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ORIGINAL ARTICLE

# Coping with side-selling in cooperatives: A members' perspective

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## Abstract

A central collective action issue in agricultural cooperatives is the free-rider problem, a prevalent form of which arises when members systematically side-sell to competing chain actors. Despite the plethora of studies on side-selling's antecedents, little is known about side-selling's actual consequences, particularly from the standpoint of cooperative members. In two studies, we aim to deliver a member-based assessment of side-selling's influence on critical cooperative benefits and explore possible solutions. In the first study, with survey data from 128 members of four fruit cooperatives in Greece, we show that side-selling has a negative effect on perceived cooperative benefits, even in the presence of other collective action issues (e.g., the influence costs problem). In the same study, we posit and demonstrate that side-selling's aversive impact on cooperative benefits can be appeased when members think that their cooperative's transparency regarding cooperative activities is high. In the second study, with interview data from 20 members, we find that different punitive (e.g., expelling members) and collaborative (e.g., fostering trust) solutions are considered effective. Accordingly, our article advances extant knowledge of an issue that strikes at the heart of

cooperative activity and offers valuable insights to cooperative decision-makers seeking to confront it.

**KEYWORDS**
agricultural cooperatives, member benefits, perceived transparency, side-selling, solutions

**JEL CLASSIFICATION**
M14, Q13, Q18

## 1 | INTRODUCTION

The distinct member-owned, people-centered, and values-based business model of cooperatives (coops) has consistently been adept at creating superior value for its member-users and benefiting society at large (Brown & Novkovic, 2015). One in every six people on earth is a member of any of the 2.94 million coops, which employ almost 10% of the working population (CICOPA, 2017). The agri-food sector is no exception, as in 2018, just the 10 largest agricultural coops generated a turnover of 232.43 billion US$ and provided employment for about 150,000 people (World Cooperative Monitor, 2021). Admittedly, agricultural coops habitually improve their members' livelihoods, stimulate job creation, and shelter rural communities and areas (Debela et al., 2018; Garcia-Alvarez-Coque et al., 2021).

Despite their abundant merits, coops repeatedly face several internal challenges, typically linked with collective action problems (Brandão & Breitenbach, 2019). In fact, due to their collective nature and idiosyncratic organizational structure, coops customarily encounter a set of collective action issues, commonly known as the free-rider, horizon, portfolio, control, and influence costs problems, which affect how individuals (e.g., members and managers) behave, and, hence, how coops as collective organizations perform (Vitaliano, 1983; Staatz, 1989; Cook, 1995; Nilsson, 2001). For example, the free-rider problem and its opportunistic manifestations (e.g., shirking in production and delivery of quality products) emerge as property rights in coops are not sufficiently well-defined and/or enforced to ensure that individuals bear the full cost of their actions (Ortmann & King, 2007; Cechin et al., 2013a).

One of the most conspicuous collective action issues occurs when members do not fulfill their marketing contracts with their coop and side-sell to competing chain actors (Brandão & Breitenbach, 2019). Members may side-sell whenever they deem it more favorable (e.g., receiving a higher price from a trader) and still have access (i.e., free-ride) to the collective benefits and services offered by the coop (Ferreira et al., 2021; Gerard et al., 2021). As coops rely on member patronage and loyalty, side-selling can even jeopardize the economic viability of coops (Bhuyan, 2007; Shumeta et al., 2018; Batzios et al., 2021). Certainly, coops often allow their members to sell a certain percentage of their production outside the coop. Still, such legal side-selling compromises the negotiation power of coops and undermines their capacity to cope with the ever-increasing competition in the chain (Cechin et al., 2013a; Arana-Coronado et al., 2019).

Several recent studies (e.g., Mujawamariya et al., 2013; Shumeta et al., 2018; Francesconi & Wouterse, 2019; Alemu et al., 2021) have examined side-selling behavior and empirically assessed various determinants (e.g., socio-demographic characteristics, production features, payment aspects, trust, managerial capital), especially in developing countries (e.g., Costa Rica,

Ethiopia, Mexico, Uganda). However, the potential effects of side-selling on membership and the economic activity of coops have remained largely unexplored (Shumeta et al., 2018). Moreover, although solutions to collective action problems in coops have been well documented (see Iliopoulos & Theodorakopoulou, 2014; Cook & Iliopoulos, 2016), most studies have maintained an analytical focus and empirical investigations are scarce (Benos et al., 2016; Franken & Cook, 2019). Additionally, the view of members has been mostly overlooked (Bhuyan, 2007; Kalogeras et al., 2011). As a result, opportunistic behavior in coops persists, and little is known about what side-selling induces or how it can be offset, particularly from a member standpoint. Therefore, the principal objective of this article is to provide a member-based empirical assessment of side-selling's influence on critical coop merits and explore possible solutions. More specifically, we contribute to the literature in two important ways.

First, we have developed a conceptual model to empirically assess illegal side-selling's distinct influence on primary coop benefits (e.g., receiving a higher price from the coop) as perceived by members of fruit coops in Greece (the "Effects Study"). To overcome the limitations of biased responses that generate inaccurate estimates and obscure reality, particularly when illegal or anti-social behavior is involved (Krumpal, 2013) or when farmers are asked to report socially undesirable activities (Eriksen et al., 2018), we considered and measured the perception of members on the side-selling of other members instead of their own side-selling behavior. Moreover, we considered coops in Greece as, at the time of the study, coop members were allowed to side-sell up to 20% of their production in accordance with national coop law No 4384/2016.[1] This allowed us to indirectly examine whether members exemplified illegal side-selling behavior even though they were allowed to sell up to one-fifth of their production outside their coop.

We tested the conceptual model with survey data from 128 members of four different coops and showed that illegal side-selling by other members had a negative effect on perceived coop benefits, even in the presence of other opportunism manifestations, like the influence costs and portfolio problems. Still, in the same study, we posited and found that illegal side-selling's aversive impact on coop benefits could be appeased when members think that transparency levels within their coop are high. Taken together, the "Effects Study" findings extend previous work on side-selling, offering empirical evidence regarding its harmful effects and a coping mechanism to attenuate them. Accordingly, the "Effects Study" insights may increase coop leaders' understanding of a major challenge.

Second, in a separate follow-up study, we explored the effectiveness of existing solutions to the problem of side-selling with interview data from one of the coops (the "Solutions Study"). We responded to the recent calls from Alemu et al. (2021) and Gerard et al. (2021) to undertake qualitative research in order to examine side-selling behavior. The outcomes of 20 interviews with coop members suggested that coop decision-makers may blend "carrots" (e.g., fostering trust) with "sticks" (e.g., expelling members) to discourage opportunistic conduct but also to stimulate cooperative behavior. Hence, the "Solutions Study" findings provide crucial policy insights complementing the solutions put forward by past studies (e.g., Cook & Iliopoulos, 2016; Arana-Coronado et al., 2019).

The remainder of this article is structured as follows. In Section 2, we review the extant literature on collective action problems in coops, paying particular attention to side-selling. In the same

[1] This law was replaced by Law No 4673/2020 in April 2020. Pursuant to this new coop law, the percentage that coop members can legally side-sell was raised to 25%. Coops were granted a transitional period of two years to update their bylaws and conform to the stipulations of the new law. The exact percentage is decided by the General Assembly and specified in the bylaws.

section, we also develop the conceptual model and derive the hypotheses. Next, in Section 3, we present the methodological aspects used in the two empirical studies. In Section 4, we describe the results. In the final section, we discuss the implications, limitations, and suggestions for future research.

