

Curbing members' opportunism in first-tier and federated agricultural marketing cooperatives

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Funding information

Cátedra Cajamar de Cooperativismo Agroalimentario

Abstract

Agricultural marketing cooperatives are of panoramic socio-economic importance. As owners, decision-makers, and suppliers, their members' opportunism is of great concern to their competitiveness. In this study, we analyze the impact of governance mechanisms on opportunism. We explore the nonlinear effects and differences between the memberships of first-tier cooperatives and federated cooperatives. Empirical results show that not all the mechanisms are equally effective: effective mechanisms for first-tier cooperatives memberships should be employed with lower intensity, whereas those effective for federated cooperatives memberships need a higher intensity of employment. The results of this study allow presenting theoretical and managerial implications in an underexplored field of research [EconLit Citations: D22, D23, P13, Q13].

KEYWORDS

agribusiness, agricultural marketing cooperatives, governance mechanisms, opportunism

Abbreviations/Acronyms CFA, confirmatory factor analysis; CFI, comparative fit index; CV, control variables; df, degrees of freedom; GFI, goodness-of-fit index; GOV_MECH, governance mechanism; IV, instrumental variables; NNFI, non-normed fit index; OLS, ordinary least squares; OPPO, cooperative member's opportunism; RMSEA, root mean square error of approximation; SCR, scale composite reliability; SRMR, standardized root mean square residuals; TCE, transaction cost economics; TYPE_MEMB, type of membership.

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1 | INTRODUCTION

Agricultural marketing cooperatives are firms collectively owned by their members, who share resources to commercialize their agricultural produce. They are key players in the European agri-food sector (Bouamra-Mechemache & Zago, 2015), representing approximately 50% of the total agricultural industry in the European Union, with approximately 22,000 cooperatives in 2013, revenues of 348 billion euros, and nearly 6.2 million farmers (COGECA, 2015). In 2017, Spain had nearly 3700 cooperatives that comprised more than one million members in total, generated revenues exceeding 33 billion euros, and they handled 67% of Spanish agricultural production (Cooperativas Agro-alimentarias, 2019). However, agricultural cooperatives' relevance goes beyond the economic scope: They are a significant source of employment and represent, for many farmers, the only way to operate in markets in a fair and profitable manner (Tregear & Cooper, 2016). Marketing cooperatives allow farmers to improve their competitiveness and bargaining power, thereby enabling them to obtain better prices for their produce (Hirsch & Hartmann, 2014; Martínez-Victoria et al., 2016). For instance, in Spain, the establishment of cooperatives in rural areas has served as a local development tool and a vital anchor of population, employment, and wealth (Guzmán et al., 2016).

Agricultural produce markets are generally described as mature, with flat consumption growth rates, increasing power of distributors and manufacturers of processed goods that are often multinational firms with powerful brands, a persistent waning of public financial backing and restrictions to free trade, and overproduction (Ciaza, 2016). Moreover, market demands are in constant change, with an emphasis on health, responsibly produced, organic and ecological products (Dowler, 2008; Heng et al., 2018; Kumar et al., 2020; Singh & Verna, 2017), transparency, and traceability (Díaz-Méndez & Lozano-Cabedo, 2020). Along with the changes in the natural environment (e.g., more extreme weather conditions) and the advancements in science and technology (e.g., marker-assisted selection or biosensors), the result is a continuous stream of innovation challenges (National Academies of Sciences Engineering and Medicine, 2019; Ricroch et al., 2016). In this complex and turbulent environment, the competitiveness of marketers of agricultural produce, in general, and of agricultural cooperatives, in particular, requires relentless attention to efficient operations and adaptation to change (Benos et al., 2016; Grashuis, 2018).

Some authors (e.g., James & Sykuta, 2005) manifest that cooperatives are less prepared to deal with this new environment than investor-owned firms. Internal factors and constraints of the cooperative form, particularly issues related to the relational dimension between the members and their cooperative, are at the center of the alleged competitive weakness of cooperatives. The multidimensional character of the cooperative members as owners, decision-makers, and suppliers opens the door to conflicts of interest (Feng & Hendrikse, 2012). Moreover, heterogeneity (Grashuis, 2019; Höler and Kühl, 2018), individualism (Fulton, 1995; Puusa et al., 2016), the inefficiency of collective decision-making (Hansmann, 1988), and the limitations in accessing resources to finance long-term investments derived from the ownership rights problems (Chaddad & Iliopoulos, 2013; Grashuis, 2020; Liang & Wang, 2019) cause difficulties in the cooperatives' ability to compete in current markets. Opportunism, succinctly presented as "self-interest seeking with guile" (Williamson, 1975), is strongly intertwined with those constraints (Bijman, 2002; Iliopoulos & Valentinov, 2012; Volkers & Lees, 1996). In particular, cooperative members behave opportunistically when they mislead, distort, disguise, obfuscate, or confuse with the aim of achieving their own gains at the expense of the entire cooperative.

However, many agricultural cooperatives successfully compete in their markets (Feng & Hendrikse, 2012), with examples where cooperatives dominate the market (Bijman et al., 2012). This shows that cooperatives can achieve high levels of coordination, commitment, and alignment with their members (Bontems & Fulton, 2009). It also shows that cooperatives may successfully manage opportunism (Bijman et al., 2013). However, compared to the study of managerial opportunism in cooperatives (e.g., Iliopoulos & Valentinov, 2012), which is often studied as an agency problem (Grashuis, 2020; Hakelius & Hansson, 2016), the actual management of the opportunism of cooperative members is barely subjected to empirical analysis.

Monitoring, incentives, selection, and socialization are governance mechanisms that allow firms to manage opportunistic intentions (Wathne & Heide, 2000). Their effects have been empirically tested in interorganizational supply chain relationships (e.g., Hernández-Espallardo et al., 2010). However, there are few studies in the context of social economy enterprises, in general, and agricultural marketing cooperatives, in particular. For instance, despite the decisive role attributed to sanctions in common property institutions (Osrom, 1990), in the setting of agricultural cooperatives, we only find the work by Benos et al. (2016), who reported that sanctions dissuade cooperative members from free-riding. However, the effects of these mechanisms on opportunism may be different compared to when they are applied, for instance, in business-to-business private sector relationships. This is because of the multidimensional nature of cooperative members as suppliers, owners, and participants in the cooperative's decision-making process (Barton, 1989), and the social role played by them (Limnios et al., 2018). Thus, the first goal of this study is to analyze the effectiveness of every governance mechanism on curbing the opportunism of the marketing cooperatives' members.

Furthermore, we are interested in the specific nature of this effect. Particularly, we test the presence of nonlinear effects in the form of threshold, that is, a minimum intensity of utilization is required to start curbing opportunism, or saturation, that is, a certain intensity of use above which additional efforts do not impact opportunism. Empirical evidence of nonlinear effects is scarce in the literature. Nevertheless, they may be a better representation of the actual nature of the influence of governance mechanisms on behavioral opportunism. For instance, socialization may require substantial efforts in distant and/or new relationships to craft sufficient social capital and then to start reducing opportunistic inclinations (Dyer & Singh, 1998). This indicates the presence of a threshold effect. However, previous studies provide indications of a "dark side" of social capital as a precursor of loss of objectivity and social dependence, opening the door to a cognitive lock-in that provides occasions for opportunistic activities by a partner (Anderson & Jap, 2005; Villena et al., 2011). The literature also provides examples of similar nonlinear effects of other governance mechanisms, such as hostages (De Vita et al., 2011) and monitoring (Musarra et al., 2016). This issue, barely studied in the literature until recently, and always studied in settings different than agricultural cooperatives, is the aim of our second research goal: the analysis of the nonlinear effects of each governance mechanism on averting opportunistic behaviors of agricultural marketing cooperatives' members.

Finally, we pursue a third goal: exploring whether the relationship between opportunism and the governance mechanism changes in different types of cooperatives according to their type of membership (first-tier vs. federated cooperatives). First-tier marketing cooperatives are organizations whose members are local farmers who supply agricultural produce to the cooperative. These cooperatives are generally formed as a reaction against market failures and abuse of power at the origin of the agricultural produce supply chain (Hernández-Espallardo et al., 2013). However, their locally restricted capacity hinders their ability to meet the demands of large distributors and manufacturers of processed foods. This has forced first-tier cooperatives to seek options to overcome this difficulty and led to the creation of federated marketing cooperatives. These cooperatives integrate many local cooperatives in an organization with a much wider territorial reach and have been an alternative commonly followed in Spain (Arcas-Lario & Hernández-Espallardo, 2003; Martínez-Victoria et al., 2017) where, federated marketing cooperatives constitute important operators in many products. In 2017, 134 federated cooperatives had 23% of the total turnover of the cooperative sector (Cooperativas Agro-alimentarias, 2019).

