Are Traditional Cooperatives an Endangered species? About Shrinking Satisfaction, Involvement and Trust

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Abstract

Several researchers, who have observed that traditional cooperatives have difficulties in modern markets, mention a number of behavioral concepts characterizing the members. This study attempts to empirically test these concepts. It is based on a survey among members of a large traditional Swedish cooperative. The members perceive the cooperative to be so large and complex that they have difficulties understanding the operations. Hence, they become dissatisfied and uninvolved, and they mistrust the leadership. Moreover, they do not believe that the cooperative can be remodeled to strengthen member control. The findings support the behavioral explanations presented in prior studies.

Keywords: agricultural cooperative, property rights, satisfaction, involvement, trust

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Introduction

During the last decades many traditionally organized agricultural cooperatives in the western economies have undergone profound changes. Some have transformed into another cooperative organizational model, for example by introducing individual ownership by the members (Nilsson & Ohlsson, 2007). Others have disappeared due to mergers or acquisitions (Chaddad and Cook, 2007; van der Krogt, Nilsson and Høst, 2007). A number of bankruptcies have taken place, not the least in North America (Lang, 2006). Some cooperatives have sold a part of their business activities to investors, thus getting a hybrid type of cooperative (van Bekkum and Bijman, 2006). Still others have converted into investor-owned firms (IOFs).

Most cooperatives are still traditionally organized. This implies a high degree of collectivism. A large share of the equity is unallocated capital, built up from retained profits over the years. The control is by the principle of one member – one vote. Equal treatment of the members is essential (Nilsson, 2001). This study concerns traditional agricultural cooperatives in industrialized countries. Many other cooperative structures exist, involving individualized ownership and external co-owners, proportional voting, differentiated member treatment, etc. (Kyriakopoulos, 2000; van Bekkum, 2001).

The problems that many traditional cooperatives have had during the last few decades are most likely to be due to some new structural factors in the business environments. These changes may have forced the cooperatives to adapt in ways that they are not built to handle.

This study attempts to explore some of these factors, focusing on member behavior variables. Hence, the aim of this study is to explore how the members behave in relation to a large, traditionally organized cooperative that is adapting to intensified competition.

The article is organized as follows. The next section comprises a presentation of the theoretical framework, focusing on some studies, which claim that large traditional cooperatives will have difficulties when competition becomes very severe. This account results in a few hypotheses. The methodological bases, including data collection and measures, are explained in the subsequent section. The following section presents results and a discussion, while the last section encompasses conclusions and implications of the study.

Theoretical Framework

Explanations to the Demise of Traditional Cooperatives

The problems of traditional cooperatives have caught the interest of many researchers. Some of these studies are presented here. These are selected as they have fundamentally different theoretical bases. Table 1 provides an overview.

Table 1. A selection of theoretical approaches to explain why large and complex traditional co-operatives may face problems.

Author	Core concept	Driving forces	Ends
Cook, 1995	Vaguely defined property rights	Large size of operations is necessary but then members will free-ride, become uninterested, etc.	Exit, conversions to IOFs, or reorientation to individualized structures
Fulton, 1995	Property rights theory	Technological advancements change the locus of power in the value chain	The cooperatives' power is reduced
Bager, 1996	Population ecology	Techno-economic and institutional changes induce the cooperatives to imitate other businesses	Conversions, or at least the loss of a specific co-operative identity
Harte, 1997	Transaction cost and agency theory	Markets are becoming more open, more transparent, and larger.	Conversions into IOFs or hybrid forms
Holmström, 1999	Corporate governance, capital markets	As the capital markets function better, the cooperatives' investment portfolios become suboptimal.	Traditional cooperative are increasingly inefficient
Hogeland, 2006	The economic culture	Industrialization of agriculture, processing becomes large scale and capital intensive.	Traditional cooperatives face difficulties due to ignorant members

Cook (1995) suggests a life-cycle model for cooperatives: (1) establishment, (2) survival of infant stage, (3) growth and consolidation, whereby problems of so-called *vaguely defined property rights* (VDPR) appear; (4) struggle against the VDPR problems; (5) either exiting, restructuring (including choosing a hybrid model, and involving outside co-owners), or shifting (choosing an individualized cooperative model, implying tradable delivery rights). These problems entail, for example, that members of collective organizations do not want to invest; they do not reap benefits from all the investments in the cooperative; they try to be free-riders; they are not able to control the management. In order to give benefits to the members the cooperatives grow both horizontally and vertically. Increasing size and complexity means that problems in connection with VDPR become increasingly serious.

Fulton (1995) chooses a *property rights theoretical* approach, noting that the locus of power in any value chain is with the party that has the most importance for the other parties in this chain. Historically, agricultural cooperatives have been the most crucial link in the chain to the extent that their members have been able to produce large volumes of products at a high and even quality. Today, agricultural production has become less problematic as a consequence of new technologies and new management techniques – the concept of industrialization of agriculture has become widespread. As production is no longer so problematic, the marketing of the processed products has become the most essential task, and likewise the genetic material has become more important. Hence, retail chains as well as genetics firms have become stronger than the agricultural cooperatives.

Bager (1996) uses *population ecology* to explain why cooperatives gradually lose their cooperative identity. The same view is held by Hind who finds that "co-operatives become more corporate oriented as they develop through time" (1997:1081) and that "in the later stages of the life cycle, the aspirations of the managers, rather than those of the farmers, are realised" (1999:536).

According to Bager (1996), cooperatives constitute one group in the population of formal organizations within an economy and an industry. In the infancy of cooperatives, the number of cooperatives was so large that they formed a tightly connected group, and hence there was "mimetic isomorphism", such that the cooperatives tended to become similar to one another and dissimilar to other business firms. Today, techno-economic and institutional changes have resulted in large-scale cooperatives, operating internationally. Thereby the cooperatives are subject to "noncongruent isomorphic pressures", driving them to adapt to the practices of IOFs. The farmers have social networks not only with other farmers but also with nonfarmers. The employees have IOFs as their optional employers, and so have the managers and even the chief executive officers (CEOs). Most suppliers to the cooperatives are IOFs, and so are their customers. The financial institutions treat cooperatives as they treat IOFs.

