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Members' attitudes towards cooperatives and their perception of agency problems

RESEARCH ARTICLE

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Abstract

This study examines whether and how members' perceptions of agency problems, in terms of the decision problem and the follow-up problem, shape their attitudes to agricultural cooperatives. The study is based on empirical data collected through a postal questionnaire sent to 2,250 Swedish farmers in 2013 (response rate ~40%). Exploratory factor analysis of a set of attitudinal measurement items was used to assess members' attitudes to agricultural cooperatives. Seemingly unrelated regression analysis was used to identify the impact of members' perceptions of agency problems on the attitude measures obtained from the exploratory factor analysis. The results suggest that perceived agency problems significantly explain members' attitudes to their cooperatives. Therefore, working with these problems can be a way for directors of cooperatives to influence members' attitudes and, in continuation, behaviors to these. This would be one way of developing more sustainable member-director relationships in these cooperatives.

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1. Introduction

The food sector is changing profoundly in the Western world. Increasing internationalization of the food retail industry, increased competition, increased concentration in the food manufacturing sector, changes in consumer buying and consumption patterns, structural change among farms leading to fewer, larger units, and agricultural support for farms that is increasingly decoupled from actual production are some significant components of the ongoing change. Naturally, these changes also affect agricultural cooperatives, many of which are currently adjusting through mergers and acquisitions in order to become stronger market actors.

When agricultural cooperatives become larger, the distance between members and directors in terms of possibilities to meet and enter into dialogue tends to increase. This creates unique problems, since cooperatives are governed by members through the directors, using a system of representative democracy, and not through a market in shares (e.g. Barbaud-Didier *et al.,* 2012; Bijman *et al.,* 2013, 2014; Chaddad and Iliopoulos, 2013; Cornforth, 2004; Liang and Hendrikse, 2013; Österberg and Nilsson, 2009). In order to handle the growing distance between members and directors, cooperatives typically introduce intermediary bodies with a representative function, such as councils and regional representatives. Furthermore, when agricultural cooperatives become larger, the heterogeneity among members is likely to increase, a development accelerated by the ongoing specialization at farm level (e.g. Ahearn *et al.,* 2005; Balmann *et al.,* 2006; Happe *et al.,* 2008; Pietola *et al.,* 2003).

Regarding the developments concerning growing distance between members and directors and the increasingly heterogeneous membership, the scientific literature distinguishes two types of agency problems related to the governance of agricultural cooperatives: the decision problem and the follow-up problem. The decision problem emerges as it becomes increasingly difficult for directors to 'read' members' wants and needs and work towards optimizing the long-term well-being of the cooperative and its members when the member group grows (e.g. Cook and Iliopoulos, 2000; Fulton and Giannakas, 2001; Hendrikse, 2007). Within the larger member group, the diversity of wants and needs expressed by members increase, as does the heterogeneity in terms of risk attitude in the member group. Over time, this development may lead to a situation where members feel that the directors are not taking their interests into consideration. The follow-up problem arises because with increasingly larger agricultural cooperatives, it becomes more difficult for members to monitor what directors do, resulting in decreased loyalty from members (Richards *et al.,* 1998: 22). In many cases, when the cooperative grows, the organizational structure becomes more complex. In Sweden, as in many other countries, it is common to see a structure of a cooperative association functioning as a traditional cooperative association. The cooperative then has a number of investor-owned firm (IOF) subsidiaries in which production and marketing take place. These entities follow the logic of IOFs, aiming at profit levels determined by the board of the cooperative. Needless to say, monitoring such an organization is far more complicated than monitoring a small cooperative. The complexity lies mainly in the size itself, but another complicating factor is the difference in business goals in a cooperative compared with an IOF. In the IOF case, maximum profits are the objective and the main focus is to achieve this. In a cooperative, the focus is on generating the highest residual level for the members, meaning that additional considerations have to be added to doing well on the markets, for example better service and prices (Nilsson, 2001).

Decreasing member loyalty is a problem for agricultural cooperatives and many researchers have even concluded that having loyal members is crucial for the success of the cooperative (Cook, 1994; Cechin *et al.,* 2013; Fulton, 1999; Österberg and Nilsson, 2009). The foundations of loyalty to a cooperative are trust and commitment or, put differently, members' positive attitudes to the governance system of agricultural cooperatives create loyalty and are of the utmost importance for development of the cooperative (Barraud-Didier *et al.,* 2012; Cechin *et al.,* 2013; James and Sykuta, 2005; Nilsson *et al.,* 2009; Österberg and Nilsson, 2009).

