



***INTEGRATED DEVELOPMENT OF AGRICULTURAL AND RURAL
INSTITUTIONS***

QLRT-2001- 02718

***The Role of Leadership in the Process of Establishing
and Sustaining Cooperation***

Working Paper

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October 2006



IDARI is financed under the EC's FP5 Quality of Life and Management of Living Resources, Key Action 5

Abstract:

The article investigates the role of leadership in the process of establishing and the functioning of organizations. We ask about leaders' motivation to perform their tasks and the incentives provided by organizations. The research uses a theoretical framework provided by transaction cost theory, game theory and collective action theory. The empirical evidence was collected from Polish farmer cooperative organisations called producer groups. The main task performed by these groups was to organize joint sales of the output produced by individual farmers. All the groups had a similar governance structure. They were managed by a leader whose main task was to organise joint sales of the members' output. The leader was usually a member of the group as well.

The data suggest that those leaders who initiated and created organisations remain strong leaders over time. Nonetheless, in the process of running the majority of the groups, the leaders had to share their power with a management team. Some groups also functioned as peer groups, where decisions were taken by all group members. Regarding leaders' motivation to perform their task, two types of strategies were identified. The leaders could choose a strategy of searching for as high premium as possible for the group's 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 which increased the likelihood of choosing the first strategy was whether the leader received a salary. If the leaders could take most of decisions by themselves, they were more likely to enter a long term contract. Nonetheless, selling through a long-term contract increased members' dissatisfaction, as expressed by shirking from group agreements.

Key words: leadership, cooperation, producer groups

I. Introduction

The concept of leadership has been largely investigated by managerial and organisational science. The central focus of the literature in this area is leadership understood (i) as a process through which the leader influences the activities of members towards accomplishment of group goals (Barrow 1977, Jago 1982, Northouse 1997: 3), and (ii) as qualities or characteristics attributed to those who are perceived to successfully employ the influence (Jago 1982, Yukl 1989). Another quite large stream of this literature deliberates leadership understood as effectiveness and researches how different leadership styles affect groups' goal achievement (Barrow 1977, Yukl 1989). Regarding economic literature, the concept of leadership has not received much explicit attention. Among exceptions we find Hermalin (1998) who models leadership as a way of influencing behaviour of rational actors through setting an example or sacrifice, and non-cooperative game theory which shows that leadership is a means of achieving an efficient

outcome in both coordination and social dilemma games (Foss 1998, 2001). Nonetheless, except laboratory studies in experimental economics (e.g. Güth et al. 2004, De Cremer & Van Vugt 2002) there are very few empirical analyses of leadership in economics (e.g. Hurrelmann et al. 2006). As Güth et al. suggest, this is because field data on leadership usually lack controlled variation of conditions.

In this article we would like to fill this gap and extend the question of functionality of leadership by empirical investigation of the role of leadership in the process of emergence and sustaining of cooperation through organisations. We ask how the institution of leadership transforms over time. At the end we also try to analyse leaders' motivation to perform their tasks, and how different incentives provided by the organisations affect their performance.

The first theory employed in the study is transaction costs theory. This theory suggests that organisations function initially as peer groups. Over time, however, particularly as they enlarge, some of them choose a leader in order to decrease 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 economise 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 rewards (Foss 1998: 24-5). 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 organisations called *producer groups*. The groups appeared in Poland quite recently. Their main task was to organise joint sales of agricultural output produced by individual member-farmers. All the groups were managed by a group leader, sometimes also called a manager, whose main task was to arrange groups' activities. The leader was usually a member of the group as well (Banaszak 2005). In this article we focus on the role of group leaders for establishing and running cooperation, and we analyse the strategies the leaders undertake and their motivation to perform their function.