## 2 | LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

### 2.1 | Collective action problems in coops and opportunistic behavior

The unique and collective nature of coop organizations sets them apart from conventional firms but often sets the stage for internal constraints that have become known as property rights problems (Vitaliano, 1983; Fulton & Giannakas, 2013). Actually, the differences between investor-owned and coop firms are due essentially to the vaguely defined "user vs. investor" property rights ("who has what") in coops, repeatedly leading to conflicts over residual claims and decision control (Cook, 1995; Nilsson, 2001). Moreover, in line with agency theory's tenets, coops experience principal–agent problems as a result of the divergence of interests and information asymmetry between the principal (i.e., coop members and their elected board of directors) and the agent (i.e., management) (Ortmann & King, 2007). These collective action problems are known as the free-rider, horizon, portfolio, control, and influence costs constraints, and are associated, directly or indirectly, with opportunistic conduct.

The horizon problem in coops potentially arises because the horizon of many investments exceeds that of the members who make the investment, which, combined with restrictions on transferability of residual claimant rights, reduces the members' incentive to make such investments (Cook, 1995; Höhler & Kühl, 2018). Members may vote for or pressure the board and management for equity redemptions and cash payments instead of the retention of earnings for long-term investment projects (Ortmann & King, 2007). Similarly, the portfolio problem occurs when members are not able to adjust their coop asset portfolio to match their personal risk preferences, largely due to the lack of transferability, liquidity, and appreciation mechanisms of residual claims (Tortia et al., 2013). As a result, members may encourage coop decision-makers to shape the coop's investment portfolio according to their personal preferences, habitually favoring projects with lower risk levels and lower expected returns (Franken & Cook, 2019).

The control problem also gives rise to opportunistic conduct (Tortia et al., 2013). As board members may have little or no experience in exercising effective control or as members may lose their interest in monitoring the organization, coop governance mechanisms might operate with a handicap, and managers might choose to promote their interests (Nilsson, 2018). Alternatively, the influence costs problem emerges when members or groups of members attempt to influence collective decision-making to their own advantage (Cook, 1995; Cechin et al., 2013b). Due to members' differing opinions and interests, coop management may find it puzzling to determine how members' divergent viewpoints should be weighted. Hence, the influence costs problem may entail poor decisions and misallocation of resources (Ortmann & King, 2007).

Consequently, the horizon and portfolio problems create an investment environment that prompts coop members to think opportunistically and principally consider what their membership offers "right now" at the expense of long-run benefits necessary to keep the coop viable (Nilsson, 2001; Fulton & Giannakas, 2013). Likewise, the control and influence costs problems create a governance environment in which managers or members engage in self-serving decision-making activities that lead to wrong decisions for the coop or no decisions at all (Tortia et al.,

2013). Still, it is probably the free-rider problem that primarily fuels opportunism in coops (van Dijk et al., 2019). Free-riding behavior arises because individual members have a claim on the property that is common to all members (Giannakas et al., 2016). When property rights are not clearly defined and/or not well enforced, different members may attempt to take advantage of the common resources and direct proceedings to their own benefit (Tortia, 2018).

## 2.2 | Side-selling

The free-rider problem is persistent in coops (van Dijk et al., 2019). Free-riding opportunistic behavior in coops takes several forms, such as shirking on product quality (Cechin et al., 2013a), practicing side-selling (Wollni & Fischer, 2015), and reducing participation in the governance (Nilsson, 2018). In reality, though, side-selling is the free-riding manifestation that is pervasive in agricultural coops across the globe (Gerard et al., 2021). It disorders the internal unison of coops and compromises their ability to vertically integrate into value chains (Francesconi & Wouterse, 2017). Actually, when coops lose production volume, they can hardly meet market requirements (Garcia-Alvarez-Coque et al., 2021), let alone engage in value-added activities that enable them to serve different market segments (Benos et al., 2016).

Unsurprisingly, extant studies have discussed potential solutions to side-selling. Mujawamariya et al. (2013) recommended that coops may join fair trade systems to offer higher prices to their members. Shumeta et al. (2018) suggested that coops could set a minimum amount that members need to deliver to be eligible for coop services, Gerard et al. (2021) put forward the idea of reducing service provision to members caught side-selling, while Francesconi and Wouterse (2019) recommended even minimizing all the benefits (e.g., credit, inputs, services) received by side-sellers. Eriksen et al. (2018) proposed entry barriers, such as introducing high membership fees and applying elaborate screening of new members. Finally, Arana-Coronado et al. (2019) suggested that coops may increase members' liquidity at harvesting time either by providing them with short-term credit lines or through factoring schemes.

Furthermore, several solutions to the general free-rider problem discussed in coop literature could probably alleviate the side-selling issue too. Iliopoulos and Theodorakopoulou (2014) grouped them into four categories, namely market, community, contract, and hierarchy solutions. Market solutions (e.g., high upfront equity capital) increase the benefits or lower the costs of collective action. Community solutions (e.g., fostering a group identity among coop members) use common values to overcome self-interest. In contract solutions (e.g., monitoring), coop members devise their own rules and processes to deal with opportunistic conduct. Coops might also employ hierarchy solutions (e.g., public administration supervision), relying on the intervention of well-established institutions (e.g., governmental auditing bodies) to pre-empt or discipline free-riding behavior. Finally, some member-focused solutions include selecting the "right" partners (e.g., potential members that can be trusted) (Giannakas et al., 2016), investing in member training (Breitenbach & Brandão, 2021), and introducing member relations programs (Cook & Iliopoulos, 2016).

## 2.3 | Conceptual framework and hypotheses development

Members are the raison d'être of coops (Brown & Novkovic, 2015). Without loyal members, coops lose their identity and sense of existence (Brandão & Breitenbach, 2019; Ferreira et al., 2021). Not

unexpectedly, a profound understanding of members' attitudes and behaviors is essential because a coop's success relies on it (Bhuyan, 2007). In our conceptual model, we adopt a member's perspective to better understand potential harmful effects of member behavior, evaluating illegal side-selling's influence on member benefits from the members' standpoint. However, we follow an indirect valuation approach to document side-selling, inquiring about members' knowledge of other members' behavior. We do so for three reasons.

First, research has shown that when coop members are asked directly about their own behavior, they often give opportunistic answers or give in to social pressure and provide desired answers (Eriksen et al., 2018). Of course, this should not be surprising, as, in general, due to self-presentation concerns, research participants frequently underreport socially undesirable activities (Krumpal, 2013). Second, members typically differ in the degree to which each collective action problem is salient to them (Fulton & Giannakas, 2013). Strictly speaking, although collective action problems undermine a coop's proper functioning, members might perceive their likely harmful effects differently. Third, different members have varying levels of knowledge about collective action problems in their coop, but they often know more than the coop management about other members' behavior (van Dijk et al., 2019). That is, we anticipate that as far as the knowledge of side-selling behavior is concerned, a reverse information asymmetry issue might occur between the coop management and the rank-and-file members.

