

Full Length Research Paper

Correlates of group-membership by small-scale farm entrepreneurs in Kenya

Isaac K. Ngugi* and Daniel K. Kariuki

Tegemeo Institute of Agricultural Policy and Development, Egerton University,
P.O. Box 20498 (00200) Nairobi, Kenya.

Accepted 28th November 2008

Organizations of small-scale farm entrepreneurs play a key role in organizing the production, processing and marketing of crop and livestock commodities in Kenya. Membership to such organizations is considered to yield economic benefits to farmers as well as promote their general welfare. This study assesses the association between membership to groups and household attributes or welfare indicators using 1097 households drawn from panel database of Tegemeo Institute of Egerton University. The households that had members joining the groups were characterised by higher incomes, higher education level of head of household, greater access to credit, assets of higher value, more cultivated land and higher adoption of modern agricultural technologies. There was a positive correlation between membership to a group and household welfare. This underscores the need to promote formation of smallholder farmers' organizations as well as support their sustainability.

Key words: Farmer-groups, household-attributes, smallholder farm entrepreneurs.

INTRODUCTION

Smallholder producer organizations play a key role in organizing the production, processing and marketing of crop and livestock commodities in Kenya. Nevertheless, in the context of liberalization, regionalization and globalization, poor rural farm entrepreneurs in the developing world are now faced with many powerful actors at the national and international levels. In the rural agricultural sector, producers are now directly confronted with international competition (Cirad-ODI, 2001). This has created concerns that poor smallholder farm entrepreneurs are unlikely to benefit from trade liberalization and globalised markets if they remain atomized and operate singly. This is due to the apprehension that they cannot normally achieve the scale of production, efficiency and quality required to compete unless they operate collectively.

By pooling the meagre resources of small-scale farm entrepreneurs, a smallholder organization can harness the positive externalities of scale to improve the productivity, and ultimately the welfare, of all its members. The

The benefits of collective organization that members can expect include but are not limited to, improved access to credit and extension services, and greater bargaining power to leverage for more competitive prices and advocate for more conducive policies. Farmer-groups are likely to reduce transaction costs and to redistribute rights in favour of farmers (Staatz, 1986). The organizations facilitate development of agriculture and agricultural related activities, thereby, increasing the local resource base needed to finance local public services or investments (World Bank, 2000).

Building strong and economically effective organizations is one way in which rural producers may gain a stronger voice to advance their interests both in the market and in policy making. The purpose of an organization is to further its members' common interest, therefore the individual group members' interests as well (Olson, 2005). Organizations can dramatically increase the ability of individuals to command entitlements to food and other basic needs and to draw down agricultural services and technology especially because these are fundamentally dependent on an ability to wield political and economic power. Producer organizations are in general important in alleviation of poverty, improving food security and promoting sustainable agriculture and development.

*Corresponding author. E-mail: ikomo@tegemeo.org,
isakommo@yahoo.com. Tel: 254-20-2717818. Fax: 254-20-2717819

Worldwide, majority of people who are poor live in rural areas and agriculture or agriculture-related activities are the mainstay of their livelihood. In Kenya, over 87% of the Kenyan population live in the rural areas and derive their livelihoods, directly or indirectly, from agriculture (GOK, 2001). Crop and livestock sectors that are dominated by small-scale production systems have their own inherent problems that emerge due to the number and size of individual production units. For example, they cannot access market information, extension, and credit and nor can they realize economics of scale. Their physical access to markets is also limited and they have to incur huge transaction costs to access them.

Helping producers get organized and strengthening their capacity is one of the ways to contribute to the fight against rural poverty, addressing two of the four dimensions of rural poverty: empowerment and capabilities. Strengthening producer organizations capacity is also an investment in social capital that complements investments in other forms of capital: human, physical and financial. The diversity among rural people making a living in agriculture is impressive; covering crop and livestock production, forestry and fisheries, processing of agricultural products, and all other aspects of natural resource management.

One strategy for rural producers to draw themselves out of poverty is organizing to (a) more effectively manage their own assets; (b) gain access to services, inputs, credit, and markets; and (c) have more effective input in decision making processes that affect their livelihoods (Marie-Helene and Pierre, 2001). Most often, the benefits of producer organizations to smallholder farm entrepreneurs are qualitatively stated usually without being backed by evidence. This study builds on this by demonstrating empirically the cascade of benefits to households that are associated with joining producer organizations.

