The Role of Leadership in Establishing and Sustaining Cooperation. Evidence from Producer Groups in Poland

Ilona Banaszak

Volker Beckmann

Abstract: The article reviews theories and investigates empirical data on how leadership emerges in cooperative organizations and how it changes over time. We also ask what is the leaders' motivation to perform their tasks and how different incentives provided by organizations affect leadership strategies. The empirical evidence collected on farmers' cooperative organizations shows that groups created out of an initiative of a strong leader tend to maintain strong leadership over time. Receiving a salary by the leader and leaders' power in decision-making are the most significant variables for determining the leadership strategy. [1]

1. Introduction

There are a few studies that explore theoretically the concept of leadership in economics. Hermalin (1998) models leadership as a way of influencing behavior of rational actors through setting an example or sacrifice. Hermalin (2007) extends the model and studies leadership in a multi-period context. Foss (1998, 2001) shows that leadership is a means of achieving an efficient outcome in both coordination and social dilemma games. However, except laboratory studies in experimental economics (e.g. De Cremer/Van Vugt 2002; Güth et al. 2004; Güth et al 2007), leadership has been merely subjected to empirical analyses. Among exceptions we find Ziegenhorn (1999), who shows the importance of knowledge and information possessed by leaders and the efficient exchange of information between leaders and members for the success of cooperation (Ziegenhorn 1999: 66), and Hurrelmann et al. (2006) who points out that in Central and Eastern European Countries trust in authorities remain low while personal trust between actors is present and therefore cooperation is often initiated and sustained by leaders who are locally respected actors.

As revealed by Hermalin (2007: 18), we still know very little about how leaders are chosen or selected by their followers, what motivates candidates to run for the leadership posts, and how and when leaders are replaced. This applies also to theoretical and empirical studies of cooperative organizations. While investigating the rationale for undertaking cooperation and efficiency of cooperative organizations the literature omits the role of leadership for setting up and varying performance of cooperative organizations (Bonus 1986; Hansmann 1998; Valentinov 2007).

In this article we would like to fill this gap in the literature and answer both theoretically and empirically why and how leadership emerges in cooperative organizations, how it changes over time, and what is the leaders' motivation to perform their tasks. Following Hermalin's (2007) theoretical deliberations we also ask how different incentives provided by organizations affect leadership strategies.

The first theory employed in the study is transaction costs theory. This theory suggests that organizations function initially as peer groups. Over time, however, particularly as they enlarge, some of them choose a leader in order to decrease total communication and decision-making costs (Williamson 1983: 51). Introduction of leadership might be also mean reducing shrinking costs through monitoring members' performance (Alchian/ Demsetz 1972: 786). The second theory employed in the article, game theory, proposes that in coordination games leaders emerge in order to economize on choosing one of multiple equilibria. In social dilemma games, furthermore, the institution of leadership increases individual contribution levels by setting an example for other players and changing the payoff structure by introducing sanctions for free-riding (Foss 1998: 22; 2001: 357; Miller 1992: 34; Güth et al. 2004: 12). Game theory also suggests that leaders who create extra value by making players change their strategies might be paid by their groups for undertaking this work, or they might receive other non-material rewords (Foss 1998: 24-5). The performance of leaders can moreover be affected by a "tribute" paid by members or perks of office (Hermalin 2007: 14). Both transaction costs theory and game theory, nonetheless, perceive leadership mainly in the perspective of its functionality for the group. A slightly different view is provided by collective action theory. This theory proposes a notion of political entrepreneurs, people who engage in the provision of collective goods for the groups in order to achieve their private interests (Hardin 1982: 35).

The empirical evidence was gathered from Polish cooperative farmer marketing organizations called producer groups. The groups appeared in Poland in the mid 1990s. Their main task was to organize joint sales of agricultural output produced by individual member-farmers. All the groups were managed by a group leader. The leader was usually a member of the group as well (Banaszak 2008). Fifty functioning groups were subjected to the research. Most of the groups were established in 1999 and 1998. Each group associated about 80 farmers. The majority of the groups associated farmers producing pork (56%), vegetables (24%), and fruits (7%). The main task of organizing joint sales of the members' output was carried out by 80% of the functioning groups. Other groups were only engaged in such activities as organizing trainings, joint purchases of the means of production, and joint transportation of the output.

The following section theoretically analyses leadership in producer groups and formulates testable hypotheses. Section three presents the methods of the research, and the forth section presents the empirical results. The last section concludes and discusses the main findings.

2. Theoretical Background

2.1. Leadership in Transaction Cost Theory

Producer groups act as intermediary market organizations that coordinate exchange between farmers and purchasers of their produce. Both sides save on transaction costs (Spulber 1999:263). Farmers associated in producer groups may also save on transaction costs due to horizontal and vertical integration. Economies achieved by avoiding transaction costs and vertical integration that decreases the number of market transactions and strengthens the market position increase, however, internal coordination and bureaucracy costs (D'Aveni/Ravenscraft 1994:1192).

Producer groups therefore have to bear costs of coordinating farmers' actions and organizing production, marketing and administration. The simplest form which the organization may take is a peer group. Actors in such groups take decisions collectively. The groups may involve some type of income sharing, but do not entail subordination (Williamson 1983: 321). This type of organization may provide advantages in indivisibility, risk-bearing and associational respect, however, it is vulnerable to free rider abuses and usually imposes a costly communication and collective decision-making process due to bounded rationality of the actors (Williamson 1983: 41, 45). Therefore some groups will supplant the all-channel network in the peer group by a wheel network of a simple single-stage hierarchy where the leadership is taken by a central coordinator, who takes the burden of managing the decision-making process and information flows. However, introduction of a single-stage hierarchy enables the group to save on both total information transmission and decision-making costs (Williamson 1983: 51):
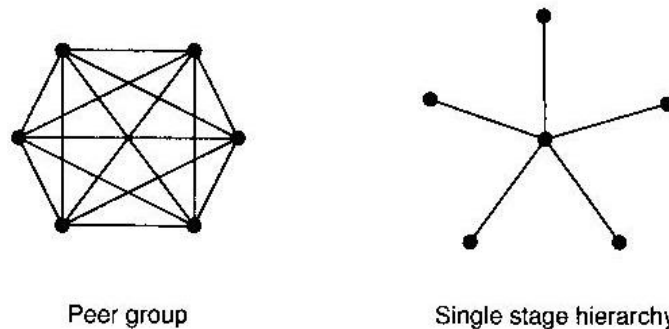
Peer group   Single stage hierarchy