As opposed to conventional firms owned and controlled by outside shareholders who may not patronize them, agricultural coops exist to provide benefits to member-producers who uniquely own and control them (Benos et al., 2018). Hence, when producers join coops, they expect to enjoy certain benefits related, among others, to the products they deliver, the price they get, and the services they receive (Ortmann & King, 2007; van Dijk et al., 2019). Without members' active participation and satisfaction, coops cannot survive in the long run (Bhuyan, 2007; Cechin et al., 2013b). In turn, if members systematically fail to patronize their coop adequately, it is reasonable to expect that their coop will not be in a position to provide benefits to members and satisfy them. In other words, we anticipate that illegal side-selling by other members might influence members' perception of the primary benefits (e.g., higher prices, good services) they are supposed to obtain. Formally, we hypothesize as follows.

H1. Illegal side-selling by other members has a negative effect on a member's perceived benefits by the coop.

The deleterious effects of the injustice that illegal side-selling entails might be attenuated by just behavior at the coop level. It is the coop management that is typically in a position to conceal important information from members and pursue their own interests (Nilsson, 2018). In fact, the presence of information asymmetry between members and coop management is common in coops and usually results in members being ill-informed about decisions made by their coop (Breitenbach & Brandão, 2021). If such information asymmetry issues are somewhat amended, however, we cannot rule out that the sense of the coop itself providing information to members might offset the sense of other members withholding information (and production) from their coop. Keeping members informed about the performance of the coop and the general market conditions, for example, enhances transparency and trust within a coop (Wollni & Fischer, 2015). The perception of transparency is strengthened if an active information culture within a coop is present (Jensen-Auvermann et al., 2018). An apt communication policy even helps coops convince members to maintain coop-initiated programs (e.g., technical assistance programs), which have been shown to boost member loyalty (Ferreira et al., 2021). Hence, if the coop's natural way of doing business with members is built upon ample transparency and communication, members might not hold their coop responsible for the unscrupulous business other members do with the

coop. Consequently, we expect that a member's perception about the primary benefits they receive from their coop might not be influenced by the presence of illegal side-selling by other members when transparency within the coop is perceived to be high. More formally, we have the following hypothesis.

H2. The negative effect of illegal side-selling by other members on perceived member benefits is neutralized by high levels of perceived transparency regarding coop activities.

As far as the influence of other collective action problems is concerned, we can assume that their effect on member benefits is not favorable. The portfolio problem, for example, is commonly thought to limit coops' ability to capitalize on investment opportunities (Franken & Cook, 2019). Thus, it may affect coops' capacity to secure member benefits, at least in the long run. Still, unlike the side-selling issue, it does not strike at the heart of coop operations. Undoubtedly, the other collective action problems create an ailing investment and governance environment. However, to what extent individual members might think that member behavior related to these problems is liable for the ill-provision of benefits is questionable. Moreover, we do not expect side-selling and the other collective action problems to outperform or counterpoise one another, even though some relation between them is likely. As a result, we do not formulate a particular hypothesis regarding the effect of other collective action problems on perceived member benefits or any interrelation (e.g., an interaction effect) between these problems and side-selling. Similarly, we reserve an exploratory investigation of members' views on possible solutions to the side-selling issue, besides the coping mechanism of transparency, which lays the ground for a healthy organizational environment in general (Jensen-Auvermann et al., 2018).

## 3 | RESEARCH METHODOLOGY

### 3.1 | Studies context

We chose to confront our hypotheses with empirical data from fruit coops in Greece for three reasons. First, nurturing supply concentration in the fruit sector has been a top policy priority in Europe for decades given the weak position of individual producers in the market, the highly perishable nature of products, and the recurring price volatility (Del Cont & Iannarelli, 2018). Inevitably, in the 1996 reform of the Common Agricultural Policy (CAP),[2] producer organizations (POs) became the cornerstone of the EU regime for the fruit and vegetables sector. About 50% of POs and their associations currently recognized in the EU are coops, while in the fruit and vegetables sector, the main official objective selected by POs in order to gain official recognition is the concentration of supply (Amat et al., 2019). Consequently, consistent members' patronage is quintessential for coops (and other producer groups) in the fruit sector. Second, Greece maintains the highest proportion of land use for orchards in the EU. Almost 16% of the total agricultural land use in Greece is devoted to orchards.[3] Moreover, the highest proportion of agricultural output in

[2] With Regulation (EC) No 2200/96, which replaced Regulation (EEC) No 1035/72 of 18 May 1972, and subsequently amended by Regulation (EC) No 1184/2006, Regulation (EC) No 1234/2007, and Regulation (EC) No 361/2008, European law built a consistent model of producer organizations in the fruit and vegetable sector (Del Cont and Iannarelli, 2018).

[3] To calculate the proportion of land use for each country in the EU, we relied upon Eurostat data. For total agricultural land use: https://ec.europa.eu/eurostat/databrowser/view/LAN_USE_OVW__custom_1755338/default/table?lang=en. For the land devoted to orchards: https://ec.europa.eu/eurostat/databrowser/view/ORCH_TOTAL__custom_1755396/default/table?lang=en

Greece is captured by fruits (i.e., 28%, followed by vegetables by 16%) (DG Agri, 2021). Third, at the time of the study, pursuant to Article 8 of the Greek coop law No 4384/2016, all coops in Greece had to stipulate in their statutes the percentage of production that each member was obliged to deliver, which could not be less than 80% of the annual production of each member, unless a member had an objective inability to deliver the agreed production or the coop had an objective incapacity to take it. In other words, coop members had to decide in a General Assembly about the legal side-selling percentage, which could be up to 20% for each member's production. The percentage would then have to be specified in the coop statutes. Taken together, these three reasons explain why the fruit sector in the EU is one of the most critical sectors for studying the phenomenon of illegal side-selling, and why Greece is a worthy choice, considering the importance of the fruit sector both in land use and output terms, as well as given the explicit legal provision about side-selling in coops.

## 3.2 | The "Effects Study" sampling and procedures

The "Effects Study" was conducted in the administrative region of Thessaly. Fruits are produced all over the country, but the region of Thessaly is one of the most productive provinces in Greece. Within this region, we selected four fruit coops from the regional unity of Larissa for two reasons. First, Larissa accounts for no less than 47% of the total land used in Greece for pear trees, 6% for peach and nectarines trees, and 9% for apricot trees.[4] Second, 6.2% of all registered agricultural coops in Greece (i.e., 929) at the time of the study (i.e., July and August 2021) were based in Larissa. Thus, the first criterion in the selection of the four coops was the location in the regional unity of Larissa. Secondly, the coops had to be registered with the national coop registry. Finally, all coops had to produce and market the same three types of fruit, namely pears, peaches and apricots.

Primary data was collected from members of four coops[5] randomly selected out of 13 coops meeting the above criteria. An initial field assessment was organized to gain better insight into the problems in the area. Next, out of the 295 coop members, a total of 150 farmers were randomly selected from the four coops using their membership lists as the sampling frame, although we were careful to draw about 30 participants from each coop and also include members of the Board of Directors (BoD). A total of 128 members responded to our invitation, 36 from the first coop, 27 from the second, 34 from the third, and 31 from the fourth. Although 22 members declined our invitation (six from the first coop, five from the second, six from the third, and five from the fourth), our response rate (i.e., 85%) was much higher than what is currently being recorded in social science surveys, let alone in agricultural and rural surveys (Zahl-Thanem et al., 2022).