METHODS

Data collection

Data used in this study were extracted from Tegemeo Institute's panel database. Being panel data, the same households were interviewed over the years. The data were obtained through rural household surveys covering about 1500 households. Administratively, the households spanned at least 24 districts, 39 divisions and 120 villages. Tegemeo Institute of Agricultural Policy and Development has been collecting panel data since 1997 to analyze variations in household indicators with regard to performance in agricultural production, food security, income and other key socio-economic indicators for households in Kenya. The attributes considered in this study include income, use of agricultural inputs, level of education, access to credit, acreage of land under cultivation, value of assets and market access.

Data management and analysis

The data were analyzed to assess the association of joining producer organizations and household's attributes. Although the

total number of households interviewed from year to year varied due to attrition, at least 1097 were included in each of four surveys (1997, 2000, 2002 and 2004) and hence this was the number used in analysis in this study. Nevertheless, the 2002 dataset though important in informing on the specific groups and reasons for not joining groups, like the 1997 dataset had limitations and therefore we focus the analysis on association of group membership and household attributes based on 2000 and 2004 datasets.

For the sake of analysis, group membership was divided into four categories namely: members, new members, dropouts and other non-members. Members refer to households that had at least a household member that had joined a group in both previous year of survey and in the year under consideration. New members refer to households that did not have any member that had joined a group in a previous year but had in the year under consideration. Dropouts refer to households that had at least a member that had joined a group in the previous year of survey but had withdrawn membership in the year under consideration. Other non-members refer to the households that did not have any household member that had joined a group in both the previous year of survey and in the year under consideration. The Least Significance Difference (LSD) post hoc test was conducted to test the significance of the mean difference in attributes across the household categories.

RESULTS AND DISCUSSION

Types of groups that households belonged to

There are many forms of groups or organizations that farmers may join. They include: agricultural cooperative societies, self-help groups, Savings and Credit Cooperative Societies (SACCOs), agricultural associations and multi-purpose organizations. In this study, the specific types of organizations that farm entrepreneurs joined are shown by Table 1. The results indicate that most households that had members joining groups belonged to agricultural cooperative societies with the organizations accounting for 47% in year 2002 and 54% in year 2004. Non-agricultural organizations accounted for only 39% of the households in year 2002.

Reasons for not joining groups

The 2002 survey sought information on the reasons why the applicable households did not have any member joining a group (Table 2). The information was however not elicited in the other years.

Considering the 2002 survey data, 95% of households suggested one of five main reasons for not being members of a group. These were lack of: an organization in the area, enterprise that organizations in the area dealt with, interest, time and fear of mismanagement based on previous experiences. Among these, close to 50% of the households suggested that they were not members due to lack of an organization that they could join in their vicinity. This among others could be due to farmers' ignorance on existing groups or may be that the process of forming a group is so complicated that farmers are unable to form groups that they could become members.

Table 1. Types of organizations that households belonged, 2002.

Year	Organization	N	% of year's total
2002	Cooperative societies	437	47
	Associations	25	3
	Farmer groups	99	11
	Community-based organizations	5	1
	Self-help (non-agricultural) groups	363	39
	Total 2002	929	100
2004	Producer cooperatives	454	54
	Multi-purpose cooperatives	4	0
	Savings and credit cooperatives	52	6
	Informal self help groups	347	40
	Total 2004	857	100

Source: Tegemeo Institute household panel survey data.

Table 2. Reasons for non-membership of a group, year 2002.

Reason for not joining group	N	% of total
No organization in the village to join	250	47
Not interested	84	16
Fear of previous experience related to mismanagement	59	11
Did not have time to participate as member	47	9
Did not have enterprise that qualified one to be a member	65	12
Experience bad conditions or conflict with neighbors	1	0
Not aware of benefits	1	0
Sickness or old age	7	1
Did not have money for membership or subscription fee	13	2
Distance too far	1	0
Total	528	100

Source: Tegemeo Institute household panel survey data.