Fig. 1: Peer group and single-stage hierarchy structure (adapted from Williamson 1983: 46)

The costs of information and decision-making in the peer group are closely connected to the communication intensity and the number of members in the group. The number of linkages in the peer group increases as the square of the number of members. We may assume therefore the likelihood of replacing a peer group structure with a single-stage hierarchy increases with the number of group members. Hierarchy has higher set up costs; however, the costs increase linear as the number of actors increases (Beckmann 2000: 110):
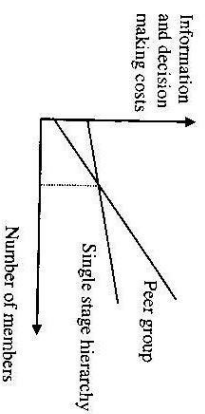
Another advantage of hierarchy is that it assigns the central actor the tasks of auditing and experience-rating, which reduces the risk of opportunism and free-riding (Williamson 1983: 54). The position of the leader who is charged with auditing and experience-rating changes, however, and implies a supervisor-subordinate relationship (Williamson 1973: 322). This inequality between actors may offend their sense of individual and collective well-being. That is why not all peer groups will be replaced by simple hierarchy (Williamson 1983: 55). Alchain and Demsetz (1972: 786), moreover, point out that introduction of central coordination might be also a means of reducing shrinking costs through monitoring performance of team members. They suggest that the motivation for the monitor to specialize and perform the monitoring tasks honestly can come from giving him title to the net earnings of the team. Both specialization in monitoring and dependence on a residual claimant status will reduce shirking (Alchian/Demsetz 1972: 782). In a producer group situation, this would mean that some leaders who appropriate residual claims would turn cooperative group into companies run by themselves.

Fig. 2: Peer group and single stage hierarchy costs (adapted from Beckmann 2000: 111)

2.2. Leadership in Game Theory and Collective Action Theory

There are two main types of noncooperative games that might be played by producer groups. The first case is a coordination game. In this type of game the players need to coordinate on one strategy that is Pareto superior for all of the players (Rasmusen 2001:29). The coordination game describes a situation where the producer group is able to negotiate higher prices for the members' produce by enlarging the quantities of the product offered on the market, and thus lowering per-unit transaction costs. Under such circumstances the Pareto superior strategy for the players is to cooperate and sell their output through the group, since on their own they would not be able to decrease per-unit transaction costs. The choice of cooperation by all the players results in a Pareto superior Nash equilibrium. Each coordination game moreover might have more than one Nash equilibrium (Rasmusen 2001:29). The problem here is how to coordinate players on the most efficient equilibrium. We can imagine a situation where farmers have a choice to sell their output either to a plant A or a plant B. The farmers will get a price (P) enlarged by the premium (p) which results from lowering the transaction costs only if all of them at the same time deliver their products to either one of the buyers:

		Farmer 2	
		Plant A	*Plant B*
Farmer 1	*Plant A*	$P + p_1$, $P + p_1$	P, P
	Plant B	P, P	$P + p_2$, $P + p_2$

Tab. 1: Multiple equilibriums in a coordination game

At least three types of problems emerge from playing this type of coordination game: how players coordinate on an equilibrium, how they select among multiple equilibria, and how they move from an inferior equilibrium (Foss 1998: 8). In terms of table 1, the players must come to hold beliefs that will sustain one equilibrium (e.g. Plant A, Plant A), they must select one equilibrium, and if it turns out that $p_2>p_1$ they must coordinate on a joint move from selling their products to Plant A to Plant B.

Foss (1998) claims that the phenomenon of leadership is closely connected to the above coordination problems. Leadership is a higher-level coordination instrument that makes more efficient coordination on strategies at lower levels (p.13). Miller (1992) puts forward a similar argument. Hierarchy and leadership help groups playing a coordination game to coordinate members' actions on one of multiple equilibria and therefore lower bargaining costs which players would have to spend to agree on and implement one of the options (p. 50). Ternström (2006: 7-8) theoretically proves that the probability of coordinating on an individual is greater than the probability of coordination on an action. According to this finding, it is more efficient for groups to coordinate whom to choose as the leader than to coordinate on each action separately. The leader will later choose and coordinate the group on other actions undertaken.

Foss (1999: 24) also discusses why in some groupings coordination emerges through conscious establishment of the institution of leadership and in others through spontaneous formation of conventions. Leadership will be more likely to emerge in large groups, in groups that play the same game for a long time, in groups where communication is costly, and in groups where it is important to solve the coordination problem quickly. The leader's attributes matter as well, for example the ability of the leader to understand the situation, judge and take action and the leader's motivation and reward. Additionally, Foss (2001: 379, 377) connects the role of leadership in coordination games with the communication costs. Leadership might decrease communication and delay costs. Economizing on the costs through leadership might also be due to enhanced creation of common knowledge among players. One role of leaders is to influence how well-founded players think certain beliefs are.

The second type of game that might be played by producer groups is a social dilemma game, where the dominant strategy for each of the players is not to cooperate with the other players. However, if the majority of the players choose this strategy it brings worse payoffs for all of them. The dominant strategy equilibrium in this game is having no cooperation, but all group members would be better off if they all cooperated than if all defected (Dawes/Messick 2000: 111). In a producer group situation this game could be modeled as a prisoner's dilemma game or a public goods game.