The markets, both for agricultural products and for farm inputs, have become larger, more transparent and more liberalized. Therefore, according to Harte (1997), the farmers no longer need cooperatives for the sake of obtaining lower *transaction costs.* Market failures occur less frequently in today's agriculture. Likewise, the internal organization costs are high in partially integrated vertical systems such as cooperatives, especially when these firms become large. Fully integrated vertical systems can be governed with lower *agency costs.* Hence, the conversion of some Irish cooperatives into IOFs has benefited the farmers.

Holmström (1999) compares *corporate governance* of traditional cooperatives with that of IOFs. While the *capital markets* have been liberalized and are characterized by innovativeness, cooperatives are locked out from these. Neither members nor financial analysts scrutinize investments of cooperatives as their stock is not tradable. Hence cooperatives' investment portfolios are suboptimal. Moreover, the collective decision-making in cooperatives contributes to less efficient portfolios. Especially in turbulent times, conflicts between member categories will hamper good investments.

Hogeland (2006) explains the development in terms of *economic cultures* within the farmer communities, including in the cooperatives. The culture that is supportive for the traditionally organized cooperatives becomes successively threatened as the cooperatives expand. "Farmers wanted to use cooperatives to protect their economic independence, but cooperatives needed farmers to be economically dependent on them" (ibid. 67-68). Competition forces the cooperatives to expand. The larger the investments in the cooperatives, the more the cooperatives will have to control their members. Moreover, large size means heterogeneous memberships and thereby "multiple, sometimes conflicting, social or economic objectives" (ibid. 68). With growing management control, the cooperatives come to resemble their investor-owned competitors to the extent that the farmers become alienated in relation to the cooperatives. Trust and identity vanish from the memberships.

The above-mentioned studies have different paradigmatic bases so it is not possible to integrate them, nor choose between them. Still, there seem to be some common denominators:

- *Large and complex cooperatives.* All markets are subject to major changes – the consumer goods market, the raw product market, the capital market, etc. (Fulton, 1995; Harte, 1997; Holmström, 1999). The traditional cooperative attributes are hindrances for

many types of market adaptation. The preferred strategic route is expansion (Cook, 1995; Bager, 1996; Hogeland, 2006). In order to reduce their costs, cooperatives are expanding horizontally, often through mergers. By vertical expansion, they hope to obtain profits in downstream or upstream business activities.

- *Member dissatisfaction.* The large and complex business activities as well as the large and heterogeneous memberships imply that members become less able to control the cooperatives (Cook, 1995; Bager, 1996; Harte, 1997). First, their possibility to influence the decision-making shrinks due to the large memberships. Second, their understanding of the large cooperative's business activities becomes poor, which reduces their influential capacity. (Harte, 1997; Holmström, 1999). As cooperative members normally assess their influence to be important, dissatisfaction is likely to evolve (Hogeland, 2006).

- *Low involvement.* Trust, solidarity, social cohesion, identity, and other traditional cooperative values are vanishing in the minds of the members (Bager, 1996). There is a cultural clash between members and management (Hogeland, 2006). Therefore, the members do not want to invest in the cooperative; they try to be free-riders; they do not control the management adequately, and so on (Cook, 1995; Holmström, 1999). They become uninvolved in the cooperative (Harte, 1997).

- *Mistrust in the leadership.* As the cooperative business firm has to work on market conditions, the management takes control (Bager, 1996). With passive and poorly informed members, management works autonomously from the members (Hogeland, 2006). The board of directors, being highly dependent on the CEO, loses in legitimacy in the eyes of the members.

Four variables are highlighted in the summary above: (1) the size and complexity of the cooperative, (2) members' satisfaction or dissatisfaction, (3) members' degree of involvement, and (4) members' trust or mistrust towards the board and the CEO. Hence, the aim of this study can be stated in a more precise manner – it is to empirically test the effects that large size and great complexity of a traditionally organized cooperative have on member behavior, especially satisfaction, involvement and trust in the leadership.