Because the type of membership differs, farmers in the case of first-tier cooperatives and other cooperatives in the case of federated cooperatives, we explore how this influences the effectiveness of each governance mechanism. Although management literature suggests contextual moderators influence the usefulness of governance mechanisms on managing opportunism (e.g., Heide et al., 2007), empirical research is scarce. The type of membership is one such contextual moderator as it determines the content of the relationship between the focal parties, that is, the cooperative and its members. To the best of our knowledge, no study has analyzed this aspect. Beyond its immediate managerial implications for first-tier and federated marketing cooperatives, our results may also be of interest for understanding the evolution of the cooperative form.

2 | LITERATURE REVIEW AND HYPOTHESIS

2.1 | Members' opportunism in agricultural marketing cooperatives

The formation of marketing cooperatives is generally justified as a reaction against market failures manifested in external opportunism exerted by more powerful downstream supply chain members (distributors or manufacturers) (Bijman & Hendrikse, 2004). As a social economy type of firm (Juliá & Server, 2003), marketing cooperatives defend farmers from external opportunism. However, they are not free of internal opportunism. Opportunism is cited as a relevant issue both regarding cooperative managers' behavior (Hernández-Espallardo et al., 2013; Iliopoulos & Valentinov, 2012) and cooperative members' behavior (Marcos-Matás et al., 2013).

Cooperative members' opportunism and commitment are related issues (Morgan & Hunt, 1994). Members' commitment to the cooperative is a positive attitude of bonding to the organization (Cechin et al., 2013). However, members' opportunistic behavior is a deceit-oriented breach of a prior contract or agreement (explicit or relational) that causes increased costs and/or decreased revenues for the cooperative as a business (Wathne & Heide, 2000). Thus, opportunism has a more adverse effect on the cooperative's business performance. For instance, "the marketing cooperative's ability to provide a product that is on schedule, reliable, and of high quality will be seriously impaired if farmers adopt such opportunistic behaviors as putting aside their best products to be sold outside the cooperative, or shirking certain restrictions on pesticides imposed by the cooperative's clients" (Marcos-Matás et al., 2013, p. 119).

Wathne and Heide (2000) presented four categories of opportunistic behaviors: evasion, violation, refusal to adapt, and forced renegotiation. A cooperative's member can display any or all of them. Shirking of obligations, either explicit or implicit, for instance, by relaxing quality standards of the produce or side-selling to higher bidding buyers (Cechin et al., 2013; Liang et al., 2015) fall in the evasion category. Violations occur when members perform forbidden behaviors, such as using chemicals that are expressly forbidden. Refusal to adapt occurs when members use egoistic reasons to oppose the changes required to maintain or increase the cooperative's competitiveness, for instance, to fit the demands of the clients. Finally, forced renegotiation behaviors are used when members exploit any advantage, either fortuitous (e.g., unaffected by a climatological or biological misfortune) or planned (e.g., successful varietal renovation), to force a renegotiation to extract selfish concessions over the rest of the cooperative members.

Consequences of opportunism in business relationships are documented (e.g., Hawkins, Knipper, et al., 2008; Wang & Yang, 2013): poor creation and distribution of wealth, direct costs of contract breaching, monitoring, and renegotiation, and opportunity costs derived from inadequate market adaptation and a subsequent inability to generate future wealth (Williamson, 1991). In the cooperative sector, members' opportunism has been linked with weak coordination, low cooperative's performance, and even the demise of the cooperative form of enterprise (Bijman et al., 2012; Marcos-Matás et al., 2013).

2.2 | Mechanisms for governing opportunism

Transaction Cost Economics (TCE) assumes that individuals are inherently opportunistic. However, several factors affect their final disposition to exert and display actual opportunistic behaviors (Hawkins, Knipper, et al., 2008). Thus, opportunistic behavior is an endogenous variable (Luo, 2007). To address this behavior, Wathne and Heide (2000) proposed the use of governance mechanisms, such as monitoring, incentives, selection, and socialization, to limit a partner's exchange opportunism.

Cooperatives' *monitoring* of their members, consisting of setting standards of behavior, supervising, and providing feedback (Challagalla & Shervani, 1996), may reduce opportunism because it places social pressure on the cooperative's members and thereby increases their compliance. Monitoring allows the detection of opportunism and reaction (e.g., warning or sanction) against it (Benos et al., 2016), thereby improving the cooperative's expertise to prevent similar deeds in the future. Moreover, monitoring may discourage potential opportunistic

members from entering the relationship, or makes members to exit the cooperative to perform the behaviors prohibited in the cooperative (Wathne & Heide, 2000).

For its part, incentives are mechanisms intended to reduce the payoff from opportunistic behaviors (Williamson, 1975). *Hostages*, in the form of members' investments in relationship-specific assets, that is, with limited salvage value outside the cooperative, is one such mechanism. The potential loss, in case the cooperative ousts a member because of their behavior, acts as a disincentive to such behavior. Incentives in the form of *economic rewards* reduce opportunism, for instance, with price premiums for appropriate members' behaviors. *Selection* is another commonly cited governance mechanism. It allows cooperatives to select members that are not predisposed to opportunism. It will also send a message to actual members about the surveillance of the issue and its importance for the cooperative.

Finally, *socialization* reduces opportunism as it induces members to internalize the cooperative's principles by enhancing the embeddedness of economic transactions in social relationships (Granovetter, 1985).

2.3 | The nonlinear effect of governance mechanism on opportunism

The logic behind the influence of governance mechanisms on reducing opportunism seems sound. However, a deeper analysis of the literature shows that a nonlinear effect may represent a more precise explanation of the actual nature of the effect, compared with a linear, monotonic, and negative effect. For instance, Wathne and Heide (2000) described the “zone of indifference” as a zone where monitoring is moderate and accepted by the exchange partner, with a positive impact on reducing opportunism. However, monitoring above this zone of indifference will potentially lead to frustration on the monitored party so that “such frustration may have the effect of promoting opportunism” (Wathne & Heide, 2000, p. 43). This potential of monitoring as a precursor of opportunism is extended by Musarra et al. (2016) to both forms of monitoring, that is, process and output control.

Other governance mechanisms may have similar nonlinear effects on opportunism. In the case of hostages, De Vita et al. (2010) proposed the presence of a threshold effect of specific assets as a deterrent of opportunism, so that “relatively low levels of specific assets may represent insufficient hostage ... and only very sizeable investments in such assets would take specific assets beyond the hostage threshold” (p. 663).

Similarly, the impact of socialization has been assessed carefully. Beyond its positive effects on opportunism reduction (Cechin et al., 2013), some drawbacks have been highlighted as social capital created by socialization may have a dark side characterized by loss of objectivity, ineffectiveness of decision making, and the emergence of opportunism (Villena et al., 2011). Trust generated by socialization encompasses a paradox as it is a cheap way of reducing opportunism. Simultaneously, it opens the door for opportunistic actions, because of the relaxed monitoring when trust is high (Dyer & Singh, 1998). While socialization engenders close ties and closeness decreases opportunism, Wuyts and Geyskens (2005) observed the same only at low and intermediate levels. At high levels of closeness, they observed that socialization enhances opportunism. This is because amicable relationships, as good as they seem in theory, also provide “an opportunity for covert activities designed to systematically cheat a partner” (Anderson & Jap, 2005, p. 78).

The arguments presented above lead us to propose that the use of every governance mechanism by agricultural cooperatives to manage their members' opportunism will have an effect more complex than the simpler representation of a linear, negative, and monotonic influence. Nonlinear effects, in the form of threshold and saturation effects, may be expected and needed for empirical observation.

2.4 | First-tier versus federated cooperatives

Literature on interfirm relationships and strategic alliances shows that contextual factors influence the effectiveness of each governance mechanism. The type of cooperative according to its membership may be one such contextual factor. First-tier marketing cooperatives and federated marketing cooperatives present differences that

influence the intensity and shape of the effect of every governance mechanism on their members' opportunism. First-tier marketing cooperatives are generally small organizations, with local small farmers as their members, owners, and users (Bijman, 2016). These cooperatives were initially created to overcome the abuse of power by downstream middlemen, distributors, or manufacturers (Bijman & Hendrikse, 2004). However, these cooperatives still face a major challenge because their restricted local boundaries limit their capacity to achieve the scale required to fairly and competitively relate with large food processors and retailers (Bijman, 2016). The federated structure helps smaller local cooperatives to overcome this challenge (Zeuli & Cropp, 2004). A federated cooperative is a cooperative of cooperatives with a supraregional, national, and even international scope of membership. Economies of scale and stronger bargaining power serve to fulfill the members' interests without sacrificing their basic autonomy (Bijman et al., 2012).