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

II. Theoretical background

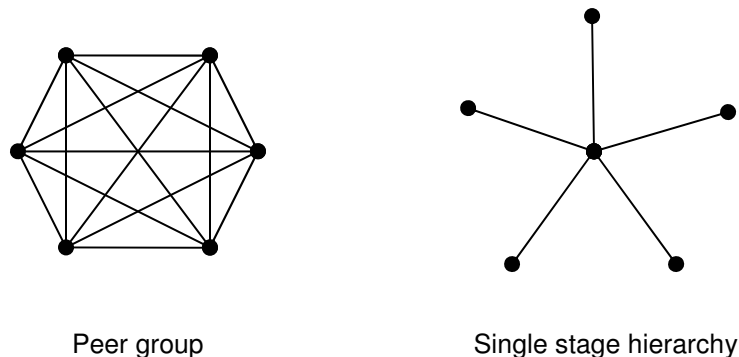
2.1. Leadership in transaction cost theory

Producer groups act as intermediary market organisations which 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. Horizontal integration occurs between different businesses located on the same level of the channel (Caputo & Mininno 1996: 64) and in producer groups it takes place due to association of farmers into one organisation. Vertical integration occurs between businesses located at different stages of the channel (*ibid.*) and in producer groups it takes place whenever the groups move up in the market channel by organising joint transportation or processing the produce. Several authors quoted by D'Aveni and Ravenscraft (1994) additionally point out that due to vertical integration firms could strengthen their market position over purchasers and suppliers (p.1171). This corresponds with the motives for establishment of producer groups in Poland. The most frequent motivation for initiating group activity was the desire to gain more control over the market, to sell the produce at higher prices and to buy the means of production at lower prices (Banaszak 2005: 14-15). 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 organising production, marketing and administration. The simplest form which the organisation 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 organisation 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. Introduction of a single-stage hierarchy enables the group to save on both information transmission and decision-making costs (ibid.: 51) (fig. 1).

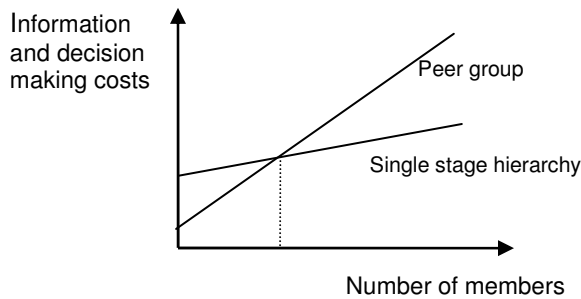
Figure 1. Peer group and single-stage hierarchy structure (Adapted from: Williamson 1983: 46)



The costs of information and decision-making in the peer group are closely connected to the 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 together with the number of group members. Hierarchy has higher set up costs; however,

the costs stay relatively constant as the number of actors increases (Beckmann 2000: 110) (fig. 2).

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



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), moreover, point out that introduction of central coordination might be also a means of reducing shrinking costs through monitoring performance of team members (p. 786). They suggest that the motivation for the monitor to specialise and perform the monitoring tasks can come from giving him title to the net earnings of the team. Both specialisation in monitoring and dependence on a residual claimant status will reduce shirking (p.782). We may expect, therefore, the producer groups to pay their leaders with a salary.

2.2. Leadership in game theory and collective action theory

There are three main types of noncooperative games which might be played by producer groups. The first type, 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. Cooperation is here Pareto efficient and results in achieving a dominant strategy equilibrium (Banaszak & Beckmann 2006). Nonetheless, although cooperation is the dominant strategy, each coordination game might have more than one cooperative equilibrium (Rasmusen 2001: 29). 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 (table 1).

Table 1. Multiple equilibriums in a coordination game

		Farmer 2	
		<i>Plant A</i>	<i>Plant B</i>
Farmer 1	<i>Plant A</i>	P + p₁, P + p₁	P, P
	<i>Plant B</i>	P, P	P + p₂, P + p₂

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) theoretically proves that the probability of coordinating on an individual is greater than the probability of coordination on an action (p.7-8). 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.

The literature 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 which 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 (Foss 1999: 24).