Hypotheses

The above-mentioned variables are hypothesized to be related to one another as shown in Figure 1, where (a) – (e) express the following hypotheses H1 – H5, respectively. The point of departure is an exogenous variable – the business environments force the cooperatives to apply strategies that require large investments in upstream and downstream business activities, and therefore large size and complex structures. What influences the members' behavior is, however, not the organizational structure per se, but how members perceive this structure.
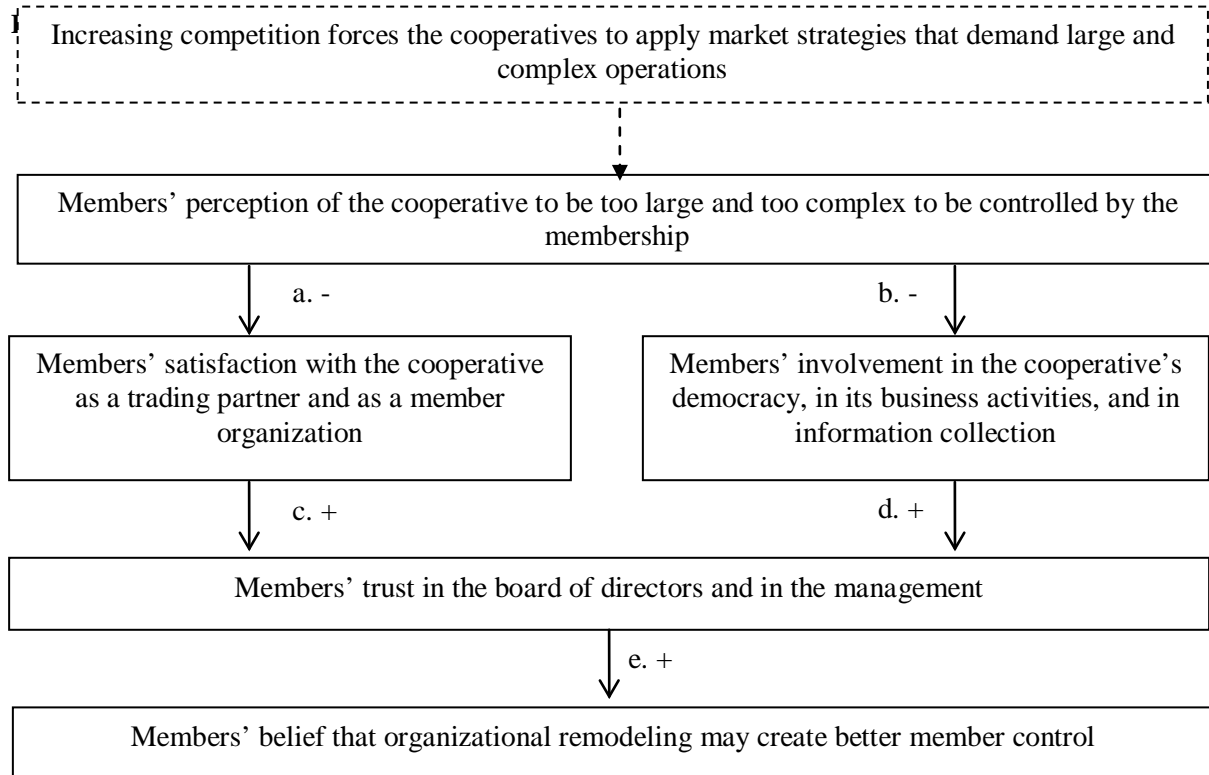
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│  Increasing competition forces the cooperatives to apply market strategies that demand large and
│                          complex operations
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Members' perception of the cooperative to be too large and too complex to be controlled by the membership

a. -

b. -

| Members' satisfaction with the cooperative as a trading partner and as a member organization | Members' involvement in the cooperative's democracy, in its business activities, and in information collection |

c. +

d. +

Members' trust in the board of directors and in the management

e. +

Members' belief that organizational remodeling may create better member control

Figure 1. Hypothesized causalities between the latent variables.

The members may consider the cooperative to be so large and complex that they have difficulties keeping informed of the business and assessing what is happening in the firm. Hence, they cannot take part in the governance of the cooperative. Because members tend to consider their influence in cooperatives to be important (Österberg and Nilsson, 2009) they are likely to become dissatisfied with the cooperative. Arrow (a) in Figure 1 expresses hypothesis 1 (the minus signifies that a negative influence is plausible).

H1. *The more the members perceive their cooperative to be very large and very complex, the less satisfied they are.*

The perception of large and complex cooperatives is hypothesized to foster low involvement among the members. Because they have difficulties in understanding the business operations their interest to keep informed will fall. Low involvement also implies that members do not consider it important to be loyal buyers or suppliers (b in Figure 1; minus to signify a likely negative influence).

H2. *The more the members perceive their cooperative to be very large and very complex, the less involved they are.*

Dissatisfied and uninvolved members may have little trust in the leadership of the cooperative, be it the board of directors or the management. In the eyes of the members, the board and the CEO are responsible for the cooperative having developed such that they have become

dissatisfied and uninvolved (c and d in Figure 1; plusses mean that positive influences are expected).

> **H3.** *The less satisfied the members are with the cooperative, the less trust they have in the leadership.*

> **H4.** *The less involved the members are in the cooperative, the less trust they have in the leadership.*

These hypotheses are supplemented with a fifth one. Considering that many cooperatives have been converted from a traditional form into another organizational type, it makes sense to investigate the chances that the large and complex traditional cooperatives have for survival in another organizational form. However, considering the gloomy nature of the four preceding hypotheses, also the fifth one states that remodeling attempts will be difficult to conduct (e in Figure 1; a plus says that a positive influence is expected):

> **H5.** *The less trust the members have in the leadership of a cooperative, the less they believe in remodeling measures.*

Three of the hypothesized relationships (H3, H4, and H5) have been subject to empirical investigation in earlier studies. The two other relationships (H1 and H2) do not seem to have been investigated previously.

Hypotheses H3 and H4: Gray and Kraenzle (1998) found that members' participation (attendance at meetings, serving on committees or as elected officers, and recruiting other farmers to become members) is positively correlated to a number of variables, including "satisfaction with my district director". Although the concepts are not identical, this finding may indicate that involvement and satisfaction are linked to the members' view of the leadership.

Hypothesis H4: A study by James and Sykuta (2006) showed that the farmers' trust in their cooperative is positively correlated with their propensity to patronize this cooperative. It is likely that their preference of the cooperative is a consequence of satisfaction.

Hypothesis H5: Borgen (2001) found a strong link between the members' trust in the management and their identification with the cooperative. Hansen, Morrow and Batista (2002) demonstrated that the members' trust in the management (as well as their trust in each other) is related to the cohesion within the membership – a concept that may have connections to involvement.

Few studies have investigated the relationships between the behavioral concepts, which are in focus in this study. Still, the findings reported in these studies seem to support the hypotheses. The following section explains how the five variables are interpreted so they can be transformed into questions and statements in a questionnaire.

Variables

The Members' Perception of Whether the Cooperative is too Large and too Complex to be Controlled by the Membership.

Organizational size and complexity can be assessed objectively, i.e., in terms of volumes, numbers, and currency units. However, what constitutes the driving force is the members' perception of the cooperatives' size and complexity. Hence, the focus is on the members' opinions.