The different nature of each type of cooperative membership is a contextual issue that influences the expected effect of every governance mechanism upon opportunism. In particular, compared with members of federated cooperatives, members of first-tier marketing cooperatives are geographically closer to each other and to the cooperative's facilities and management. Cooperative members are also culturally more homogeneous as they share local idiosyncrasies. Even the economic size of the members is more similar, as members generally specialize in one produce and are all influenced by the same pattern of local land distribution. This makes detecting opportunism easier in first-tier cooperatives. Once detected and denounced, members will suffer higher aftermaths in terms of losing face and damaging their reputation among their neighboring peers with whom interaction goes beyond the cooperative (Chung & Jin, 2011). Members of first-tier cooperatives are embedded in a tighter network of mutual contacts. People relate to each other not only as members of the cooperative but also through shared relationships with third parties in business-related contexts (e.g., irrigation user communities, financial institutions, machinery suppliers, or business and tax advisors), local government-related institutions (e.g., city hall or water councils), and even social and religious events (e.g., town festivities, religious events, or Holy Week confraternities). In a larger extent than in federated cooperatives, if a first-tier cooperative member acts opportunistically, other cooperative members and the management can spread the word through the network of mutual contacts (Jones et al., 1997). Wuyts and Geyskens (2005) found that embeddedness increases the effectiveness of governance mechanisms to reduce opportunism. In addition, the social norms developed in embedded groups constitute a microlevel social contract, understood as a set of formal and informal norms of what is right and wrong. Heide et al. (2007) found higher effectiveness of monitoring on reducing opportunism when a microlevel social contract is present. These issues enhance the effectiveness of governance on curbing members' opportunism in first-tier cooperatives compared to federated marketing cooperatives. Thus, low intensity of use of governance mechanisms will be sufficient to curb effectively the opportunism of first-tier marketing cooperatives' members.

In the case of federated cooperatives, their members are other first-tier cooperatives whose managers and board of directors report to their first-tier members. Thus, members of these cooperatives will feel more committed to the reputational impact of their acts upon the first-tier cooperative's members than to the reputational impact among other partners at the federated cooperative. The members of the first-tier cooperatives could even appreciate opportunism deeds in the federated cooperative as long as it generates benefits for them, and then the reputation of managers and board of directors will be enhanced. Moreover, higher distances reduce social embeddedness among members of federated cooperatives, increase information unverifiability (Luo, 2007) and reduce the effectiveness of information processing required to detect and enforce opportunistic behaviors (Antia et al., 2006). Thus, intensive utilization of a governance mechanism is required to effectively curb the opportunism of federated cooperative members.

Thus, we propose the following hypothesis:

Governance mechanisms (i.e., monitoring, hostages, economic rewards, selection, and socialization) curb opportunism of members of agricultural marketing cooperatives differently depending on the type of membership: (a) In first-tier marketing cooperatives, mechanisms will be effective at low intensity with diminishing effects as intensity increases (i.e., saturation effect); (b) In federated marketing cooperatives, mechanisms will be effective at high intensity (i.e., threshold effect).

3 | METHODOLOGY AND RESULTS

3.1 | Data collection

We collected data from first-tier Spanish agricultural marketing cooperatives. In Spain, there are approximately 3700 first-tier agricultural cooperatives (Cooperativas Agro-alimentarias, 2019). We utilized several directories, web search, and telephone inquiries, and were able to build a census of 2122 cooperatives with contact information.

We developed two questionnaires: one addressed cooperatives not member of one federated marketing cooperative, and another to cooperatives member of a federated one. Both surveys had the same structure and measures, although they differed with respect to the subject on which information was collected. For the first type, questions referred to their relationship with the farmers' members. For the second type, questions referred to the relationship of the federated cooperative with its membership. While developing the questionnaire, we conducted in-depth interviews with managers of four cooperatives that allowed us to adapt the questions and measures to the specific problems and language of cooperative managers.

We used an online platform to host the questionnaire. General managers, or the equivalent top managing position of the cooperative, were first contacted via email with an invitation letter explaining the aim of the study. We sent out the invitation emails for the survey in rounds of 200 emails per week. A week after sending the questionnaire, a follow-up telephone call was made to the contacts who had not responded. The response rate before the follow-up averaged around 1% across all rounds and increased after the phone call to 5%–10%. In this first wave, we collected 190 questionnaires. Later, in a second wave, we contacted, for the second (and last) time, the cooperatives that had not yet responded, asking them to complete the questionnaire. We collected 32 additional questionnaires. Once we completed the data collection, the average response rate was 10%. We finally obtained a total of 222 valid surveys, of which 123 belonged to cooperatives not associated with a federated cooperative and 99 belonged to cooperatives that are members of a federated cooperative.

We evaluated nonresponse bias by using extrapolation and comparison of the characteristics of our sample with known population data (Armstrong & Overton, 1977). We checked the differences in the responses in the first and second waves. For over 60 variables used in our data analysis, the two-sample Kolmogorov-Smirnov test for equality of distributions yielded only one significant difference (at $p < 0.05$) between the two subsamples¹. Moreover, our sample presented similar characteristics to those observed for the agricultural cooperatives sector in Spain in terms of factors such as average revenues (7.0 million € vs. 7.6 million € for all cooperatives in Spain), the number of members (406 vs. 314), and the distribution of the sample according to the cooperative's product specialization, with oil (34.2% vs. 33.9% in Spain), fruits and vegetables (29.7% vs. 24%), and wine (22.5% vs. 19.97%) standing out as the main products (Table 1). These results suggest that nonresponse bias is not an issue in our data. The general managers of our sample of cooperatives are mostly full-time professionals (68.2% of the cases), with university degrees (50%), and male gender (84.7%). They also show, on average, a long experience, both in the cooperative (17.6 years) and in the position of general manager (11.8 years).

As data were collected from a single respondent, common-method variance might pose a problem by inflating the strength of the relationships between the concepts. We tested its presence with Harman's one-factor test (Podsakoff et al., 2003). We used factor analysis over the set of items of our conceptual model (listed in Table 2). The unrotated factor solution showed multiple factors (6) and none of them accounted for the majority of the covariance (23% the largest). Moreover, using confirmatory factor analysis (CFA), we compared the fit of a single-factor model specification ($\chi^2 = 1664.78$ for 230 *df*) and of our measurement model (353.95 for 211 *df*).

¹In particular, one of the items measuring socialization: "Keeps frequent contacts with members."

TABLE 1 Sample characteristics

Cooperative's characteristics	Average/%
Members	406
Revenues (€)	7.0 million
% Coops. that commercialize	
Fruits and vegetables	29.7%
Wine	22.5%
Oil	34.2%
Dairy	8.1%
Livestock	6.8%
Cereals	16.7
Nuts	5.9
Fodder	2.3
Table olives	1.8
Other	9.0
% of coops. associated with a federated coop.	44.6%
% of produce commercialized by the federated coop.	72.9%
General manager's characteristics	Average/%
Full-time occupation	68.2%
Education	
No official degree	0.5%
Primary school	4.5%
High school	20.7%
Professional training	22.1%
University graduate	50.0%
Other	2.3%
Gender	
Male	84.7%
Female	15.3%
Years in the cooperative	17.6
Years as General Manager	11.8

χ^2 difference test (Anderson & Gerbing, 1988) yielded a significantly worse fit for the single-factor model (1310.83 for 19 *df*, $p < 0.0001$). Thus, common-method bias was not a concern.

3.2 | Measures

We based our measures on the existing literature, adapting them to the context of agricultural marketing cooperatives. We used the dimensions considered by Wathne and Heide (2000) to develop a scale of members' opportunism (see Table 2), covering the four types of opportunism: one item each for violation, refusal to adapt, and forced renegotiation, and three items for evasion, including free riding (Rokkan & Buvik, 2003) and shirking (Taggar & Neubert, 2008).