The second type of game which might be played by producer groups is a prisoners' dilemma game. This game describes a situation where cooperation is still Pareto efficient for the group as a whole, however, the dominant strategy from the point of view of a single member is to deviate from the group agreements since shirking brings higher returns (Banaszak & Beckmann 2006: 5).

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 loses 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 lose the price premium (p) as a result of the delay and additionally they both lose 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.

Table 2. Cooperation in a 2 person prisoner’s dilemma game

		Farmer 2	
		<i>Cooperation</i>	<i>Shirking</i>
Farmer 1	<i>Cooperation</i>	P + p + u, P + p + u	P, P + 2 p - u
	<i>Shirking</i>	P + 2 p - u, P	P - u, P - u

where $2p > u$

Foss (1998) 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 payoffs structure in the game by adding additional utility from reciprocating cooperation and being “nice” to other players (p. 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 which increase a leader’s ability to influence attitudes, values and behaviour 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) show that leaders’ decision making power was significantly correlated with exercising sanctions in producer groups in Poland (p.17).

The third type of game which might be played by producer groups is a public goods game. 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 and Thaler 1988: 188). A public

goods game is played by those producer groups which, for instance, support the local community, fund scholarships for children, etc. (Banaszak & Beckmann 2006: 5) We can also consider that to a certain extent the price for a product might be considered as a local public good. For instance, due to establishment of producer groups, middlemen might be either eliminated from the local market or motivated to pay higher prices to farmers in order to discourage them from joining the producer group (Banaszak 2005: 19).

The payoff structure of such a game is represented below. In this case p stands for all public benefits produced by producer groups, and oc stands for organisational costs which have to be born by farmers who cooperate in order to provide the good (table 3).

Table 3. Cooperation in a 2 person public goods game

		Farmer 2	
		<i>Contribution to the public good</i>	<i>No contribution</i>
Farmer 1	<i>Contribution to the public good</i>	$P + p - oc/2, P + p - oc/2$	$P + p - oc, P + p$
	<i>No contribution</i>	$P + p, P + p - oc$	P, P

where $p > oc$

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 ostracise 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).

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 (Banaszak 2005: 24). 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 the leadership (Foss 1998: 24-5). Nevertheless, game theory perceives leadership in terms of its functionality for the group and it does not address the

problem of leaders' motivation. Slightly different insights are provided by collective action theory. Hardin (1982) 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 (p. 35). They stimulate the groups and take on the burden of providing collective benefits. The author gives an example of candidates for election who organise a collective good for latent groups. Their reward is usually distinct from the collective good. Wagner (1966) puts forward additionally that the attributes of political entrepreneurs are important. They might discover profit opportunities from a collective action more rapidly than other actors and they form and motivate groups to achieve them (p. 166).

To sum up, when considering a leader's motivation to pursue a group's goals, such factors have to be taken into account as material, political and self-esteem rewards which the leader receives. However, the leader's decision making power and ability to enforce his assessment of a situation should also be taken into account. Banaszak and Beckmann (2006) also argue that the external environment, such as competition, influences a group's ability to negotiate a higher price premium, what in turn had a negative impact on the likelihood of deviating from the group agreement by members (p.19).

At the end we should also keep in mind that the study was conducted in a Central-Eastern European country. Due to the historical situation, certain institutions might differ from those in the Western countries, where most of the studies mentioned above were carried out. Hurrelmann et al. (2006) 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 (p. 2).

III. Methodology

3.1. Methods and techniques of the research

Producer groups in one province were selected as the object of the research. The chosen province of Wielkopolska is one of the 16 provinces in Poland and is located in the western part of the country. The province covers 9.53% of the area of the country, and is inhabited by 8.66% of the population in Poland (GUS 2004:1).

A few factors contributed to the selection of this Province as the research cluster. The most important ones were availability of basic data about all producer groups in this region, good knowledge of the province and local circumstances by the authors, and the fact that the agriculture sector in Wielkopolska is on average better developed and more advanced than in other parts of the country (Banaszak 2005: 6).

