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**Effect of Social Capital on Performance of Smallholder Producer Organizations:
The Case of Groundnut Growers in Western Kenya**

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Effect of Social Capital on Performance of Smallholder Producer Organizations:

The Case of Groundnut Growers in Western Kenya

Abstract

Development literature has recently promoted the use of producer organization in linking farmers to better-paying commodity markets. However, empirical studies find mixed performance of such organizations. This study examines the producer organization's internal factors that may explain the differences in the performance of producer organizations. It specifically analyzes the role of social capital in a producer organization on the performance of such organization using quantitative techniques. As hypothesized, this study finds that social capital positively affects the performance of producer organizations. The implication of these findings is that development strategies that target commercialization of smallholder agriculture through producer organizations must pay attention to the internal factors within such organizations.

Keywords; *smallholder farmers, agricultural commercialization, social capital, performance of producer organizations, Kenya*

1. Introduction

Commercialization of smallholder agriculture remains one of the major challenges in Africa. Studies suggest that one of the major constraints to commercialization of smallholder agriculture is market access (Poulton et al, 2005). Past efforts to improve smallholder farmers' access to markets through market reforms have largely been ineffective. Consequently majority of African smallholder farmers still produce largely for subsistence needs. Majority produce small marketable surpluses and faces thin markets. Such markets are characterized by low activity, low volumes and non-competitiveness (Obare et al, 2006). The farmers face difficulties in transporting their produce to the markets often forcing them to sell at the farm gate. Lack of coordination among smallholder farmers limit their ability to bargain for higher prices and deny them the chance to exploit economies of scale from bulking together their individual small volumes. Consequently, African smallholder farmers face low prices than dampen the incentives to commercialize and expand production (Poulton et al., 2005). Smallholder farmers in Africa are therefore trapped in what has been described as a low level equilibrium poverty trap that is characterized by low production volumes, low marketable surplus and low investment (Barrett, 2008)

The small volumes traded coupled with high seasonal variability of demand and supply, as well as low prices limit market gains for most farmers in the rural areas. At the same time, the marketing chain tends to be long and fragmented and is usually characterized by multiple intermediaries with small transactions, repeated handling, and poorly organized marketing structures (Fafchamps, 2004). Consequently, smallholder farmers operate

under high transaction costs that prevent them from taking advantage of the market opportunities (Fafchamps, 2004; Poulton et al, 2006).

Recent literature has identified a number of strategies for overcoming the high transaction costs smallholders face and hence increasing commercialization. One such strategy is collective action in form of producer organizations. There has been aggressive promotion of producer organizations as a strategy for overcoming the high transaction costs in smallholder agriculture in Africa and hence encouraging commercialization (Okello and Swinton, 2007; Poulton et al, 2005). However, recent studies have found mixed evidence of the effectiveness of producer organizations in facilitating smallholder farmers' access to markets hence spurring commercialization. Empirical studies suggest that collective action among smallholder farmers can enable them attain economies of scale and hence improve their participation in markets (Okello, 2005; Narrod et al., 2008). However, other recent studies of several producer organizations find mixed performance of producer organizations in improving smallholder farmers' access to markets (Obare et al, 2006; Shiferaw et al, 2007).

This paper presents a study of several smallholder producer organizations that aimed at understanding the factors that affect performance of such organizations. In particular, the study examined the role of internal factors on the level of commercialization of the producer organizations. We combine these producer organization's internal factors into an index of social capital. This paper therefore investigates an aspect of collective action that might be instrumental in understanding why some organizations perform well while

others don't, namely, the role of social capital on performance of smallholder producer organizations. We hypothesize that the observed differences in the performance of producer organizations can be explained by the differences in the organizations' level of social capital.

This study focuses on groundnut marketing smallholder producer organizations in western Kenya. The organizations were mobilized by the International Crops Research Institute for Semi Arid Tropics between 2005 and 2007 to promote adoption of higher yielding varieties of groundnuts. Majority of the organizations already existed while a few formed by farmers themselves in response to the project. The rest of this paper is organized as follows. Section 2 discusses conceptual framework. Section 3 reviews literature on the role of social capital in performance producer organizations. Section 4 presents the empirical methods. Section 5 presents the results and discussion while Section 6 concludes.