The incentive structure for a cooperative director is different from that of an IOF director, as explained by Cook (1994) and Hendrikse (2007). For example, the task of a cooperative director is to act as an agent, or representative, for the members, simultaneously taking into consideration market developments, and wisely

govern the cooperative, in order to generate as large a dividend as possible for the members. In addition, the director has to maintain dialogue with members, listening to their wants and needs and explaining decisions made by the cooperative board. Hence, directors have to understand the dual role they hold, i.e. representing members and governing the cooperative, and try to combine these, leading to the best possible result. One way of describing this is to take into account the 'people factor, such as member attitudes' (Bhuyan, 2007: 276), focusing on creating trust among members (Borgen, 2001: 209), in addition to the economic factors.

When members take part in governing the cooperative, their decision making in relation to the cooperative is central. Taking a behavioral perspective to understanding members' actions in relation to the cooperative, the importance of members' attitudes to the governance system of agricultural cooperatives is further emphasized. According to the Theory of Planned Behavior (Ajzen, 1991, 2002), attitudes and other subjective norms and perceived behavioral controls lead to a behavioral intention, which in turn leads to a certain behavior, or decision, under certain circumstances. Hence, from a behavioral perspective, attitudes are recognized as one type of determinant of behavior (e.g. Ajzen, 1991, 2002; Conner and Abraham, 2001; Fazio and Olson, 2003; Feist, 2012; Kaiser, 2006; Kaiser and Sheuthle, 2003; Siegel Levine and Straube, 2012). From this, it follows that members' attitudes to the governance system of agricultural cooperatives are one type of determinant of their actions with respect to these cooperatives. In attempts to understand how members' perceptions of agency problems may affect their actions with respect to agricultural cooperatives, understanding how their attitudes to these cooperatives are shaped by their perceptions of agency problems would be one important step. However, to the best of our knowledge, this has not been studied previously. The aim of this study was thus to identify whether and how members' perceptions of agency problem, in terms of the decision problem and the follow-up problem, shape their attitudes to agricultural cooperatives. The study is based on a dataset obtained through a 2013 postal survey sent to a sample of farmers in Sweden who provided information about their attitudes to the governance system of their agricultural cooperatives and their perceptions of agency problems in these cooperatives.

In a novel contribution to previous literature, this study thus provides insights into how members' attitudes to the governance system of their agricultural cooperatives are shaped by their perceptions of agency problems. Such insights are important for understanding how positive or negative attitudes regarding the governance system of agricultural cooperatives are shaped. The findings presented here can thus be used by cooperative directors to develop the governance system and information channels in cooperatives, which can lead to decreased agency problems and possibly increased loyalty, created through increased trust and commitment among members.

The paper continues with section 2 presenting the conceptual framework upon which the analysis is based. Data and methods used are presented in section 3 and the results in section 4. Section 5 comprises a discussion and some conclusions.

2. Conceptual framework

A behavioral framework was applied to examine how farmers' attitudes are related to their perceptions of agency problems generated due to the characteristics of the governance system of agricultural cooperatives.

Attitudes in general and farmers' attitudes to agricultural cooperatives

Attitudes represent summary evaluations, in terms of liking, disliking, or indifference, of psychological objects (Ajzen, 1991; Kahneman and Sudgen, 2005). This means that attitudes constitute an individual's idea about an object (Kahneman and Sudgen, 2005). Together with other variables, attitudes represent one type of determinant of human behavior (e.g. Ajzen, 1991, 2002; Conner and Abraham, 2001; Fazio and Olson, 2003; Feist, 2012; Kaiser, 2006; Kaiser and Sheuthle, 2003; Siegel Levine and Straube, 2012). Therefore, attitudes are also one type of antecedent of directors and members (in our case farmers) decision making (and behaviors) in businesses, and understanding determinants of these attitudes would be one step in understanding

decision making. As attitudes are formed by people's beliefs, there is a causal relationship from beliefs to attitudes and on to decision making (Ajzen, 1991). According to the Theory of Planned Behavior (Ajzen, 1991, 2002), the last step is mediated through behavioral intent, which is also formed by subjective norms and perceived behavioral controls.