In the prisoner's dilemma game the strictly dominant strategy for each of the players is not to cooperate with the others, however, it is not the best strategy for the players jointly (Mas-Colell et al. 1995: 237). For example let us consider two farmers who usually get price P for their produce, but once they jointly negotiated with one purchaser a very good price premium (p) for a certain quantity of product. The farmers agreed each will provide half of the negotiated quantity; however, in order to decrease transportation costs, they agreed to pack their products on one truck. It is quite understandable that the farmer to whom the truck comes first has a serious incentive to load the whole truck just with his produce, send it directly to the purchaser rather than the other farmer, and sell at the good price premium twice as much as if he followed the agreement. The cheating farmer looses some utility (u) from not being nice to the other farmer and hurting his own reputation, but for sure he earns twice as much as if he cooperated. If they both try to shirk at the same time, and quarrel as to whom the truck should come first, they might both loose the price premium (p) as a result of the delay and additionally they both loose utility (u) from not being nice and hurting their reputations. Although from the perspective of the group as a whole cooperating and marketing the output jointly is the best strategy under these circumstances, it is not a Nash equilibrium since at least one of the players would be better off by shirking the agreement:

	Farmer 2	
Farmer 1	*Cooperation*	*Shirking*
Cooperation	P + p + u, P + p + u	P, P + 2 p - u
Shirking	P + 2 p - u, P	P - u, P - u

Tab. 2: Cooperation in a 2-person prisoner's dilemma game

where $2p > u$

Foss (1999) again argues that in a prisoner's dilemma situation establishing leadership may lead to achieving and sustaining cooperation. A leader is a person who influences the formation of preferences and beliefs. Particularly charismatic leadership changes the pay-offs structure in the game by adding additional utility from reciprocating cooperation and being "nice" to other players (Foss 1999: 22). A charismatic leader could therefore change the pay-off structure of the above game, and increase the value of utility and reputation (u) in relation to the price premium (p) so the players would have stronger incentives to cooperate. Exceptional leaders have an ability to transform the needs, values, preferences and aspirations of their followers from self-interest to collective interest (Shamir et al.1993: 577). French and Raven (1959) identified five types of leader's power that increase a leader's ability to influence attitudes, values and behavior of others; these are reward and coercive, legitimate, referent and expert powers. Leadership as a form of hierarchy solves the tension between individual self-interest and group efficiency by disciplining the group members and monitoring their performance in order to reduce shirking (Miller 1992: 34). Banaszak and Beckmann (2006: 17) show that leaders' decision-making power was significantly correlated with exercising sanctions in producer groups in Poland.

In public goods games individuals contribute a sum of money or other funds for the provision of a public good called a "group exchange". The invested group exchange is then distributed equally among all the group members. In this situation the dominant strategy is to contribute nothing, since those who do not contribute cannot be excluded from the provision of the public good (Dawes/Thaler 1988: 188). In a producer group situation the price premium negotiated for members' output based on average quality can be considered as a local public good. If we assume that the price for quality of the good is a step function, once the price has been set the incentives for members to maintain the initial quality level will be expected to decrease. Nonetheless, if the average quality level decreases below a certain point, all members loose the quality premium. The payoff structure of such a game is represented in Table 3. In this case p stands for local public benefits produced by producer group, in this case quality premium, and c stands for the costs of provision of the local public good for each player, that is maintenance of the quality.

	Farmer 2	
Farmer 1	*Contribution to the public good*	*No contribution*
Contribution to the public good	P + p - c, P + p - c	P + p - c, P + p
No contribution	P + p, P + p - c	P, P

Tab. 3: Cooperation in a public goods game

Experiments in public goods games show that introduction of leadership results in achieving higher contribution levels within the groups. Leaders who move first set an example for other players. Also, giving the leader power to ostracize leads to higher contributions (Güth et al. 2004: 12). Other experiments also show that the leader's commitment and fairness and the selection procedure are important for achieving higher individual contributions. Players' contributions in public goods experiments were higher with an elected leader than with an appointed leader (de Cremer/van Vugt 2002: 134).

Empowering one player versus the other might nonetheless influence the distribution of benefits in the group. As revealed by Rode and Le Menstrel (2007: 1, 16), players use their decision power to increase their monetary gains. The division of gains is perceived as more fair when the decision power over allocation of the resource is shared by all parties involved. The findings suggest that on one hand leaders' decision-making power might decrease members' participation in the decision-making process might diminish this negative impact or at least increase perceived fairness of the distribution of the benefits.

Attaining cooperation through leadership, however, does not emerge without friction. The leaders of producer groups bare certain time, financial and opportunity costs due to exercising their function in the producer groups. Why do they do it? Literature on coordination games suggests that the leader creates value by making players change their strategies, and therefore he can be paid for creating this extra value. The leader might be also motivated by receiving non-material rewards, such as the pleasure from exercising leadership (Foss 1998: 24-5). Hermalin (2007: 14) points out that followers might bestow a fi-

nancial or emotional "tribute" upon their leaders. Such tribute could be costly for followers but also could take a form of "perks of the office" and provide "virtue benefits" such as prestige or fame to the leader. Additionally, Hardin (1982: 35) points out that groups may obtain a collective good through leadership of a so-called political entrepreneur. Political entrepreneurs are people who work to provide collective benefits to the groups for their private interest and their own career reasons. Their reward is usually distinct from the collective good.

Differences in leadership performance are seen as a result of providing different incentive structures by organizations. Rotemberg and Saloner (1993: 1313, 1317) model how different incentive structures provided by organization shareholders influences firms' leadership style and recruitment methods. "Empathic" leaders, who tend to be more participatory and whose utility functions include the utility of their managers, will be appointed if the firms operate in an opportunity-rich environment, whereas "selfish" leaders, who are more autocratic and whose utility functions do not include the utility of their managers, will be appointed in stable environments.