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.

In early 2005, the time when the research was completed, 55 functioning groups and 19 split-up groups were identified within Wielkopolska Province. We were going to interview the whole population of recognized groups; however, a few group leaders refused interviews due to health or family problems or lack of time, and eventually 50 functioning groups and 12 split up groups were subjected to the research. The 50 functioning groups associated 4,056 farmers; the 12 groups which stopped their activity associated 394 farmers. Since the main research questions posed in this article are the comparison of the role of leadership at the beginning of cooperation and in the process of running cooperation, only the 50 functioning groups will be subjected to empirical investigation.

The structured interview with producer group leaders was organised into a questionnaire composed of 6 parts. The first part comprised 12 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. These 5 parts comprised 120 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 was applied. However, in order to investigate the question about leaders' motivation, econometric techniques of probit and tobit regressions were employed.

The probit model, as well as as log-linear and logit models, extends the principles of generalised linear models such as regression and is applied to cases of dichotomous dependent variables. They are used to understand the importance of multiple independent variables in predicting a dependent variable. The probit model uses the function of the inverse of the standard normal cumulative distribution function. The probit model enables to use a mixture of categorical and continuous independent variables in relation to a dichotomous categorical dependent variable (Greene 2003: 667, 675-676). 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.

IV. Empirical Findings

4.1. General information about the producer groups

Most of the producer groups subjected to the research were established in 1999 and 1998. The oldest group was established in 1992, the youngest in 2004. Each group associated about 80 farmers. The smallest group had only 5 members, the biggest 700. The majority of the groups associated farmers producing pork (56%); 24% groups

functioned in vegetables, 7% in fruits, and the remaining share in other goods such as hops, poultry, rape and cattle.

It is interesting that only 80% (40 groups) of the researched groups performed the main task of producer groups which is to organise joint sales of the products produced by individual farmers. Other groups were involved only in such activities as organising joint purchases of the means of production, joint transportation of the products, organising training and other social activities for their members.

The organization of groups' varied, some groups also used mixed ownership structures. Most of the groups (64%) introduced entrance fees, 38% appropriated a fixed percentage from sales through the group, 28% issued shares, 26% collected regular membership fees, and another 26% of groups purchased output at lower prices and sold at higher prices.

4.2. 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 than the average for farmers in the province (about 8.5 ha – GUS 2004). Four groups (8%), however, 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 where 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.

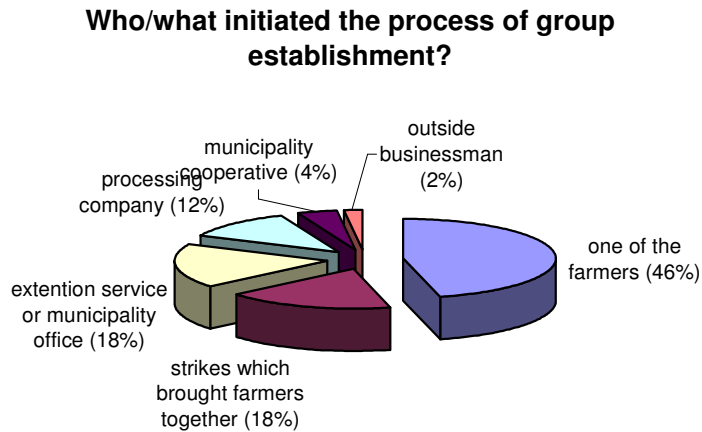
Most of the leaders (76%) belonged also to different political, agricultural and sport organisations themselves. The most frequent was membership in the Polish farmer union (26% were active members, formally all Polish farmers belong to the union) and other agricultural organisations (52%). 33% of the leaders reported to be members of the local fire-brigade or a sport organisation. Twenty percent of the leaders were members of a political party, and also 20% were deputies to the local government.

4.3. The role of the leader in the process of 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 which 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 organise 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 organisation, 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%).