Our survey was administered among the 128 members by a trained enumerator. We used a structured questionnaire with sections on background characteristics, side-selling, the other collective action problems, transparency, and perceived member benefits. To reduce common method variance and evaluation apprehension, we implemented some of the procedural remedies suggested by MacKenzie and Podsakoff (2012). First, we psychologically separated our measures by placing them into different thematic sections in the questionnaire and dispersed buffer items. Second, we assured participants that their responses would be aggregated and used only for

[4] Data on orchard areas by region and regional unity in Greece: https://www.statistics.gr/en/statistics/-/publication/SPG06/-.

[5] Due to a confidentiality agreement with all four coops, the identification details of the coops cannot be disclosed.

research purposes while no other would see them. Third, we veiled the study's purpose and explained that our intention was not to evaluate them.

Side-selling was measured with a direct question, asking respondents whether plenty of other members did not deliver to the coop the quantity they had agreed. Similarly, the other collective action problems were measured with direct questions to detect their presence and likely influence. More specifically, the portfolio-horizon problem question measured whether plenty of other members attempted to avert a long-term investment project in order to receive dividends (e.g., through lobbying or voting against such a project in the General Assembly). The question about the influence costs problem measured whether plenty of members made attempts to influence BoD members or other rank-and-file members to serve their interests. We also measured a variant of the free-riding problem relating to product quality. That is, we asked respondents whether plenty of members shirked on product quality in their deliveries to the coop. Finally, we asked participants if the coop enforced any sanctions against free-riding members. All answers to the questions about the collective action problems were dummy-coded (0 = no, 1 = yes).

We used a direct valuation approach and multiple-item scales to measure perceived transparency and perceived member benefits (see Table A1 in the Appendix). For the former, we used three items to capture the extent to which each member agrees that: a) the coop informs its members sufficiently about its operations; b) the coop informs its members sufficiently about its strategy and rules; c) the coop informs its members sufficiently about how coop products are marketed. For perceived benefits, we centered on the core benefits a coop may deliver to its members, related, among others, to the price it gives, the services it provides, and the certainty it offers about members' production (Ortmann & King, 2007; van Dijk et al., 2019; Breitenbach & Brandão, 2021). Hence, we used four items measuring the extent to which each member agrees with the following: (a) that the quality of coop services is high; (b) that the coop offers certainty for taking the entire production delivered by members; (c) that the coop offers a better price than the producers alone could get; (d) that he/she (the member being asked) is very satisfied with the benefits provided by his/her coop. All responses to these items were recorded on a five-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree.

Even though we did not formulate any hypotheses regarding the background characteristics, we controlled for several socio-demographic variables and farming features commonly used in coop and side-selling studies. We included gender, age, education, household income, farm size, active farming status in the CAP context, and membership in the BoD of the coop. Apart from gender, active farming status, and BoD membership, which were dummy-coded, the rest were ordinally-scaled. We used five categories for age, seven for farm size, eight for education, and nine for household income. Still, we converted all of them into dummy variables, too. For age, we used the threshold for "young farmers" in the CAP context (i.e., below or equal to 40 years of age). For farm size, we employed the threshold used for very small farms in the EU (i.e., up to five hectares). Lastly, for education and income, we applied a median split (i.e., below or equal to the median value versus above the median value).

## 3.3 | The "Solutions Study" sampling and procedures

In the "Solutions Study", we followed a qualitative method to explore further the side-selling issue. We randomly selected one of the four coops and performed in-depth interviews with coop members. We chose only one coop to increase the internal validity of the interviews and ascertain that all interviewees had faced similar conditions (Adler & Clark, 2011). We invited all

the members who had taken part in the "Effects Study" and, at the same time, had reported that plenty of other members side-sell. In total, four BoD members and 16 rank-and-file members accepted our invitation to participate in formal interviews. Accordingly, the interviews were conducted in a semi-structured format. Our main questions were the following: (a) how important is the side-selling issue for their coop; (b) what are the other major problems in their coop; (c) whether there are any detection mechanisms for side-selling in their coop; and (d) what solutions currently in place are effective. A trained interviewer who was also a member of one of the coops performed all interviews in November 2021. The interviewees discussed in their mother tongue and, overall, seemed to be comfortable with the interview process.

### 3.4 | Data analysis

As we explain in Section 3.2, for the "Effects Study", we used a Likert scale. One of the regression analysis assumptions is that the dependent variable is at least measured at the interval level because it needs to be a continuous variable (Field, 2009). When the Likert scales used have at least five categories and equal intervals, they are interval-scaled, they can be treated as continuous variables, and the use of regression is considered suitable (Hair et al. 1998; Field, 2009; Crucke and Bockaert, 2022). The dependent variable in the "Effects Study" satisfies these conditions, supporting the use of regression as the principal analysis tool.

For the "Effects Study", all data analyses were conducted with the aid of SPSS 26. More specifically, we used SPSS 26 to perform the descriptive analyses, the exploratory factor analysis (EFA) for the two constructs (i.e., the multiple-item scales for perceived transparency and perceived member benefits), and the moderated regression analysis for hypothesis testing. To confirm the acceptability of the EFA technique, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were used (Field, 2009). For the internal consistency of the two constructs, we employed Cronbach's alpha (Hair et al., 1998).

For the "Solutions Study", notes were taken by the interviewer and analyzed qualitatively by the author team. To ensure consistency in the analysis, two members of the author team independently reviewed the transcripts of the notes. Transcripts were closely read multiple times to gain a broad overview of the discussions and develop an understanding of the key themes (Adler & Clark, 2011). Data were then open-coded and categorized into sets according to the four main questions.

## 4 | RESULTS

### 4.1 | The "Effects Study" results

Table 1 presents the background characteristics of the respondents. The results indicate that about 80.5% are men, 71.1% are older than 40, 62.5% have completed up to secondary education, and another 62.5% have up to 30,000€ annual household income. Moreover, the vast majority of participants are active farmers (86.7%), while about two-thirds have a farm holding larger than 5 hectares (64.1%). Finally, 14.1% of the sample respondents are BoD members. As there are no statistics for coop members in Greece, we cannot gauge whether the sample was representative of the study population. If the sample is compared to the farm structure data (see DG Agri, 2021),

**TABLE 1** Background characteristics of respondents

| Variables | Variable levels | Percentage |
|---|---|---|
| Gender | Male | 80.5 |
| | Female | 19.5 |
| Age | ≤40 years | 28.9 |
| | >40 years | 71.1 |
| Education | Up to secondary | 62.5 |
| | More than secondary | 37.5 |
| Household income (annual) | ≤30,000€ | 62.5 |
| | >30,000€ | 37.5 |
| Farm size | ≤5 ha | 35.9 |
| | >5 ha | 64.1 |
| Active farming status (in the CAP context) | No | 13.3 |
| | Yes | 86.7 |
| BoD membership | No | 85.9 |
| | Yes | 14.1 |
| Sample size | *N* | *128* |

**TABLE 2** Felt presence of collective action problems

| Variables | Variable levels | % |
|---|---|---|
| Side-selling | No | 33.6 |
| | Yes | 66.4 |
| Free-riding problem/shirking on quality | No | 9.4 |
| | Yes | 90.6 |
| Portfolio-horizon problem | No | 58.6 |
| | Yes | 41.4 |
| Influence costs problem | No | 14.1 |
| | Yes | 85.9 |
| Sanctions against free-riding members | No | 42.2 |
| | Yes | 57.8 |

its characteristics seem comparable, except for farm size, which seems to overrepresent larger holdings.