Group membership and income, land size and assets

The household data analysis compared different income sources for households that belonged to a group and those that did not and an important link emerged. In 2004, the mean crop income for other non-members was KShs. 48553 while that for members was KShs. 67535 (39% higher). This difference was statistically different at 0.05 significant levels (Table 3). Likewise, in 2000, the mean crop income for other non-members was KShs. 40589 while that for members was KShs. 73251 (80% higher) and the difference was statistically different at 0.05 significant levels (Table 3). This implies that the production of households belonging to groups was higher assuming constant prices; else the quality of their produce was superior hence fetching higher price and consequently higher income. Higher production may arise from intensification in use of input necessitated by improved access to farm inputs through stores owned by producer organizations, as was common with cooperative

societies in Kenya, or access to financial credit that in turn they used to buy the inputs. On the other hand, higher quality may arise from improved farm management practices, handling and hygiene. This is common with members of farmer groups due to being more informed since organizations commonly improve access to information and usually facilitate or offer training. Just like with crop income, the overall mean net income per annum for households that belonged to groups was KShs. 181016 in 2004 and KShs. 156943 in 2000 and these were 65 and 59% higher respectively than for households not belonging to a group. The difference was again statistically significant at 0.05 levels. This shows a positive correlation between level of incomes and membership to producer organizations. This consequently implies that households without members joining producer groups are more likely to be poor than those with membership status.

In regard to cultivated land, while in year 2000 the mean cultivated land of non-members was 5 acres (16% less

Table 3. *p* values of statistical tests of mean difference of attributes across household categories, 2004 and 2000.

Year		Crop Income	Livestock Income	Off farm Income	Total Household income	Cultivated acreage	Value of assets
2004	Members vs. New Members	0.026*	0.233	0.467	0.061	0.128	0.155
	Members vs. Dropouts	0.000*	0.603	0.033*	0.001*	0.238	0.069
	Members vs. Other non-members	0.034*	0.801	0.006*	0.001*	0.957	0.288
	New Members vs. Dropouts	0.768	0.488	0.473	0.61	0.576	0.942
	New Members vs. Other non-members	0.819	0.454	0.165	0.417	0.253	0.723
	Dropouts vs. Other non-members	0.558	0.889	0.386	0.681	0.454	0.735
2000	Members vs. Dropouts	0.686	0.311	0.159	0.385	0.514	0.825
	Members vs. Other non-members	0.000*	0.207	0.000*	0.000*	0.317	0.021*
	Dropouts vs. Other non-members	0.078	0.525	0.789	0.473	0.721	0.667

*Mean difference significant at 0.05 levels.

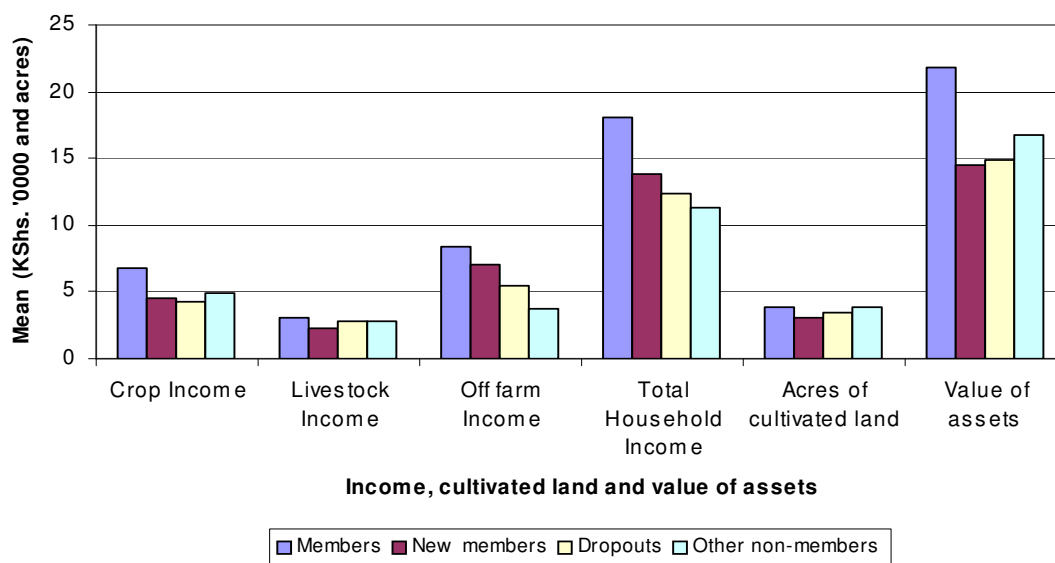


Figure 1. Mean nominal net income, cultivated landsize and value of assets of various categories of households, 2004.

less than for members), in year 2004 it was 3.8 acres and this was common between the two groups though less than land sizes in previous years. This may be attributed to the ever-increasing population prompting the segmentation of large parcels of land. The value of assets of households that were members of a group were KShs. 217425 in 2004 and KShs. 156416 in 2000 and these were 30 and 77% higher than for non-members in the respective years. This is an indication that farmer-organizations in addition to promoting production at farm level also enhance acquisition of assets by households or farm entrepreneurs.