2.3. Summary of the Theoretical Arguments

To summarize, regarding the role of leadership for establishing cooperation, transaction costs economics argues that leadership reduces transaction costs particularly in large groups (Williamson 1983: 46). However, organizations can first introduce a central coordinator (Beckmann 2000: 111). Game theory argues that leadership is important for facilitating cooperation irrespective of which type of game is played. Leadership might also add additional utility to players' payoffs from reciprocating cooperation or making sanctioning more credible; these are expect to increase cooperation rates as well (Shamir et al. 1993: 577, Miller 1992: 34). The reviewed literature, however, does not address the problem of how leadership emerges. In experimental settings leaders and the scope of their power are usually assigned by the researchers. Similarly, we did not find any discussion tackling the issue of transformation of leadership overtime.

Regarding leaders' motivation to perform their tasks, we may expect that different incentive structures provided by organizations and also competitiveness of the environment will influence firms' leadership style (Rotemberg/Saloner 1993: 1313, 1317). Both transaction costs theory and game theory pay attention to compensation schemes adopted in groups. Leaders might be motivated either by direct material rewards or indirect rewards related to private interests, career reasons or self-satisfaction (Alchian/Demsetz 1972: 782; Foss 1999: 24-25, Hardin 1982: 35; Hermalin 2007: 14).

Collective action theory additionally argues that individuals might not have equal interests and benefits from provision of a certain collective benefit. Thus those who expect to benefit more might be more willing to take the lead in organizing provision of the good (Olson 1965: 45). However, as suggested by game theory, the decision-making power of a certain player might also impact on the distribution of benefits, in such a way that the empowered individual will assign himself higher benefits (Rode/Le Menstrel 2007: 1, 16).

3. Methodology

3.1. Methods and Techniques of the Research

The cross-sectional research design was selected as a research method for this investigation. Within this design, the technique of social survey was employed, in which a structured interview with producer group leaders was the data collection strategy. The interviews were carried out in early 2005 in Wielkopolska Province in Poland. Fifty functioning groups, which associated 4,056 farmers were subjected to the research. Only 80% of the functioning groups performed the task of organizing joint sales. Since the main research questions posed in this paper is investigating dynamic in the role of leadership in establishing and sustaining cooperation, the role of the institutional environment, and leadership. Additionally, in regard to the question on the leaders' motivation to perform their main task, which in producer groups was to organize joint sales, only 40 functioning and performing joint sales groups will be subjected to investigation.

The structured interview with producer group leaders was organized into a questionnaire composed of 6 parts. The first part comprised general questions such as the group's address, legal status, number of members, and activities performed. The other 5 parts regarded the process of formation of the group, functioning of the group (divided into 3 sections: management and decision making, production and marketing, and membership), costs and benefits of cooperation, the role of the institutional environment, and leadership. The questionnaire comprised 132 questions in total. Two types of questions were asked. The first type of question was related to facts such as numbers or descriptions of processes; the second type was related to subjective evaluation of these facts.

3.2. Computation of Variables

For most of the analysis, descriptive statistics and correlation between variables were applied. However, in order to investigate the question about leaders' motivation, we used probit and tobit regressions.

The probit model was employed in order to estimate the likelihood of entering by the groups a long-term contract, which was treated as a dichotomous dependent variable. The tobit model was employed in order to estimate the likelihood of negotiating by the groups a certain price premium. The regression was censored at the level of zero price premiums.

4. Empirical Findings

4.1. Profile of the Group Leaders

On average the group leaders were about 46 years old. The youngest leader was 25, the oldest 62. The majority of the groups were led by a man, only one group was led by a woman. Also, a majority of the leaders were married (94%), and on average they had about 3 children. Considering education, 22% of the leaders had only vocational education, 58% finished only secondary education, and 20% completed higher education. The majority of the leaders interviewed were farmers (92%). For 80% of them, farming was the main source of income, and for 12% farming was only an additional source of income. The average size of agricultural holdings possessed by those leaders was 47 ha, which is

substantially higher that the average for farmers in the province (about 8.5 ha – GUS 2004). Four groups (8%) were led by persons not occupied with farming at all. Most of the leaders did not have any previous management experience (52%), and also most of them did not finish any management training (64%).

Furthermore, the leaders appeared to be deeply embedded in their local community and quite active in local arenas. Seventy percent of them grew up in the municipality were the producer group was established, and 96% said they had either a good (20%) or very good knowledge (76%) of the local people and environment. Also, 96% of interviewees declared to know (86%) or somewhat know (10%) personally most of the local decision-makers. What is more, 56% reported to have friendship relationships with most (30%) or some (26%) of the local decision-makers.

4.2. The Role of the Leader for Establishing of the Cooperation

On average the stage of planning the establishment of the group took about 5.7 months, and about 6.6 people were involved in this process. Considering factors that led to formation of the groups, the data indicate a quite important role for leadership. The largest portion of the groups (46%) was initiated by one farmer who started to organize the group and usually was elected as the official leader afterwards. Eighteen percent of the groups, particularly those in pork, were created as an outcome of farmers' strikes which took place at the end of 1999 and the beginning of 2000 when farmers were protesting against a dramatic decrease in pork prices. As the interviewees reported, the strikes created an opportunity for the farmers to meet and discuss their situation together, and also it was often the first time they undertook joint actions. The meetings and discussions brought the farmers to the conclusion that only if they were united and associated in some kind of organization, would they be strong enough to impact the government and to influence the agricultural market.