Table 2 presents the detection of side-selling and the other collective action problems by the respondents. As we can see, most participants think that plenty of other members engage in side-selling. It should be stressed that this is illegal side-selling. All four coops allow their members to side-sell up to 20% of their production. Thus, not delivering the agreed amount represents an illicit form of side-selling, over and above the legal threshold. Moreover, the overwhelming majority of respondents answered that most other members shirk on the quality of their deliveries. Likewise, it seems that most members make attempts to influence others within their coop to serve their interests. In contrast, the portfolio-horizon problem was not reported as a common problem by the majority of respondents. Finally, most participants answered that sanctions are enforced against free-riding members.

**TABLE 3** Constructs, factor loadings, scale reliability, and descriptive statistics

| Construct | Item | Factor 1 loadings | Factor 2 loadings | Cronbach's alpha | M | SD |
|---|---|---|---|---|---|---|
| Perceived member benefits | | | | 0.89 | 3.30 | 0.95 |
| (PMB) | PMB1 | 0.658 | 0.184 | | | |
| | PMB2 | 0.719 | 0.078 | | | |
| | PMB3 | 0.795 | 0.072 | | | |
| | PMB4 | 0.977 | −0.112 | | | |
| Perceived transparency | | | | 0.91 | 3.52 | 0.94 |
| (PT) | PT1 | −0.054 | 0.868 | | | |
| | PT2 | 0.014 | 0.956 | | | |
| | PT3 | 0.172 | 0.718 | | | |

*Note*: Principal axis factoring with oblique rotation; Total variance explained = 72.99%; KMO = 0.884; Bartlett's test $\chi^2 = 649.123$, df = 21, $p < 0.001$; $N = 128$; M = mean; SD = standard deviation.

In assessing the validity of the two constructs (i.e., the multiple-item scales for perceived transparency and perceived member benefits), we performed principal axis factoring (PAF), making use of the multiple criteria method to decide upon the underlying factor structure (Hair et al., 1998). A priori determination, the total variance explained, the scree plot, the Kaiser criterion, and the more elaborate procedure of parallel analysis were used (O'Connor, 2000). The outcomes suggested that a two-factor solution was appropriate. In support of validity, all the items loaded significantly on their expected factor (>0.65) and, at the same time, had weak cross-loadings on the other factor (<0.2) (see Table 3). Furthermore, both constructs were sufficiently reliable, as Cronbach's alpha was equal to 0.89 for perceived member benefits, and 0.91 for perceived transparency, respectively. Accordingly, in the former's case, the mean score of the corresponding four items was used for further analysis, and in the latter's, the mean score of the corresponding three items.

Before running the regression analysis, we tested for differences between coops. An ANOVA F-test revealed no differences for perceived member benefits ($F = 1.08$, $p = 0.359$) and perceived transparency ($F = 0.48$, $p = 0.695$) between the four coops. Likewise, a set of Chi-squared tests revealed no differences for side-selling ($\chi^2 = 3.32$, $p = 0.344$), the shirking on quality issue ($\chi^2 = 0.68$, $p = 0.877$), the portfolio-horizon problem ($\chi^2 = 3.15$, $p = 0.370$), the influence costs problem ($\chi^2 = 2.94$, $p = 0.401$), and the sanctions against free-riding members ($\chi^2 = 3.97$, $p = 0.265$). Therefore, no difference could be attributed to any specific coop in the sample.

Following Cohen et al. (2003), we then conducted a four-step hierarchical multiple regression analysis to test our hypotheses. We first entered the control variables, followed by the collective action problems variables in the second step. In the third step, we entered side-selling and perceived transparency. Finally, we introduced the interaction term. Before the analysis, perceived transparency was mean-centered to reduce any multicollinearity. Table 4 presents the regression results. As Step 4 of Table 4 shows, in support of Hypothesis 1, side-selling was significantly and negatively associated with perceived member benefits ($\beta = -0.29$, $p < 0.01$). In contrast, perceived transparency was positively related ($\beta = 0.37$, $p < 0.01$). As far as the other independent variables were concerned, none of them exhibited any significant effect, while of the control variables, only BoD membership had a significant positive effect ($\beta = 0.13$, $p < 0.05$). Finally, we tested for collinearity among the variables by calculating the variance inflation factor (VIF) for each regression coefficient. Except for the values corresponding to perceived transparency (5.083) and the

**TABLE 4** Results of hierarchical regression analysis predicting perceived member benefits

| Variables | Perceived member benefits as dependent variable (standardized $\beta$) | | | |
|---|---|---|---|---|
| | Step 1 | Step 2 | Step 3 | Step 4 |
| *Control variables* | | | | |
| Gender | 0.06 | 0.08 | 0.13* | 0.12 |
| Age | 0.01 | 0.09 | 0.06 | 0.06 |
| Education | 0.02 | 0.05 | 0.06 | 0.05 |
| Household income | −0.03 | 0.01 | −0.03 | −0.02 |
| Farm size | −0.02 | −0.06 | −0.03 | −0.02 |
| Active farming status | 0.05 | 0.06 | −0.01 | −0.01 |
| BoD membership | 0.33** | 0.36** | 0.14* | 0.13* |
| *Independent variables* | | | | |
| Free-riding/quality | | 0.06 | 0.10 | 0.12 |
| Portfolio-horizon | | −0.16 | −0.02 | −0.05 |
| Influence costs | | −0.24* | −0.09 | −0.09 |
| Sanctions | | 0.18* | 0.07 | 0.07 |
| Side-selling | | | −0.26** | −0.29** |
| Perceived transparency | | | 0.62** | 0.37** |
| *Interaction* | | | | |
| Side selling × Perceived transparency | | | | 0.27* |
| $R^2$ | 0.10 | 0.23 | 0.64 | 0.66 |
| $\Delta R^2$ | 0.10 | 0.13 | 0.41 | 0.02 |
| $F$ | 2.01 | 3.23** | 15.63** | 15.31** |
| $\Delta F$ | 2.01 | 4.92** | 64.34** | 4.66* |

*Note*: $\beta$ values are standardized coefficients; *$p < 0.05$, **$p < 0.01$.

interaction term (5.012), the rest of the VIF values ranged from a low of 1.175 to a high of 1.720. Consequently, all the VIF values were below the suggested cut-off of 10 (Field, 2009).