Within the area of risk attitudes, Weber *et al.* (2002) introduced the notion that attitudes may be unique to a specific domain. This means that people's attitudes to a general object can be better understood if analyzed for the different domains covered by this general object. In the context of the governance system in agricultural cooperatives, domains of specific interest are trust and commitment and these are thus the focus of the attitude construct in this paper. 'Trust*'* is about feeling that one is not being exploited by others (James, 2001) and has been found to be crucial in a cooperative context, both in terms of trust between members and directors and in terms of trust among members (James and Sykuta, 2005, 2006). Existing definitions of trust include affective and cognitive dimensions (Hansen *et al.,* 2002). In this study, we focus on the cognitive dimensions of trust, following findings by Hansen *et al.* (2002) that in cooperatives with complex businesses, this trust dimension is the more important of the two. 'Commitment' relates to satisfaction and loyalty (Fulton and Adamowicz, 1993; Gray and Kraenzie, 1998; Österberg and Nilsson, 2009) and has been defined as 'the preference of co-op members to patronize a co-op even when the co-op's price or service is not as good as that provided by an investor-owned firm' (Fulton, 1999: 423).

Agency problems

In Agency Theory (e.g. Eisenhardt, 1989; Fama and Jensen, 1983; Laffont and Martimort, 2002), which is frequently used to analyze governance of organizations, the principal hands over the responsibility for performing a certain task to the agent. Once this happens, the principal loses the control over the situation and therefore controlling the agent becomes important. In an IOF setting, the shareholders act as the principal and the board as their agent (cf., Cook and Burress, 2013; Eisenhardt, 1989; Fama, 1980; Fama and Jensen, 1983; Hansmann, 1996). As long as the agent acts in a satisfactory way in the eyes of the principal, there is a high probability that the agency relationship will be beneficial to the principal, and hence continue. Should some shareholders not be satisfied with developments, they can sell their shares and the shares are valued on an open market, thereby offering a value to the shareholders.

In the agricultural cooperative setting, however, the producer becomes a member of the cooperative, thereby entering into an agency relationship in which the directors (the agent) should govern the cooperative in the interest of the members (the principal). In the case of cooperatives of the Swedish type, dissatisfied members seldom have the possibility to exit the cooperative and find an alternative actor to trade with. From the directors' perspective, decisions made follows a different logic than the one used by IOF directors, due to the difference in incentive structure mentioned above. This leads to a crucial relationship between the members and the directors, and therefore it is interesting to study the agency relationship between members and directors. As mentioned above, this arrangement leads to certain problems, labelled 'agency problems', which may decrease the output of the cooperative activity.

In cases when non-member, or external, directors sit on a cooperative board, then these directors do not have the same strong connection to the members. This could, arguably, be compared to IOF directors. In the Swedish case, however, having external directors on cooperative boards is almost non-existent and therefore we do not include this aspect in our study.

Agency problems are significant in agricultural cooperatives (Borgen, 2001; Feng and Hendrikse, 2012; Fulton and Larson, 2009; Richards *et al.,* 1998) and are sometimes labelled 'vaguely defined property rights' problems (Cook, 1995: 1156, see also Cook and Iliopoulos, 2000; Nilsson *et al.,* 2012), due to the specific way in which a cooperative is owned and managed (Bijman *et al.,* 2013, 2014; Chaddad and Iliopoulos, 2013; Cornforth, 2004; Liang and Hendrikse, 2013; Österberg and Nilsson, 2009). These problems are believed to originate from specific features of the member-producer cooperative relationship, such as differences in

planning horizons, investment portfolios and attitudes to the unallocated capital in cooperatives (e.g. Borgen, 2004; Nilsson and Svendsen, 2011; Novkovic, 2008). In this study, as mentioned above, we focus on the two agency problems that have their origin in the division of governance roles in a cooperative (between the principal/members and the agent/directors). It was also mentioned that the decision problem involves the directors' problems in listening to and processing the requirements of the members, bearing in mind that decisions made by directors influence the profit levels at farm level, due to farms being partly vertically integrated with the cooperative. The follow-up problem relates to the difficulties the members face when trying to understand what is happening within the cooperative and on the markets where the cooperative acts. This problem is complicated by the fact that there is no market for tradable and appreciable residual rights to use as a tool to measure the success of the cooperative (e.g. Fama, 1980). Both these types of agency problems are associated with monitoring problems for the key actors in the cooperative collaboration, i.e. the members and directors (cf., Fulton and Giannakas, 2007; Nilsson and Svendsen, 2011; Richards *et al.,* 1998).