In 2004, considering incomes from different sources (crop, livestock and off-farm), size of cultivated land and value of assets, the households that had members belonging to a group registered the highest mean (Figure 1). This may be attributed to the positive spill-over effects that the groups have on the households.

Similar to 2004 sample, the general observation shown by Figure 2 representing means of various categories of households shows those with members joining groups having the highest values. In contrast, those that had withdrawn from groups compared to members and other non-members registered the highest mean crop income

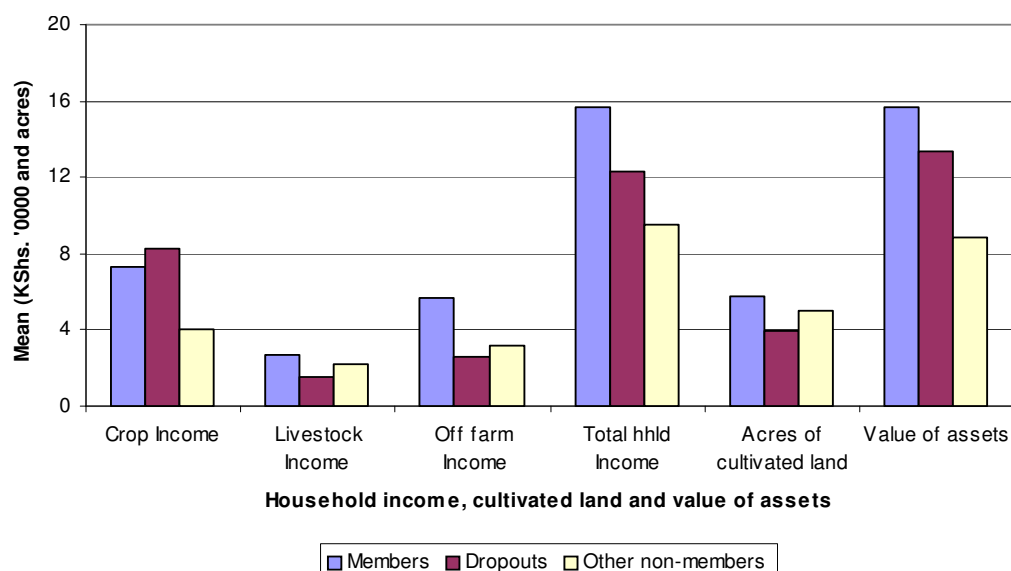


Figure 2. Mean income, acres and assets of various categories of households, 2000.

Table 4. Group membership and education level of household head.

Year	Educational level	Members		New members		Dropouts		Other non-members	
		N	%	N	%	N	%	N	%
2004	No education	120	15	14	19	28	19	35	38
	Primary 1-4	150	19	13	18	38	26	20	22
	Primary 5-8	262	33	30	41	50	34	23	25
	Secondary	197	25	15	20	26	17	9	10
	Post Secondary	54	7	2	3	7	5	4	4
	Total	783	100	74	100	149	100	91	100
2000	No education	127	14	n/a	n/a	3	23	54	28
	Primary 1-4	189	21	n/a	n/a	5	38	40	21
	Primary 5-8	302	34	n/a	n/a	3	23	63	33
	Secondary	216	24	n/a	n/a	2	15	23	12
	Post secondary	59	7	n/a	n/a	0	0	9	5
	Total	893	100	n/a	n/a	13	100	189	99

Source: Tegemeo Institute household panel survey data.

income. The mean difference however is not statistically significant at 0.05 levels (Table 3) and hence the scenario cannot be generalized.

Group membership and education

Table 4 presents information on group membership and education level of household head. The proportion of household head with post secondary level education was highest with members of groups (7%) in both the years under consideration. In contrast, this category had the least proportion of households that did not have any formal education, 15 and 14% in years 2004 and 2000 respectively compared to other categories. This is an

indication that membership to a group is associated with higher levels of education. Given that education is predetermined at the time of joining a group, it may be deduced that the greater educational attainment of household heads increases their propensity to join the producer organizations. Promotion of formal education is therefore important since this would at least concomitantly increase membership to producer organizations.

Group membership and use of agricultural inputs and crop productivity

Table 5 presents the relationship between group membership and use of agricultural inputs or technology adop-

Table 5. Group membership and technology adoption and access to Credit.

Technology/input	Group membership	2004		2000	
		N	%	N	%
Fertilizer	Members	621	79	202	23
	New members	48	65	n/a	n/a
	Dropouts	102	68	2	15
	Other non-members	61	67	84	44
Chemicals	Members	231	30	66	7
	New members	14	19	n/a	n/a
	Dropouts	40	27	0	0
	Other non-members	16	18	2	1
Manure	Members	21	3	269	30
	New members	1	1	n/a	n/a
	Dropouts	1	1	6	46
	Other non-members	1	1	87	46
Certified maize seeds	Members	568	73	720	81
	New members	40	54	n/a	n/a
	Dropouts	99	66	8	62
	Other non-members	58	64	125	66
Credit	Members	342	44	401	45
	New members	13	18	n/a	n/a
	Dropouts	20	13	3	23
	Other non-members	6	7	144	76

Source: Tegemeo Institute 2000 and 2004 household survey data.

adoption. Fertilizers comprised 22 types including DAP, SSP, NPK, CAN and UREA. Chemicals comprised pesticides, fungicides, herbicides and insecticides. Certified maize seeds included purchased hybrid and purchased open pollinated varieties. A striking relationship between technology adoption and membership to a group is seen in the use of chemicals and certified maize seeds. In 2004, 30% of members used chemicals compared to 18% of non-members, 19% of new members and 27% of dropouts. Likewise, in year 2000, the highest proportion in usage of chemicals is seen with members of a group (7%). At least 73% of members used certified maize seeds in both 2004 and 2000 seasons. This was the highest proportion across membership categories.

Table 5 also shows the relationship between households' access to credit and membership to a group in the two years, 2000 and 2004. Credit included was both in kind and in cash. Both the number of households per category and respective proportions are presented. For the year 2004, at least 44% of the households that were members of group obtained credit. On the contrary, only 13 and 23% of households that had withdrawn their membership obtained credit in the years 2004 and 2000, respectively. Producer organizations are generally known to promote access to credit and this is asserted by these results.

As would be expected, for the enterprises where there were significant differences in productivity across the

farm entrepreneurs' categories, the yields were generally higher with members than with non-members (Table 6). This was remarkable pertaining to the crops: maize, beans, wheat, and mangoes. This as noted earlier may be attributed to increased use of modern technologies by members in comparison to non-members of producer groups.

Group membership and market access

Table 7 summarizes the outlets where the households sold their produce and also the average product prices that characterised each outlet. Majority of both members and non-members of groups sold their produce either to small traders or directly to consumers. However the proportion accounted by the two channels was higher with non-members (97%) than with members (90%) probably due to limitation of non-members in accessing larger traders. Unlike non-members that operate singly, members by operating collectively are more likely to meet the high volumes that are usually demanded by larger traders, thereby promoting their access to such markets. All the outlets except three were marked by higher average price for members' than for non-members' category. The higher average prices that characterized member outlets may be attributed to increased bargaining power emanating from collective marketing. Further, it

Table 6. *p* values of statistical tests of mean difference of productivity across household categories, 2000 and 2004.

Year		Maize	Beans	Bananas	Wheat	Kales	Mangoes	Oranges	Cabbages
2004	Members vs. New Members	0.394	0.401	0.938	0.527	0.5	0.005*	0.865	0.264
	Members vs. Dropouts	0.066	0.323	0.401	0.487	0.091	0.792	0.895	0.36
	Members vs. Other non-members	0.062	0.132	0.281	0.734	0.398	0.256	0.185	0.388
	New Members vs. Dropouts	0.06	0.922	0.637	0.81	0.625	0.037*	0.937	0.136
	New Members vs. Other non-members	0.047*	0.679	0.477	0.769	0.267	0.275	0.334	0.156
	Dropouts vs. Other non-members	0.733	0.554	0.746	0.907	0.067	0.438	0.237	0.865
2000	Members vs. Dropouts	0.805	0.349	0.972	0.837	0.839	0.772	0.578	0.585
	Members vs. Other non-members	0.072	0.031*	0.75	0.038*	0.562	0.679	0.777	0.571
	Dropouts vs. Other non-members	0.449	0.778	0.886	0.243	0.999	0.69	0.533	0.695

Mean difference significant at 0.05 levels.