Our hypothesis predicted that side-selling's influence on perceived member benefits would be moderated by perceived transparency. Indeed, the interaction term proved to be significantly and positively related to perceived member benefits ($\beta = 0.27$, $p < 0.05$), offering initial support to our hypothesis. To specify the pattern of this cross-level interaction, we performed a spotlight analysis (Cohen et al., 2003; see Figure 1). For both values of side-selling by others ("0" = no side-selling, "1" = side-selling), we plotted the perceived member benefits' values plus and minus one standard deviation from the mean of the moderator (i.e., perceived transparency). Figure 1 clearly illustrates that side-selling was unrelated to perceived member benefits at high levels of perceived transparency (one standard deviation above the mean of perceived transparency). In other words, the spotlight analysis indicates that at high levels of perceived transparency, the presence of side-selling by others did not seem to be related to perceived member benefits, as the difference in the perceived member benefits' values between the two points (i.e., no side-selling vs. side-selling) was minimal (i.e., $PMB_{\text{no side-selling}} = 4.10$ vs. $PMB_{\text{side-selling}} = 3.83$). In contrast, at low levels of perceived transparency, the difference in the perceived member benefits' values was high (i.e., $PMB_{\text{no side-selling}} = 3.34$ vs. $PMB_{\text{side-selling}} = 2.43$).

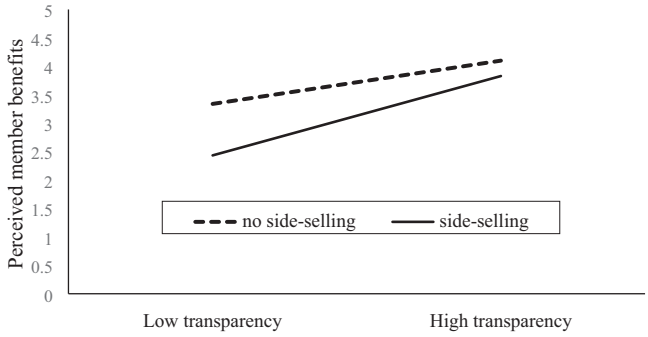


**FIGURE 1** Moderating effect of perceived transparency on the relationship between side-selling and perceived member benefits

As a cross-check and as a means to validate the pattern of the interaction, we employed a bootstrapping method (Hayes, 2013; 10,000 bootstrapped resamples; SPSS Macro PROCESS model 1), which accommodates the investigation of interactions. The results indicated that the two-way interaction effect was significant at a 95% level (CI = [0.03, 0.60]). This provided further support for our hypothesis. Moreover, when inspecting the conditional effects (CE) of side-selling on perceived member benefits at values plus and minus one standard deviation from the means of perceived transparency, we could verify the nature of the interaction. The only insignificant conditional effect ($\beta$CE = −0.27, $p$ = 0.14, CI = [−0.63, 0.09]) was found for the highest level of perceived transparency. That is, the negative effect of side-selling by others on perceived member benefits was only neutralized when transparency levels were high.

## 4.2 | Robustness tests

We performed a series of additional analyses to gauge the robustness of our results. First, we used alternative variations of the control variables in the regression model. More specifically, we recoded the four background characteristics for which non-binary variables had been used, namely age, farm size, education, and household income. We calculated the median value for all of them, applied a median split, and recoded the variables accordingly. For farm size, education, and income, we separated responses that were below the median value as opposed to responses that were equal to or above the median value. For age, we did the reverse recoding (i.e., below or equal to the median value versus above the median value) to differentiate it from the original recoding (i.e., the threshold of 40 years for "young farmers" in the CAP context).

We then ran five different regression models (see Table A2 in the Appendix). In Model 1, we entered all four recoded variables, keeping all the other variables identical to the original model. In the other four models, we entered just one of the four recoded variables each time, maintaining all the other variables identical to the original model. The overall results—shown in Table A2 in the Appendix—were consistent with those in Table 4. The only differences between the original model and the alternative ones could be spotted with regard to the effects of some control variables. For example, in Model 1, the effects of gender, age, and education were significant. Still, the effects of the focal variables (i.e., side-selling by others, perceived transparency, and their interaction term) were robust across all alternative models.

Second, we tested four additional models to account for the coop-level effects. We applied dummy coding and, as a result, created four dummy variables, one for each coop. Subsequently, we ran four models. We entered three of the four dummy variables in each model, with the excluded

**TABLE 5** Major problems, detection mechanisms for side-selling, and solutions

| Central questions | Thematic categories |
|---|---|
| Side-selling as a major problem | 1. It is a major issue (80%) |
| | 2. It is neither a major nor a minor issue (10%) |
| | 3. It is a minor issue (10%) |
| Major problems other than side-selling | 1. Opportunistic behavior from some members (65%) |
| | 2. Members' indifference about their coop (60%) |
| | 3. Aging of members/high mean age (20%) |
| Detection mechanisms for side-selling | 1. Cross-check with direct income applications in the CAP context (65%) |
| | 2. Gossip/reporting from other members (15%) |
| Effective solutions in place for side-selling | 1. No effective solutions (25%) |
| | 2. Discussion at the General Assembly and/or other trust-building efforts (25%) |
| | 3. Price cuts to offenders (20%) |
| | 4. Suspension of membership (20%) |
| | 5. Different sanctions depending on the case (20%) |

*Note*: The percentages in parentheses denote the % of interviewees whose answers were coded accordingly.

variable serving as the baseline group. For example, in Model 1, we excluded the variable relating to Coop 1. This means that in that model, we compared the effect of that coop against the effect of each of the other four coops. No significant effect of the dummy variables could be traced in any of the alternative models. Most importantly, the effects of all other variables did not change. The size coefficient for the interaction effect was a bit lower but still significant. In other words, these extra robustness tests led to consistent findings regarding the direction of the relationships and their statistical significance.

## 4.3 | The "Solutions Study" results

As pointed out in Section 3.4, the interview transcripts were closely read multiple times by two members of the author team. An initial coding framework was formed along the four central interview questions (see also Section 3.3). That is, both team members created descriptive labels to identify connections between the answers given by the interviewees to the four main questions. Next, both researchers created thematic categories, comparing the descriptive labels they had created and appraising them to decide which ones seemed to belong together. Subsequently, they separately discussed their decisions with the lead author and updated the thematic categories' scheme accordingly. Finally, the author team divided the total number of all agreements for all thematic categories by the total number of agreements and disagreements for all thematic categories combined to compute the inter-coder reliability index. The latter exceeded the recommended threshold of 80% (Adler & Clark, 2011), suggesting that our coding system was reliable and robust. Any remaining disagreements in the thematic categories were resolved through discussion by all research team members until a consensus was reached.

Table 5 presents the core thematic categories, organized around the central questions. As we can see, the vast majority of interview participants (80%) consider illegal side-selling as a major

problem. Interviewee 2, for example, pointed out that illegal side-selling hurts the arrangements of the coop with their customers: "Plenty of members do not deliver the agreed upon quantity, and prefer to sell it to others. How can our coop supply our customers sufficiently if these members deliver fewer kilos than they agreed?". Interviewee 16 emphasized that side-selling does not allow their coop to withstand competition: "Although our coop performs well, some members act opportunistically and often violate the terms of their delivery agreement. They do not deliver the amounts that are mutually agreed upon and, instead, sell to traders. Our coop faces stiff competition in the market; such behavior from fellow members makes it difficult for our coop to face our competitors".