The remaining 36% of groups were created due to actions of external actors, which were either extension service or a municipality office (18%), processing company (12%), municipal cooperative (4%), or an outside businessman (2%):
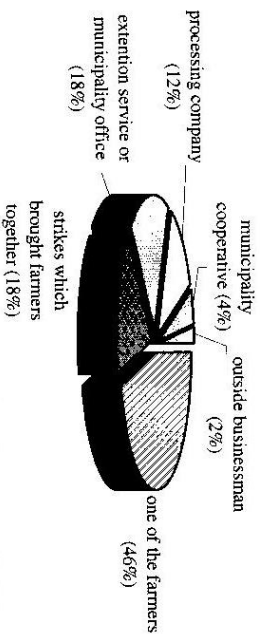
Who/what initiated the process of group establishment?

municipality
cooperative (4%)

outside businessman
(2%)

processing company
(12%)

extention service or
municipality office
(18%)

one of the farmers
(46%)

strikes which
brought farmers
together (18%)

Fig. 3: Factors which lead to formation of producer groups (N=50)

After the stage of planning the group, the members of all groups chose formal group leaders in an election process during the group's first general assembly. The chosen leaders, however, usually knew most of the group members quite well before establishing the group and reported being involved earlier in some different social relationship with them. Eighty percent either fully agreed (74%) or partially agreed (6%) with that they knew earlier most of the members of their group. Moreover 66% declared having an earlier friendship relationship with most of the members, and 18% declared having some earlier family relationship with most of the members. Furthermore, 40% were involved in some business relationship with most of their groups' members before the group was established, and these business relationships were mostly positive. The majority of the interviews reported being fully satisfied with the relationship (90% of those who declared to be involved in a business relationship with other members), or to be partially satisfied (10%). The data also show that not only did the leaders know group members before, but most of them actually persuaded farmers to join the group. Thirty-four percent of the leaders fully agreed and 24% partially agreed with the statement that they convinced most of the members to join the group:

Do you agree?

% of answers

I knew
personally
most of
members
before

I had
friendship
relationship
with most of
members
before

I had family
relationship
with most of
members
before

I had a
business
relationship
with most of
members
before

If yes, I was
satisfied with
doing that
business

I convinced
most of the
members to
join the
group

□ Fully disagree
▨ Rather disagree
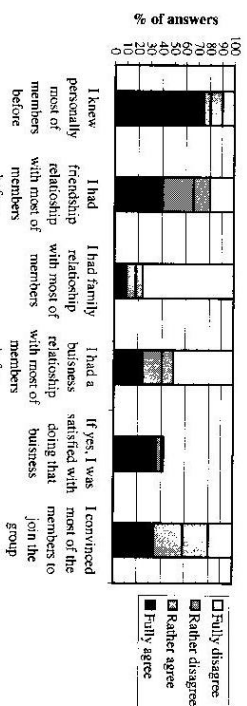▤ Rather agree
■ Fully agree

Fig. 4: The leaders' previous relationship with group members (N=50)

The group leaders also appeared to play a significant role in the process of designing the group. The leaders, together with a few other farmers (on average 5), constituted initiative groups which decided upon the legal form of the group (in 74% of cases) and the choice of vision and mission of the group (in 74% of cases). The other groups relied on the advice and choices made by extension service employees, lawyers or other subjects (such as processing plants, nearby cooperatives or examples of other groups). In 66% of the groups the initiative group discussed the design of the group with all the members, in 32% only with some members and in 2% did not discuss it with other members at all. The leaders also played a key role in finding purchasers of the groups' products. In 54% of groups it was the leader who found the first buyers of the output. Moreover 42% of the leaders declared to have previous contacts with the first purchasers.

To sum up, in most cases the group leaders played a very significant role in bringing the farmers together, convincing them to join the group and in the process of designing and starting up cooperation. The data also suggest that the leadership was not a source of

problems for the groups. The majority of the groups at the beginning did not have any problems with leadership (68%) nor with trust in the leaders (74%):
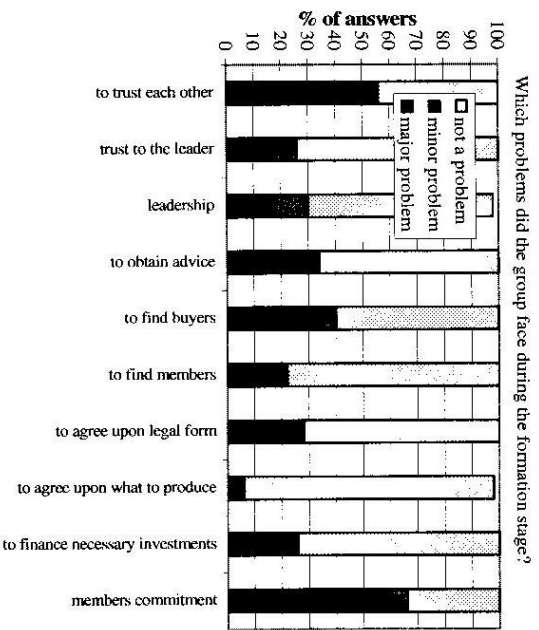
Which problems did the group face during the formation stage?

Fig. 5: Problems which the groups faced in the formation stage (N=50)

4.3. The Role of the Leader During Groups' Functioning

The research results suggest that over time, as the group was running, leaders of most of the groups had to share their power but also the work load with other members through management teams which, together with the leader, managed the group. Just 3 groups (6%) were managed only by the leader and did not have any management team. The average number of people in the management team was 4.22. There is a significant (p=0.001) positive correlation between the number of members and the number of people in the management groups. The biggest groups had as many as 12 managers in the management team. Also some groups (18%) incorporated in the management team people who were not group members (e.g. extension service employees). The management team on average organized its meetings 2.6 times per month, all group members were meeting on average about 1 time per month. There is no correlation between the intensity of both management and group meetings and the number of group members. However, the data suggest that some groups, irrespective of size, clearly preferred to have more frequent communication and meetings of both their management team and all members. A significant positive correlation (p=0.001) was found between the number of meetings of the management team and the number of meetings of all the members.

The respondents were also asked a question about which group organ was the most powerful and took the most decisions. The data show that for half of the groups the management team was the most powerful decision-making body. The leader took most decisions

in 34% of groups, and in 12% of groups all the members decided upon the most important decisions. However, there is no correlation between the number of members and which of the three group organs takes the decisions. There is a slight relationship, though, between the group being created as a result of the initiative of the leader and taking most group decisions by the leader (p=0.09). We may expect, therefore, that groups created as a result of an initiative of a strong leader tend to maintain strong leadership over time.