Chart 1. Factors which lead to formation of producer groups (N=50)

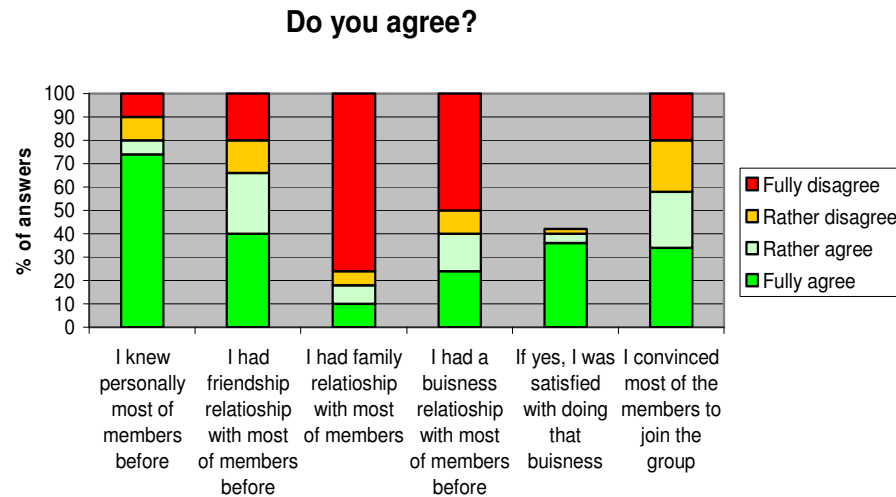


After the stage of planning the group, the members of all groups chose formal group leaders in an election process during the group's first general assembly. The chosen leaders, however, usually knew most of the group members quite well before establishing the group and reported being involved earlier in some different social relationship with them.

Eighty percent either fully agree (74%) or partially agree (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 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 (chart 2).

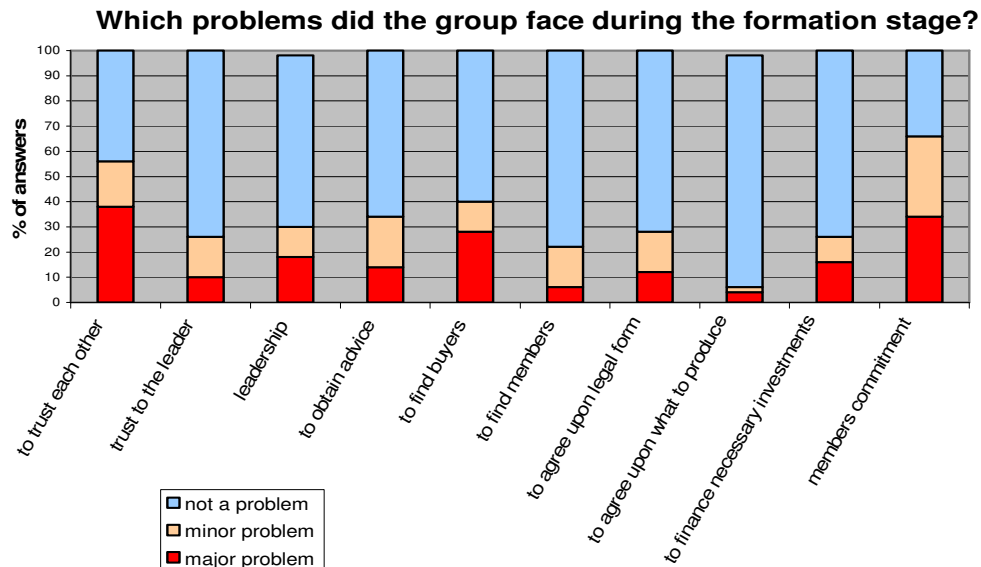
Chart 2. The leaders' previous relationship with group members (N=50)



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 40% 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%) (chart 3).