TABLE 2 Measurement scales^a

Item	Stand. loading	t value
OPPORTUNISM. SCR ^b = 0.91; Wathne and Heide (2000), Rokkan and Buvik (2003), Taggar and Neubert (2008)		
Members of the cooperative... (where 1 = total disagreement; and 7 = total agreement):		
Benefit from other members' efforts without assuming the corresponding risks and costs (EVASION)	0.62	9.82
Benefit from cooperative's investments, but they are reluctant to contribute to them (EVASION)	0.74	12.51
Do not carry out their obligations harming the [federated] cooperative (EVASION)	0.85	15.36
Perform actions for their own interest even though they can be harmful for the general interest (VIOLATION)	0.82	14.68
Are reluctant to adapt if it does not benefit them directly, even when it harms general interest (REFUSAL TO ADAPT)	0.79	13.80
Try to take advantage of new situations, even when it harms general interest (FORCED RENEGOTIATION)	0.87	15.93
MONITORING. SCR = 0.83; Challagalla and Shervani (1996)		
(Your cooperative...) [The federated cooperative...] (where 1 = total disagreement; and 7 = total agreement)		
Would take legal actions if a member breaches a treaty	0.50	7.46
Establishes norms to control (members) [cooperatives]	0.80	13.68
Control and supervises its (members') [cooperatives'] behaviors	0.86	15.11
Makes the (members) [cooperatives] know if they fulfill their obligations in an appropriate way	0.66	10.45
Punishes (members) [cooperatives] that do not fulfill their obligations	0.68	10.82
HOSTAGES. Williamson (1975), Wathne and Heide (2004)		
From 1 (total disagreement) to 7 (total agreement) rate the following statements.		
Leaving the [federated] cooperative represents for members to renounce to important investments	1.00 ^c	-
ECONOMIC REWARDS. Wathne and Heide (2000)		
(Your cooperative...) [The federated cooperative...] (where 1 = total disagreement; and 7 = total agreement)		
Has formal mechanisms to reward members' behaviors	1.00 ^c	-
SELECTION. SCR = 0.66; Wathne and Heide (2000)		
(Your cooperative...) [The federated cooperative...] (where 1 = total disagreement; and 7 = total agreement)		
Evaluates in detail the values of any candidate for member before admission	0.98	5.56
Subjects to a trial period the behaviors, e.g., honesty of the candidate	0.38	4.16
SOCIALIZATION. SCR = 0.88; Kale et al. (2000)		
(Your cooperative...) [The federated cooperative...] (where 1 = total disagreement; and 7 = total agreement)		
Keeps frequent contacts with (members) [cooperatives]	0.74	12.44
Cooperates with the (members) [cooperatives] in an effective way	0.92	17.40
Has a close, personal interaction with (members) [cooperatives] at multiple levels	0.87	15.92
Develops mutual trust with its (members) [cooperatives]	0.65	10.54

(Continues)

TABLE 2 (Continued)

Item	Stand. loading	t value
ENVIRONMENTAL UNCERTAINTY. SCR = 0.75; Achrol and Stern (1988)		
From 1 (total disagreement) to 7 (total agreement) rate the following statements.		
It is very difficult to predict the volumes of production that the market will demand	0.80	12.35
It is very difficult to predict market trends	0.92	14.42
The selling prices of our product are very changing	0.40	5.79
The behavior of competitors is highly unpredictable	0.43	6.30

Note: Fit indexes: $\chi^2(211 df) = 353.95$; CFI = 0.96; RMSEA = 0.059; NNFI = 0.95; GFI = 0.87; SRMR = 0.053.

Abbreviations: CFI, comparative fit index; GFI, goodness-of-fit index; NNFI, non-normed fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residuals.

^aThe questionnaire addressed to cooperatives integrated in a federated uses text in squared brackets, which is substituted with text in parenthesis in the questionnaire addressed to cooperatives interviewed about their farmer-members.

^bScale composite reliability ($\rho_c = (\sum \lambda_i)^2 \text{var}(\xi) / [(\sum \lambda_i)^2 \text{var}(\xi) + \sum \theta_{ii}]$; Bagozzi & Yi, 1988).

^cParameter fixed to 1.00.

As regards the governance mechanisms that allow firms to manage opportunistic intentions, based on Challagalla and Shervani (1996), the monitoring scale measured the extent to which goals are set, supervision and evaluation are done, feedback is communicated, and corrective actions are administered (see Table 2). We measured the use of hostages by quantifying the members' investments in specific assets. Specific assets are frequently cited as hostages. This is because their economic value for the investor (in our case the cooperative's member) lies on the quality of the relationship with its partner (in our case the cooperative) (Dyer & Singh, 1998). One item measures the use of economic rewards by inquiring about the existence of formal mechanisms in the cooperative to reduce the payoffs from opportunistic behaviors through rewards (Wathne & Heide, 2000) (Table 2).

Selection efforts are implemented through screening and qualification programs (Wathne & Heide, 2000). In our interviews with managers, we confirmed the use of evaluation procedures before admission to the cooperative and the use of trial periods. Thus, we used two items to measure these alternatives (Table 2). Finally, we based the measure of socialization on the scale developed by Kale et al. (2000), consisting of four items measuring the amount and quality of the interactions and the presence of trust (Table 2).

To assess the unidimensionality of the scales, we conducted a CFA (Anderson & Gerbing, 1988) (Table 2). Goodness-of-fit indices indicated adequate model fit (Hu & Bentler, 1999). Reliability was assessed based on the scale's composite reliability. The indicator loadings were high and statistically significant, showing convergent validity (Bagozzi & Yi, 1988). Finally, we also tested for discriminant validity, with the confidence interval of the correlation between any pair of constructs (ϕ estimate $\pm 2 \times$ standard error) never including 1 (or -1) (Anderson & Gerbing, 1988) (see Table 3).

3.3 | Model estimation and results

For each governance mechanism, we tested our hypothesis by estimating the following ordinary least squares (OLS) regression model for each of the five governance mechanisms (i.e., monitoring, hostages, economic rewards, selection, and socialization).

$$\text{OPPO} = \beta_0 + \sum_{i=m}^n \gamma_i \text{CV}_i + \beta_1 \text{GOV_MECH} + \beta_2 \text{TYPE_MEMB} + \beta_3 \text{GOV_MECH}^2 + \beta_4 \text{GOV_MECH} \times \text{TYPE_MEMB} \\ + \beta_5 \text{GOV_MECH}^2 \times \text{TYPE_MEMB} + e$$

TABLE 3 Constructs means, standard deviation, and correlations

Construct	Mean	Standard deviation	Correlations (ϕ estimates below the diagonal\standard errors above the diagonal)					
			1	2	3	4	5	6
1. Opportunism	3.81	1.57		0.07	0.07	0.07	0.08	0.07
2. Monitoring	4.97	1.28	-0.13		0.07	0.07	0.09	0.05
3. Hostages	4.27	1.87	-0.13	0.18		0.07	0.07	0.07
4. Economic rewards	3.99	2.00	-0.01	0.44	-0.05		0.08	0.07
5. Selection	3.79	1.53	-0.24	0.33	0.06	0.28		0.07
6. Socialization	5.16	1.13	-0.18	0.67	0.29	0.31	0.33	

where OPPO, cooperative member's opportunism, CV, control variables, GOV_MECH, governance mechanism, and TYPE_MEMB, dummy variable equal to 0 for first-tier cooperative membership and 1 for federated cooperative membership.

As control variables, we considered variables that may influence opportunism besides the governance mechanism. The cooperative's productive specialization implies a specific type of cooperative, of its members and of the relationship between them. We included one dummy variable for each of the two most representative productive sectors, that is, "fruits and vegetables" and "oil." Membership characteristics, apart from the type represented by their first-tier or federated status, may also be relevant, and therefore, were considered. The number of members in the cooperative is one such characteristic. Larger memberships generally imply more loosely coupled relationships, thus more open to the display of opportunism by its members. Membership heterogeneity was the second characteristic considered as a control variable. Höhler and Kühn (2018) highlight heterogeneity as an extremely problematic factor for cooperatives. Since the nature of the members of first-tier versus federated cooperatives is different (farmers vs. other cooperatives), the items used for measuring heterogeneity are also different. Based on the suggestions by Iliopoulos and Cook (1999) and Österberg and Nilsson (2009), we developed a list of items (see Appendix 1) adapted to the specific characteristics of the two types of memberships (e.g., members' age and degree of education for first-tier cooperatives memberships and size and economic solvency for federated memberships). Environmental uncertainty may also affect opportunism (Hawkins, Knipper, et al., 2008; Li et al., 2018) as cooperative members may prioritize their own and more certain short-term goals at the expense of the cooperative's more distant and uncertain goals. Table 2 lists the items used to measure this variable (e.g., "it is very difficult to predict the volumes of production that the market will demand," "the selling prices of our product are very changing"). Finally, we included two control variables about the cooperative's manager: whether they are a full-time professional manager and their level of education. They may act as a proxy for the professionalism of the cooperative's management, which may play a role in determining the actions implemented to curb opportunism in the cooperative.

To reduce the risk of multicollinearity caused by the presence in the same equation of main, quadratic, and interaction terms, we used the mean-centering method proposed by Jaccard et al. (1990) and Aiken and West (1991). The maximum VIF value obtained in the five equations is 5.89, which is well below the threshold of 10, suggesting that multicollinearity is not a problem in our model (Hair et al., 1995).

Endogeneity results in noncompliance with a crucial assumption of OLS (Wooldridge, 2002). In presence of endogeneity, OLS estimates are inconsistent and biased. In this case, the use of instrumental variables (IV) is a preferred alternative. However, in a nonendogeneity scenario, OLS is consistent and more efficient (Davidson & Mackinnon, 1993; Wooldridge, 2008). Hence, it is not reasonable to use IV unless tests suggest that the model suffers from endogeneity (Wooldridge, 2002). Similar to Hirsch et al. (2020), we applied a Durbin-Wu-Hausman (DWH) test as it is described by Davidson and Mackinnon (1993, p. 237–242). It consists of an augmented regression test, "which can be easily conducted by including the residuals of each endogenous right-hand side

variable, as a function of all exogenous variables, in a regression of the original model” (Li & Liu, 2005, p. 397)². The results showed that for each governance mechanism endogeneity is not a problem (Appendix 2). We, therefore, decided to use OLS rather than IV regression.

Table 4 shows the results of the regression analyses. Since governance enters the function with four terms (main effect, quadratic, and two interactions with the type of membership), we tested its relationship with opportunism by applying the simple slope approach suggested by Aiken and West (1991). The simple slope of the regression of opportunism on governance, that is, the marginal effect of governance on opportunism, is the first (partial) derivative of the overall regression equation at the value of governance, due to the quadratic terms, and at the value of the type of relationship, owing to the interaction terms:

$$\frac{\partial \text{OPPO}}{\partial \text{GOV_MECH}} = \beta_1 + 2\beta_3 \text{GOV_MECH} + \beta_4 \text{TYPE_MEMB} + 2\beta_5 \text{GOV_MECH} \times \text{TYPE_MEMB}$$

Calculation of the marginal effect requires setting values for GOV_{MECH} and TYPE_{MEMB}. Since the variables of governance mechanisms are mean-centered, following Aiken and West's (1991) recommendation, we use a value of 1 standard deviation for high levels of use of each type of governance and -1 standard deviation for low levels. The type of membership has a value of 0 for first-tier cooperative membership and one for federated cooperative membership. We computed the significance of the marginal effect by calculating the standard error of the estimate following the method proposed by Jaccard et al. (1990) and Aiken and West (1991).

Figure 1 presents a visual representation of the shape of the relationship of monitoring and opportunism. Using the unstandardized coefficients presented in Table 4, it plots the estimated opportunism at different levels of monitoring and for each type of cooperative. Besides, calculating $\partial \text{OPPO} / \partial \text{Monitoring}$ ($= -0.20 + 2 \times 0.27 \times \text{Monitoring} + 0.05 \times \text{TM} + 2 \times (-0.24) \times \text{Monitoring} \times \text{TM}$) allows us to obtain the size of the slope. Numeric data presented in Table 5 show the value of the slope for low and high levels of monitoring and for each type of membership, along with its significance. We also tested the difference of values between low and high levels (the nonlinearity postulate) and between first-tier and federated cooperatives (the postulate about the type of cooperative membership as a moderator).

Our findings show that, in first-tier cooperatives, opportunism decreases when monitoring increases, but only when monitoring is at low levels. At high levels of monitoring, monitoring, and opportunism presents a positive relationship, that is, higher levels of monitoring are associated with higher opportunism. This lends evidence to the dark side of this governance mechanism when it is used in excess. The slope of the relationship between monitoring and opportunism changes from -0.88 ($p < 0.01$) at low levels to +0.48 ($p < 0.05$) at high levels, a highly significant change of 1.36. This provides evidence on the saturation hypothesis of this governance mechanism. Moreover, the change in effect goes beyond saturation, displaying a U-shaped form where, at high levels, increasing monitoring is related to higher opportunism. That is, a more extreme manifestation of the dark side of using monitoring in first-tier cooperatives.

In the case of federated cooperatives, although the relationship between monitoring and opportunism is negative for both low and high levels of monitoring, it is never significant. Thus, it seems that this governance mechanism is ineffective in controlling the opportunism of members of federated cooperatives. The difference in slopes observed for first and federated memberships is significant, both for low (0.66; $p < 0.05$) and high levels (-0.56; $p < 0.10$). This confirms that the contextual issue represented by the type of membership influences how monitoring and opportunism relate in agricultural cooperatives.

Figure 2 shows the graphical representation of how hostages, in the form of investments made by the members on specific assets, relate to opportunism. The marginal analysis presented in Table 5 for hostages shows no significant relationship in the case of first-tier memberships, regardless of the level of use of hostages. The data for federated

²Note that if a governance mechanism presents problems of endogeneity, then all interaction terms that include them must be treated as an endogenous regressor (Ebbes et al., 2016). That is why we check endogeneity for each possible endogenous variable: *gov_mech*, *gov_mech*², *gov_mech* × *TR*, and *gov_mech*² × *TR*.

TABLE 4 Results of the ordinary least squares regression analysis for the effects of every governance mechanism on opportunism

	Monitoring Unst. coeff (t value)	Hostages Unst. coeff (t value)	Economic rewards Unst. coeff (t value)	Selection Unst. coeff (t value)	Socialization Unst. coeff (t value)
Constant	2.03 (2.75)*	2.01 (2.60)*	2.14 (2.76)*	2.49 (3.34)*	2.63 (3.52)*
Control variables					
Product fruits and veg.	0.44 (2.04)**	0.33 (1.50)	0.35(1.60)	0.31 (1.45)	0.36 (1.64)
Product oil	-0.01 (-0.06)	-0.11 (-0.50)	-0.07 (-0.29)	-0.07 (-0.30)	-0.09 (-0.43)
# of members	0.00 (0.43)	0.00 (0.39)	0.00 (0.14)	0.00 (0.00)	0.00 (0.32)
Heterogeneity	0.43 (3.81)*	0.48 (4.15)*	0.50 (4.44)*	0.44 (3.90)*	0.40 (3.49)*
Environm. uncertainty	0.13 (1.64)***	0.15 (1.73)***	0.12 (1.37)	0.12 (1.41)	0.13 (1.50)
Manager's full-time job	-0.42 (-1.99)**	-0.35 (-1.64)***	-0.36 (-1.62)	-0.39 (-1.79)***	-0.47 (-2.18)**
Manager's education	-0.00 (-0.04)	-0.01 (-0.10)	-0.00 (-0.08)	-0.04 (-0.39)	-0.04 (-0.41)
GOV_MECH	-0.20 (-1.64)***	-0.02 (-0.23)	-0.02 (-0.31)	0.03 (0.26)	-0.19 (-1.36)
TYPE_MEMB (TM)	-0.75 (-3.00)*	-0.40 (-1.27)	-0.83 (-2.67)*	-0.58 (-2.36)**	-0.78 (-3.14)*
GOV_MECH ²	0.27 (3.08)*	0.04 (0.94)	0.02 (0.60)	0.09 (1.68)***	0.11 (1.05)
GOV_MECH × TM	0.05 (0.29)	-0.03 (-0.30)	-0.01 (-0.10)	-0.24 (-1.53)	-0.15 (-0.74)
GOV_MECH ² × TM	-0.24 (-2.21)**	-0.14 (-2.08)**	-0.02 (-0.40)	-0.15 (-1.86)***	-0.19 (-1.48)
F value (probability)	5.71 (0.00)	4.71 (0.00)	4.28 (0.00)	5.25 (0.00)	5.15 (0.00)
R ²	0.25	0.22	0.20	0.24	0.23
Adj. R ²	0.21	0.17	0.16	0.19	0.19

* $p < 0.01$.** $p < 0.05$.*** $p < 0.10$.

cooperatives are significantly different for low (0.50; $p < 0.05$) and high (-0.56; $p < 0.05$) levels of hostages. In the case of federated cooperatives, hostages and opportunism are positively related at low levels of hostages (0.35; $p < 0.10$). However, when investment on specific assets is high, the sign of the slope changes to negative and significant (-0.38; $p < 0.10$), displaying an inverted U-shaped form (-0.73; $p < 0.05$).