2. Theoretical framework

The study is based on both the New Institutional Economics (NIE). NIE developed as a result of the limitations of the assumptions of neoclassical economics (Doward et al, 2005). In contrast, neoclassical economics is based on the assumption of perfect competition, exchange as a frictionless and costless process and it contends that where costs exist, they are passive and therefore not important. It also assumes that institutions are exogenous or given. However, North (1993) argues that the neoclassical result of efficient markets can only be obtained when it is costless to transact business or carry out

exchange but maintains that institutions matter when exchange is costly. North (1990) defines institutions as a set of formal (laws, constitution, contracts, political systems, organizations and markets) and informal (norms, traditions, customs, value systems, religions and sociological trends) rules of conduct that facilitates coordination or govern relationships between individuals or groups. These institutions, together with the standard constraints of economics (capital, land, labour, technology), define the choice set and therefore determine transaction and production costs, and hence the profitability and feasibility of engaging in an economic activity (North 1991). Institutions are therefore incorporated as an additional constraint in the objective function under the NIE framework.

NIE acknowledges the important role of institutions, and posits that one can analyse institutions within the framework of neoclassical economics. It relaxes some of the assumptions of neo-classical economics, such as perfect information, zero transaction costs and full rationality, but maintains the assumption of scarcity and competition. Hence in the context of NIE, producers adopt strategies such as collective action to overcome the constraints of costly exchange and hence maximize profits.

3. Social capital and the performance of rural producer organizations.

Kherallah and Kirsten (2001) argue that overcoming the problem of high transaction costs requires that smallholder producers rely on external rather than internal economies of scale through collective action. Hollaway et al (1999) suggests participatory, farmer-led producer organizations that handle output marketing, usually after some form of

bulking to address the problem of market access. Rural producer organizations are the various forms of organizations that perform production and marketing for members (Stockbridge et al, 2003).

Rural producer organizations enable farmers to have improved access to market for their products at a fairer price (Hollaway et al, 1999). They help members by aggregating the volume of produce over the number of producers, finding a trader interested in buying, negotiating the price and quality specifications, assembling the product for the delivery date and quantity agreed, collecting payment, paying farmers and retaining a small margin for the organization to cover its expenses. The way rural producer organizations perform their useful role is centered on three mechanisms: the sharing of information among members, the reduction of opportunistic behavior, and the facilitation of collective decision-making (Grootaert 1997; Collier 1998).

Various studies have highlighted the importance of collective action in improving the welfare of rural small-scale producers (Lyon 2003; Darr 2005; Milagrosa and Slangen 2006; Hellin et al, 2007). Hellin et al (2007) and Darr (2005) suggest that collective action facilitates easier access to commodity markets, technical skills and market information. Rural producer organizations can facilitate low cost access to information, thereby stimulating technology adoption and enhancing contract enforcement (Narayan and Pritchett 1999; Grootaert 1999). They are also important in organizing market access, input supply, savings and credit, and informal insurance (Narayan and Prichett 2000). Rural producer organizations lower the transaction costs of marketing produce by

eliminating some of the intermediaries and also enable farmers to capture the economies of scale of joint marketing.

Fafchamps (1998) argues that, by sharing information on bad players in a decentralized manner, rural producer organizations help the members to lower screening costs. Sharing information also reduces the cost of searching for market information, which entails transaction costs. Cooperation amongst farmers in negotiating prices with traders increases their bargaining power and empowers them to have greater control over the setting of prices and also reduces the time and the cost of marketing. Therefore, rural producer organizations can have an impact on poverty through increasing local incomes and money flows in the rural economy, opening networks and opportunities outside the community, increasing rural employment and reducing migration to urban areas (Lyon 2003).