Seventy-four percent of groups had the same leaders from the beginning; in the remaining 26% the leader was changed. A change usually happened due to old leaders' lack of time or taking a new position outside the group (38% of groups who changed the leader) or due to dissatisfaction with their leadership (another 38%).

Taking into account the time which the leaders had to devote to their work for the group, 52% of them worked less that 10 hours per week, 14% worked from 10 to 22 hours, 10% worked from 20 to 35 hours, and 22% worked for their group more than 35 hours per week. Most of the leaders, however, did not receive any financial gratification for their work; only 22% of the leaders received a regular salary. Receiving a salary was positively significantly correlated with working hours (p=0.01). However, the amount of salary that the leaders received was fixed and similar in all the groups. It was in between the official minimum and average salaries for Poland.

It also seems that over time the leaders either realize opportunity costs or do not feel compensated for their work and seem to step back from the group activity. As was already mentioned, lack of time and other businesses was a reason of quitting the post by leaders of 6% of groups. Moreover many leaders also perceive the time they spent for the group as a serious cost of group functioning. Twenty-four percent of leaders rank the costs of their time as one of the major costs of group functioning, and 18% ranked their time as a minor cost. It is interesting that a slightly significant negative correlation was found between the time cost of leaders and groups entering a long-term contract (p=0.06), which suggests that leaders of groups who sold their output through a long-term contract felt less overwhelmed by the work for the group.

Over time leadership becomes a more serious problem for the groups. At the beginning of cooperation only 18% of groups reported having major problems and 12% reported having minor problems with leadership. During operation, though, as many as 26% of the groups reported having major problems with leadership and 16% reported having minor problems. Nonetheless, there is no significant correlation between having problems with leadership at the beginning of cooperation and during operation of the group:
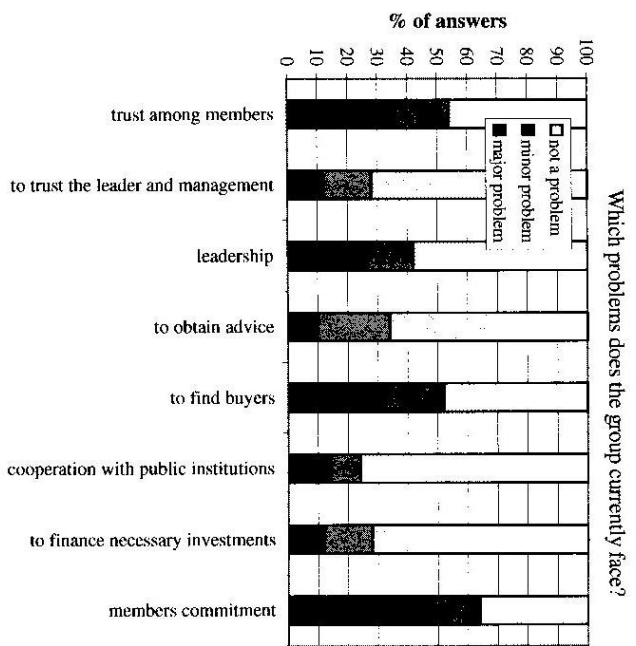
Which problems does the group currently face?

Fig. 6: Problems which producer groups face during their running (N=50)

4.4. Leaders' Motivation and Business Strategies

In this section we investigate what was the role of group leaders and their motivation for achieving group goals. Since the main task performed by producer groups was to organize joint sales of members' individual output, we analyze here only those groups that carried out this task at the time of the interview (N=40). Banaszak and Beckmann (2006) identified two types of strategies which leaders of producer groups adopt in carrying out their basic function of organizing joint sales. Group leaders were either trying to sell the produce each time at as high a price premium as possible or they valued more stability and certainty and were searching for buyers who would sign a long-term contract with the group. These two strategies are of course ideal types, and there were a few groups that marketed their output at a very low price premium and did not have a long-term contract, and a few others which had both a long-term contract and received a high price premium. On average the price premium which members of those groups got for their output was 9.5% higher than what non-associated farmers got on the market. The worst performing group did not manage to negotiate any price premium; the most successful were selling their produce at a price that was almost 40% higher than the non-member market price. Furthermore 62.5% of the joint-sales-performing groups were able to negotiate a long-term contract with purchasers of their output.

The theory suggested that direct, institutional structure factors as well as indirect personal factors affect leaders' performance. Institutional structure factors were measured by asking whether the leaders were paid for their work and how strong was their decision-making power. Indirect personal factors were measured by asking how big was the size of the leaders' agricultural holdings, to how many other organizations they belonged, and – in order to measure self-esteem rewards from exercising leadership – whether they thought their group was successful. We also added to the model one environmental variable, market competition, and a time dimension.

Twenty-seven percent of the leaders declared receiving a salary for performing their function. The amount of the salary was in all cases similar, and was in between the polish official minimum and average salary. The leader's ability to enforce his decisions was investigated by asking the leaders do they agree with a statement that they take most of the decisions in the group. In general the leaders saw themselves as rather strong. On average their responses scored 3.02 on a 1-to-4 scale, where 1 stood for disagree and 4 agree with the statement. The mean size of agricultural holdings owned by the leaders was about 53 hectares. Five leaders did not have agricultural land at all, and one leader held 600 hectares of agricultural land. Political rewards from performing the leadership function were measured by asking the leaders to how many social, agricultural, and political organizations they belong. Twelve leaders did not belong to any organization, and one belonged to as many as 7 organizations. Obtaining self-esteem rewards was furthermore measured by asking the interviewees whether they thought their group was a successful organization. Leaders of 6 groups did not perceive their group as a successful business, 13 leaders declared their groups were very successful.