A cooperative is both a business firm, which the members buy supplies from and sell their products to, and a member organization, where they exert their influence, to which they have applied for membership and where they have invested money. Both the business firm and the member organization are important and should be kept apart. Although the members probably have the same opinion about the business firm and the member organization, one can imagine situations where the two are assessed differently. For example, a local cooperative may have a small member organization, but this cooperative's businesses could be conducted by a federated cooperative that is large and complex.

Therefore, the questionnaire comprises the two following statements, one for each of the member organization and the business firm. Both statements should be answered by the respondents on a five-level Likert scale, running from (1) "do not agree" via (3) "agree to some extent" to (5) "agree completely". The two statements express only one dimension of the members' attitude towards the cooperative's size and complexity, namely their ability to keep informed about the firm's operations, but this dimension is probably one of the most crucial ones.

- *Organizational size:* The cooperative's expansion and internationalization makes it difficult for me to inform myself and to understand the business results.
- *Organizational complexity:* Because the cooperative has become larger and more complex, it is difficult for me to be informed about its business activities, and therefore, I do not attend the annual meetings.

Satisfaction or Dissatisfaction with the Cooperative as a Trading Partner and as a Member Organization

Satisfaction expresses whether a person feels that a need or a desire is fulfilled, in this case the members' demands on the cooperative. Hansen et al. (2002: 45) link member satisfaction to the performance of the cooperatives, saying that satisfaction results when the farmer's expectations as to cooperative performance are met: "assessments … involve both financial indicators of performance … and nonfinancial indicators of performance."

The members' degree of satisfaction or dissatisfaction with the cooperative could refer to the member organization as well as the business organization. Hence two statements are presented, both to be answered on a five-level Likert scale from (1) "very dissatisfied", via (3) "neither nor" to (5) "very satisfied".

- *Satisfaction with organization:* How satisfied are you with the cooperative's member organization (regarding member activities, information giving, treatment, etc.)?
- *Satisfaction with business:* How satisfied are you with the cooperative as a trading partner regarding price levels, offers, treatment, etc.?

Involvement in the Cooperative's Member Democracy, in its Business Activities, and in Information Collection

Involvement is a concept expressing individuals' psychological attachment to a phenomenon. It is related to "identification" (Borgen, 2001) and to "ethics". Given this, Zusman claims it to be of immense importance (1993: 53): "if members' ethical attitudes are too weak to support the cooperative enterprise, it is bound to fail sooner or later". Cooperative members may be involved in the business activities of the cooperative, i.e., be loyal in buying from or selling to the cooperative, as well as involved in the cooperative member organization, for example, taking part in the member democracy. Both aspects are included here. Involvement can be based on cooperative ideology, comprising a set of social values, or on calculative behavior, i.e., the members' view of prices, offers and other factual factors. There is probably an overlap between these two dimensions. Regardless, it is difficult to separate them from one another. Hence, this study does not distinguish between ideological and economic motivational forces.

Four involvement variables are specified, each expressing one type of behavior. Meeting attendance is answered by (1) "yes" or (0) "no"; Loyalty has a five-level Likert scale ranging from (1) "no" to (5) "yes"; Information gathering has a five-level Likert scale from (1) "very little" to (5) "very much"; Voting has a five-level Likert scale from (1) "do not agree", via (3) "neither nor" to (5) "agree completely".

- *Meeting attendance*: Did you attend the cooperative's annual meeting last time?
- *Loyalty:* Do you consider yourself to be a loyal member in the sense that you always or almost always do you business with the cooperative, etc.?
- *Information gathering:* How much do you involve yourself in gathering information about the cooperative's operations and its development?
- *Voting:* My vote makes a difference.

Trust or Mistrust in the Board of Directors and in the Management

A widely accepted definition is that "Trust is a psychological state comprising the intentions to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau, Sitkin, Burt and Camerer, 1998: 395). To the extent that the members are dependent upon the cooperative for the sake of their incomes, they are vulnerable, and hence they may have more or less trust in the persons who run the cooperative.

The leadership of a cooperative consists of two parties, namely the board of directors and the CEO with his or her management. It is true that the management is selected by the CEO, but the CEO is appointed by the board of directors. Therefore, formally the board is responsible for the CEO's actions. On the other hand, a large share of the daily business activities that the members meet is the responsibility of the CEO. Hence, both the board of directors and the CEO are included.

Two statements are presented to the recipients of the questionnaire. Both are answered with the help of a five-level Likert scale, running from (1) "do not agree" via (3) "agree to some extent" to (5) "agree completely".

- *Trust in management:* The top management works in the best interest of the members.
- *Trust in board:* I have trust in the elected representatives.

Belief that an Organizational Remodeling may Cause Better Member Control

The board of the cooperative under study is trying to find solutions to the problems that the cooperative has. When the survey was conducted, the member organization had just been subject to major changes intended to bridge the gap between members and the elected representatives. Two questions are given to measure the members' reaction to this organizational remodeling, both to be answered with (1) "yes" or (0) "no".

- *Remodeling for democracy:* Do you think it was necessary to remodel the member organization to simplify the member democracy?
- *Remodeling for information:* Has the remodeling of the member organization made it easier for you to keep informed about and to grasp the cooperative's business operations?

Data

Lantmännen (Swedish Farmers' Supply and Crop Marketing Association)

The data were collected through a mail survey among members of Lantmännen (Swedish Farmers' Supply and Crop Marketing Association). At the time of the data collection this was a traditionally structured cooperative in the grain marketing and farm supply industry. The fact that the cooperative operates throughout Sweden contributes to membership heterogeneity. The number of members was 44,000, including 3900 members of 24 local cooperatives, which were affiliated to Lantmännen. The cooperative had nearly 13,000 employees. These figures like all the other data are the latest ones obtainable in early 2006, when the data collection was conducted.