The success of a rural producer organizations and collective action in reducing transaction costs depends on social capital (i.e. the level of cooperation or networking between its members) among other factors. Serageldin and Grootaert (2000) argue that the capacity to fulfill the producer organizations' interests depends on the social structures internal to the organization, structures that organize the formulation and enforcement of rules, making and implementation of collective decisions and actions. These internal structures constitute social capital. Consequently, the recognition that social capital is an input in a household's production function has major implications for any development policy. It implies that the acquisition of human capital and the

establishment of a physical infrastructure needs to be complemented by institutional development (i.e. social networks), in order to reap the full benefits of these investments.

4. Empirical methodology

4.1 Measuring social capital

Given that social capital is most frequently defined in terms of the groups, networks, norms, and trust that people have available to them for productive purposes, the survey tool in this study is designed to capture this multi-dimensionality. Six indicators of both structural (i.e. density of membership to local associations, diversity in the rural producer organizations, frequency of attendance to rural producer organization's meeting and level of democracy in decision making) and cognitive social capital (trust and solidarity among members in the rural producer organizations), borrowed from previous studies are estimated using proxies and are used to construct social capital indices. The key assumption is that networks built through social interactions have measurable benefits to the participating individuals and lead directly or indirectly to a higher level of well being.

Density of membership is measured by the number of local associations each household belongs to while internal diversity of the organization is measured using seven criteria; diversity in neighborhood, family/kinship group, age, denomination, income group, gender and tribe. Frequency of attendance to meetings is measured through a three scale criterion i.e. "never", "sometimes" and "always". The level of democratic decision-making in the organizations is measured by asking organization's members to state how decisions are made in their respective groups. Trust is measured using indicators of

generalized and specialized trust. The generalized trust is estimated by asking the question “can most people be trusted?” The question is treated as a binary variable. Specialized trust is estimated by asking the respondents to rank three types of people they trust most against a seven criteria that included family, fellow farmers, church leaders, rural producer organizations’ members, political leaders, traders and friends. Level of solidarity in the rural producer organization is captured by questions regarding what the household would receive or give out in times of famine. Five items that the household would help other needy households with or receive during drought or famine are seed, grain, other food items (including cooked food), clothes and cash.

4.2 Modelling the effect of social capital on the performance of rural producer organizations

Since produce marketing was the focal activity in such organizations, performance of rural producer organizations was proxied as the mean level of commercialization of the organizations’ membership. The organization’s mean level of commercialization is calculated as the mean value of produce sold in Kenya Shillings (Kshs) by the sampled organization’s members, divided by the mean value, in Kshs, of crops produced by the organization’s members in 2006. The model includes the social capital indicators variables, which are averaged among the group members, among the explanatory variables. Other explanatory variables include the mean level of education for the members of the organization, age of the leader, gender of the leader, size of the organization, age of the organization, distance to the nearest motorable road in kilometers, district dummies (tdist and sdist), presence of by-laws and mean land operated by members in hectares.

4.3. Data and sampling

Both primary and secondary data are used. Primary data was collected at both household and rural producer organizations' level using pre-tested questionnaires to elicit information. The rural producer organization level questionnaire was administered in the focus groups consisting of seven respondents, while personal individual interviews were conducted at household level.

The survey was carried out in 2007 in three districts of Kenya i.e. Siaya, Teso and Homa bay. The data was collected from 225 members of 45 rural producer organizations. The three districts were purposively selected from among all the districts in which the International Crop Research Institute for the Semi Arid Tropics had facilitated formation of rural producer organizations. The districts were selected to cover the major agroclimatic zones in the project area. In each district, three divisions were purposively selected based on groundnut production potential and agroclimatic conditions. In each division, a list of all the rural producer organizations with more than 10 members was drawn and five organizations randomly sampled from the list to give a total of 45 organizations. A complete list of all members of each sampled organization was obtained from the organizations' leaders and five members randomly selected from the list giving rise to 225 farmers.

