country as a whole. But because stratified random sampling was used, it is representative for members and non-members of banana farmer groups in the central highlands of Kenya.

The research is structured into three related chapters that find answers to the research questions. In the first chapter, the determinants and impacts of smallholder organization are assessed. Using the subsample of members and non-members in treatment regions, probit regression is used to identify factors that influence the decision to become a member of a producer group. Propensity score matching, which creates an artificial experiment based on the assumptions that all factors determining group membership can be observed, is used to reduce possible selection bias in the impact analysis. Outcome variables of interest are prices, household income, technology adoption, and other variables related to agricultural intensification and commercialization. Treatment effects are shown separately for members selling through the group and those selling individually. Results are also disaggregated by group duration and member's land holdings. Robustness of the treatment effects is tested by using different matching algorithms and different specifications of the probit model that generate propensity scores to be used for matching treatment and control observations. The concluding section discusses the conditions under which collective action is useful, and through what mechanisms the potential benefits emerge.

Within farmer groups, the commitment of individual members can vary, because the expected net benefits are not the same for all individuals and opportunities to free-ride exist. Sequential probit regression for categorical data and double-hurdle regression to model corner solutions explain participation in group meetings and collective marketing. Farmer characteristics such as size and degree of diversification are expected to influence the cost-benefit ratio. Structural and institutional' factors such as group size and the timing of group payments are also included as explanatory variables. Further policy implications are discussed in the concluding section.

With increasing returns to agricultural activity, women's access to land often declines, which can negatively affect household welfare. Hence, the third chapter analyses changes in gender relations due to farmer group participation and the effects on household food security and nutrition. Banana, being a major food crop in East Africa, traditionally falls into the women's sphere of control. Descriptive statistics are used to analyze whether men become increasingly involved in banana production and revenue decisions when market and technology access improve. Controlling for possible selection bias using instrumental variables and propensity score weighting, regression analysis is employed to test whether calorie consumption and dietary quality deteriorate when men seize control over revenues from banana production. Also, the determinants of women's control over banana output are assessed. Some wider implications on efficiency and equity are discussed, for example under what conditions collective action in food crop production can contribute to women's empowerment.

6. Results and policy implications

Are producer groups inclusive and do they benefit the poor and women? Producer groups in Kenya are inclusive of the poor and female farmers. The majority of randomly sampled member farmers are highly comparable to non-member farmers and no bias in terms of gender was found. Women are more likely to decide for col1ective marketing. Strong positive effects occurred for the poorest women, who are able to significantly increase their contribution to household income through membership in groups. Otherwise, asset ownership, credit and road access were found to play important roles in determining group membership, which hints at endowment and infrastructural constraints that prevent successful participation of some farmers.

What are the broader impacts of membership in producer groups on market access, technology adoption, and household welfare? Producer groups generate multiple benefits that go beyond the facilitation of market access. Positive impacts were found in terms of technology adoption, input use, application of improved agronomic practices, household incomes, food diversity, nutrition outcomes, and women's empowerment. The economic impact of group membership is positive, as farmers selling collectively obtain 23% higher prices. This is rather small in magnitude, particularly when considering the costs of group participation. However, agricultural innovation and agronomic information are important preconditions for commercialization. Hence, despite moderate market success, improving farmer's access to innovation and information, farmer associations contribute much to the commercialization of smallholders.

What determines farmers' intensity of participation in producer groups? When analyzing participation intensities, it became evident that producer groups experience the dilemma of collection action, where individuals sometimes act opportunistically. The groups' low marketing performance results in incomplete commitment among members, as many did not participate in collective marketing although they have benefited otherwise from access to clean planting material, as well as agronomic and commercial training. The intensity of participation depends not only on opportunistic behavior, but also on institutional and farmer constraints. Very small or large farm size, a high degree of crop diversification, delayed payments and large group size negatively influence the benefit-cost ratio and may thus lead to lower participation intensities.

Do producer groups contribute to marginalize women's position within agriculture? In other case studies, increasing agricultural productivity was often found to decrease women's control over land. In the case of banana farmers in Kenya, an increasing involvement of men in banana production and control over revenues was observed as result of group membership. This effect, however, was counteracted by female membership, which acts as an entitlement that enables women to better claim their traditional rights over banana output and revenues. While farmer associations in general may contribute to the marginalization of women, female membership in such groups may have the opposite effect and could thus be a powerful tool against women's marginalization in agriculture.

There are some major lessons learnt that may be helpful for policy makers to design and implement group-based market initiatives. In order to improve impact, commitment and distributional consequences of farmer collective action, several aspects should be kept in mind:

- Even in situations where transaction costs are high, the incentives for collective marketing of food crops may be small, since captured price premiums are too small to offset the costs of cooperative organization. The benefits may be larger if smallholders were directly linked to high-value or export markets, which often require coordination to fulfill tighter quality standards and obtain certification, but also entail better prices to offset the costs of organization.

- Regarding food crops, farmer associations can still be important drivers of technology and information dissemination for those who lack access and thereby improve rural food security. In this case, financing collective goods and services through collective marketing may not be the best strategy, as the monetary rewards are smaI1, and incomplete commitment exists. If associations depend on collective marketing, part of the group's revenues should flow back to its members as monetary rebates according to

quantity supplied. This would increase the incentives for the largest farmers to commit and thus contribute to the overall performance of collective marketing.

- Small farmers in Sub-Saharan Africa are often highly diversified in their crop activities. The advantages of producer groups are larger for highly diversified farmers if they promote several crops, which are similar in their market characteristics. This would raise the incentives for very small farmers to participate, as the unit transaction costs of participation decrease with size, and thus increase outreach.

- When proceeds are controlled by men, intensification and commercialization may not result in better welfare outcomes. Therefore, farmer associations need to take the gender dimension into account. Producer groups can contribute to the empowerment of women through promoting well defined female and male membership, instead of household based membership. Female membership enables women to better negotiate their claim on revenues. In addition, since women face gender constraints in accessing resources, groups should facilitate access to credits (e.g. through group lending) and complementary inputs in order to generate positive impacts for women, who often tend to be resource constrained.

- Public investment into agriculture should give priority to the provision of public goods. Donors and African governments seem to be keen on the idea of farmer collective action (Markelowa and Mwangi 2010). However, spending on agricultural research and road infrastructure have catalyzed the green revolution in Asia that lifted millions of smallholders out of poverty, even in the absence of collective action mechanisms. While improved road infrastructure facilitates marketing for all crops, collective action does so within high-value and export markets.

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