Market competition was measured by investigating how the interviews perceived competition from other business organizations occupying the same market niche; in this case these were intermediaries. On average competition was perceived as not very harsh and it was ranked as 1.72 on a 1-to-4 scale. Regarding how long the groups operated, on average the groups were functioning about 4 years. The youngest group operating joint sales was created several months before the interview was carried out, the oldest one has been already for 12 years on the market. Table 4 and 5 present measurement and summary statistics for the distinguished dependent and independent variables:

Variable	Measurement (Mean Value)	Coding	N	Mean	Min.	Max.	St. Dev.
Dependent variables							
Price Premium	How much is the price the members get higher than non-associated farmers get on the market?	%	40	9.55	0	39,30	11.56
Having a long-term contract	Does the group have a long-term contract with its buyer/s?	Yes-1, no-0	40	0.62	0	1	0.49

Tab. 4: Summary statistic of the dependent variables

The probit model was used in order to estimate the likelihood of groups entering a long-term contract. The tobit model was employed to estimate the likelihood of negotiating a certain price premium. Although seven independent variables were distinguished, two of them, self-understood success of the group and membership in agricultural and political organizations, were highly correlated with other independent variables and had to be excluded from the model. It is interesting, nonetheless, that self-understood success was significantly correlated with the dependent variable having a long-term contract (p=0.003). That means that the leaders of the 40 groups analyzed in this section perceive themselves and their groups as successful not in relation to obtaining a high price premium, but to being able to negotiate a long-term contract for the group and provide stability for the members. This result is particularly striking in comparison with results obtained by Banaszak and Beckmann (2006) who pointed out that from the members' perspective, stability was less valuable than selling at a high price premium. The best strategy to ensure members' commitment and loyalty was searching for as high price premium as possible, and entering a long-term contract increased the likelihood of the group playing a prisoner's dilemma game.

Considering the relationship of membership in other organizations, which was the second excluded independent variable, with the dependent variables, it appeared to be significantly negatively correlated with the price premium (p=0.02). This indicates that a producer group's leader's membership in other agricultural and political organizations actu-

Independent variables						
Salary	Does the leader get a financial gratification of his work?	Yes-1, no-0	0.27	40	0	1	0.45
Leadership strength	Does the leader take most of decisions in the group?	1-disagree, 2-rather disagree, 3-rather agree, 4-agree	40	3.02	2	4	0.83
Area	How big is the leader's agricultural holding?	No. of hectares	40	53.33	0	600	109.96
Organizational membership	To how many social, agricultural and political organizations does the leader belong?	No. of organizations	40	1.75	0	7	1.73
Self understood success	Does the leader think the group is successful?	1-not successful, 2-small success, 3-middle success, 4-very successful	40	2.92	1	4	1.02
Competition	How would you evaluate the competition with the middlemen on the market?	3-major competition, 2-minor competition, 1-not a competition	40	1.72	1	3	0.82
Years of operation	For how many years does the group function?	No. of years	40	4.3	0	12	2.60

Tab. 5: Summary statistic of the independent variables

ally had a negative impact on the leader's motivation to pursue group goals. Table 6 presents the results of running probit and tobit regressions.

Independent variable	Tobit regression for price premium	Probit regression for having a long-term contract
Salary	9.981 *** 3.491†	.557 .621†
Area	-.040 * .022	-.015 .016
Leadership strength	-.732 1.973	.730 ** .335
Competition	-4.701 ** 2.285	.916 ** .386
Years of operation	-1.200 * .713	-.257 ** .131
Pseudo R2	0.077	0.395
No. of Obs.	40	40

† The upper line in the row indicates coefficient, and the bottom one indicates standard error
*** significant at .01 level
** significant at .05 level
* significant at .10 level

Tab. 6: Regression results

The most significant positive impact on the likelihood of selling the group's output at a high price premium was paying a wage to the leader. Financial gratification appears to provide the most efficient motivation for the leaders to work for their groups. Nonetheless, the price premium that could be obtained by the groups was highly influenced by competition on the market. Those groups that faced harsh competition were less likely to negotiate a high price premium. The age of the group had a negative impact on the price premium, what confirms the prediction that over time the market adapts to the presence of the group. Surprisingly the size of agricultural holding possessed by the leader also negatively affected the price premium variable. This was probably due to the opportunity cost of the leaders' work on their own farms, which made them less available for the groups.

These two variables representing the environment also had a significant impact on the likelihood of groups entering a long-term contract. The only difference was that competition had in this case a positive impact on having a long-term contract. We can assume that in a situation of harsh competition a long-term contract and its stability are more valuable and enable one group to escape from its competitors. It is interesting that the decision making power of the leader also had a positive significant impact on the likelihood of entering a long-term contract. This suggests again that the leaders personally value more having a long-term relationship on the market, which probably means less work for them. If they have enough decision making power to force the group to enter such contract, they are very likely to pursue it.

5. Conclusions and Discussion

The study investigated the role of leadership in the process of establishing and functioning of cooperative organizations. We also inquired about leaders' motivation to perform their tasks given the incentives provided by the group. The empirical evidence was collected from Polish farmer marketing organizations called producer groups. As suggested by transaction costs theory and game theory, the data show that leadership plays a key role for establishing cooperative organizations. Similar to the findings of Ziegenhorn (1999), most leaders had a good earlier knowledge of the members, and they convinced most of the members to join the organizations. The literature reviewed in Sections 1 and 2, however, did not provide insights on how the institution of leadership transforms over time. According to the data, the groups created as a result of an initiative of a strong leader tend to maintain strong leadership over time. Nonetheless, in the majority of the groups the leaders shared their power but also the work load with management teams. As the group matures, leadership tends to cause more problems in group activity.