Chart 3. Problems which the groups faced in the formation stage (N=50)



4.4. The role of the leader during groups' functioning

The research results suggest that over time, as the group is running, leaders of most of the groups have to share their power with other members through management teams which, together with the leader, manage 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. It is interesting that there is a significant (0.001 significance level) 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 organised 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 prefer to have more frequent communication and meetings of both their management team and all members. A significant positive correlation (significance at

0.001 level) 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 is the most powerful and takes most decisions. The data show that for half of the groups the management team is 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 (correlation positively significant at 0.09 level). We may expect, therefore, that strong leaders who initiated the emergence of groups remain strong leaders over time.

Seventy-four percent of groups were led by the same leader 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%).

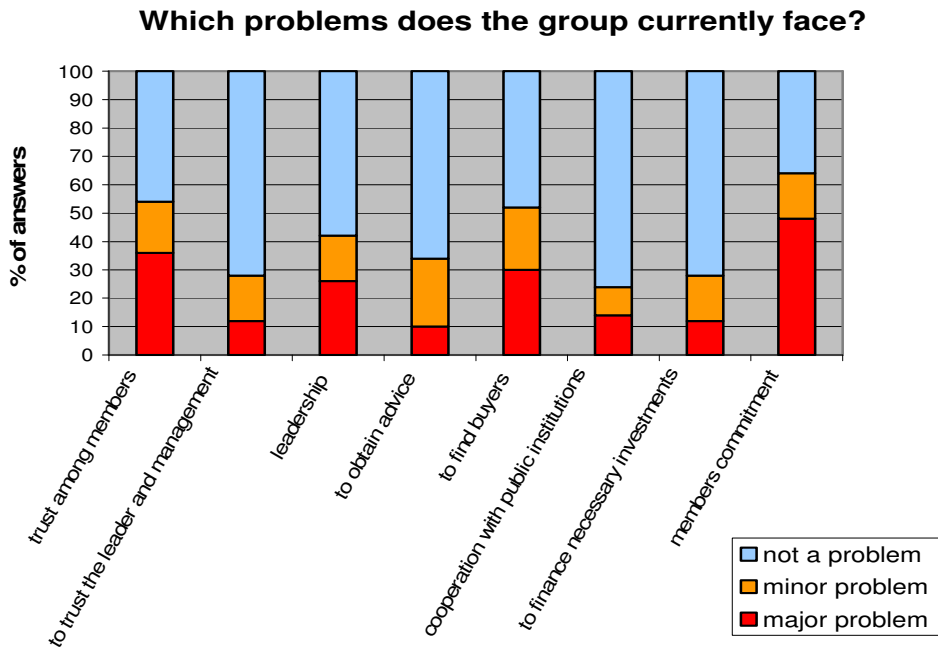
Taking into account the time which the leaders have to devote to their work for the group, 52% of them worked less than 10 hours per week, 14% worked from 10 to 22 hours, 10% worked from 20 to 35 hours, and 22% worked for their group more than 35 hours per week. Most of the leaders, however, did not 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 (correlation significant at 0.05 level). However, the amount of salary which 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 realise 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. (I don't think this was already mentioned) 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 (correlation significant at 0.06 level), which suggests that leaders of groups who sold their output through a long term contract either 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.

Chart 4. Problems which producer groups face during their running



4.5. Leaders' motivation

In this section we investigate what was the role of group leaders and their motivation for achieving group goals. 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 of output produced by individual member farmers. 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 which 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. As was already mentioned, only 80% of the functioning groups performed the function of joint sales. 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 which 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 (table 4).

Theory suggests that material, political and self-esteem rewards influence leaders' motivation to persuade group goals in addition to the leader's ability to enforce his decisions and the external environment. We measured material rewards from exercising the leadership function by investigating whether the leader was financially compensated for his work and also by investigating the size of his agricultural holding, since the leader's motivation could be also obtained through returns from selling his produce through the group. 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 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.