5. Results and discussion

Table 1 presents the results of a least squares regression fitted to test the effect of social capital on the performance of rural producer organizations. The dependent variable is the mean level of commercialization (measured as the average value in Kenya Shillings of produce sold through the producer organization to the average value of crops produced by organization's members). Results show that the various dimensions of social capital affect the performance of rural producer organizations, both positively and negatively. A unit increase in the index of diversity of producer organizations increased the organization's level of commercialization by 0.364. More heterogeneous rural producer organizations were therefore more likely to perform better probably due to diversity in ideas and complementarity of skills. This finding corroborates those of Grootaert (2001) who find that among social capital dimensions, heterogeneity of a group has a positive impact on household welfare. The finding however contradicts those of Nagarajan et al (1999) who find that homogenous groups perform better. They argue that membership homogeneity reduces information problems and ensures members have common interest. All the rural producer organizations interviewed in the study received same production and marketing information from the project field staff. Therefore, major information problems were not expected contrary to the situation studied by Nagarajan et al (1999).

Table 1: Effect of social capital on the performance of rural producer organizations, 2008, OLS regression

Dependent variable: Index of mean level of commercialization for rural producer organizations' members

Robust	Coefficients	p- values
Constant	-2.427	0.023**
Mean density of membership to groups	0.008	0.913
Log of mean diversity index	0.364	0.015**
Log of mean decision making index	0.238	0.060*
Log of mean solidarity index	0.300	0.002***
Log of mean meeting attendance index	0.124	0.014**
Log of mean trust index	-0.190	0.096*
Age of organization's leader	-0.002	0.086*
Gender of organization's leader	0.009	0.825
Log of organization's size	0.047	0.100*
Age of the organization's	-0.003	0.562
Log of distance to the road	0.022	0.027**
District dummy Teso=1 0= otherwise	-0.107	0.286
District dummy Siaya=1 0= otherwise	0.106	0.317
Dummy for presence of bylaws 1=yes 0=no	0.158	0.098*
Log of mean land operated by members	0.204	0.010***
Mean education of group members	-0.006	0.637

*** = significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level (two tail test).

Number of observation = 45
F (16, 28) = 10.24
Prob > F = 0.0000
R-squared = 0.7535
Adj R-squared = 0.6126
Root MSE = 0.10465

Source: Author's survey

The results also show that organizations that followed a democratic (i.e., consensus) method of decision-making performed better. A unit increase in the index of democracy

in decision-making increased the organization's level of commercialization by 0.238, *ceteris paribus*. This finding suggests that seeking members' consensus in decision-making allows members to make decisions that suit them best thus making their organization perform better. It corroborates the findings of Grootaert (1999), who finds that farmer-associations that follow a democratic pattern of decision-making perform better (in terms general household welfare) than others. The findings also corroborate those of Shiferaw et al (2006) which suggest that the effectiveness of collective action is affected by the extent of participatory decision-making in a group.

The degree of solidarity among producer organization's members also affects its performance. Other things equal, a unit increase in the organization's solidarity index increased its performance by 0.3 and significant at one percent error level. This finding suggests that higher level of solidarity leads to cooperation among members and hence increased level of commercialization. The results further indicate that frequency of attendance to organizations' meetings positively affected its performance. All things constant, a unit increase in the organizations' meeting attendance index increased its performance by 0.124. As expected, these results indicate that organizations whose members were more diligent in attending meetings perform better. This is probably because farmers who regularly attended their organizations' meetings acquired better crop production skills and marketing strategies leading to higher productivity and hence crop sales.

The results further indicate that higher level of trust in rural producer organizations reduced the mean level of commercialization in it. A unit increase in the organization's level of trust decreased the level of commercialization by 0.190. Although most forms of economic exchange require trust, there appears to be a weak and/or insufficient legal protection in trust-based transactions (Fafchamps 2004). In deed, Knack (1999) argues that the type of trust that is unambiguously beneficial to economic performance is that between strangers. In societies where strangers can trust each other to act in the collective interest, people can contract with a wide range of parties without extended written agreements. However, in the current study, trust was mainly reported for family members and church leaders, i.e. people who had interacted repeatedly. Consequently, this type of trust had a significant negative influence on the performance of the rural producer organizations suggesting that it limits the number of actors the smallholder farmers can comfortably transact with without fear of being cheated.

