

Organizational structures of agriculture cooperatives in China: Evidence from the green vegetable sector

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ABSTRACT

China's agriculture cooperatives are playing a pivotal role in promoting rural development and boosting farmers' income. As a result of the rapidly changing external environment, diverse types of cooperatives have emerged. However, a comprehensive understanding of the organizational structures, including ownership, control, and benefit rights, of different types of cooperatives, is limited. This study analyzes the organizational structures of two types of cooperatives in China: entrepreneur-led cooperatives and government-led cooperatives. Qualitative methodology was used in this study, including semi-structured interviews with four green vegetable production cooperatives in Shandong province. Results reveal the structural differences between these two types of case cooperatives. Despite the shared ownership, control, and benefit rights among members, entrepreneur-led cooperatives are characterized by the dominance of core members in capital contribution, control rights, and dividend distribution; whereas government-led cooperatives distribute those rights more equally among all members. The findings in this study present a more comprehensive landscape of the organizational structures of China's cooperatives. Empirically, it demonstrates how cooperatives can evolve and vary across laws and cultures, even within the same legislative background. Additionally, it offers crucial insights for these cooperatives to develop and sustain long-term vitality.

1. Introduction

The agri-food sector in developing countries has been challenged by globalization, high-value market transition, marginalization of smallholders, and institutional changes (Alho, 2015; Fernando et al., 2021; Hidayati et al., 2021). Agriculture cooperatives have played an important role in addressing these challenges. As a result, various types of cooperatives have emerged, and existing cooperatives have evolved to better tackle the challenges presented by the rapidly changing environment (Chaddad & Iliopoulos, 2013; Chaddad & Cook, 2004; Ortman & King, 2007).

It is acknowledged that agriculture cooperatives are driving agriculture and rural development by increasing agriculture productivity, enhancing employment, improving farmers' livelihood, and facilitating sustainable development (Hudon & Huybrechts, 2017; Ito et al., 2012; Liang & Hendrikse, 2016; Lipatova et al., 2021). They have demonstrated their capacity to alleviate power imbalance and generate economies of scale for smallholders, as highlighted by various studies

(Henson et al., 2008; Porter & Phillips-Howard, 1997; Sexton & Iskow, 1988; Valentinov, 2007).

Agricultural cooperatives have been frequently studied concerning their organizational structure and typology. They are identified as varying in organizational structure and classified on diverse criteria, including for instance, ownership structure (Chaddad & Cook, 2004; Nilsson, 1999), ways of control (Bijman et al., 2013), and governance models (Bijman et al., 2013). In addition, the organizational structure of cooperatives varies across countries and regions (Marcis et al., 2019). Research also indicates that cooperatives in transition economies generally exhibit organizational structures diverging from that in Western countries (Fernando et al., 2021; Gardner & Lerman, 2006).

In China, agriculture is critical to economic growth and rural development of the country. Like in other developing countries, agriculture production is dominated by smallholders (Zhang et al., 2023a). Despite the ongoing efforts to cultivate high-value supply chains, smallholders remain marginalized even after years of comprehensive market reform, as argued by Liang and Hendrikse (2013) and Bijman

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and Hu (2011). To empower smallholders, China has proactively supported the development of cooperatives (Chen & Scott, 2016). Since the enactment of the Specialized Farmer Cooperative Law of China in 2007, there has been a noteworthy surge in the number of farmer cooperatives (Zhong et al., 2018), rising to 2.24 million in total by the end of 2022 as compared to 1.02 million in 2013 (CCAD, 2022).

Over the past two decades, China's agricultural cooperatives have undergone significant transformation and various cooperative types have evolved. Previous studies have identified different types of cooperatives (Liang & Hendrikse, 2013; Qu et al., 2023; Song et al., 2014; Zhang et al., 2023b). From initiation and leadership perspectives, some cooperatives were initiated and led by related government agencies (Lin & Huang, 2007; Qu et al., 2023; Sun & Yu, 2012), while the majority of cooperatives are found to be established and led by entrepreneurs such as large farmers and businessmen (Qu et al., 2023; Sun & Yu, 2012). This study defines these two types of cooperatives as government-led and entrepreneur-led cooperatives respectively. Questions arise concerning whether these two types of cooperatives are organized differently. To our best knowledge, there is a scarcity of such information, particularly within the green vegetable sector in China.

This study aims to address the gap in the literature by analyzing and comparing the organizational structures of these two types of cooperatives: government-led and entrepreneur-led farmer cooperatives, from an ownership, control, and benefits perspective. The study targets the green vegetable sector in China, since China has endeavored to promote green agriculture in the last decade and vegetable sector has received notable attention from the government. It enriches the literature by presenting a comprehensive analysis of the organizational structures of China's cooperatives and offers insight for the future development and longevity of agriculture cooperatives in China.

The rest of the paper is structured as follows. Section two provides a literature review on organizational structure of cooperatives. Section three explains the multiple case study methodology. Case description and cross case comparison are presented in section four. The findings are discussed in section five, followed by the conclusion in the last section.

2. Literature review

A cooperative is a business owned and democratically controlled by its members to benefit the members based on their use of the business (Dunn, 1988; Fernando et al., 2021). International Cooperative Alliance (ICA) sets seven cooperative principles, including voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education, training, and information, cooperation among cooperatives, and concern for community (ICA, 2015). Dunn (1988) summarizes user-owner, user-control, and user-benefit as the three key principles of cooperatives.

Ownership is defined by Dunn (1988) and Zeuli and Radel (2005) as the act of owning and financing an organization, in other words, members/users must have a financial stake in their ownership. Upfront capital contribution is considered as one prevailing means to acquire membership and ownership (Grashuis & Cook, 2017a; ICA, 2015), as is the practice in many countries (Benos et al., 2016; Bonin et al., 1993; Pönkä, 2018). However, members are not always obliged to invest capital to become owners. Hansmann asserts that ownership acquisition can extend beyond capital investments to encompass transactions with a firm (Hansmann, 1988, 1999), as is observed in some regions of Russia and China, and even in US, where farmers join cooperatives without any capital requirement (Grashuis & Cook, 2017b; Kurakin & Visser, 2017; Ren et al., 2017).

Control involves determining the use of a cooperative's assets. User-control involves members having the right to vote on key strategic policies and to delegate to a board of directors the cooperative's decision-making (ICA, 2015). Democratic control is one typical trait that differentiates cooperatives from investor-owned firms (ICA, 2015; Zeuli & Radel, 2005). Traditionally, control bodies in cooperatives include the

General Assembly (GA), Board of Directors (BoD), and Supervisory Committee (SC). While the BoD is in charge of decision-making regarding the strategies and policies of the cooperative, the BC is responsible for overseeing the actions of the BoD (Bijman et al., 2014; Bijman et al., 2013; Chaddad & Iliopoulos, 2013).

Benefit is based on ownership and members' use of the cooperative's services (Dunn, 1988), which includes residual claims, better prices, stable markets, training and education, extension services, and others (Alho, 2015; