



This is an author produced version of a paper published in
Forest Policy and Economics.

This paper has been peer-reviewed but may not include the final publisher
proof-corrections or pagination.

Citation for the published paper:

Nilsson, J. et al. (2020) Forest-owner support for their cooperative's
provision of public goods. *Forest Policy and Economics*. Volume: 115, Article
Number: 102156.

<http://dx.doi.org/10.1016/j.forpol.2020.102156>.

Access to the published version may require journal subscription.

Published with permission from: Elsevier.

Standard set statement from the publisher:

© Elsevier, 2020 This manuscript version is made available under the CC-BY-NC-ND 4.0
license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

Epsilon Open Archive <http://epsilon.slu.se>

Forest-owner support for their cooperative's provision of public goods

ABSTRACT:

This study investigates why members support their forestry cooperative's provision of awareness-raising campaigns. The members pay for the cooperative's dissemination of information to the government, non-governmental organizations, and the public to achieve a more favorable opinion about forestry. The possible gains of the campaign are non-rivalry goods and apply to members and non-members alike, which makes the campaign a public good. A sample of 782 members of a Swedish forestry cooperative completed a questionnaire based on four theoretically motivated hypotheses. The findings indicate that members are unconcerned about non-member benefits from campaigns. Members particularly appreciate raising awareness of production-related issues. Social influences among the population of forest owners have no major impact. Trust in the cooperative is essential for member support of the provision of public goods. Members support the cooperative's influencing activities even if the outcomes are uncertain or occur in a distant future.

Key words: Södra, Sweden, lobbying, competitive yardstick model, property rights, ownership

JEL classification: D72, Q13, Q23

1 Introduction

The main task of a marketing cooperative is to bring member products to market. However, this study focuses on a supplementary task, namely a marketing cooperative's attempts to influence public opinion. The results from such campaign activities, are a public good because no one can be excluded from enjoying the benefits, and there is no rivalry in consumption. Consequently, there is a misalignment of incentives because members pay the costs, but non-members cannot be coerced into contributing to the producer of the public good despite that they may benefit from it. These observations motivated the question that was investigated in the present study, namely whether and why members support their cooperative's campaign activities.

The empirical case studied is Sweden's largest forestry cooperative, Södra Skogsägarna (henceforth Södra). The cooperative has a membership of 51,000 forest owners throughout the southern part of Sweden. It has major operations in paper pulp and sawn timber. Södra, like other forestry cooperatives in Sweden, is considered to be an agricultural cooperative in line with grain marketing and farm-supply cooperatives, or dairy cooperatives. A large share of Södra's members are farmers who own arable land in addition to forestland.

Forest management is regulated by the Forest Act and other enactments, which are administered by the Swedish Forest Agency and its regional offices (Skogsstyrelsen, 2019). Södra members have, however, become increasingly dissatisfied with the regulations and how they are administered. For this reason, Södra engages in campaigns to change public opinion about these regulations and ultimately induce legislators to change policies. The Member Relations Office has identified four issues that members are especially concerned about: (1) The policy concerning biodiversity is stricter in Sweden than in other European Union countries (The Swedish Forest Agency, 2019). (2) Increasing wildlife tourism can mean that visitors harm forestland, which can be prevented through stricter regulation of public access to forests. (3) Forest owners would like to have a smaller population of elk and deer because the animals cause damage to young trees. (4) The forest owners want authorities

to take action when environmental-interest groups organize protests around scheduled loggings, which entail costs for forest owners. These issues limit forest-owner management options and may negatively impact profitability. Because lower profits reduce the value of forest holdings, forest owners feel that their ownership rights are impeded by these issues (LRF Forestry, 2019). Being on a “more-of-everything pathway,” the Swedish forestry model emphasizes business interests and ecological modernization alike, which makes it difficult to acknowledge tradeoffs between different interests (Lindahl et al., 2017).

All firms and cooperatives in the Swedish forestry industry are involved in campaign activities in relation to government, political parties, parliament members, governmental offices, non-governmental organizations, and the general public. The firms and cooperatives take part on their own and through apex organizations, which typically work with lobbying. Södra participates in these lobbying activities, but it also goes further. It assists its members and elected representatives by writing in newspapers and posting on social media, by visiting schools in the neighborhood, by organizing exhibitions in municipal libraries, by meeting with politicians at the local level, and similar activities. All these activities can be conducted as the cooperative has members and elected representatives spread over its operating area. The cooperative’s costs for these campaign activities are not known since its accounting system does not specify these costs, and a philosophy of opinion-making permeates the cooperative’s operations.

The aim of the study is to explain why members accept their cooperative’s use of funds for activities that benefit members and non-members alike. The study investigates how members’ attitudes and views shape member support for the provision of public good. Thus, this study contributes to the strand of research about the behavior of cooperative members (Hansen et al., 2002; James and Sykuta, 2006; Nilsson et al., 2009; Barraud-Didier et al., 2012; Feng et al., 2016; Grashuis and Su, 2019). It specifically contributes to the literature about forestry cooperative member behavior in different contexts (Rickenbach et al., 2006; Atmiş et al., 2009; Kronholm and Wästerlund, 2013; Guillén et al., 2015; Kronholm, 2016; Aurenhammer, 2017; Sotirov et al., 2017; Bjärstig and Sténs, 2018).

Cooperative members’ support for non-members has not previously been the focus of any member survey. The topic is, however, elucidated in the literature on the competitive yardstick model. The model posits that a traditionally organized cooperative will have positive external effects on all market participants (Nourse, 1992[1942]; Milford, 2012; Hanisch et al., 2013; Malvido et al., 2018). Due to the traditional cooperative principles of open and voluntary memberships, as well as equal member treatment, competing non-cooperative firms cannot act opportunistically in relation to producers who are not cooperative members.

Section 2 presents theoretical deliberations and derived hypotheses, which explain why members of a cooperative accept support for non-members. Section 3 presents the case cooperative and its business environment. Section 4 explains how the empirical investigation was conducted. An account of the results is given in Section 5, followed by a discussion of how to interpret the results in Section 6. Section 7 contains the study’s conclusions.

2 Conceptual framework

This section presents an overview of the current research about cooperative business. The theoretical concepts, theories, models and perspectives that appear in Subsection 2.1 serve as

a basis for the development of four hypotheses in Subsection 2.2, and they relate to Section 6 where the results are discussed (Section 6). The core theoretical concepts are italicized in both subsections.

2.1 Cooperative business models

Dunn (1988, p. 85) proposed a widely recognized definition of cooperatives. The definition states the criteria that should be fulfilled for an organization to be classified as a cooperative. It specifies three *membership roles*: (1) members are *trading partners* to the cooperative firm; (2) they *hold property-rights*; and (3) they *govern the firm*.

The rationale for a forestry cooperation is the same as for other cooperatives (Valentinov, 2007). Several economic benefits that emanate from cooperatives have been suggested (Schrader, 1989; Van Dijk, 1997). The most widespread *raison-d'être* is, however, that, under certain circumstances, cooperatives (being vertically integrated businesses) have the ability to reduce members' transaction costs. According to *transaction cost theory*, actors who have substantial investments in specific assets and who must deal with uncertainty may face opportunistic behavior when they do business with independent partnering firms, i.e. they may be exploited as they have a weak market position (Staatz, 1984; Bonus, 1986; Williamson, 1998). Both asset specificity and uncertainty conditions apply to forest owners. If forest holdings are not used for the production of timber, these holdings would have a lower financial value. Likewise, the forest owners often have difficulty assessing the value of the timber they sell. Limited spatial competition for timber processing aggravates these issues and adds to the attractiveness of a vertically integrated business.

While there are economic rationales for cooperatives, social conditions must also be fulfilled if cooperatives are to satisfy *member interests*. A cooperative has a dual character; it is a business firm and a cooperative society to which members belong. Thus, a cooperative business firm is owned and governed by a cooperative society. When members elect representatives to the governing bodies, i.e., the Board of Directors, the General Assembly, the Supervisory Council, various committees, etc., social processes take place within the membership (Bijman et al., 2013; Bijman et al., 2014). Members and categories of members interact. The Board of Directors and the Chief Executive Officer must consider both the economic and the social consequences of their decisions (Kronholm and Wästerlund, 2013; Hakelius, 2018).

Because members participate voluntarily, they must be more satisfied with the cooperative than with competing businesses. Member *satisfaction* with their business exchanges is related to the cooperative's price level, different types of services, and the cooperative's function as a "home" for member businesses, i.e., the members always have a trading partner (Österberg and Nilsson, 2009; Morfi et al., 2015; Malvido et al., 2018; Wästerlund and Kronholm, 2018).

Much literature on cooperatives concern the so-called *traditional cooperative model* (Chaddad and Iliopoulos, 2013). Such cooperatives are characterized by a specific cooperative ideology, comprising values such as equality, mutuality, justice, altruism, and democracy (Craig, 1993; Hakelius, 1996; Nilsson, 1996). Such values may account for the preference for a cooperative business model (Kimmich and Fischbacher, 2016; Müller and Rommel, 2018). Many empirical studies indicate that there are values, such as *trust* and *solidarity*, within a membership (Borgen, 2001; Österberg and Nilsson, 2009; Morfi et al., 2015; Wästerlund and Kronholm, 2018). One may, however, wonder why such values exist

in cases when the members are businesspeople, such as forest owners and farmers, who are dependent on the cooperatives' economic performance. However, Nilsson (1998) has demonstrated that these values, as well as the traditional cooperative principles, may have an economic rationale. By acting according to socially attractive values and principles, cooperatives are able to attract a larger membership and, thereby, a larger volume of products. Thanks to *economies of scale*, cooperatives get lower per-unit costs for their processing operations. This implies that the cooperatives can offer better terms to their members, whereby the members face lower transaction costs in comparison to the conditions from non-cooperative competitors. The cooperative principles are most often incorporated into the legislation on cooperatives as well as in the cooperative bylaws.

In the beginnings of the cooperative movement, cooperatives have had small and homogeneous memberships and simple business operations. Under these conditions, the traditional cooperative values and principles have been instrumental for obtaining low production costs and low transaction costs for the members. However, the traditional cooperative model has during recent decades been challenged when intensified competition has forced many cooperatives to get large scale operations and business activities, which require heavy investments (Nilsson, 2018). Under such conditions, the members have difficulties to govern the cooperative firm and they are no longer willing to or able to finance it. These difficulties are known as *VDPR problems*, which stand for “vaguely defined property rights” (Cook, 1995; Nilsson, 2001; Nilsson et al., 2012). The first three VDPR problems, mentioned below, are related to the members' incentives to contribute in their role as property-rights holders while the two others concern the incentives in governance role:

- *The common-property problem* (or the free-rider problem): Due to the collectivist character of a traditional cooperative's financial structure, members are reluctant to contribute financially.
- *The portfolio problem*: Traditional cooperatives make investments that are not in the interests of all members within a heterogeneous membership.
- *The horizon problem*: Many investments made by a traditional cooperative have a payback period, which can exceed a member's membership period.
- *The follow-up problem* (or the control problem): Members have limited incentives and possibilities to assess the performance of a traditional cooperative.
- *The decision-making problem* (or the influence costs problem): Members have weak abilities and incentives to govern the operations of a large traditional cooperative, thereby handing over power to professional managers.

To overcome the VDPR problems many cooperatives have introduced market mechanisms in their dealings with the members, thus converting from the traditional model to a *hybrid cooperative model* of one type or another (Nilsson, 2018). Many cooperatives have designed various models for stimulating the members to conduct business with the cooperative, to invest in it, and to become involved in its governance. The various hybrid cooperative models adhere to the definition of a cooperatives, but they are less devoted to any cooperative ideology.

2.2. Hypotheses development

Four hypotheses are suggested on the basis of the account in Subsection 2.1.

Members perceive their problems as serious. According to *the transaction cost theory* cooperatives are to reduce member transaction costs in cases where members have a weak

market position. Thus, it is likely that the more problematic the members perceive their position to be, the more they will support their cooperative. If Södra members perceive threats to their business, they will support Södra conducting campaign activities. If the problems are serious enough, members will ignore free-riding non-members.

Hypothesis 1: Members support their cooperative's campaign activities: (a) when they believe that the cooperative defends their interests, and (b) when they perceive considerable problems with specific policy issues.

Members feel that they have the same interests as non-members. Studies that indicate *solidarity* among members have examined the relationships within a membership, where individuals are, at least partly, dependent on each other. The issue at hand in the present study is, however, about member views on non-members. Many forest owners have strong bonds to their forestland, which might foster an individualistic attitude. They have typically inherited the holdings from their parents and will hand them over to future generations. Likewise, members with large operations are likely to think more in individualistic terms and less about solidarity. If the cooperative's campaign activities benefit per hectare of forest, owners with large holdings will experience greater total benefits. They can also realize *economies of scale* in their forest management and, consequently, are less dependent on other forest owners. In spite of these arguments, it cannot be excluded that there are sympathetic feelings between members and non-members, because the two categories have the same interests.

Hypothesis 2: Members support their cooperative's campaign activities when they believe that members and non-members are interdependent. This view can be related to the size of member operations, member age, or the existence of a successor.

Member interests are affected by others' opinions. Members can be either more or less positive about Södra's campaign activities through communication with cooperative management, elected representatives, and fellow members. The impact depends on member *satisfaction* and the *trust* between the discussion partners, especially members' trust in the management. The *VDPR problems* (*the follow-up problem* and *the decision-making problem*) imply that management affects member opinions about campaign activities. Members might be willing to support these activities to the extent that they have trust in the discussion partners.

Hypothesis 3: Members support their cooperative's campaign activities: (a) when they have received information about these activities, and they find this information to be positive and sufficient, (b) when they have trust in the cooperative, (c) when they experience a good discussion climate in relation to the management of the cooperative, and/or (d) when they have a good discussion climate with other members and with non-member forest owners.

Members cannot evaluate the outcome. While members, according to *the VDPR problems*, have difficulties in assessing and monitoring their cooperatives' decisions, these difficulties are immanent in the case of Södra's campaign activities. Members do not know how successful these activities will be or how their wealth will be affected, if at all. Nor can they assess whether a change in public opinion is a result of the cooperative's campaign activities or of other forces. They do not even know how much money the cooperative spends on these activities. Furthermore, benefits may be realized only in a distant and uncertain future.

Given that forest owners face this uncertainty, prospect theory could provide an explanation (Kahneman and Tversky, 1979). Unlike the expected utility theory, prospect theory posits that decision-makers evaluate uncertain outcomes against one or several reference points. These are often the individual's current position (*status quo*) or goals, expectations, and ambitions (Koop and Johnson, 2012). Deviations from the reference points are evaluated as gains or losses, where losses are considered more negatively than gains of equal size. The marginal utility of changes diminishes. Changes around a reference point are felt asymmetrically with losses having greater weight than gains. As a consequence, most people are risk-seeking in losses and risk-avoiding in gains.

When prospect theory is applied to the present case, Södra members can be expected to support campaign activities to achieve future gains. Under the cumulative prospect theory, depending on the probability members subjectively assign to outcomes, campaign activities can also be viewed as an insurance against low probability losses (Tversky and Kahneman, 1992). The reference point for forest owners is probably the current political situation or one that is an extrapolation of a trend in recent years. In such a case, members would most likely be willing to support the cooperative's campaign activities, irrespective of whether benefits are shared with non-members.

Hypothesis 4: Members support their cooperative's campaign activities: (a) when they expect positive outcomes in the near future, (b) even though they think that the outcome will come in a distant future, (c) when they think that it is difficult to estimate the outcomes of these activities, and/or (d) when they consider the outcomes of these activities to be uncertain.

3 The case: Södra and its business environment

Forestry is a major industry in Sweden. Forest products are the largest income generator in the country's economy (The Swedish Forest Industries Federation, 2019). Sweden provides ten percent of the sawn timber, pulp, and paper traded on the global market. Approximately 55 percent of Sweden's total land is covered by productive forests (The Swedish Forest Agency, 2019). Ownership of forests is divided between private persons, companies, and the national government (The Swedish Forest Agency, 2019). Half of the total area of productive forestland is owned by approximately 330,000 persons or families. As a large share of forestland is attached to agricultural properties, private owners are often full-time or part-time farmers. However, an increasing number of forest owners are urban dwellers who have inherited forest properties from their parents who were farmers (Wästerlund, 2018).

A large portion of Swedish forests is owned by individuals holding small lots, which creates good conditions for cooperatives. Forestry cooperatives and cooperatives in other agricultural industries largely share the same members. The cooperatives are based on the same cooperative principles and follow the same legal frameworks. Forestry cooperatives are tasked with marketing members' timber. Some of the timber is processed by the cooperatives into paper pulp, building material, and other wood products. The cooperatives are, to some extent, bargaining cooperatives, selling unprocessed timber to other processing firms. They also offer services of all types to their members, and may even take responsibility for the entire management of a member's forest. The cooperatives operate under market conditions in all these activities. They face intense national and international competition with a large number of investor-owned processing firms at all stages along the value chain. The four Swedish forestry cooperatives even compete with each other.

There are several organizations within the Swedish forestry industry. The cooperatives have an umbrella organization, but they have partly diverging interests due to dissimilar industrial structures, market conditions, and financial strength. The various wood processing firms have an apex organization, which works with information dissemination and advisory services. All of these organizations conduct campaign activities to improve the industry's image in the eyes of policy makers and the public.

Södra Skogsägarna is Sweden's largest forestry group and by far the largest forestry cooperative (Södra, 2019). Since its establishment in 1938, Södra has operated in the southern part of the country. It has approximately 51,000 members, which is about the same size as the three other Swedish forestry cooperatives combined. Södra members own an average of 50 hectares of forestland, although the heterogeneity is considerable. The aggregate acreage of productive forestland owned by members is more than 2.5 million hectares, which is close to the area of Belgium, for example. The cooperative has a number of fully-owned subsidiaries that have plants in the sawmill industry and in the paper pulp industry. About four-fifths of Södra's production volume is exported.

Södra adheres to the traditional cooperative principles in terms of member governance. Södra has an open and voluntary membership, and it is ruled through member democracy with equal voting rights for all members. The members belong to one of 36 geographically defined districts, each of which has a governing body (district council), which consists of approximately twelve delegates. The chairpersons of the district councils form a supervisory board, and the district councils elect delegates to the general assembly, which elects a board of directors.

Södra is also a hybrid cooperative. Because of its attempts to solve *VDPR problems*, Södra has abandoned the traditional cooperative principles regarding members' roles as trading partners and property-rights holders. Södra is paying a market price for member deliveries. The price of member timber is set at a level that ensures a specific volume of deliveries. This policy is essential, because Södra has heavy investments in processing facilities, which ought to have a capacity utilization close to one-hundred percent. Because of the policy of paying only market prices for the timber, Södra makes large profits. According to Södra's annual report (2019), the return on total capital was 24% in 2018.

When delivering, the members get part of the payment in the form of shares. All shares are tradable at a market price, i.e., the members can freely buy and sell shares on an open market. Thus, the ownership of shares is voluntary, which is possible, because Södra offers a very high return to investing members. About half of the profits are paid to members as capital returns and patronage refunds, while the remainder of the profits goes to unallocated funds. Part of the accumulated profits are allocated to member accounts every year. The market for member shares and the high return on member investments gives effective solutions to the common-property problem, the portfolio problem and the horizon problem, because all members are interested in receiving a high return on their investments. This financial policy is appreciated by the members. The equity ratio was 59% in 2018 (Södra's annual report, 2019).

By catering to market mechanisms, both on the raw product market and the capital market, Södra can convey more money to its members than what would be possible if all the traditional cooperative principles were adhered to, i.e., paying a high price for timber and paying low return on member investments. Surveys among Södra members indicate very high

scores of member satisfaction (Danielsson and Söderberg, 2011; Larsson and Lidebjer, 2015). The member satisfaction contributes higher involvement in their governing role. Because members at large are interested in receiving a high capital return, the membership heterogeneity decreases, whereby the follow-up problem and the decision-making problem become less serious.

4 Methods and data

A survey among the membership of the case cooperative was conducted. Before the questionnaire was sent, it was scrutinized with a positive outcome by several researchers as well as by cooperative officials. An email with a link to a web-based questionnaire was sent to a random sample of 5,000 of the cooperative's 51,000 members in April 2018. The email contained a text that informed the recipients about the investigation and a message in which the cooperative's Member Relations Officer urged sampled participants to complete the questionnaire. The number of responses was 845 (16.9% response rate), of whom 782 completed the entire questionnaire (15.6%).

Since cooperatives are prohibited by law from disclosing their membership registers, the email was sent from within the cooperative's computer system. When the data had been collected and the respondents had been anonymized, the research team received the set of filled-in questionnaires. Because the research team had no access to the attributes of participating members, it was not possible to determine to which extent the respondents were representative for the population, nor to analyze a possible non-respondent bias. However, the Member Relations Office informed the researchers of the background variables for Södra membership. This information is shown in the right-hand column of Table 1. The table shows a generally good correspondence with the data from the respondents. The typical respondent was a man of around 60 years of age with between 31 and 70 hectares of forestland and who lived permanently at the forest holding. This person had been a member of the cooperative for between 11 and 20 years. The respondents had often made plans for their succession (Wästerlund, 2018).

While it is not possible to formally test differences between the population and the sample characteristics for all observed variables, one sample test of proportions was conducted for three factors, for which formal testing was an option: gender, living on the estate, and having a successor. The sample was biased towards men ($p < 0.01$), and fewer respondents lived on their property in the sample than in the population ($p < 0.01$). The difference in successorship was small and not statistically significant. The population mean fell into the same category as the sample mean for the categorical variables. To sum up, while there were twelve percentage points more men in the sample than in the population, and there was a seven-percentage-point difference in successorship, differences in other observed variables were found to be rather small. Nevertheless, the self-selection of respondents cannot be ruled out, because respondents might care more about the public opinion and political issues than non-respondents.

A standard ordered logit model was applied (see Cameron and Trivedi, 2010, Chapter 15, for a description of the model and how to implement it in Stata) to the stated willingness of members to support the cooperative's campaign activities as a dependent variable (four categories). Respondents were asked to give a response ranging from "totally agree" to "totally disagree" on a five-point scale. The statement was: "Södra should engage in campaign activities." The survey revealed that 77% of respondents supported Södra's campaign activities by choosing either "agree" or "totally agree." As few respondents chose

“disagree” or “totally disagree,” these categories were merged for the analysis, which resulted in ordinal data on a four-point scale. Three quarters of the respondents did not object to the cooperative’s campaign activities if non-members benefited. Four out of five respondents said that the management of their forests had been badly affected by government regulations and by the public.

The independent variables were those mentioned in the hypotheses (Subsection 2.2). Each of these explanatory variables was covered by one statement to which respondents were asked to respond on a five-point scale, ranging from (1) “totally disagree” to (5) “totally agree.” Consequently, all data are ordinal or categorical. This procedure was chosen in order to reduce the time it would take respondents to complete the questionnaire, thus obtaining a higher response rate. The independent variables are presented in Table 1.

Table 1

Description and summary of statistics of attitudinal variables

Respondents' level of agreement with statements on a five-point scale, ranging from totally disagree (= 1) to totally agree (= 5)			
Statement	N	Mean	Standard deviation
<i>Members perceive their problems to be serious</i>			
1. Preserving private property rights is important.	785	4.43	0.94
2. Species protection is an important issue.	731	3.81	1.01
3. Balance between forestry and wildlife is important.	702	4.04	0.92
4. Trustworthiness of authorities is an important issue.	685	4.26	0.92
5. Public access to forests is an important issue.	677	4.30	0.88
6. Production issues are an important matter.	663	4.63	0.67
<i>Members perceive that they have the same interests as non-members</i>			
7. Campaign activities should mainly benefit me.	795	3.76	0.98
8. Södra engages in issues that are important for me.	796	3.96	0.93
9. I trust that Södra represents my interests.	793	4.01	0.93
10. Södra should undertake campaign activities even if non-members benefit.	784	3.76	1.00
11. If non-members could be excluded from the benefits, I would be more positive to campaign activities.	783	2.63	1.28
<i>Member interests are affected by others' opinions</i>			
12. The discussion climate among members is good.	786	3.74	0.88
13. The discussion climate with management is good.	677	3.51	0.91
14. The discussion climate with non-members is good.	657	3.55	0.78
15. My trust in Södra makes me positive to the campaign activities.	783	3.75	0.95
16. If I were better informed, I would be more positive to Södra's campaign activities.	790	3.24	0.96
17. Södra's information about campaign activities is sufficient.	781	3.16	1.03
<i>Members cannot evaluate the outcome</i>			
18. Results of campaign activities should be in the near future.	776	2.78	1.18
19. Campaign activities should also target long-term goals.	772	4.02	0.95
20. It is difficult to determine the value of campaign activities.	781	3.24	1.13
21. Södra should undertake campaign activities even if the outcomes are uncertain.	775	3.85	0.99

The questionnaire also contained several background variables about the respondents (Table 2). These were (A) gender, (B) age, (C) acreage of forest property, (D) whether the respondent's main business was forestry or other agricultural production, (E) whether the respondent lived on the forest holding, (F) whether the respondent had a successor, (G) years as a member, as well as questions about (H) whether the respondent was aware of the cooperative's campaign activities, and (I) whether the respondent felt obstructed by policy. Additional summary statistics presenting the frequencies for variables in Tables 1 and 2 can be accessed in the supplementary material (Tables S3 and S4).

Table 2

Variable descriptions, sample summary statistics, and population average

Variable Name	Description	N	Mean	Standard deviation	Min.	Max.	Population average*
A. Gender	1 = male; 0 = female	840	0.79		0	1	67% males
B. Age	1 = under 30, 2 = 31 to 40, 3 = 41 to 50, 4 = 51 to 60, 5 = 61 to 70; 6 = 71 to 80, 7 = over 80	837	4.43	1.24	1	7	62 years of age
C. Acreage of the forest property	1 = up to 5, 2 = 6 to 30, 3 = 31 to 70, 4 = 71 to 100, 5 = 101 to 500, 6 = 501 to 1,000, 7 = over 1,000 hectares	829	3.50	1.23	1	7	68 hectares
D. Forestry as main business	1 = if forestry is respondent's main business, otherwise = 0	831	0.81		0	1	n.a.
E. Live on the property	1 = if living on estate, otherwise = 0	845	0.55		0	1	62%
F. Successor	1 = if having a successor; otherwise = 0	845	0.65		0	1	63%
G. Years as a member	1 = 0 to 5, 2 = 6 to 10, 3 = 11 to 20, 4 = 21 to 30, 5 = 31 to 40, 6 = 41 to 50, 7 = more than 50 years	825	3.33	1.54	1	7	19.7 years
H. Aware of campaign activities	1 = if aware of campaign activities; otherwise = 0	845	0.74		0	1	n.a.
I. Obstructed by policy	1 = if ever experienced obstruction; otherwise = 0	845	0.15		0	1	n.a.

* Data from the cooperative's Member Relations Office concerning background variables for the entire membership

5 Results

Table 3 presents coefficient estimates from a series of ordered logit regressions. Column (1) comprises the variables that are presented in Table 2. Columns (2) to (5) present the sets of

variables from Table 1 (by category). Column (6) includes all variables. Column (7) uses one variable per category as a simplified version of Model (6). These variables were identified as the best representatives for each category using principal component analysis. Variables were added in blocks to avoid problems with correlation and to keep the number of observations high due to missing observations for some variables.

Table 3
Ordered logit regression estimates

	(1) Socio- economic variables	(2) Perceived problems	(3) Collective interests	(4) Opinion formation	(5) Uncertainty	(6) All variables	(7) Reduced model
A. Gender	0.47*** (0.17)	0.69*** (0.22)	0.46** (0.21)	0.44** (0.17)	0.48** (0.19)	0.61** (0.30)	0.57** (0.25)
B. Age	0.16** (0.07)	0.07 (0.08)	0.00 (0.07)	-0.01 (0.09)	0.06 (0.08)	-0.06 (0.11)	0.02 (0.09)
C. Acreage of the forest property	0.23*** (0.04)	0.21*** (0.05)	0.14** (0.06)	0.24*** (0.06)	0.20*** (0.06)	0.15** (0.07)	0.24*** (0.06)
D. Forestry as main business	0.19 (0.22)	0.37 (0.27)	0.19 (0.22)	0.14 (0.25)	0.29 (0.22)	0.30 (0.30)	0.22 (0.29)
E. Live on the property	0.24 (0.16)	0.16 (0.18)	0.09 (0.16)	0.14 (0.19)	0.12 (0.16)	0.03 (0.22)	0.01 (0.19)
F. Successor	0.23 (0.17)	0.10 (0.19)	-0.02 (0.17)	-0.13 (0.20)	-0.07 (0.17)	-0.26 (0.21)	-0.16 (0.19)
G. Years as a member	-0.07 (0.06)	-0.03 (0.07)	-0.04 (0.07)	-0.08 (0.07)	-0.02 (0.07)	-0.07 (0.08)	-0.14** (0.07)
H. Aware of campaign activities	1.88*** (0.19)	1.40*** (0.23)	1.30*** (0.19)	1.56*** (0.18)	1.17*** (0.19)	0.96*** (0.25)	1.28*** (0.22)
I. Obstructed by policy	0.54*** (0.16)	0.41* (0.23)	0.62*** (0.22)	0.51*** (0.19)	0.49** (0.24)	0.57* (0.32)	0.74*** (0.27)
1. Preserving private property rights		0.43*** (0.13)				0.30** (0.14)	
2. Species protection regulation		0.22* (0.13)				0.05 (0.12)	
3. Balance between forestry and wildlife		0.01 (0.11)				-0.08 (0.10)	
4. Trustworthiness of authorities		0.49*** (0.09)				0.26** (0.12)	
5. Problems with public access to forests		-0.16 (0.11)				-0.20** (0.09)	
6. Production issues		0.56*** (0.11)				0.38** (0.19)	0.51*** (0.12)
7. Södra's campaign activities benefit me			0.04 (0.08)			0.04 (0.13)	
8. Södra's campaign activity issues are important for me			0.78*** (0.15)			0.67*** (0.19)	

9.	I trust that Södra represents me		0.59*** (0.15)			0.34 (0.23)	0.84*** (0.12)	
10.	I support campaign activities even if non-members benefit		0.58*** (0.15)			0.28 (0.17)		
11.	If non-members were excluded from benefits, I would be more positive		-0.01 (0.07)			-0.04 (0.07)		
12.	Discussions between members are good			0.32*** (0.12)		0.03 (0.15)		
13.	Discussions with management are good			-0.04 (0.15)		-0.16 (0.19)	-0.01 (0.13)	
14.	Discussions with non-members are good			-0.18 (0.13)		-0.08 (0.17)		
15.	Trust in Södra makes me positive			0.82*** (0.09)		0.13 (0.17)		
16.	Information would make me more positive			0.03 (0.10)		-0.10 (0.12)		
17.	Södra's information about campaign activities is sufficient			0.22** (0.10)		0.14 (0.11)		
18.	The results of campaign activities appear in near future				0.05 (0.08)	-0.05 (0.10)		
19.	Campaign activities should also target long-term issues				0.58*** (0.10)	0.36*** (0.13)		
20.	Difficult to know the value of the campaign activities				-0.30*** (0.08)	-0.34*** (0.10)		
21.	Campaign activities even if outcome is uncertain				0.93*** (0.12)	0.54*** (0.17)	0.75*** (0.11)	
/								
cut1		0.86* (0.51)	6.81*** (1.01)	6.17*** (0.78)	3.48*** (0.99)	4.26*** (0.87)	7.96*** (1.21)	7.24*** (1.06)
cut2		2.09*** (0.52)	8.09*** (1.03)	7.87*** (0.76)	4.74*** (0.97)	5.70*** (0.85)	9.60*** (1.21)	8.71*** (1.08)
cut3		4.02*** (0.55)	10.36*** (1.09)	10.43*** (0.84)	6.92*** (1.03)	8.14*** (0.93)	12.54*** (1.36)	11.25*** (1.19)
N		789	624	742	611	734	516	576
χ^2		211.54	495.74	469.50	579.05	312.39	2916.59	344.51
p		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pseudo R ²		0.10	0.18	0.26	0.17	0.22	0.31	0.24
Log likelihood		-865.65	-617.89	-663.73	-611.69	-688.15	-423.25	-521.42

Note: Standard errors in parentheses (clustered for regions), * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

All models were found to have large χ^2 values that are statistically significantly different from zero. There are relatively large and statistically significant effects for gender and size of holdings in the data. Depending on the model estimate, men were found to have approximately 1.55 (exp (0.44)) to 1.99 (exp (0.69)) greater odds of supporting Södra's campaign activities than women. Moving up one category in the holding variable increases the odds of supporting campaign activities by a factor of 1.15 (exp (0.14)) to 1.27 (exp (0.24)). Awareness of campaign activities and the experience of obstruction were also found to show large and positive impacts on support for campaign activities. Awareness of campaign activities, in particular, was found to raise the odds of showing support for campaign activities by a factor of 2.61 to 6.55. The magnitude of having experienced obstruction by policy can be compared to the gender effect with odds ratios that ranged from 1.51 to 2.1.

Coefficient sizes were fairly stable across the different model specifications, but the awareness variable, in particular, had some larger fluctuations in size. These fluctuations were most probably caused by sample selection effects, as can be seen in the changing number of valid observations in the lower panel of Table 3. Considering the other blocks of variables, there are larger and statistically significant effects for several variables.

Several coefficients of the political issues variable block showed larger and statistically significant effects. Some variables (preserving property rights issues, trustworthiness of authorities, and production issues as important) had effects that can be compared with the gender effect in magnitude, with odds ratios of more than 1.5 but less than 2. A marginally statistically significant effect of species protection issues was also found, but the effect was substantially smaller in magnitude, with an odds ratio of 1.25 in Model (1). There was a small negative effect of the variable concerning public access to forests, which had a similar magnitude but the opposite sign.

Three variables regarding individual *versus* common interest showed large effects. First, the issues to be addressed must be perceived as important, and, second, members must trust that Södra acts in their interest. The odds ratios for both of these variables were approximately 1.8 and 2.2 for an increase on one category on the scale. Both variables represent individual interests. Third, members who were indifferent to benefits to non-members also showed greater support of campaign activities, with an odds ratio of approximately 1.8 for a one-category increase.

No clear pattern for opinion formation within the organization was found. The coefficients changed quite substantially across models. Although Model (4) shows statistically significant outcomes for a positive discussion climate among members, trust in the organization, and the perception of Södra's information, coefficients approach zero in Column (6).

Members showed a rather high acceptance of uncertain outcomes. The survey shows that they support campaign activities even if the outcomes are uncertain or occur in a distant future. However, if members found it difficult to assess the benefits of campaign activities, their support decreased slightly (odds ratio = exp (-0.30) = .74).

Various robustness checks were conducted. Additional models are presented in the supplementary material. Table S1 uses a dichotomized dependent variable and re-estimates the models from Table 3 using a binary logit model. Table S2 presents a re-estimation of the

model estimated in Column 7, which also uses dichotomized independent variables. The results are similar and support the main conclusions.

Correlation coefficients for each block of variables were calculated. Although some correlation coefficients were sizable (the largest correlation was .57) and statistically different from zero, the correlation between variables did not lead to inflated standard errors, as indicated by a maximum variance inflation factor of 2.67, and an average variance inflation factor of 1.55 for a regression model including all variables. Principal component analysis was used to reduce the number of variables for each of the four latent constructs of variables presented here in blocks. Including the first component for the four latent constructs or including the variable with the highest loading on the first component (Column 7 for the dichotomized dependent variable in Table S1 and Table S2) yielded very similar results. Cronbach's alpha values were 0.72, 0.57, 0.74, and 0.39, respectively. Except for the first latent construct, all constructs had a second component with an Eigen value greater than one. Given the low alpha values of two constructs and the existence of three two-component constructs, there is little additional value from adding seven components.

6 Discussion

Members perceive their problems to be serious. Members who perceived problems with various political issues were more willing to support the cooperative's campaign activities. They were mainly concerned about forestry management, which has economic consequences for them. Perhaps they want to safeguard their private property rights and limit the power of authorities. Forest owners generally are not concerned about society at large (Bjärstig and Kvastegård, 2016). These observations are in line with other studies, which claim that economic issues are the main drivers behind member involvement (Karantininis and Zago, 2001; Morfi et al., 2015). Other studies indicate that economic drivers are also related to social networks within the membership of a cooperative (Nilsson et al., 2009; Barraud-Didier et al., 2012; Feng et al., 2016; Kronholm, 2016). The cooperative's campaign for less public access to forests was only moderately negatively related to the members' view of the cooperative's campaign activities. The public's right to walk in forests and pick berries and mushrooms is deeply rooted in Swedish culture, so members may believe it would not be possible to impose stricter regulations, or they may believe that society's views of forest owners would be negatively affected.

The fact that the cooperative's costs for information dissemination are unknown to members has perhaps increased member support for the cooperative's campaign. Likewise, members who were satisfied with the cooperative's operations tended to accept the cooperative's provision of public goods. Related to this is member trust in the cooperative's leadership. Both member satisfaction and trust in cooperative leadership have proven to be essential for member support in other studies (James and Sykuta, 2006; Morfi et al., 2015, Feng et al., 2016; Guillén et al., 2016; Kronholm, 2016; Wästerlund and Kronholm, 2017).

The Theory of Collective Action explains why an organization that has the task of producing private goods can extend its operations to include also public goods (Olson, 1965). Already being established, a forestry cooperative can conduct campaign activities, provided that the cooperative gains goodwill within the community of forest owners, which is in the interest of the members.

Members perceive that they have the same interests as non-members. If members support their cooperative to provide public goods, this may be due to a sense of solidarity with non-

members. However, this study indicates that there is a mentality of individualism among members. Members who believe that campaign activities benefit their own business operations are more supportive of these activities, and most members are less interested in the campaign activities' impact on non-members. Members would not be more positive or more negative if non-members were excluded. Campaign activities were also supported if non-members benefitted from them. This is consistent with the self-centered mentality, reported by other studies on self-employed people (Emery, 2015). Many forest owners have an emotional relationship with their forests, which may contribute to a sense of individualism. They have typically inherited the holdings and will be handing them over to future generations.

The cooperative's campaign activities were more appreciated by members who had more at stake due to large acreage, with male members more positive than female members. It should also be noted that the obtained sample was biased towards male participants. Hence, overall support in the population may be somewhat lower than what the estimates suggest. A forest owner is likely to have a more individualistic view of forest management if they have larger holdings. The notion that a stronger sense of individuality can be expected because forest ownership is often passed through generations was countered by observations that respondents with succession plans and elderly respondents were neither more nor less positive to the cooperative's campaign activities.

While the findings do not indicate any sense of solidarity, both members and non-members have an interest in that political interest parties do not challenge their properties. Forest ownership is connected with traditions in both categories (Bjärstig and Sténs, 2018; Wästerlund, 2018). Members of forestry cooperatives put a higher value on income from forest management than non-members do (Berlin et al., 2006).

The literature on cooperatives presents only few cases of member altruism in relation to non-members when excluding cooperatives that are required by law to provide public goods to non-members (Brazda and Schediwy, 1989; Anderson and Henehan, 2001; Kenkel and Hagen, 2004). These cases, however, concern cooperatives that have memberships that comprise a dominant part of all potential members. Such policies are not relevant in the present study. Södra is a major player in the Swedish forestry industry, but it is far from dominant.

Member interests are not strongly affected by others' opinions. Evidence of the impact of opinion formation was mixed. The coefficients approached zero as additional control variables were added and the sample changed. In other words, the results may not be very robust. One possible explanation for the low importance given to discussions among members may be that members at large think that the cooperative's campaign activities are self-evident. Campaign activities are conducted by several forestry organizations, and this has been the case for many years.

Members have few reasons to talk about the cooperative's campaign activities, because these activities appear rather opaque. The cooperative's specific activities and the funds spent are unknown to members. Thus, members' positive view of the cooperative's campaign activities is not a result of pressure from other members or from cooperative headquarters. The trust that members have in the cooperative's leadership implies that it is not possible to claim that the members are misled by the management.

Previous research indicates that communication among members is important for a cooperative to be successful (Hansen et al., 2002; James and Sykuta, 2006; Nilsson et al., 2009; Barraud-Didier et al., 2012; Feng et al., 2016; Grashuis and Su, 2019). These studies, however, concern mainly issues related to the governance of the cooperative, while research on members' communication about their own business matters is scarce (Morfi et al., 2015; Wästerlund and Kronholm, 2018). Enander et al. (2010) indicate that forest owners rarely talk to each other about economic issues, and especially not with those who deliver to other processing firms. Economic issues are sensitive because no two deliveries are identical, and it is often possible to negotiate prices with the buying firms.

Members cannot evaluate an outcome. The results for uncertainty and time preference show that members do not expect quick outcomes. Members appear to have a low discount rate and may even think of future generations in their support of campaign activities. Perhaps this long-term thinking is related to the forestry business itself, where it takes decades for investments to generate a profit. The long-term perspectives make it plausible that forest owners understand the uncertainties associated with the campaign activities. It seems that members are able to handle the balance between uncertainties and potential gains.

7 Conclusions

This study explains why forest owners accept that their cooperative uses funds for activities that benefit members and non-members alike. This is a classic case of public goods. Findings indicate, however, that members serve their own interests. Members believe that the value of their forest properties increases as a result of the cooperative's campaign activities, and they care little about positive spillovers to non-members. Members are concerned about the issues that the cooperative addresses in its information campaigns. Members who are aware of the cooperative's campaign activities show greater support for such activities. Members are not concerned if possible benefits are uncertain and difficult to estimate, and only to be reaped in a distant future.

The cooperative's campaign activities were appreciated more by members who had more at stake due to large acreage, with male members more positive than female members. This can have important distributional implications if the cooperative were to change its engagement in campaign policies. The results suggest that an increase in campaigning would benefit men more than women. However, elderly respondents were neither more nor less positive to the cooperative's campaign activities, which was also found for members who had plans for the succession of their forest holdings. Interestingly, communication within the social systems proved to have little importance for member opinions of the cooperative's campaign activities.

The observation that members accepted that non-members reap benefits from campaign activities is in line with the competitive yardstick model. This model says that the favorable price level of an open membership cooperative will affect competing non-cooperatives' prices to the benefit of non-members under imperfect competition. If the results generalize to other contexts, they have important implications for agricultural cooperatives elsewhere. Large cooperatives could play a more active role in addressing political conflicts farmers face with the regulator or the general public. For instance, the Netherlands and Germany have witnessed recent waves of farmer protests around stricter regulation (e.g., regarding nitrogen).

The findings indicate that the members were very satisfied with the performance of their cooperative, and that they had great trust in the leadership of the cooperative. This observation supports previous research that has found that member satisfaction and trust are positively related to the performance of a cooperative. Under current conditions, the management of the investigated cooperative has succeeded well in interpreting the opinions of its members.

The findings of this study cannot be generalized, because the study is based on data from members of one single cooperative. Thus, there is room for more empirical research on the provision of public goods by forestry cooperatives. In addition, there is a need for research on why forest owners and their organizations sometimes voluntarily provide public goods to the benefit of the general public, their regional communities, and others. The present study may inspire future research on how forest owners safeguard their property rights when they provide public goods in the area of environmental services. The social value of forestry resources is an increasingly important topic for research, however, such studies must include how the owners of forestland are affected.

References

- Anderson B.L, Henahan B.M., 2001. What went wrong with Agway? Ithaca, NY: Extension paper, Cornell University Cooperative Enterprise Program. Available at: http://cooperatives.aem.cornell.edu/pdf/resources/Agway_bankruptcy.pdf (accessed on 24 February 10, 2020).
- Atmiş, E., Günşen, H. B., Lise, B. B., & Lise, W., 2009. Factors affecting forest cooperative's participation in forestry in Turkey. *Forest Policy and Economics*, 11(2), 102–108.
- Aurenhammer, P.K., 2017. Forest land-use governance and change through forest owner associations – Actors' roles and preferences in Bavaria. *Forest Policy and Economics*, 85, 176–191.
- Barraud-Didier, V., Henninger, M.-C., El Akremi, A., 2012. The relationship between members' trust and participation in the governance of cooperatives: The role of organizational commitment, *International Food and Agribusiness Management Review*, 15, 1–24.
- Berlin, C., Lidestav, G., Holm, S., 2006. Values placed on forest property benefits by Swedish NIPF owners: Differences between members in forest owner associations and non-members. *Small-scale Forest Economics, Management and Policy*, 5(1), 83–96.
- Bijman, J., Hanisch M., Van der Sangen G., 2014. Shifting control? The changes of internal governance in agricultural cooperatives in the EU, *Annals of Public and Cooperative Economics*, 85(4), 641–661.
- Bijman, J., Hendrikse G., Van Oijen A., 2013, Accommodating two worlds in one organization, *Managerial and Decision Economics*, 34, 204–217.
- Bjärstig, T., Kvastegård, E., 2016. Forest social values in a Swedish rural context: The private forest owner perspective. *Forest Policy and Economics* 65, 17–24.
- Bjärstig, T., Sténs, A., 2018. Social values of forests and production of new goods and services: The views of Swedish family forest owners. *Small-Scale Forestry*, 17. 125–146.
- Bonus, H., 1986. The cooperative association as a business enterprise. *Journal of Institutional and Theoretical Economics* 142 (2), 310–339.

- Borgen, S.O., 2001. Identification as a trust-generating mechanism in cooperatives, *Annals of Public and Cooperative Economics*, 72, 209–228.
- Brazda J., Schediwy, R. (Ed.), 1989, *Consumer Co-operatives in a Changing World*. Geneva, Switzerland: International Co-operative Alliance.
- Cameron, A.C., Trivedi, P.K., 2010. *Microeconometrics using Stata*, revised edition. StataCorp LP.
- Chaddad, F., Iliopoulos, C., 2013, Control rights, governance, and the costs of ownership in agricultural cooperatives, *Agribusiness*, 29(1), 3–22.
- Cook, M.L., 1995. The future of U.S. agricultural cooperatives: A neo-institutional approach. *American Journal of Agricultural Economics*, 77, 1153–1159.
- Craig, J.G., 1993. *The Nature of Cooperation*, Montréal: Black Rose Books.
- Danielsson, V., Söderberg, J., 2011. Södras finansieringsmodell: en undersökning av medlemmars benägenhet att handla med emissionsinsatser (Södra's financial model: an investigation of the members' propensity to trade with allocated equity shares), Master thesis, Uppsala: Department of Economics, Swedish University of Agricultural Sciences. (In Swedish with a summary in English).
- Dunn, J.R., 1988. Basic cooperative principles and their relationship to selected practices. *Journal of Agricultural Cooperation* 3: 83–93.
- Emery, S.B., 2015. Independence and individualism conflated in farmer cooperation? *Agriculture and Human Values*, 32, 47–61.
- Enander, J., Melin, A., Nilsson, J., 2010. Trust-creating social networks in forest owners' choice of partners, *Journal of Cooperative Studies*, 43. 17–28,
- Feng, L., Friis, A., Nilsson, J., 2016. Social capital among members in grain marketing cooperatives of different sizes, *Agribusiness*, 32, 113–126.
- Grashuis, J., Su, Y., 2019. A review of the empirical literature on farmer cooperatives: performance, ownership and governance, finance and member attitudes, *Annals of Public and Cooperative Economics*, 90(1), 77–102.
- Guillén, L. A., Wallin, I., Brukas, V., 2015. Social capital in small-scale forestry: A local case study in Southern Sweden. *Forest Policy and Economics*. 53, 21–28.
- Hakelius, K., 1996. *Cooperative Values: Farmers' Cooperatives in the Minds of the Farmers* (doctoral dissertation). Uppsala: Swedish University of Agricultural Sciences, Department of Economics.
- Hakelius, K., 2018. Understanding the board of Swedish farmer cooperatives – Cases focusing on board composition and interaction patterns. *Journal of Cooperative Organization and Management*, 6(2), 45–52.
- Hanisch, M., Rommel, J., Müller, M., 2013. The cooperative yardstick revisited: Panel evidence from the European dairy sectors. *Journal of Agricultural and Food Industrial Organization*, 11, 151–162. doi:10.1515/jafio-2013-0015.
- Hansen, M.H., Morrow, Jr J. L., Batista, J. C., 2002. The impact of trust on cooperative membership retention, performance, and satisfaction: an exploratory study, *International Food and Agribusiness Management Review*, 5, 41–59.
- James, Jr. H.S., Sykuta, M.E., 2006, Farmer trust in producer- and investor-owned firms: evidence from Missouri corn and soybean producers, *Agribusiness*, 22, 135–153.