Lantmännen is characterized by vertical integration to a remarkable extent. Its operations are divided into ten business branches, of which only one is doing business with the farmer members. This branch buys grain, oil seed and other crops from farmers and sells fodder, fertilizers, pesticides, etc. to the farmers. The businesses with the farmers are conducted through a network of offices and retail outlets as well as via phone and Internet. Lantmännen is clearly the market dominating firm in virtually all products sold to farmers and bought from farmers. The farmer-oriented business operations account, however, for less than one-quarter of the turnover.

The other nine branches are a retail chain, grain milling, cereal manufacturing, bakeries, broiler slaughtering, plant breeding, agricultural machines and other heavy duty machines, energy production, and an investment branch. The last branch includes, among other things, potato processing, alcohol production, chicken hatching, and pet food. Many of the consumer products are market leaders with very strong brand names.

The total turnover amounts to SEK 33 billions (approximately €3.5 billions or US$ 5.2 billions). About 65% of this amount is business in Sweden; 15% in the neighboring Scandinavian countries; 15% in the rest of Europe, and the remaining share outside Europe. Lantmännen has operations in 19 countries. The expansion has during the last years been strong in Eastern Europe.

Lantmännen was established in its present form in 2001, after a merger between nine regional cooperatives and the federative organization that was controlled by all the regional cooperatives. The former federative was established in 1895 and a few of the constituent cooperatives were founded in 1880. The reason for the merger was that it would thereby be possible to increase the efficiency through economies of scale as well as economies of scope.

To convince the members of the regional cooperatives to vote in favor of the merger, they were promised that each region would retain a considerable degree of self-rule after the merger. This strategy was successful so the members accepted the merger proposal. However, letting the regions decide about issues such as grain prices, logistics, elevators, and retail outlets implied that the new cooperative got much higher costs than was necessary. Thus, from 2005 the regions were dissolved, so the partial self-rule regime was abandoned, and all business decisions were made at the headquarters in Stockholm.

The centralized decision-making meant that 67 of the 92 elevators could be closed, and this process will continue until there are only 15 elevators remaining. The retail stores, which used to be run by the regional cooperatives, were joined into a nationwide chain. The combined assortment of the retail outlets will be cut from 100,000 items to 15,000 items. Many retail stores have been closed and a few others are being established.

Prior to these reorganization measures Lantmännen's price levels were poorer than the prices of the IOF competitors. This was so both when Lantmännen bought grain from the members and when it sold fertilizers, diesel, seed and other farm inputs to the members. After the cost-saving measures have been implemented, the price levels have been improved. For example, the grain is paid at a ten percent higher price thanks to the cost savings.

From 2006 a new membership organization was introduced. The previously 85 wards were reduced to 32 wards. One echelon in the member democratic hierarchy was removed. The number of elected representatives was reduced drastically. The rationale was to bring members closer to the board of directors. Thereby, Lantmännen hoped for a higher attendance of the yearly meetings. In 2007, 3.6% of the members took part in the meetings, but the participating farmers account for 11% of the supplies sold to members and 13% of the grain deliveries, so the meetings attracted mainly large and active farmers.

Lantmännen's equity capital is SEK 9 billion (approximately €950 million or US$ 1.4 billion), with an equity share of 37%. Most of the equity (83%) is unallocated, built up over the decades from retained earnings. The shares are redeemed to exiting member at par value. The members get a high interest rate for their investments in the cooperative, and bonus shares are regularly distributed to members. As in all Swedish cooperatives the principle of one member, one vote is applied. The principle of equal treatment of members is included in the Swedish legislation.

Lantmännen conducts regularly measurements of member satisfaction with the cooperative. The satisfaction indices indicate that the members have criticism of the cooperative. The board of directors is worried about the low member support (probably due to the many closures of elevators and retail shops), the low attendance of meetings and the low return on equity – less than 4% in 2006.

Data Collection

Data were collected through a mail survey among members of Lantmännen in early 2007. The fact that members of just one cooperative in one country constitute the data source does, of course, reduce the possibility of generalizing the findings to other settings.

Two regions within Lantmännen were selected – one in the southernmost province of Sweden and the other in mid-Sweden. These two are intensive agricultural areas with many farmers and with a large production volume; hence they are not representative of the entire membership. A random sample of 300 members in each of the two regions received a questionnaire. After one reminder a response rate of 36% was achieved, i.e., 205 recipients filled-in questionnaires. No call-backs to the missing respondents were carried out. Due to the requirement that all the twelve inquiry variables should be answered, the number of usable questionnaires was reduced to 115. This number seems to be low. However, as indicated in the next section the number is large enough to validate correlations of practical importance. For large populations, where the sample values among different farmers can be considered as independent, only the sample size matters, not the proportion selected.

The response rate was probably negatively affected by the fact that the questionnaires were sent in the month of April. At this time of the year Swedish farmers are busy in the fields.

The age span 51-60 years is somewhat overrepresented in the sample in comparison with the total population. In the other age spans as well as genders and production orientation, the respondents correspond roughly to the population at large. Of the respondents, 25% are above 60 years of age; 40% are 51-60; 20% are in the age span 41-50; the rest are below 40. Nearly 90% of the respondents are men, and almost half of them have crop production as their main production line.

Results and Discussion

Assumptions for Statistical Analysis

In the statistical methods used it is assumed that the data can be considered as a sample from a multivariate normal probability distribution. Because the answers are integer-valued, the normal distribution can only be an approximation. However, in most cases, bar charts of the inquiry answers on the Likert scale show unimodal patterns and the dichotomous answers are not extremely unbalanced. Moreover, scatter diagrams of two inquiry variables show elliptical patterns similar to the bivariate normal distribution. Hence, the approximation to the normal distribution is satisfactory for the purposes of this study.