Taking into account leaders' motivation to perform their task, game theory and collective action theory suggest that leaders could be either paid by their groups or receive other rewards for creating extra value for group members. In the research we identified two types of leadership strategies in managing the task of organizing joint sales. The leaders could choose a strategy of searching for as high a premium as possible for group products, or they could choose a strategy which valued more stability and certainty and search for buyers who would sign a long-term contract with the group. The main variable that increased the likelihood of choosing the first strategy was whether the leader received a salary. Nonetheless, if the leaders could take most decisions by themselves they were more likely to enter a long-term contract. Entering a long-term contract was interpreted by the leaders as a group success. Previous studies on producer groups show, however, that members valued selling at a high price premium more than having a long-term contract (Banaszak/Beckmann 2006: 20). Selling at a high price premium involves certain costs, which are born by group leaders, such as monitoring the market and continually searching for buyers.

We may conclude that leaders play an important role in establishing and maintaining cooperation and that groups should be aware of the burden leaders have to take. Groups not only can but must compensate leaders' effort if they want to keep leaders' work motivation high. If a group does not solve this motivation problem, the leaders might be more willing to choose options which are less work-intensive for themselves but which are valued less by the group members. This might result in lower cooperation rates or eventually having no cooperation.

References

Alchian, A.A. / Demsetz, H. (1972): Production, Information Costs, and Economic Organization, in: The American Economic Review, 62/5/777-795

Banaszak, I. (2008): Agricultural Producer Groups in Poland: Empirical Survey Results, in: Journal of Rural Cooperation, 36/1/73-86

Banaszak, I. / Beckmann, V. (2006): Compliance with Rules and Sanctioning in Producer Groups in Poland, IDARI Working Paper, Humboldt University, Berlin

Beckmann V. (2000): Transaktionskosten und institutionelle Wahl in der Landwirtschaft. Zwischen Markt, Hierarchie und Kooperation, Berlin: Edition Sigma

Bonus, H. (1986): 'The Cooperative Association as a Business Enterprise: A Study in the Economics of Transactions, in: Journal of Institutional and Theoretical Economics, 142/–/310-339

Caputo, M. / Mininno, V. (1996): Internal, vertical and horizontal logistics integration in Italian grocery distribution, in: International Journal of Physical Distribution & Logistics Management, 26/9/64-90

D'Aveni, R. / Ravenscraft, D.J (1994): Economies of Integration versus Bureaucracy Costs: Does Vertical Integration Improve Performance?, in: Academy of Management Journal, 27/5/1167-1206

Dawes, R.M. / Thaler, R.H. (1988): Anomalies Cooperation, in: Journal of Economic Perspectives, 2/3/187-197

De Cremer, D / van Vugt M. (2002): Intergroup and Intragroup Aspects of Leadership in Social Dilemmas: A Relational Model of Cooperation, in: Journal of Experimental Social Psychology, 38/–/126-136

Foss, N. J. (1999): Understanding Leadership: A Coordination Theory, DRUID Working Paper, 99/3

Foss, N.J. (2001): Leadership, Beliefs and Coordination: An Explorative Discussion, in: Industrial and Corporate Change, 10/2/357-388

French, J.R.P. / Raven, B. (1959): The Bases of Social Power, in: Cartwright, D. (ed.), Studies in Social Power, Ann Arbor: University of Michigan, Research Center Group

GUS – Central Statistical Office (2004): Statistical Yearbook of the Republic of Poland, Warszawa: GUS

Güth, W. / Levati, M. V. / Sutter, M. (2004): Leadership and Cooperation in Public Goods Experiments, Discussion Paper 28-2004, Max Planck Institute of Economics

Güth, W. / Levati, M. V. / Sutter, M. / van der Heijden, E. (2007): Leading by Example with and without Exclusion Power in Voluntary Contribution Experiments, in: Journal of Public Economics, 91/–/1023-1042

Hansmann, H. (1996): The Ownership of the Enterprise, Cambridge/London: The Belknap Press of Harvard University Press

Hardin, R. (1982): Collective Action, Maryland: Resources for the Future

Hermalin, B.E. (1998): Toward an Economic Theory of Leadership: Leading by Example, in: American Economic Review, 88/–/1188-1206

Hermalin, B.E. (2007): Leading for the long term, in: Journal of Economic Behavior and Organization, 62/–/1-19

Hurrelmann, A. / Murray, C. / Beckmann, V. (2006): Social Capital and Leadership: Rural Cooperation in Central and Eastern Europe, in: Society and Economy, 28/3/219-243

Mas-Colell, A. / Whinston, M.D. / Green, J.R. (1995): Microeconomic Theory, New York/Oxford: Oxford University Press

Miller, G. J. (1992): Managerial Dilemmas. The Political Economy of Hierarchy, New York: Cambridge University Press

Rasmussen, E. (2001): Games and Information. An Introduction to Game Theory, Oxford: Blackwell Publishers

Rode, J. / Le Menestrel, M. (2007): 'What is a Fair Wage and Who Should Decide About it? An Experimental Study, Working Paper, University Pompeu Fabra, Barcelona

Rotemberg, J.J. / Saloner, G. (1993): Leadership Style and Incentives, in: Management Science, 39/1/1299-1318

Shamir, B. / House, R. / Arthut, M.B. (1993): The Motivational Effects of Charismatic Leadership: A Self-Concept Based Theory, in: Organizational Science, 4/4/577-594

Spulber, D.F. (1999): Market Microstructure: Intermediaries and the Theory of the Firm, Cambridge: Cambridge University Press

Ternström, I. (2006): Leadership in Common-Pool Resource Management, paper presented at the European Regional Meeting of the International Association for the Study of Common Property (IASCP) Building the European Commons: From Open Field to Open Source, Brescia, Italy, March 23-25

Valentinov, V. (2007): Why are Cooperatives Important in Agriculture? An Organizational Economics Perspective, in: Journal of Institutional Economics, 3/1/55-69

Wagner, R.E. (1966): Pressure Groups and Political Entrepreneurs: A Review Article, Public Choice, 1/1/161-170

Williamson, O. E. (1983): Peer Groups and Simple Hierarchies, in: Williamson, O.E. (ed.): Markets and Hierarchies: Analysis and Antitrust Implications, New York: Free Press