Figure 3 and the corresponding results displayed in Table 5 show that, in our data, economic rewards are unrelated to membership's opportunism both for low and high usage and for first-tier and federated cooperatives.

Regarding selection, Figure 4 and Table 5 show that, as expected, it only has a negative relationship with opportunism in federated cooperatives when it is implemented at high levels (-0.39; $p < 0.05$).

Finally, socialization is negatively related to opportunism at low levels in first-tier cooperatives (-0.44; $p < 0.10$) and at high levels in the case of federated cooperatives (-0.52; $p < 0.10$) (see Figure 5 and Table 5).

4 | CONCLUSIONS, DISCUSSION, AND LIMITATIONS

4.1 | Conclusions

Our results show the differential effectiveness of each governance mechanism on preventing opportunism when they are applied at different levels and in different types of cooperatives.

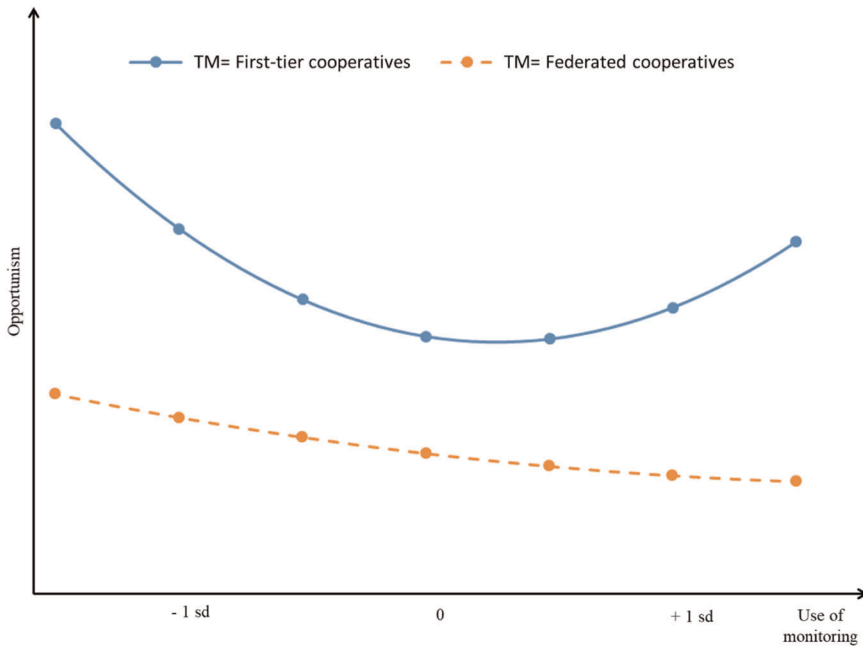


FIGURE 1 Plotting of the relationship between monitoring and opportunism [Color figure can be viewed at wileyonlinelibrary.com]

A key novel finding is the ineffectiveness of *economic rewards* on curbing opportunism, regardless of the level of use or the type of cooperative. Marketing cooperatives are social economy firms where members are simultaneously suppliers and owners. Members receive income from the cooperative as payment for the produce supplied plus their share of the profits generated. Moreover, as owners of the cooperative, members ask for information about the formation of liquidation prices and the final distribution of profits. All this must be done with transparency and an open books policy to avoid feelings of unfairness and the consequent resentment (Hernández-Espallardo et al., 2013). However, the economic reward for compensating non-opportunistic behaviors may complicate the price liquidation process and introduce new confounding elements. That is, the potential positive influence is compensated as the presence of the explicit and formal reward might motivate the distortion of information or sidetracking the attention away from not explicitly considered opportunistic activities.

For its part, *monitoring* seems to be the governance mechanism most related to opportunism in first-tier cooperatives. Thus, it is negatively related to opportunism in first-tier cooperatives when it is not used at high levels. When monitoring is applied at low levels, the closeness and embeddedness of members in first-tier cooperatives its effectiveness on curbing opportunism. However, after a saturation point, at high levels of utilization, monitoring displays its full dark side potential. Its intensive use undermines farmers' autonomy, entrepreneurial vocation, and mutual trust and commitment, thereby breeding the ground for opportunism (Cechin et al., 2013). Monitoring does not have a significant relationship with the opportunism of members of federated cooperatives. This shows how ineffective it is when distance increases and social embeddedness decreases, thereby hampering the establishment of precise standards of behaviors and access to accurate information to ascertain their compliance.

Hostages in the form of members' investments on specific assets do not show a significant relationship with opportunism in first-tier cooperative memberships. The multidimensional nature of the farmers as not only suppliers, but also owners and decision-makers of this social economy firm plays a

TABLE 5 Marginal analysis of the effect of governance mechanisms on opportunism

Monitoring				
$\frac{\partial \text{Opportunism}}{\partial \text{Monitoring}}$		Level of use of monitoring		Test of difference of effect between low and high levels (High-Low)
		Low	High	
Type of membership	First-tier	-0.88 ^a	0.48 ^b	1.36 ^A
	Federated	-0.21	-0.08	0.14
Test of difference of effect between types of membership (Federated – First-tier)		0.66 ^B	-0.56 ^{††}	
Hostages				
$\frac{\partial \text{Opportunism}}{\partial \text{Hostages}}$		Level of use of hostages		Test of difference of effect between low and high levels (High-Low)
		Low	High	
Type of membership	First-tier	-0.15	0.18	0.33
	Federated	0.35 [†]	-0.38 [†]	-0.73 ^B
Test of difference of effect between types of membership (Federated – First-tier)		0.50 ^B	-0.56 ^B	
Economic rewards				
$\frac{\partial \text{Opportunism}}{\partial \text{Economic rewards}}$		Level of use of economic rewards		Test of difference of effect between low and high levels (High-Low)
		Low	High	
Type of membership	First-tier	-0.12	0.07	0.19
	Federated	-0.24	0.18	0.42
Test of difference of effect between types of membership (Federated – First-tier)		-0.12	0.11	
Selection				
$\frac{\partial \text{Opportunism}}{\partial \text{Selection}}$		Level of use of selection		Test of difference of effect between low and high levels (High-Low)
		Low	High	
Type of membership	First-tier	-0.26	0.31	0.57 ^B
	Federated	-0.04	-0.39 ^B	-0.35
Test of difference of effect between types of membership (Federated – First-tier)		0.22	-0.70 ^A	
Socialization				
$\frac{\partial \text{Opportunism}}{\partial \text{Socialization}}$		Level of use of socialization		Test of difference of effect between low and high levels (High-Low)
		Low	High	
Type of membership	First-tier	-0.44 [†]	0.07	0.51
	Federated	-0.15	-0.52 [†]	-0.37
Test of difference of effect between types of membership (Federated – First-tier)		0.29	-0.59 [†]	

Two-tailed significance: ^a $p < 0.01$, ^b $p < 0.05$, [†] $p < 0.10$.

One-tailed significance: ^A $p < 0.01$, ^B $p < 0.05$, ^{††} $p < 0.10$.