The number of questionnaires (115) with complete answers for the twelve variables corresponds to a low response rate (19%). However, for an estimated correlation coefficient r of two variables, the usual way to express the uncertainty is by the standard error of the estimate given as $se(r) = (1 - r^2)/\sqrt{115}$ which for $|r| \geq 0.2$ satisfies $se(r) \leq 0.09$. A confidence interval at the approximate level 95% for the true correlation is calculated by $r \pm 1.96 se(r)$. If $r = 0.2$ the interval is $(0.2 \pm 1.96 \times 0.09) = (0.02, 0.38)$ not including 0. As a 95% confidence interval corresponds to a test at level 5%, the hypothesis of true zero correlation is rejected if $|r| \geq 0.2$ as the confidence interval will not contain 0. Hence, it can be expected that a number of 115 questionnaires is large enough to detect correlations of sizes ≤ -0.2 and ≥ 0.2.

Explorative Factor Analysis

Factor analysis was used as an approach to find latent variables for the inquiry variables. A model including five factors was estimated by maximum likelihood succeeded by rotation according to the varimax criterion (Johnson and Wichern, 2007). The procedure Factor of the statistical package SAS (2004) was used for the numerical calculations. The resulting loadings and specific variances based on the original correlation matrix of the inquiry variables are given in Table 2. The original correlations are presented in Table 6 (See Appendix).

Table 2. Estimated loadings (after varimax rotation) and specific variances $\hat{\Psi}_i$ [1]

Variable	Factor					$\hat{\Psi}_i$
	1 Org. size and complexity	2 Member satisfaction	3 Involvement	4 Trust in leadership	5 Belief in org. remodeling	
Organizational size	**0.29**	-0.07	-0.02	**-0.12**	**-0.10**	0.88
Organizational complexity	**0.90**	-0.21	**-0.34**	-0.02	-0.16	0
Satisfaction with organization	**-0.24**	**0.47**	0.21	**0.27**	**0.30**	0.51
Satisfaction with business	-0.15	**0.96**	0.10	0.17	0.13	0
Meeting attendance	**-0.15**	0.08	**0.59**	0.05	0.13	0.60
Loyalty	-0.13	**0.41**	**0.46**	**0.22**	0.14	0.54
Information gathering	-0.10	0.11	**0.97**	0.13	0.15	0
Voting	-0.09	**0.12**	0.04	**0.24**	**0.35**	0.79
Trust in management	**-0.28**	**0.44**	0.20	**0.39**	**0.23**	0.48
Trust in board	-0.16	**0.29**	0.18	**0.90**	0.20	0
Remodeling for democracy	**-0.18**	0.11	**0.20**	0.06	**0.50**	0.66
Remodeling for information	-0.12	0.12	0.15	0.11	**0.97**	0

The communalities, i.e. the part of the variation explained by the factors, can be obtained as the sum of squares of the loadings or equivalently as $1 - \hat{\Psi}_i$.

Strong loadings (>0.9 or <–0.9) and other loadings included in the initial structural model studied in the next section are marked in boldface. The factors have been included in decreasing order of absolute loading until they contribute to 90% or more to the communality of the inquiry variable. A tentative interpretation of the factors is: 1) Organizational size and complexity 2)

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[1] The loadings in boldface are re-estimated and the others are set to zero in the initial structural equation model, cf. Table 3.

Member satisfaction, 3) Involvement, 4) Trust in leadership, and 5) Belief in organizational remodeling (cf. Section "Theoretical framework" and Figure 1).

Confirmative Factor Analysis

In the model studied in this section, the latent factors are initially modeled with the tentative factor 1) as an exogenous variable and the other factors as endogenous related as in Figure 1. The initial model includes the relationships to the manifest variables as indicated by boldfaced numbers in Table 2. The numerical evaluations for the models in this subsection were performed by the procedure Calis of SAS (2004). The resulting estimates of loadings and coefficients are exhibited in Table 3 and 4.

Table 3. Estimated loadings and specific variances of initial structural equation model.

Variable	Latent Variable					
	1 Org. size and complexity	2 Member satisfaction	3 Involvement	4 Trust in leadership	5 Belief in org. remodeling	$\hat{\Psi}_i$
Organizational size	0.25			-0.09	-0.03	0.90
Organizational complexity	1.05		0.11			0
Satisfaction with organization	-0.17	0.29		0.26	0.19	0.51
Satisfaction with business		1.00				0.01
Meeting attendance	-0.11		0.56			0.60
Loyalty		0.29	0.41	0.17		0.53
Information gathering			1.00			0
Voting		-0.07		0.28	0.30	0.79
Trust in management	-0.19	0.16		0.48	0.07	0.46
Trust in board		-0.24		1.07		0.14
Remodeling for democracy	-0.14		0.07		0.50	0.66
Remodeling for information					1.00	0

Table 4. Estimated path coefficients for latent variables in initial model.

Endogenous Variable	Latent Variable			
	1 Org. size and complexity	2 Member satisfaction	3 Involvement	4 Trust in leadership
2 Member satisfaction	-0.40			
3 Involvement	-0.55			
4 Trust in leadership		0.63	0.24	
5 Belief in org. remodeling				0.42

The largest difference between the observed correlations and those predicted by the model is 0.19 (the variables *Organizational complexity and Remodeling for information*). Summary indicators for the fit of the model are Akaike's Information Criterion, AIC=−38.5 and Bentler and Bonnet's Normed Fit Index, NFI=0.9536.

Lagrange multipliers and Wald tests can be used to suggest modifications of the model. These indicators were repeatedly used to balance the requirements of simplification and better fit of the model. The AIC value includes this whereas NFI should show only a small decrease when the model is simplified. The modifications result in a final model as presented in Table 5 and Figure 2.