In the discussion about other problems in the coop, it turned out that opportunistic behavior on the part of some members is of grave concern. When asked to elaborate, most interviewees explained that several members or groups of members systematically engage in impression management tactics to influence the decisions taken in the General Assembly. Thus, it seems that the influence costs problem is present. As Interviewee 6 stated: "Whenever we have to discuss serious issues in the General Assembly, certain members try to create impressions to influence other members". Two other interviewees put even more emphasis on the problem at hand: "Certain members try to boycott any decision that is in favor of the cooperative and the collective benefit. They only care about their own benefit" (Interviewee 8), and "there is certainly a clique in our cooperative. The members of this clique downvote any proposal that could support the development of the coop, affecting others in the process" (Interviewee 13).

In contrast, it appears that quite a few members do not care too much about their coop, as the second most commonly reported issue is related to members' indifference to their coop. Interviewee 20 stressed that this problem jeopardizes the future of the coop but mentioned a recently introduced program that might stimulate member involvement: "There is certainly a lack of coop spirit. Plenty of members do not care about the coop. Without member engagement, there is no real future for the coop. Well, I hope that the farmer exchange program our coop recently introduced will encourage some members to become more involved. Some will travel to other countries to observe how successful coops rely on active members". At this juncture, it should be mentioned that most interviewees mentioned that low prices and high production costs are critical issues to them, albeit not directly related to how the coop operates or performs.

Regarding the detection mechanisms, most members stressed that their coops handle their applications for direct income support in the CAP context. As a result, their coop is in a position to cross-check what they fill out in their applications vis-à-vis what they declare in their agreements with their coop. As Interviewee 18 reported: "The vast majority of our members receive direct income support in the CAP context. Our coop regularly compares what they declare in their applications and what they agree to deliver to the coop. Quite often, the gap is large. These members then have to explain what went wrong". Still, as several interviewees pointed out, many coop members are in a position to conceal the truth: "Some members never get caught. They justify the gap between their CAP applications and their coop delivery agreement on the basis of the CAP historical reference system, which corresponds to different amounts. So, catch them if you can! You would need to be there when they harvest" (Interviewee 15). The second most common diagnostic tool is informal. That is, coop members often gossip about or even report other members who illegally side-sell. Interviewee 11 is undecided about these detection avenues: "I know that most members discuss what other members do. Some even tell the coop management about other members' secret dealings with traders. Well, although it serves them right, I am not sure if it is the right thing to do".

Finally, as far as the solutions are concerned, it should be first pointed out that the official sanctions to offenders are price cuts and suspension of membership, and are enforced on the basis of the side-selling severity. Overall, the interviews revealed that all the solutions currently in place—not only the sanctions—vary in their perceived effectiveness. Of course, no less than one-quarter of interview participants find the extant solutions ineffective. Interviewee 9, for example, stated: "Yeah, right, we do have sanctions for side-sellers, so what? Quite a few members do it, year in, year out. Let's be honest. It is not easy to stop it". Interestingly, another one-quarter of interviewees report solutions of non-punitive character, like discussions at the General Assembly and trust-building efforts. As Interviewee 17 stated: "In our coop, we do have sanctions against members not fulfilling their obligations. However, we try hard to build trust. Trust helps decent members stay intact from sneaky behaviors of other members". On the disciplinary side, the most frequently reported effective practices are price cuts and membership suspension. Interviewees 3 and 4 were adamant about the role of price cuts: "A price cut to side-sellers is what works best. It must hurt to know that other members get a higher price" (Interviewee 3), and "It is only fair to get a lower price when they do not deliver what they had agreed. I am sure they will think twice before doing it again" (Interviewee 4). Interviewee 9 was even in favor of excluding members: "Some years ago, I recall that a couple of members were banned for five years. Of course, they were selling to traders regularly. Back then, I thought it was too tough on them, whereas now I am convinced we had no choice but to kick them out".

# 5 | DISCUSSION

## 5.1 | Summary, contributions, and implications

Whereas prior research has focused on side-selling's determinants, our article enhances the understanding of side-selling's consequences and solutions. To the best of our knowledge, this article is among the first to empirically examine side-selling's harmful consequences and inquire about the effectiveness of present solutions in agricultural coops. We adopted a member's perspective to assess side-selling's influence on member benefits and better understand the likely harmful effects of member opportunistic behavior. However, we followed an indirect valuation approach to document side-selling, inquiring about members' knowledge of other members' behavior. This approach allowed us to overcome self-presentation concerns and simultaneously capitalize on the knowledge and the perceptions members hold for other members' actions. In the "Effects Study", with survey data from 128 members of four fruit cooperatives, we showed that illegal side-selling by other members harms perceived member benefits, even in the presence of other collective action problems like the influence costs issue. In the same study, we demonstrated that side-selling's aversive impact on coop benefits was soothed when members thought that transparency regarding coop activities is high. In the "Solutions Study", with interview data from 20 members, we found that different punitive (e.g., suspending membership) and collaborative (e.g., fostering trust) solutions are considered effective.

The "Effects Study" findings contribute to the coop literature, providing new insights into collective action problems' consequences and highlighting the importance of a long-standing coop peril. The results suggest that coops need to secure member loyalty to keep most members satisfied. In fact, it turns out that illegal side-selling sets the stage for an ailing organizational environment. That is, some members' failure to fulfill an essential duty (i.e., inadequately patronizing their coop) probably fires up a coop's failure to do its essential duty (i.e., adequately providing

member benefits) or at least fuels members' discontent about the adequate provision of coop benefits. The strong influence of side-selling, in contrast to the insignificant effects of other collective action problems, raises the question of whether too much emphasis has been placed on issues that, albeit poisoning the investment or the governance environment of coops, do not necessarily strike at the heart of coop activity. Hence, the "Effects Study" findings pave the way for greater empirical rigor in understanding the coop model and a core organizational issue, underscoring the value of empirically zooming into the effects of the loosely enforced (individual) delivery obligations on top of theoretically analyzing the consequences of the vaguely defined (common) property rights.

The "Solutions Study" suggests that, apart from side-selling, members attach importance to opportunistic behavior by other members in general. Notably, they seem to mostly associate such behavior with the influence costs issue. Also, in contrast to the covert nature of side-selling, several interviewees unveiled the overt display of influence cost episodes (e.g., impression management attempts at the General Assembly). Still, even though different opportunism manifestations connected with the other collective action problems (i.e., portfolio, horizon, influence costs, and control) warrant research attention, the "Solutions Study" outcomes affirm that free-riding behavior is a central collective action issue, at least in coop members' views and regarding its side-selling variant. Some members even pointed out that it deters coops' efforts to serve their customers and withstand competition. In other words, the "Solutions Study" offers evidence that free-riding conduct (through illegal side-selling) appears to disrupt the consistent patronization that coops need in order to stabilize their supply flows and engage in market-oriented activities. Moreover, the "Solutions Study" reveals that detecting such conduct is no easy task. As some interviewees emphasized, although cross-checks with CAP-related aid declarations equip coops with a seemingly unrelated diagnostic tool, some members manage to breach their delivery agreements without being detected.