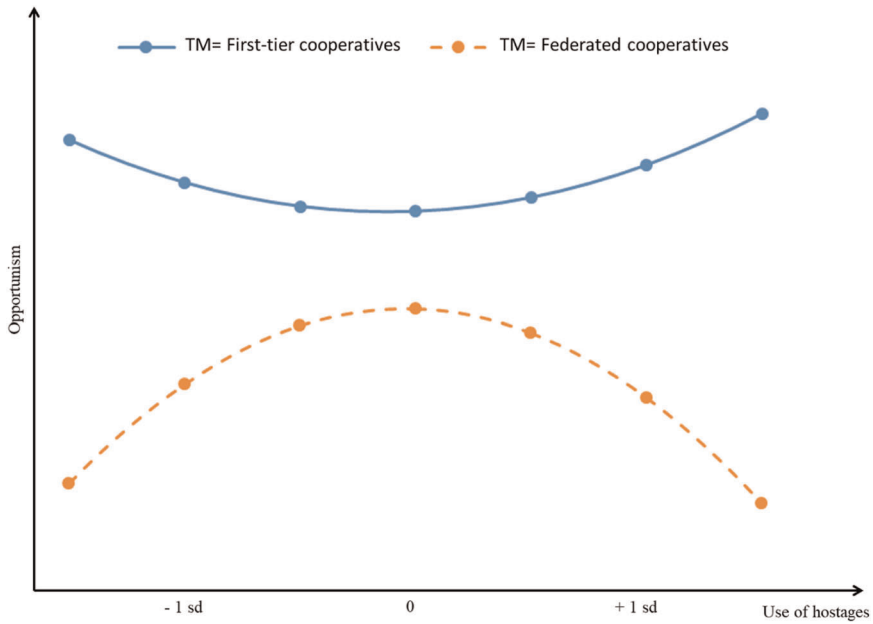


FIGURE 2 Plotting of the relationship between hostages and opportunism [Color figure can be viewed at wileyonlinelibrary.com]

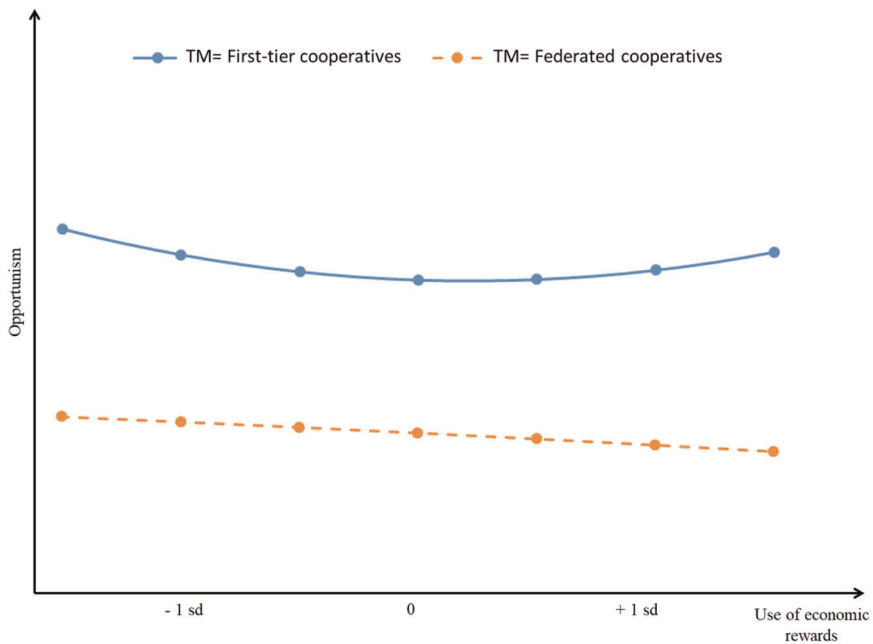


FIGURE 3 Plotting of the relationship between economic rewards and opportunism [Color figure can be viewed at wileyonlinelibrary.com]

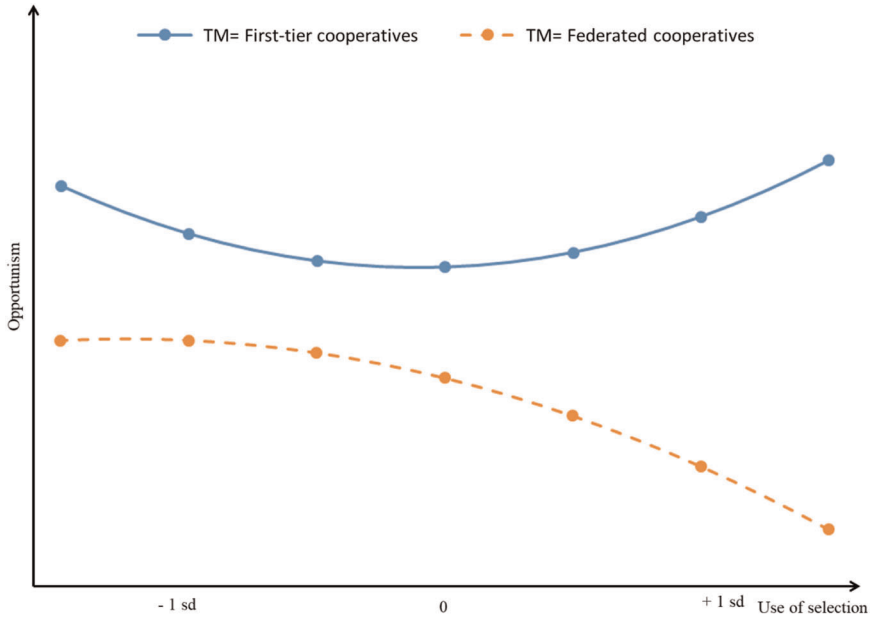


FIGURE 4 Plotting of the relationship between selection and opportunism [Color figure can be viewed at wileyonlinelibrary.com]

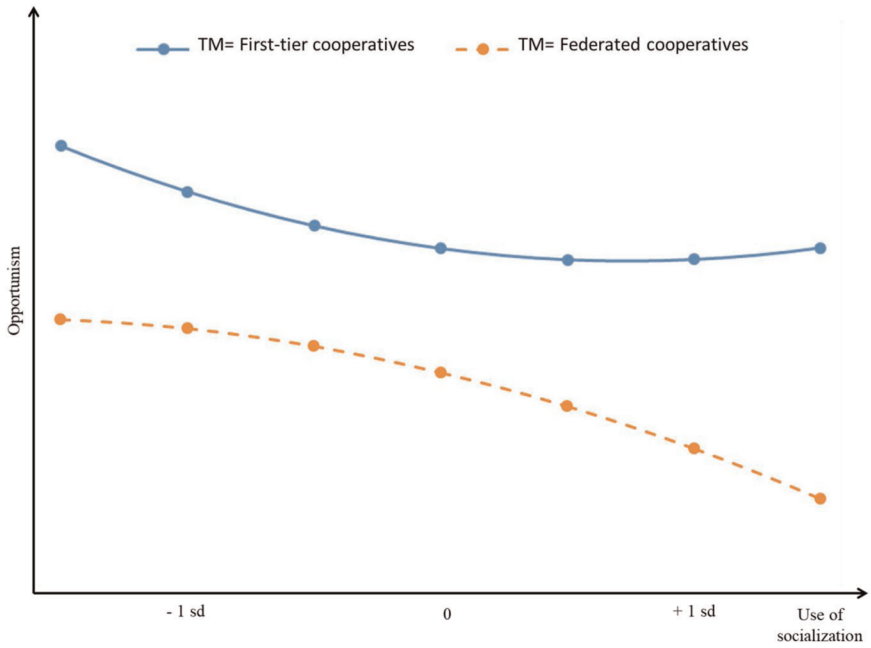


FIGURE 5 Plotting of the effect of socialization on opportunism [Color figure can be viewed at wileyonlinelibrary.com]

decisive role. This ownership characteristic acts as a legitimizing mechanism for farmers as, when they invest in specific assets, they consider themselves to be safeguarded as the threat of ending the relationship is less credible.

Compared with first-tier cooperatives, federated cooperative memberships are more loosely coupled. This makes the threat of ending the relationship more credible. Thus, at high levels of hostages, very dependent first-tier members reduce the impulse to behave opportunistically, thereby protecting their investments from the risk of being ousted by the federated cooperative. Interestingly, low levels of hostages enhance the opportunistic tendencies of first-tier member cooperatives. At low levels of hostages, they are a non-credible way of deterring opportunism. In this type of cooperative, where closeness and embeddedness are lower, and members act by paying attention first to their first-tier farmer members, specific investments, when made at low levels, will be carried out only if they have immediate return. Opportunism may induce this immediate return. Opportunism in the federated cooperative favoring first-tier members is a viable alternative as the risk of losing face is lower. Furthermore, its potential drawbacks of losing face with other federated members could be accompanied by an increased reputation among their more salient stakeholders: the cooperative's farmers.

Selection is also a mechanism generally cited in the literature as an ex-ante way of reducing opportunism. Its actual value has been barely empirically analyzed in the literature. Here, we found that this mechanism is negatively related to opportunism only when it is used by federated cooperatives and, as expected when it is implemented at high levels. This suggests that, in first-tier cooperatives, cultural, produce, and economic uniformity is high from the beginning due to the proximity of its members and personal and social durable links. However, in federated cooperatives, previous selection, when implemented with enough intensity, contributes to improving membership homogeneity with effective results on curbing members' opportunism.

Finally, *socialization* behaves as hypothesized. It is effective in first-tier cooperatives at low levels and in federated cooperatives at high levels. There is extensive literature on the positive use of socialization on enhancing trust and commitment and reducing opportunistic tendencies. However, we found that the mechanism is effective at different levels depending on the relational setting of the cooperatives' membership. Socialization is effective at low levels when social embeddedness is already high, as in first-tier cooperatives. As the level rises, this leads to a saturation point after which socialization becomes ineffective. However, in federated cooperatives where social embeddedness is low, this variable becomes effective only after a threshold point when socialization is clearly perceived by all members and is sufficiently credible.

4.2 | Discussion

The agricultural cooperative system is under continuous scrutiny, and members' opportunism is a relevant factor that affects the cooperatives' competitiveness. The TCE literature portrays opportunism in interorganizational relationships as an endogenous variable that can be managed with monitoring, incentives, selection, and socialization. However, our results show that the efficiency of these mechanisms is not universal, with variations depending on the intensity of use and the characteristics of the relationship. This represents an original contribution to the present state of the art. We observe and justify that a mechanism can not only serve to curb opportunism but can also be non-influential or even increase opportunism according to the contextual setting. Thus, our results open the door to the reconciliation of studies with confirmatory and non-confirmatory evidence.

To obtain a fine-grained understanding of the phenomenon, we explore the differences between first-tier marketing cooperatives, which are farmers' cooperatives, and federated marketing cooperatives, which are cooperatives of first-tier marketing cooperatives. In both, managing members is a critical issue for competitiveness. In this study, we found that managing the opportunism of marketing cooperatives' members is a complex and heterogeneous phenomenon. Every mechanism that can be used does not necessarily function in the same way in every type of cooperative.

This is of relevance for managers. First-tier marketing cooperative management should use monitoring and socialization. Regarding monitoring, they must pay attention to not abuse it. When market pressures require intensifying the use of monitoring over its inflection point, where it starts to increase the opportunistic disposition of the cooperative's members, managers must acknowledge these drawbacks and try to counteract them. For example, training is an input control that reduces the need for high levels of monitoring and has shown its efficacy in marketing cooperatives (Hernández-Espallardo & Arcas-Lario, 2003). Moreover, first-tier marketing cooperatives' managers may use socialization to reduce opportunism. Low-intensity socialization is more advisable as it reduces opportunism until a saturation point. Manager's doors should be open for farmers: Managers should personally attend to farmers' concerns with an open and honest stance.

The relevance of federated marketing cooperatives in the market is currently debated (Bijman et al., 2012). We find that federated cooperative memberships must be managed differently compared with first-tier cooperative memberships. In federated cooperatives monitoring is ineffective and the use of hostages in the form of members' investments in specific assets, selection, and socialization must be intensive enough to be perceived, deemed credible and, be effective. In fact, the use of hostages without sufficient compromise may be detrimental, as it increases opportunism, and should be avoided.

Thus, our results provide evidence that managing opportunism is costlier at federated cooperatives compared to first-tier marketing cooperatives. Transaction costs derived from the problem of opportunism make that the advantage of size initially characterizing federated cooperatives start to fade out. This could be a reason behind the observed evolution of some federated cooperatives into nonfederated, that is, integrated structures (Soegaard, 1994). In addition, as cooperatives evolve toward new-generation forms, managers must understand that this will impact the closeness and embeddedness of their base of farmers-suppliers. Hence, managing their opportunism will require the strongest emphasis (Harris et al., 1996). Nonetheless, further research should test these assumptions with empirical data on this new type of cooperative.

4.3 | Limitations

This study has limitations. The lack of empirical research on opportunism in the agricultural cooperative setting does strengthen the contribution of this study. However, the empirical nature of our study gives rise to some of its main limitations. First, this study is based on a sample of Spanish agricultural marketing cooperatives, and thus, limits the generalizability of our conclusions. Second, we used information from interviewees that informed us about their perceptions, opinions, and attitudes. This subjects our data to the risk of measurement error, although we tried to minimize it by selecting valid measures supported by the literature. Third, we collected data that represent a static picture of the situation in a particular moment of time. Due to the cross-sectional nature of our data, claims about causality should be taken with caution. Although the literature generally presents the relationship between governance and opportunism as a cause-effect relationship (e.g., Brown et al., 2000; Handley & Angst, 2015; Paswan et al., 2017), only longitudinal or experimental data can statistically support causality. Longitudinal studies would allow a more precise answer to how the implementation of any governance action actually affects opportunism. Fourth, the study deepens the nature of the influence of each governance mechanism on opportunism by studying nonlinear effects moderated by one contextual variable: the type of cooperative. It does so for the main five managerial mechanisms considered in the literature. The complexity of the regression model considering just one mechanism at a time is high with both quadratic terms and interactions with the type of cooperative. The issues of multicollinearity and overfitting would make to estimate the effects of all the governance mechanisms in the same regression model a nonviable endeavor. We know managers use simultaneously several mechanisms to govern opportunism, and complementarities and substitutions may make the specific effect of one mechanism in particular change. Thus, future research dealing with the use of bundles of mechanisms would enrich the knowledge of the issue in the particular setting of agricultural cooperatives.

ACKNOWLEDGMENT

This research has received support from Cátedra Cajamar de Cooperativismo Agroalimentario (Polytechnic University of Cartagena).

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1002/agr.21718>

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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How to cite this article: Hernández-Espallardo, M., Arcas-Lario, N., Sánchez-Navarro, J. L., & Marcos-Matás, G. (2021). Curbing members' opportunism in first-tier and federated agricultural marketing cooperatives. *Agribusiness*, 1–25. <https://doi.org/10.1002/agr.21718>

APPENDIX 1

Measure of heterogeneity of first-tier memberships

	Mean	Standard deviation
In what degree members of your cooperative are different from each other (heterogeneous) with respect to... (1 = very similarly 7 = very different). Cronbach's alpha = 0.76		
Farm size	3.99	1.50
Members' age	3.79	1.25
Degree of education	3.46	1.36
Economic situation	3.95	1.33
Type of products supplied	1.98	1.45
Quality of the products they supply	2.54	1.25
Quantity of product supplied to the cooperative	3.85	1.80
Technical skills	3.50	1.33
Market orientation	3.74	1.50
Goals intended to continue as a member of the cooperative	2.88	1.53
Degree of dependence on the cooperative to market its products.	2.32	1.45

Measure of heterogeneity of federated memberships

	Mean	Standard deviation
In what degree cooperatives members of the federated are different from each other (heterogeneous) with respect to... (1 = very similarly 7 = very different). Cronbach's alpha = 0.85		
Size	4.07	1.54
Economic solvency	3.84	1.51
Characteristics of its farmer-members	2.91	1.55
Type of products supplied	2.68	1.80
Quality of the products they supply	2.67	1.34
Quantity of product supplied to the cooperative	4.20	1.68
Degree of dependence on the federated cooperative to market its products	2.82	1.81
Professionalism	3.31	1.41
Market orientation	3.06	1.58
Goals intended to continue as a member of the federated cooperative	2.20	1.31

APPENDIX 2

Durbin-Wu-Hausman test of endogeneity

Variable	Monitoring <i>t</i> (<i>p</i> value)	Hostages <i>t</i> (<i>p</i> value)	Economic rewards <i>t</i> (<i>p</i> value)	Selection <i>t</i> (<i>p</i> value)	Socialization <i>t</i> (<i>p</i> value)
GOV_MECH	0.94 (0.35)	1.48 (0.14)	0.85 (0.39)	-0.02 (0.98)	0.55 (0.58)
GOV_MECH ²	-0.42 (0.68)	-0.61 (0.54)	0.37 (0.71)	-0.06 (0.95)	-0.16 (0.88)
GOV_MECH × TM	1.09 (0.27)	-0.26 (0.79)	-0.21 (0.83)	0.36 (0.72)	-0.48 (0.63)
GOV_MECH ² × TM	0.82 (0.42)	-0.06 (0.96)	0.29 (0.77)	0.39 (0.70)	-0.37 (0.71)
Joint					
Wu-Hausman <i>F</i> (<i>p</i> value)	1.57 (0.18)	1.68 (0.16)	1.29 (0.28)	0.59 (0.67)	0.85 (0.49)
Durbin χ^2 score (<i>p</i> value)	6.61 (0.16)	7.07 (0.13)	5.44 (0.24)	2.55 (0.64)	3.64 (0.46)

Note: Null hypothesis of exogeneity. *t* (*p* value) for single test; *F*(*p* value) and Durbin χ^2 (score) for joint test.