Table 5. Estimated loadings and specific variances $\hat{\Psi}_i$ of final structural equation model.[2]

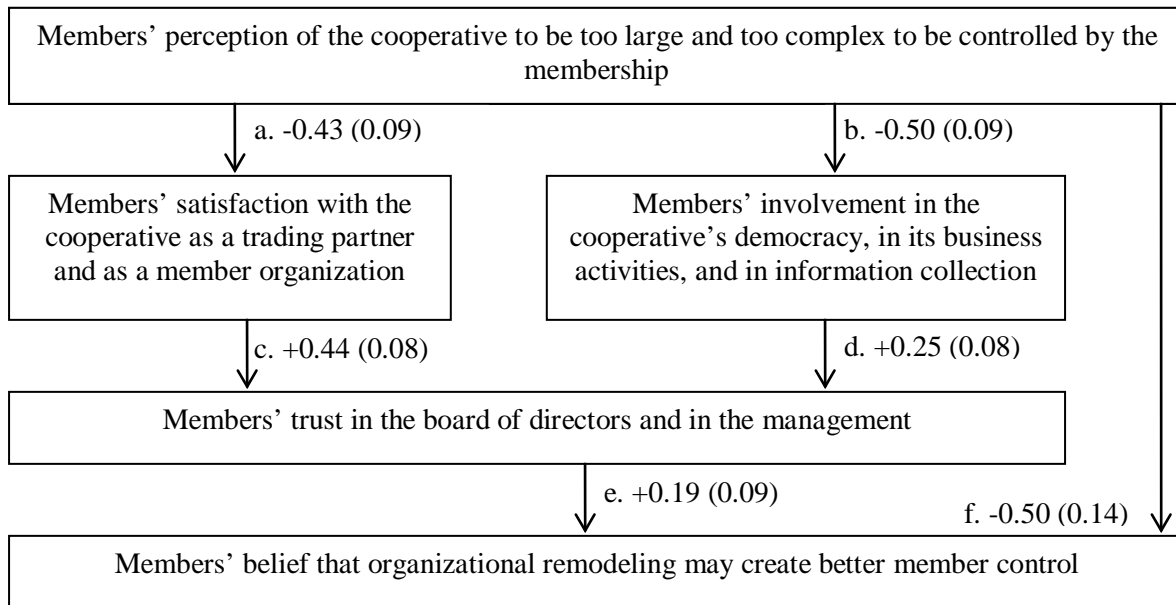| Variable	Latent Variable					$\hat{\Psi}_i$
	1 Org. size and complexity	2 Member satisfaction	3 Involvement	4 Trust in leadership	5 Belief in org. remodeling	
Organizational size	0.31					0.90
Organizational complexity	1.13				0.29	**0**
Satisfaction with organization	-0.19	0.36		0.21	0.15	0.52
Satisfaction with business		1				**0**
Meeting attendance			0.62			0.61
Loyalty		0.40	0.45			0.55
Information gathering			1			**0**
Voting				0.23	0.31	0.80
Trust in management	-0.24	0.30		0.38		0.48
Trust in board				1		**0**
Remodeling for democracy	-0.18				0.45	0.67
Remodeling for information					1	**0**

Figure 2. Estimated causalities (with standard errors) between the latent variables.

Several of the path coefficients between latent and manifest variables are removed in the final model, whereas a path is added between the latent variables *Organization size* and *Belief in organizational remodeling*. The goodness-of-fit criteria for the final model are AIC=−58.1 and NFI=0.9567 reflecting about the same fit as the initial one because the NFI value is barely

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[2] Figures in boldface are fixed prior to estimation.

changed. However, the improvement compared to the initial model according to the lower AIC value is substantial, due to the removal of non-significant path coefficients.

The standard errors of the estimated loadings in Table 5 vary from 0.06 to 0.14. All except two loadings are significant at level 5% when testing the coefficient to be zero. The exceptions are the one equal to 0.15 (*t*-statistic=1.72) between *Satisfaction with organization* and latent variable 5 and the one equal to -0.18 (*t*=−1.92) between *Remodeling for democracy* and latent variable 1. Removals of these non-significant loadings lead to higher values of the AIC criterion.

The predicted correlation coefficients using the final model in Table 5 and Figure 2 are compared to the observed correlations in Table 6 (See Appendix).

Discussion

As in Figure 1, (a) – (e) in Figure 2 represent the hypotheses. A new relationship, (f), is included as the statistical test showed that this has a significant explanatory power.

All standard errors in Figure 2 are smaller than half the absolute values of the corresponding path coefficients. Hence, the relationships among the latent variables all show significant results when tested to be zero. The relationships can be explained as follows:

- The more (less) the members think that the cooperative is too large and too complex to be controlled by the membership, (a) the less (more) satisfied they are with the cooperative as a trading partner and as a member organization (H1), (b) the less (more) involved they are in the cooperative's member democracy, in its business activities and in information collection (H2), and (f) the less (more) they believe that organizational changes in the cooperative can improve member control.

  The first two causalities are in accordance with the hypotheses whereas the third one was not foreseen. Rather, it was expected that the causality would be only indirect, via satisfaction, involvement and trust. Nevertheless the perception of too large and too complex an organization turned out to have influence in its own right. A plausible interpretation is that the members have internalized the links between perception of size and complexity on the one hand and satisfaction and involvement on the other hand, so they have given up rescue possibilities beforehand.

- The more (less) satisfied the members are with the cooperative as a trading partner and as a member organization, (c) the more (less) trust they have in the board of directors and in the management (H3).

- The more (less) involved the members are in the cooperative's member democracy, in its business activities, and in information collection, (d) the more (less) trust they have in the board and in the management (H4).

- The more (less) trust the members have in the board and in the management, (e) the more (less) positive they are to organizational changes which are intended to raise member control (H5).