On the solutions side, the "Effects Study" highlights that just behavior at the coop level might make up for the unjust behavior at the member level. This probably implies that members might not hold their coop responsible for the opportunistic conduct of other members if the coop as an organization maintains a transparency-based relationship with its members in general. Of course, this does not mean that ample transparency displaces illegal side-selling. As the "Solutions Study" shows, coops take different measures of punitive and collaborative nature to deal with this issue directly. The "Solutions Study" outcomes confirm and extend past studies that have put forward punitive (e.g., reducing service provision) and collaborative (e.g., investing in member training) solutions, indicating that coops may blend differential options to optimize their policy effectiveness. Conjointly, the studies' results complement our knowledge from extant literature that has analyzed how well-defined and enforced property rights in coops may ensure that members bear the full cost of their actions, underlining the virtue of establishing a bright "habitat" for collective action even when it is hard to discipline individual actions. In addition, both studies call attention to the importance of adopting a members' perspective.

Our article provides some encouraging findings regarding how coop leaders and managers may cope with the issue of illegal side-selling that undermines the competitive position of their coops. For those decision-makers who want to tap the full potential of intervention measures, it seems advisable that organizational-level actions are introduced, regardless of the measures taken to combat members' opportunistic behavior. Employing a policy mix to deal with side-selling directly is inevitable, but creating a healthy organizational environment, in general, might mitigate illegal side-selling's detrimental effects nonetheless. Similarly, policymakers may reconsider their approach toward side-selling. Our studies' context and findings reveal that simply legislating a minimum delivery percentage does not deter illegal side-selling. Presumably, systematic

inspections are required along with supporting measures (e.g., capacity-building programs) that will help coop decision-makers create an organizational setting where there will hardly be any room left for members who disrespect the collective benefit.

## 5.2 | Limitations and future research suggestions

We recognize that our study is not without limitations, some of which highlight avenues for further research. The "Effects Study" is based on a relatively small sample of coop members, which may limit the generalizability of our findings. Small samples tend to reduce statistical power and inflate Type II errors, but we still find strong support for both of our hypotheses. Besides, other side-selling studies (e.g., Mujawamariya et al., 2013; Arana-Coronado et al., 2019; Alemu et al., 2021) have drawn similar samples in terms of size (i.e., about 120 members from four to five coops) and performed comparable statistical analyses (e.g., probit regression analysis). Additionally, similar to past research, we conducted both studies in a single country and setting (i.e., fruit coops). Hence, the "Effects Study" could be replicated in other countries, larger samples, and different settings to generalize our findings. Our choice to collect data in four fruit coops should alleviate some concerns about single-domain effects. In a similar vein, although qualitative studies customarily involve a limited number of informants, the conclusions drawn in the "Solutions Study" are based on a small sample of interviewees. Future research could draw a larger sample and scrutinize members' views on different extant solutions.

Furthermore, in the "Effects Study", we took precautionary steps and employed some of the procedural remedies suggested by MacKenzie and Podsakoff (2012) to free our measures of methodological artifacts. Still, the latter may have exerted some influence. Longitudinal studies could be designed that would at least allow researchers to temporally separate the examination of side-selling by other members from that of potential consequences. Likewise, longitudinal methods would also help researchers determine the long-term trajectory of side-selling's influence on perceived member benefits and even infer causality. Actually, the phenomenon of side-selling probably needs more dedicated research. We do not know all the consequences, and further research could examine whether it can predict specific outcomes (e.g., member withdrawal, coop performance) or if a feedback loop is present. Longitudinal studies could be designed that would allow documenting such outcomes and assessing the effectiveness of different solutions. In doing so, juxtaposing the coop's perspective with the members' standpoint would also be a worthwhile avenue for research.

Finally, our operationalization of side-selling and the other collective action issues (i.e., asking whether plenty of other members engaged in the inspected opportunistic behaviors) was not optimal, even though it offered a computationally simple tool and pre-empted respondent fatigue (e.g., no missing values were recorded). Although it might not be easy for coop members to know or recall the exact degree of side-selling by others or the number of members that side-sell, further research could use alternate computational means to assess the extent of illegal side-selling (e.g., using an ordinal scale to measure the number of members). Another promising extension of our study could investigate the implications of legal side-selling. Gaining insights into members' stance towards the latter could help uncover the total impact of side-selling and enable coop decision-makers to take full control of the problem instead of relying on national legislation to dictate where the boundaries should be drawn (e.g., the minimum delivery amount) or how the issue might be dealt with (e.g., the type of sanctions). Nonetheless, researchers need to continue

exploring and comparing the support measures policymakers in different countries adopt to assist coops in coping with side-selling.

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A1A2

## APPENDIX

**TABLE A1** Measurement scales and items for perceived member benefits and transparency

| Measure | Items |
|---|---|
| | *Please state how much you agree or disagree with the following statements/(1 = "strongly disagree", 5 = "strongly agree")* |
| Perceived member benefits | 1. My coop offers high-quality services<br>2. My coop offers certainty for taking the entire production delivered by members<br>3. My coop offers a better price than the producers alone could get<br>4. Overall, I am very satisfied with the benefits provided by my coop |
| Perceived transparency | 1. My coop informs its members sufficiently about its operations<br>2. My coop informs its members sufficiently about its strategy and rules<br>3. My coop informs its members sufficiently about how coop products are marketed |

**TABLE A2** Results of different regression models based on diverse configurations of control variables

| | Perceived member benefits as dependent variable (standardized $\beta$) | | | | |
|---|---|---|---|---|---|
| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
| *Control variables* | | | | | |
| Gender | 0.13* | 0.14* | 0.11 | 0.12 | 0.12 |
| Age | 0.15* | 0.11 | 0.07 | 0.06 | 0.05 |
| Education | 0.13* | 0.05 | 0.10 | 0.05 | 0.05 |
| Household income | 0.07 | −0.02 | −0.01 | 0.04 | −0.01 |
| Farm size | −0.05 | −0.03 | −0.03 | −0.05 | −0.06 |
| Active farming status | 0.04 | −0.01 | 0.02 | 0.01 | 0.01 |
| BoD membership | 0.12* | 0.15* | 0.11 | 0.14* | 0.13* |
| *Independent variables* | | | | | |
| Free-riding/quality | 0.11 | 0.10 | 0.13 | 0.12 | 0.12 |
| Portfolio-horizon | −0.05 | −0.03 | −0.05 | −0.04 | −0.06 |
| Influence costs | −0.08 | -0.10 | -0.08 | −0.10 | −0.09 |
| Sanctions | 0.09 | 0.09 | 0.07 | 0.07 | 0.07 |
| Side-selling | −0.32** | −0.30** | −0.29** | −0.30** | −0.29** |
| Perceived transparency | 0.34** | 0.37** | 0.37** | 0.36** | 0.37** |
| *Interaction* | | | | | |
| Side selling × Perceived transparency | 0.28* | 0.25* | 0.28* | 0.27* | 0.27* |
| $R^2$ | 0.68 | 0.62 | 0.66 | 0.61 | 0.61 |
| $F$ | 16.89** | 15.81** | 15.69** | 15.36** | 15.40** |

*Note*: $\beta$ values are standardized coefficients; *$p < 0.05$, **$p < 0.01$; Model 1 consists of the recoded versions of age, education, household income, and farm size, ceteris paribus; Model 2 consists of the recoded version of age, ceteris paribus; Model 3 consists of the recoded version of education, ceteris paribus; Model 4 consists of the recoded version of household income, ceteris paribus; Model 5 consists of the recoded version of farm size, ceteris paribus.