- Kahneman, D., Tversky, A. 1979. Prospect theory: An analysis of decision under risk, *Econometrica*. 47, 263–291.
- Karantininis, K., Zago, A., 2001. Endogenous membership in mixed duopsonies. *American Journal of Agricultural Economics* 83, 1266–1272
- Kenkel, P., Hagerman, A., 2004. ‘Impact of the Farmland Bankruptcy on Oklahoma Cooperatives’, Accessed on February 10, 2020, at <https://econpapers.repec.org/RePEc:ags:ncerfo:31793>.
- Kimmich, C., Fischbacher, U., 2016. Behavioral determinants of supply chain integration and coexistence. *Journal of Forest Economics*, 25, 55–77.
- Koop, G.J., Johnson, J.G., 2012. The use of multiple reference points in risky decision making. *Journal of Behavioral Decision Making*, 25, 49–62.
- Kronholm, T., 2016. How are Swedish forest owners’ associations adapting to the needs of current and future members and their organizations? *Small-scale Forestry*, 15, 413–432.
- Kronholm, T., Wästerlund, D.S., 2013. District council members and the importance of member involvement in organizational renewal processes in Swedish forest owners’ associations, *Forests*, 4, 404–432.
- Larsson, C., Lidebjer, L., 2015. Medlemmarnas incitament till handel och investeringar i kooperativa föreningar: en jämförelse mellan Lantmännen och Södra Skogsägarna (Members’ incentives to conduct trade with and invest in cooperatives: a comparison between Lantmännen and Södra Skogsägarna). Master thesis. Uppsala: Dept. of Economics. (In Swedish with a summary in English)
- Lindahl, K. B., Sténs, A., Sandström, C., Johansson, J., Lidskog, R., Ranius, T., & Roberge, J. M., 2017. The Swedish forestry model: More of everything? *Forest Policy and Economics*, 77, 44–55.
- LRF Forestry, 2019. <https://www.lrf.se/om-lrf/in-english/lrf-forestry/> (accessed on February 10, 2020).
- Malvido, A., Hanisch, M., Rommel, J., Fulton M., 2018. Farm gate prices for non-varietal wine in Argentina: A multilevel comparison of the prices paid by cooperatives and investor-oriented firms, *Journal of Agricultural and Food Industrial Organization*, 16, Art. 2.
- Milford, A.B., 2012. The pro-competitive effect of coffee cooperatives in Chiapas, Mexico, *Journal of Agricultural and Food Industrial Organization*, 10, Art. 2.
- Morfi, C., Ollila, P., Nilsson, J., Feng, L., Karantininis, K., 2015. Motivation behind members’ loyalty to agricultural cooperatives. In: *Interfirm Networks – Franchising, Cooperatives and Strategic Alliances*. Eds. J. Windsperger, G. Cliquet, Th. Ehrmann, G. Hendrikse. Heidelberg: Springer International Publishing AG, pp. 173–190.
- Müller, M., Rommel, J., 2018. Should I stay or should I go? A behavioral approach to organizational choice in Tajikistan’s agriculture. *Journal of Agricultural and Resource Economics*, 43(3), 469–486.
- Nilsson, J., 1996. The nature of co-operative values and principles: Transaction cost theoretical explanations, *Annals of Public and Cooperative Economics*, 67, 4, 633–653.
- Nilsson, J., 2001. Organisational principles for co-operative firms, *Scandinavian Journal of Management*, 17, 329–356.

- Nilsson, J., 2018. Governance costs and the problems of large traditional cooperatives. *Outlook on Agriculture*, 47(2), 87–92.
- Nilsson, J., Kihlén, A., Norell, L., 2009. Are traditional cooperatives an endangered species? About shrinking satisfaction, involvement and trust, *International Food and Agribusiness Management Review*, 12, 103–123.
- Nilsson, J., Svendsen, G. L. H., Svendsen, G.T., (2012). Are large and complex agricultural cooperatives losing their social capital? *Agribusiness: An International Journal* 28 (2), 187–204.
- Nourse, E.G., 1992[1942]. The place of the cooperative in our national economy, *Journal of Agricultural Cooperation*, 7, 105–111.
- Olson, M., Jr., 1965. *The Logic of Collective Action. Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.
- Österberg P., Nilsson J., 2009. Members' perception of their participation in the governance of cooperatives: the key to trust and commitment in agricultural cooperatives, *Agribusiness*, 25 (2), 181–197.
- Rickenbach, M. G., Guries, R. P., & Schmoldt, D. L. (2006). Membership matters: comparing members and non-members of NIPF owner organizations in southwest Wisconsin, USA. *Forest Policy and Economics*, 8(1), 93–103.
- Schrader, L.F., 1989. Economic justification, In D. W. Cobia (Ed.) *Cooperatives in Agriculture* (pp. 121–136). Englewood Cliffs, NJ: Prentice-Hall.
- Skogsstyrelsen – About us, 2019. <https://www.skogsstyrelsen.se/en/about-us> (accessed on February 10, 2020)
- Södra – The future is made of trees, 2019. <https://www.sodra.com/en/> (accessed on February 10, 2020)
- Södra's annual report, 2019, <https://www.sodra.com/sv/sok/?fg=All&page=0&query=annual+report>
- Sotirov, M., Sallnäs, O., Eriksson, L.O. 2019. Forest owner behavioral models, policy changes, and forest management. An agent-based framework for studying the provision of forest ecosystem goods and services at the landscape level. *Forest Policy and Economics*, 103, 79–89.
- Staatz, J. 1984. *A theoretical perspective on the behavior of farmers' cooperatives* (PhD thesis). East Lansing, MI: Michigan State University.
- The Swedish Forest Agency, 2019. <https://www.skogsstyrelsen.se/en/> (accessed on February 10, 2020).
- The Swedish Forest Industries Federation, 2019. <https://www.forestindustries.se/> (accessed on February 10, 2020).
- Tversky, A., Kahneman, D., 1992. Advances in prospect theory: Cumulative representation of uncertainty, *Journal of Risk and Uncertainty*, 5, 297–323.
- Valentinov, V., 2007. Why are cooperatives important in agriculture? An organizational economics perspective, *Journal of Institutional Economics*, 3, 55–69.
- Van Dijk, G., 1997. Implementing the sixth reason for cooperation: new generation cooperatives in agribusiness. In J. Nilsson and G. van Dijk (Eds.). *Strategies and Structures in the Agro-food Industries* (pp. 94–110). Assen: van Gorcum.

- Wästerlund, D. S. 2018. Factors explaining the interest of adult offspring in succeeding their parents as forest owners. *Forests*, 9 (11) Article number: 668
<https://doi.org/10.3390/f9110668>
- Wästerlund, D.S., Kronholm, T. 2017. Family forest owners' commitment to service providers and the effect of association membership on loyalty. *Small-scale Forestry*, 16, 275–293.
- Williamson, O.E., 1998. Transaction cost economics: How it works, where it is headed, *The Economist*, 146, 23–58.