The theoretical model is confirmed by the empirical test. When members of a traditionally organized cooperative consider the cooperative to be too large and too complex to be controlled by the membership, they rank low in terms of satisfaction and involvement. The poor satisfaction and the low involvement are linked to poor trust in the board and in the management.

However, there might be a possibility that the members, in spite of their dissatisfaction, low involvement and lack of confidence in the leadership, are willing to remodel the cooperatives to attain more member control. This study finds, however, that the members do not have much belief in this possibility.

Conclusions and Implications

The findings of this study indicate that traditional cooperatives, when they become very large and get very complex business operations, may face difficulties in relation to their members. The members are no longer able to control the cooperatives, and so they become dissatisfied with the cooperative and they lose their involvement in it. This discontent results in the loss of trust in the leadership who must be held responsible for the development of the cooperative. The consequence may be that the members do not believe that it is possible to restore a well-functioning member control through remodeling the cooperative.

The members may understand that the cooperative must grow or merge and that it has to expand vertically in order to preserve its competitiveness. They may understand that these organizational changes are necessary for the cooperative to offer good prices and good services to the members. Nevertheless, the development implies that the cooperative will act as any other firm on the market.

Another dimension of this development concerns the financial aspects. As the cooperatives expand, the farmers do not want to and are not able to invest sufficiently large amounts of money and so outside investors often become stakeholders in the cooperatives. The external co-owners bring with them another way of doing business, which is often not appreciated by the farmers.

This process is parallel to what Hogeland (2006) describes in terms of changing cultures within the farmer communities. The cooperatives must integrate horizontally and vertically if they are to preserve their competitiveness. A consequence is that the farmers become alienated to the cooperatives. Holmström (1999) explains that the increasing business volume of the cooperatives and the growing assets create problems in terms of suboptimal investments as well as inefficient decision-making.

The shrinking member control in the large cooperatives is, according to Harte (1997), a natural effect of better functioning markets. As the cooperatives can no longer contribute to lower the farmers' transaction costs, the farmers will have less interest in the cooperatives. Bager (1996) supported by Hind (1997; 1999) claims that the management has taken control of the

cooperatives to the detriment of the farmers – also this can be expressed in terms of changing cultures. Fulton (1995) says that changes in the structure of agriculture (industrialization) have decreased the power of the cooperatives. As the cooperatives try to adapt to the new market conditions, the farmers are affected. Thus, the cooperatives are entering the fifth stage in Cook's (1995) life cycle, the one where cooperatives have to conduct major structural changes as the problems of the vaguely defined property rights have become too serious.

All the above-mentioned studies are observations written by insightful researchers. The present study provides rigid empirical support to these studies. It must however be born in mind that this study concerns one single cooperative, based in one country and operating in a specific industry. Hence, these findings can not be claimed to have general validity.

If the board of a troubled cooperatives does not succeed in limited reform endeavors (such as those studied here) it may be compelled to choose more radical organizational changes, notwithstanding weak member support. This will probably imply another ownership structure – the introduction of tradable and appreciable delivery rights, the conversion of the cooperative society into a holding company with the membership as stockholders, and other measures. The common denominator for these options is that there must be a solution to the problems of the so-called vaguely defined property rights. Hence, more individualized ownership is required, by the farmer members, by farmer organizations or by external financiers. If the members do not care much about their cooperative in their patron role, they may become more involved in an investor role.

The board of directors of the cooperative under study has in the spring 2009, after the data for this study were collected, made a decision to remodel its organizational form. Maintaining the cooperative business form, it has increased the individual ownership and offered a market for two new types of shares. The experiences from the spring and the summer 2009 are, however, not very positive. The members have shown only little interest in the new shares and only few shares are traded on the market for these shares. The board has also started a process of focusing the business operations, selling out peripheral units. These new strategy has been successful, also in the eyes of the members.

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Appendix

Table 6. Observed, above diagonal, and predicted correlations from the final model, below diagonal. Figures in boldface correspond to the five pairs with the largest differences of correlations.

	Org. size	Org. complexity	Satisf. with org.	Satisf. with business	Meeting attendance	Loyalty	Info gathering	Voting	Trust in management	Trust in board	Remodeling for democracy	Remodeling for information
Organizational size	1	0.31	-0.16	-0.14	-0.09	-0.06	-0.09	-0.06	-0.20	**-0.20**	**-0.01**	-0.16
Organizational complexity	0.30	1	-0.44	-0.40	**-0.38**	-0.38	-0.47	-0.18	-0.46	-0.31	-0.33	-0.35
Satisfaction with org.	-0.15	-0.43	1	0.59	0.24	0.43	0.36	0.23	0.47	0.52	0.26	0.44
Satisfaction with business	-0.13	-0.40	0.59	1	0.19	0.51	0.26	0.22	0.58	0.50	0.22	0.30
Meeting attendance	-0.10	**-0.30**	0.18	0.13	1	0.28	0.62	**0.03**	0.21	0.23	0.16	0.25
Loyalty	-0.12	-0.37	0.36	0.49	0.33	1	0.55	0.23	0.43	**0.45**	0.19	0.29
Information gathering	-0.16	-0.48	0.29	0.21	0.62	0.53	1	0.14	0.35	0.37	0.30	0.33
Voting	-0.08	-0.16	0.25	0.21	**0.11**	0.16	0.18	1	0.25	0.35	0.24	0.40
Trust in management	-0.15	-0.44	0.48	0.58	0.19	0.37	0.31	0.24	1	0.61	0.26	0.39
Trust in board	**-0.10**	-0.25	0.49	0.49	0.22	**0.35**	0.35	0.33	0.59	1	0.25	0.37
Remodeling for democracy	**-0.13**	-0.33	0.29	0.22	0.15	0.19	0.23	0.22	0.25	0.21	1	0.56
Remodeling for info	**-0.17**	-0.34	0.44	0.30	0.19	0.26	0.31	0.39	0.35	0.34	0.55	1