By integrating attitude research (e.g. Ajzen, 1991, 2002) with insights from the literature on agency problems (e.g. Feng and Hendrikse, 2012; Richards *et al.,* 1998), the presumption in this study is that members' perceptions of agency problems, in terms of the decision and follow-up problems, is one (or the major) antecedent of their beliefs about the cooperative. This will in turn members' attitudes to the cooperative. Thus, the presumption is that there is a link between farmers' perceptions of agency problems and their beliefs about the cooperative, and thereby to their attitudes to the cooperative governance system. Therefore, understanding members' perceptions of agency problems would be one step in understanding how their attitudes to the governance system of agricultural cooperatives are formed, which in turn would be one determinant of their decisions (or behaviors) with respect to committing themselves to the governance system of the cooperatives.

3. Data and methods

Study sample

This study is based on empirical data collected by a 2013 postal questionnaire sent to a sample of 2,250 Swedish farmers. In the Swedish official statistics, a farm has to be 2 hectares or larger, and hence the sample was generated according to this limit. The 2013 postal questionnaire was part of a larger project, including comparisons to data collected in 1993. Therefore, the sampling procedures used in the original study from 1993 were followed, in which three strata were generated (2-20 ha, 21-50 ha, ≥51 ha) These farm size groups correspond to those used at the time in the official statistics. In Sweden, practically every farmer is a member of one or more agricultural cooperatives. Therefore, members were asked to summarize their opinions when filling in the survey. A final response rate of 40% was achieved after one reminder and thus a dataset of 900 farmers was assembled. Due to incomplete questionnaires not all responses could be used in the analyses.

Table 1 presents some descriptive statistics on the dataset. The majority of respondents were male and the average farmer age was 54.3 years. Those farmers who had been directors had occupied that position for on average 5.8 years.

Table 1. Basic characteristics of the dataset.[1]

Item	Average value	Standard deviation
proportion of males (%)	71	–
average farmer age	54.3	15.01
average number of years as director	5.8	9.40

[1] Two hectares is the lower limit for a holding to be classified as a farm in Swedish agricultural statistics.

Measuring attitudes to agricultural cooperatives

As attitudes exist in the mind of people (Kahneman and Sudgen, 2005), in this study and in other research on attitudes (e.g. Hakelius, 1996; Hansson and Lagerkvist, 2012; Pennings and Garcia, 2001; Pennings and Leuthold, 2000) they are considered latent constructs that can be measured using measurement indicators. To this end, a set of statements, most coming from the 1993-survey, presented in Hakelius (1996), to use as measurement indicators was devised for this research, focusing on the trust and commitment dimensions of the attitude construct, following the Theory of Reasoned Action (Ajzen, 1988; Ajzen and Fishbein, 1980). Hence, statements were formulated which aimed at capturing members' beliefs about agricultural cooperatives in terms of trusting and committing to these, based on general ideas about why there are cooperatives and on the members' own views through being a cooperative member. These statements are listed in Supplementary Table S1. Examples of statements categorized as trust are 7, 11 and 12, while examples of statements categorized as commitment are 5, 6 and 8. Statements were thus formulated based on theoretical insights into the dimensions that the attitude construct might comprise (trust and commitment) and into how attitudes may be measured as latent constructs. It should be noted, however, that the specific formulation of the statements was developed for data collection in the main project of Hakelius' Ph.D.-thesis (1996) which this study forms part, and that scale development was taken from the main project. Thus, the measurement scale used in this paper was developed within the research project presented in Hakelius (1996). Analyses based on the project results, including a comparison between farmers' attitudes to cooperative governance processes in 1993 and 2013, have been reported elsewhere by Hakelius and Hansson (2016).

Answers to the statements were collected on a six-point Likert scale ranging from 'agree completely' (1) to 'disagree completely' (6). Before analyzing the data, the scale was reversed in order to facilitate interpretation of the data. Hence, in the analyses, data were coded to range from (1) 'disagree completely' to (6) 'agree completely'. The main reasons for choosing a six-point Likert scale were that (a) it was considered sufficiently detailed for the purposes of the main project, and (b) an even-number scale was preferred in order to prevent respondents simply selecting the middle answer, while still providing a good number of possible answers to choose between. All intervening response options were anchored, in order to facilitate the respondents' distinctions between these.

Farmers' attitudes to agricultural cooperative governance systems were assessed by finding the underlying latent structures in the data using exploratory common factor analysis (ECFA). ECFA builds on a reflective measurement model, where the latent construct is assumed to be reflected by its measurement indicators, in line with the theoretical understanding of an attitude construct (Hansson and Lagerkvist, 2012; Pennings and Garcia, 2001). In this study, ECFA was preferred over the confirmatory version, because there is no well-established measurement scale to measure the attitudes of interest.

On running the ECFA, measurement indicators with factor loadings below 0.5 were considered non-significant (Hair *et al.,* 2010). These were deleted in a step-wise manner, starting with the measurement indicator possessing the lowest communality. Measurement items loading significantly on two factors were also removed from further analysis. While a theoretical understanding about the attitude construct guided the choice of measurement items to use, the step-wise procedure described above allowed a reduction in the measurement items on a statistical basis, as well as testing which measurement items were significantly associated with the underlying construct. With a reflective measurement model, the underlying construct remains the same even though specific measurement items are removed (e.g. Jarvis *et al.,* 2003). The choice of number of factors retained in the final factor solution was based on combined suggestions from Eigenvalues, scree plots, and the desire to obtain a solution that could be meaningfully interpreted. Oblique (oblimin) rotation, which allows factors to correlate and is thus considered to generate results that are theoretically more valid, was applied. The final factor solution was evaluated with respect to reliability by taking item-to-item and item-to-total correlations into consideration, as well as Cronbach's alpha. In line with recommendations by Hair *et al.* (2010), cut-off values of 0.3, 0.5 and 0.6 were used.

Measuring agency problems

Indicators of the agency problems examined were collected by asking farmers about their perceptions of possible increases in these agency problems during the preceding decade, i.e. between 2003 and 2013, and by asking them about the need for changes in governance system due to these changes in agency problems. In this way, five separate indicators were developed. These were all measured by asking farmers to indicate the extent to which they agree, on a 1-6 Likert scale, with statements relating to these problems. In particular, the following indicators and statements were used:

- Perception of increase in decision problems – measured by the statement 'It has become more difficult for directors to act in the interest of the members, compared with 2003'.
- Perception of increase in follow-up problems – measured by the statement 'It has become more difficult to follow up on what directors are doing, compared with 2003'.
- Perceptions among members concerning a need for a change in the governance system of the cooperative – measured by the statement 'The system with elected directors involves too many problems and should therefore be changed to a new way of running agricultural cooperatives'.
- Perceptions among members concerning a need for more external directors on the board – measured by the statement 'Members would benefit from external directors being engaged on the board to a larger extent than is the case today'.
- Perceptions among members concerning increased distance between the farmer's own needs and the decisions made – measured by the statement 'The decisions made by today's agricultural cooperatives are further way from my ideals than was the situation in 2003'.

Of these, the first two indicators directly represent the agency problems that were the focus of this study. The other three indicators represent aspects suggested in the literature as possible remedies for the follow-up and decision problems in cooperatives (Bøhren and Strøm, 2006; Fich and Shivdasani, 2006; Hermalin and Weisbach, 2003; Reynolds, 2003). The latter indicators can be thought of as indirect indicators of agency problems. The reason for their inclusion was that if farmers perceived that agency problems exist, they would also be likely to agree with these remedies to agency problems.

The indicators of the agency problems were related to the measures of the attitudes obtained in the ECFA, with the seemingly unrelated regression model, in order to evaluate how perceptions of agency problems form the attitude construct to the agricultural cooperative. The data was analyzed using Stata 12 (StataCorp LP, College Station, TX, USA).

4. Results

Factor analysis of attitude construct

Descriptive statistics on measurement items used to measure farmers' attitudes to cooperative governance structures can be found in Supplementary Table S1 to this paper. The results obtained when ECFA was applied to the measurement items listed in Supplementary Table S1 are presented in Table 2. This factor solution corresponds to that of farmers' attitudes to cooperative governance processes in 2013 presented by Hakelius and Hansson (2016). Based on the same data as used in this study, those authors compared the development of farmers' attitudes in 1993 to those in 2013. Solutions with two factors (based on suggestions by the Eigenvalues) and three factors (based on suggestions by the scree plot) were evaluated. The solution with two factors was considered easier to interpret, because the factors were more clearly distinguished. Measurement items with insignificant factor loadings were deleted in a step-wise process (factors 1 to 4) where that with the lowest communality was deleted first, until only measurement items with significant loadings remained.