Table 7. Buyer for the largest sale transaction and respective mean price per unit, 2004

	Members of group				Non-members of group			
	N	Column %	Row %	Price.	N	Column %	Row %	Price
Small trader	4218	64.2	80.8	619	1004	66.9	19.2	593
Consumer	1683	25.6	79.1	466	446	29.7	20.9	364
Coffee cooperative	289	4.4	98.3	19	5	.3	1.7	3
Other cooperative	10	.2	100.0	665	-	-	-	-
KTDA	208	3.2	98.6	18	3	.2	1.4	15
Large company	107	1.6	81.7	1197	24	1.6	18.3	1170
Miller	38	.6	74.5	1168	13	.9	25.5	1328
NCPB	13	.2	72.2	1210	5	.3	27.8	1242
NGO	-	-	-	-	1	.1	100.0	200

it could be attributed to higher product quality that attracts premium. Members of producer groups are more likely to produce products of higher quality due to higher adoption of modern technologies and access to technical information through training that is normally facilitated by producer organizations.

Conclusions and recommendations

This study assessed the association between membership to farmer groups and households' attributes. The results suggest an association between the variables and membership to the organizations of smallholder farm entrepreneurs.

The households that had joined the organizations performed better in agricultural production, accumulation of assets and poverty alleviation. These signify the cascade of economic benefits associated with joining producer organizations. The results also show a positive correlation between level of education of household head and mem-

bership to the groups, an indicant of relevance of knowledge and skills. Being the main decision makers of producer organizations, it is important that farmers are well educated, trained and sensitized on important issues. Building of the capacity of farmers and concomitantly producer organizations would likely improve their bargaining power and consequently boost value creation especially in connection to marketing of their commodities.

The findings indicate the lack of a producer group in the locality as the main reason why farmers have not joined groups. In this regard, it is important that farmers are sensitized on how to form producer groups. If the formation process is characterised by certain hurdles, then these need to be identified and addressed. In other words, it is essential for the relevant stakeholders such as government, donors and non-governmental organizations to support strategies that promote formation and sustenance of farmer groups. For instance, emphasis needs to be given to promoting infrastructure and institutional investment in the small-scale resource-poor farming regions. This will enable farm entrepreneurs to have access to education, research and extension, credit and markets as well as to strengthen their own organizations.

Based on this study, a number of areas for further research may be suggested. First, the scope of this study was limited to the analysis of the association between household attributes and membership to groups. Thus, further research would be relevant especially in analysis of causality and impacts across the variables. This would generate more information. Second, this study identified the scenario of some members joining and others withdrawing from the groups each year. The reasons for so doing were however not explored, implying a potential area for further research. Such information would be relevant at least in generating a proxy for assessing the performance of the groups and further, it would be useful if complemented with other analysis including impact of

group membership on poverty alleviation and also in community analysis studies. Lastly, an understanding of the perception of farm entrepreneurs towards the groups would also be valuable. In conclusion, the findings and policy implications discussed above and the identified gaps for further research state some of main contributions of this piece of work in relation to producer organizations.

ACKNOWLEDGEMENTS

This study would not have been possible without the financial support provided by the USAID Mission Nairobi through Tegemeo Agricultural Monitoring and Policy Analysis Project (TAMPA) II. Tegemeo panel database is the key source of data used in the study.

REFERENCES

- Cirad – ODI (2001). Contribution to the revision of the document “From Vision to Action” The role of producer organisations in the context of globalization.
- Government of Kenya (GOK). (2001). Poverty Reduction Strategy Paper, 2001-2004.
- Marie-Helene and Pierre R. (2001). “Investing in rural producer organizations - contributing to sustainable agricultural production, Volume1”, Agriculture Technology Notes, No. 28.
- Olson M. (2005). “Review of The Logic of Collective Action”, Brooke Lichtenstein, PSC 129. <http://web.syr.edu/~bllichte/review1.html>
- Statz JM (1986). “Farmers' Incentives to Tare Collective Action via Cooperatives: A Transaction Cost Approach”, <http://www.rurdev.usda.gov/rbs/pub/sr18/incentve.pdf>
- World Bank (2000). “Investing in Rural Producer Organizations for Sustainable Agricultural Development”,