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 influence of the external environment was measured by investigating how the interviews perceived competition from other business organizations occupying the same market niche as well as how long the group functioned. Competition had a negative impact on the price premium (Banaszak & Beckmann 2006: 17). The time of groups' operation was included to the external environment factors since over time the leaders could adapt to the market and/or the market could adapt to the presence of the group. On average competition was perceived as not very harsh and it was ranked as 1.72 on a 1-to-4 scale. The details of the summary statistics for both groups of dependent and independent variables are presented in the table below. 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. Summary statistic of the dependent and independent variables

Variable	Measurement (Mean Value)	Coding	N	Mean	Min.	Max.	Stand. Dev.
Dependent variables							
Price Premium	How many % the price the members get is 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
Independent variables							
Salary	Does the leader get a financial gratification of his work	Yes-1, no-0	40	0.27	0	1	0.45
Area	How big is the leader's agricultural holding	No. of hectares	40	53.33	0	600	109.94
Organisational membership	To how many social, agricultural and political organisations does the leader belong	No. of organisations	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
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
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

In order to estimate the impact of the independent variables on the dependent variables, econometric techniques of probit and tobit regressions were employed. The probit model was used in order to estimate the likelihood of groups entering a long-term contract, which was treated as a dichotomous dependent variable. The tobit model was employed to estimate the likelihood of negotiating a certain price premium. The regression was censored at the level of zero price premiums. (why?)

Although seven independent variables were distinguished, two of them, self-understood success of the group and membership in agricultural and political organisations, 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 (correlation significant at 0.003 level). That means that the leaders perceive themselves and their groups as successful not in relation to obtaining a high price premium, but with being able to negotiate a long-term contract for the group and providing 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 (p.20). 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 organisations, which was the second excluded independent variable, with the dependent variables, it appeared to be significantly negatively correlated with the price premium (correlation significant at 0.02 level). This indicates that a producer group's leader's membership in other agricultural and political organisations actually had a negative impact on the leader's motivation to pursue group goals.

The results of running probit and tobit regression models are presented in the below table.

Table 5. Tobit regression modeling results for the dependent variable indicating price premium and probit modeling results for the dependent variable indicating having a long-term contract

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

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 which 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 themselves. If they have enough decision making power to force the group to enter such contract, they are very likely to pursue it.

V. Conclusions and discussion

The article investigated the role of leadership in the process of establishing and functioning of organizations. We also inquired about leaders' motivation to perform their tasks given the incentives provided by the group.

The theoretical background for the research process was provided by three theories – transaction cost theory, game theory and collective action theory. Transaction cost theory suggested that some organizations could function first as peer groups and over time or as the number of members increases some of them could choose a central coordinator in order to economize on communication and decision making costs. Game theory stressed in particular the coordinating role of the leader, and furthermore his ability to change the payoff structure in social dilemma situations. Game theory also

suggested that the leader who creates extra value by making players change their strategies might be paid by the group for undertaking this work, or might receive other non-material rewards. Collective action theory proposed, furthermore, that actually the acquisition of some private interest provides motivation for leaders.

The empirical evidence was collected from cooperative farmer organizations in Poland called producer groups. The main task performed by those groups was to organize joint sales of output produced by individual member farmers. All the groups had an elected leader, sometimes also called a manager, whose main task was to find purchasers and organize joint sales. The details of the leader position, however, varied across the groups.

Taking into account the leader role in the process of establishing cooperation, almost half of the groups were actually initiated by one of the farmers who was elected later on as the official group leader. Almost one-fifth of the groups started as peer groups which over time, in the process of organizing the group, elected a leader. The rest of the groups were created as a result of an initiative of external persons or agencies and also later on in the process of election chose a leader.

The prevailing majority of group leaders declared having previous relationships with most of the group members, and also about half of them declared that they convinced most of the members to join the group.

The data suggest that those leaders who initiated the groups remain strong leaders in the process of running cooperation. Nonetheless, in the majority of the groups the leaders had to share their power with management teams. For half of the groups it was the management team who took most of the decisions in the group. About one-tenth of the groups functioned as peer groups with most decisions taken by all group members. However, there is no correlation between the number of group members and taking the decisions either by the leader, management or all members.