The first factor comprised significant measurement items exclusively of commitment type and is hence labelled 'Commitment'. These measurement items related to the basic ideas behind cooperatives, e.g. that

Table 2. Factor solution of the attitude construct (n=710).[1]

Measurement item C = commitment, T =trust	Factor 1 commitment	Factor 2 trust
1. The idea behind cooperatives is a good one. (C)		
2. I think that the agricultural cooperative movement is loyal to the cooperative ideals. (C)		
3. If members take part in their cooperative member democracy, then they can influence the management of the enterprise. (C)		
4. If I take part in the member democracy of my cooperative, then I can influence it in such a way that my own private economic situation improves. (C)		
5. Those who are members of an agricultural cooperative ought to, as far as possible, participate in the democratic process. (C)	0.611	0.072
6. I think it would be interesting to become/that it is interesting to be an elected representative. (C)		
7. Today, the board and the chief executive officer usually govern the cooperative in their own way, without caring about what the members think. (T)	0.023	0.676
8. If I commit myself to the association activities, the economic situation of all members will improve in the long run. (C)	0.612	-0.075
9. If I take part in the cooperative's democratic process, I will strengthen the special sense of belonging together within the cooperative. (C)	0.705	-0.090
10. The idea that all members can influence their agricultural cooperative, through the democratic process, is basically good but impossible to carry out in reality. (T)	0.036	0.619
11. The individual members cannot influence the business decisions. Since it is the chief executive officer and the elected representatives who decide. (T)	-0.024	0.830
12. As an elected representative of a cooperative, you soon lose perspective on the real world and in the end you only think about making the cooperative grow. (T)	-0.003	0.707
13. If I participate in the democratic process in my agricultural cooperative, I may be part of influencing that cooperative. (C)	0.559	-0.316
14. It is important to me that as many as possible participate in the democratic process in my agricultural cooperative. (C)	0.767	0.064
15. If a large proportion of members participate actively in the cooperative's democratic process, the cooperative will operate better. (C)	0.729	-0.010
16. If you are a member, you should participate both in the business decisions and in the democratic process. (C)	0.688	0.147
Cronbach's alpha	0.838	0.800
Item-to-item correlation (range)	0.292-0.646	0.387-0.628
Item-to-total correlation (range)	0.671-0.789	0.742-0.877

[1] Due to missing values, only 710 out of the 900 questionnaires returned could be used in this part of the analysis; measurements in italics were removed from the analysis due to insignificant factor loadings; the factor solution reported here has also been presented in Hakelius and Hansson (2016).

they are based on good ideals and that members should be committed to the cooperative. The second factor comprised significant measurement items exclusively of trust type and is hence labelled 'Trust'. These measurement items related to farmers' experiences of governance structures of cooperatives.

In terms of reliability, both of these two factors had Cronbach's alpha values well above the accepted cut-off value of 0.6 in exploratory settings (Hair *et al.,* 2010), item-to-item correlations above, or very close to, the cut-off value of 0.3 (*ibid*.), and item-to-total correlations well above the cut-off value of 0.5 (*ibid*.). Based on this, the two factors were considered reliable measures of the attitude construct.

Impact of perceived agency problems on farmers' attitudes to agricultural cooperatives

Descriptive statistics on the indicators used to measure farmers' perceptions of agency problems in Swedish agricultural cooperatives are presented in Table 3. Average values of the indicators relating to the perceived changes between 2003 and 2013 were >4, indicating that on average farmers tended to believe that agency problems increased between 2003 and 2013, at least moderately. The indicators relating to a need for a change in governance structure had average values of 3.53 and 3.79, suggesting that the farmers were on average indifferent with respect to these questions.