As the foregoing discussion indicates, the various dimensions we used to assess the effect of social capital on the performance of producer organizations have opposing effects. In order to determine the direction of the overall effect of social capital on the performance rural producer organizations, we performed a joint-exclusion test involving all the social capital variables. We specifically tested the null hypothesis that all the social capital variables do not affect the level of organizations' commercialization. The alternative hypothesis is that at least one of the social capital variables affects the level of organizations' commercialization. The result of this Wald test yields an F statistic of 3.34 and a p-value of 0.017. These results indicate that social capital has an overall

positive and significant effect on the performance of producer organizations. It therefore supports our hypothesis that internal and external factors within a producer organization (measured as social capital) affect how well an organization performs.

A number of conditioning variables included in the least squares regression model namely as age of the organization's chair, possession of by-laws, and organization's size also affect the performance of producer organizations. Other things equal, an increase in the age of the organization chair by one year reduced the performance of the organization by 0.002 suggesting that older leaders were less likely to effectively manage a producer organization as they would be less productive. However, the effect was negligible, though statistically significant.

Results also show that producer organizations that had by-laws performed better than those that did not. By-laws provide guidelines regarding what members can or cannot do. Indeed, some of the organizations had a by-law that required members to sell all their produce through them. Possession of a by-law increased the performance of the rural producer organizations by 0.158, *ceteris paribus*. Results further show that organization's size affects its performance. All other things equal, increasing the size of a producer organization by one member raised the level of commercialization by 0.047. The finding however contradicts those of Leathers et al (2001), who find that smaller groups have better access to information and are better able to confront challenges, hence better performance. In contrast to Leathers (2001), all the members of producer organizations

we studied had equal access to information through regular training on production and marketing strategies.

The other control variables that affect the performance of producer organizations are the distance between the organization and the main road and land ownership. All else equal, an increase in the distance to the road by one kilometer increased the organization's level of commercialization by 0.022. Since distance to main road often captures the level of transaction costs, the results suggest that smallholder farmers were more likely to sell their produce through the organization as transaction costs of reaching alternative markets increased. As expected, this study finds that land ownership increases the level of commercialization of the farmer group. A unit increase in the amount of land operated increased the performance of the rural producer organizations by 0.204, *ceteris paribus*. Larger size of land would most likely lead to an increase in production, hence an increase in the amount of produce sold in the market.

6. Conclusion and policy implications

Development literature currently promotes producer organizations as means for achieving commercialization of smallholder agriculture. However findings of recent empirical studies of such producer organizations find mix performance. This study uses quantitative methods to test the effect social capital on performance of such organizations. As hypothesized, the results of this study find that social capital (measured in terms of group diversity, participatory/democratic decision-making and solidarity) affects how well a producer organization performs.

Based on the results of this study, we conclude that social capital increases the level of commercialization for smallholder farmers as indicated by the improved performance of their respective rural producer organizations. The analysis of the farmers' organizations in rural western Kenya thus revealed that the mixed performance of producer organizations can be explained by the differences in the level of social capital in each organization. It implies that even though producer organizations may be accorded the same services, internal factors within the producer organizations will influence the way these organizations perform their roles. Attention must therefore be given to these internal factors, in the design of development strategies that target the commercialization of smallholder agriculture through producer organizations.

The empirical results obtained in the study raise several issues pertaining to small-scale farmers' integration to the commercial economy. Smallholder agriculture is an important source of livelihood and household income. However, there are a number of challenges that threaten this livelihood source. This study finds that social capital increases rural producer organizations' level of commercialization. Hence another major policy implication of these findings is that rural producer organizations have the capacity to reduce rural poverty by enhancing increased commercialization of the smallholders' production. The findings further imply that governments, non-governmental organizations and other development partners should take a pro-active role in organizing and facilitating the formation of smallholder rural producer organizations and linking them to markets. In addition, governments should encourage their formation by

eliminating or reducing some of the legislation requirements that are often prohibitive in the formation of such organizations.

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