It also seems that over time some of the leaders realize their opportunity costs are too high or do not feel compensated enough for their work and step back from the group activity. The leader's lack of time or undertaking another business was a reason for quitting leadership by leaders of 6% of groups. Another 6% of leaders lost their post due to not fulfilling the members' expectations.

Over time, leadership tends to cause more problems in group activity. About 30% of groups reported having either minor or major problems with leadership at the beginning of cooperation. During groups' running, however, 12% more groups reported struggling with either minor or major problems related to leadership.

Taking into account leaders' motivation to perform their task, two types of strategies were identified. 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 which increased the likelihood of choosing the first strategy was receiving a salary by the leader. Nonetheless, if the leaders could take most of decisions by themselves they were more likely to enter a long term contract. Entering a long term contract by the groups was interpreted by the leaders as a group success.

These findings are particularly striking in comparison with previous studies on producer groups that suggest that members valued selling at a high price premium more than having a long term contract (Banaszak & Beckmann 2006: 20). What is more, entering a long term contract increased the likelihood of playing a prisoners' dilemma game and members of such groups were more likely to deviate from group agreements and sell their output outside the group.

On this basis an underlying conflict between the objectives of leaders and objectives of members in the groups subjected to the research was identified. The leaders valued stability and selling through long term contracts more, which also meant less work for them. Although stability could also be good for the group as a whole, the members valued always selling at the highest price premium more than stability. We can conclude that the best strategy for the producer group members to pursue their goal, irrespective of whether it is good or bad for the group as a whole, was therefore to provide a salary to their leader. This increased his motivation to satisfy members and to search always for the highest price premium.

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Appendix

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. tobit higherpr salary Area leader10 CompE yearsop, ll(0)
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Tobit regression	Number of obs	=	40
	LR chi2(5)	=	22.10
	Prob > chi2	=	0.0005
Log likelihood = -132.14262	Pseudo R2	=	0.0772

higherpr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
salary	9.980726	3.491476	2.86	0.007	2.892654	17.0688
Area	-.0404881	.0226594	-1.79	0.083	-.0864891	.005513
leader10	-.7323145	1.972365	-0.37	0.713	-4.736428	3.271799
CompE	-4.700609	2.285116	-2.06	0.047	-9.339641	-.0615775
yearsop	-1.20099	.713518	-1.68	0.101	-2.649509	.2475285
_cons	23.42288	7.162388	3.27	0.002	8.882456	37.9633
-----+						
/sigma	9.492509	1.153606			7.150565	11.83445

Obs. summary: 5 left-censored observations at higherpr<=0
 35 uncensored observations
 0 right-censored observations

. probit contract salary Area leader10 CompE yearsop

Iteration 0: log likelihood = -26.46253
Iteration 1: log likelihood = -17.763656
Iteration 2: log likelihood = -16.683972
Iteration 3: log likelihood = -16.19887
Iteration 4: log likelihood = -16.037001
Iteration 5: log likelihood = -16.000209
Iteration 6: log likelihood = -15.997152
Iteration 7: log likelihood = -15.997136

Probit regression		Number of obs	=	40
		LR chi2(5)	=	20.93
		Prob > chi2	=	0.0008
Log likelihood = -15.997136		Pseudo R2	=	0.3955

contract	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
salary	.5576741	.6211862	0.90	0.369	-.6598285	1.775177
Area	-.0154676	.0157573	-0.98	0.326	-.0463514	.0154161
leader10	.7306195	.3353309	2.18	0.029	.073383	1.387856
CompE	.916569	.3866471	2.37	0.018	.1587547	1.674383
yearsop	-.2566662	.1312235	-1.96	0.050	-.5138596	.0005271
_cons	-2.014293	1.145911	-1.76	0.079	-4.260237	.2316513

note: 1 failure and 0 successes completely determined.