The indicators of increased agency problems were related to the measures of the two dimensions of farmers' attitude to agricultural cooperatives together with information about farmers' age and the size of the farms measured in the number of hectares as control variables. Through this, we were able to assess the impact of increased agency problems on these attitudes in order to evaluate how perceptions of agency problems form attitudes. The results (Table 4) show that the attitude dimension 'Trust' in particular instrumental is for the indicators of agency problems. This means that formulation of this part of the attitude construct is dependent on the increase in, and existence of agency problems experienced by the farmers. It should be noted that a higher score on the attitude dimension 'Trust' means that the farmer had a more negative attitude dimension, given the way in which the measurement indicators were posed. The model relating to 'Trust' was able to explain 41.2% of the variation in this attitude dimension and all indicators of agency problems had statistically significant impacts on the attitude dimension measure. The model itself was also highly statistically significant ($P<0.000$). The impacts of all indicators of agency problems were positive except for externals, i.e. the idea that adding non-member directors to the board can improve decision making. This suggests that farmers scoring high on this attitude dimension believe that it has become more difficult to control and monitor what directors are doing. They believe that decisions are made further from what they would like compared with 2003, and that the current governance of agricultural cooperatives should be changed to a new system. Interestingly, there was a significantly negative impact of the indicator relating to externals, suggesting that even if farmers score high on the attitude dimension 'Trust' they do not believe that external board members would be a solution to the problems they obviously perceive.

The model was able to explain the attitude dimension 'Commitment' to a lesser extent; only 12.1% of the total variation in this attitude was attributable to the indicators of agency problems, although the model itself was highly statistically significant ($P<0.000$). Only one of the indicators, governance, had a statistically

Table 3. Descriptive statistics on indicators of increased agency problems in agricultural cooperatives in 2003 compared with 2013.[1]

Statement	Average score	St. dev.	Median	1st - 3rd quantile
It has become more difficult for directors to act in the interest of the members, compared with 2003: decision.	4.19	1.20	4	3-5
It has become more difficult to follow up on what directors are doing, compared with 2003: follow-up.	4.11	1.19	4	3-5
The system with elected directors involves too many problems and should therefore be changed to a new way of running the agricultural cooperatives: governance.	3.53	1.39	4	3-5
Members would benefit from external directors being engaged in the board to a larger extent than is the case today: externals.	3.79	1.35	4	3-5
The decisions made by today's agricultural cooperatives are further way from my ideals than was the situation in 2003: distance.	4.04	1.19	4	3-5

[1] Indicators were measured on 1-6 Likert scale, where 1 indicates disagree totally and 6 indicates agree totally. Minimum value of all indicators was 1 and maximum value was 6.

Table 4. Regression results for impact of indicators of agency problems on attitudes to cooperatives. Regression results were derived from the seemingly unrelated regression technique.[1]

	Dependent variable 'Commitment'		Dependent variable 'Trust'	
	estimated coefficient	***P*-value**	**estimated coefficient**	***P*-value**
intercept	4.069	0.000	1.824	0.000
decision	0.063	0.214	0.165	0.021
follow-up	-0.015	0.761	0.138	0.036
governance	-0.243	0.000	0.267	0.000
externals	0.037	0.225	-0.070	0.013
distance	0.043	0.295	0.140	0.000
age of farmer	0.006	0.029	-0.003	0.325
size of farm (ha)	0.001	0.376	-0.000	0.505
fit statistics	χ^2=82.96 (*P*-value 0.000) R^2=0.1210		χ^2=423.44 (*P*-value 0.000) R^2=0.412	

[1] Statistical inference is based on bootstrapped standard errors because the dependent variables were not normally distributed, n repetitions = 1000.

significant impact on the attitude construct. This impact was negative, implying that farmers scoring high on this attitude dimension disagree with the suggestion that agricultural cooperatives should be run in another way, which is plausible. As for the control variables, the age of the farmer was positively significantly related to the attitude dimension 'Commitment', indicating that older farmers are more committed to the cooperatives. However, the variable accounting for farm size was not significantly related to this attitude dimension, and none of the control variables was significantly related to the attitude dimension 'Trust'.

Taken together, findings indicate that there is a distrust among farmers concerning the possibility of implementing the traditional cooperative idea and that farmers want a different governance system than the one member-one vote system used today. Simultaneously, farmers recognize that it is more difficult for directors to 'read' members' requirements, indicating that the decision problem is also present and has grown during the period. The dimensions of the attitude construct, especially that related to 'Trust', were significantly influenced by the beliefs about agency problems. Thus, there is evidence that attitudes to agricultural cooperatives are formed by farmers' perceptions of agency problems. If attitudes are a determinant of behavior (and thus, in businesses, of decision making), this means that the existence of agency problems influences farmers' decision making and, in continuation, their strategic behavior with respect to the cooperative.

5. Discussion and conclusions

This study integrated insights concerning agency problems with attitude research with the aim of evaluating whether and how farmers' attitudes to the governance system of agricultural cooperatives are shaped by their perceptions of agency problems. The agency problems considered here were the decision and follow-up problems, which basically stem from the same features: agricultural cooperatives have become large and more complex in terms of organizational structure and logic, and hence the member group is large and heterogeneous, with fewer directors at a greater distance from the members. Because attitudes are one type of determinant of human behavior (e.g. Ajzen, 1991, 2002; Conner and Abraham, 2001; Fazio and Olson, 2003; Feist, 2012; Kaiser, 2006; Kaiser and Sheuthle, 2003; Siegel Levine and Straube, 2012), and thus of decision making, identifying the antecedents of these attitude dimensions is important for understanding how agricultural cooperatives can be managed. The premise in this study was that farmers' perceptions of agency problems are major determinants of farmers' beliefs about agricultural cooperatives, and that they therefore also shape their attitude to cooperatives. Previous research has reported pronounced agency problems in cooperatives (e.g. Fulton and Larson, 2009; Richards *et al.,* 1998), but to the best of our knowledge these have not previously been integrated with attitude research in order to determine whether and how attitudes to

agricultural cooperatives are formed by perceptions of agency problems. By integrating insights from agency problems with attitude research, this study contributes novel information about how positive or negative attitudes to the cooperative governance system in agricultural cooperatives are shaped by farmers' perceived agency problems. Such insights can be important for directors of agricultural cooperatives in developing governance systems and information channels in cooperatives. This can lead to decreased agency problems and increased loyalty, through increased trust and commitment among the members.

This study is based on a large empirical dataset collected through a postal questionnaire sent to a sample of Swedish farmers in 2013, asking about farmers' perceptions of agency problems in agricultural cooperatives. We found that members' attitudes to agricultural cooperatives can be regarded as consisting of a 'Commitment' dimension and a 'Trust' dimension. We also found indications that members perceive agency problems to have increased between 2003 and 2013. For instance, members seemed to agree with statements that it has become more difficult for directors to act in the interest of the members compared with a decade ago; that over the last decade it has become more difficult to monitor what directors are doing, and that decisions now are further away from members' ideas than previously.

We also found that members' attitudes to the governance system of agricultural cooperatives were statistically significantly formed by farmers' perceptions of these agency problems. This was especially true for the attitude dimension 'Trust', i.e. attitudes based on the farmer's experiences of the governance system of cooperatives, but to some extent also for the attitude dimension 'Commitment'. Given that higher scores on the 'Trust' dimension of the attitude construct should be interpreted as the farmer having more a negative attitude dimension, the findings suggest that increased agency problems lead in particular to a decrease in trust. Furthermore, as the 'Commitment' dimension appears to be less affected by the perceived agency problems, the findings also suggest that farmers continue being committed to agricultural cooperative governance systems even when agency problems are perceived to increase. Taken together, these findings indicate that even in situations where the agency problems are perceived to increase, farmers continue to be committed to the governance system of their agricultural producer cooperatives, but their trust in the way these systems are working seems to decrease.

The results thus indicate that farmers' attitude construct is formed by their perceptions of agency problems. As attitudes are one type of determinant of behavior (e.g. Ajzen 1991, 2002), we therefore suggest that members' behavior and decision making with respect to agricultural producer cooperatives are driven by their perceptions of agency problems, via the attitude construct. However, the link between perceptions of agency problems and attitudes and behavior with respect to agricultural cooperatives would need to be confirmed in future research.

The findings presented here have policy implications for agricultural cooperatives. In particular, it appears to be important for these cooperatives to work to resolve the dissatisfaction indicated in the attitude dimension concerning the democratic process of agricultural cooperatives. Put differently, it is vital to work to reduce agency problems in order to influence members' attitudes to agricultural cooperatives and thus their behavior to these. Following the idea of Barraud-Didier *et al.* (2012), decreasing loyalty may be turned around by focusing on improving members' trust in the cooperative, possibly by using the tools of changing the governance structure and shortening the distance between members and directors. An interesting question for future research is how to exactly do this. Furthermore, working on changing the organizational structure and ownership structure of agricultural cooperative may prove to be beneficial for improving the commitment of both members and directors to engaging in the governance of agricultural cooperatives.

Supplementary material

Supplementary material can be found online at https://doi.org/10.22434/IFAMR2015.0219.

Table S1. Descriptive statistics of measurement items.

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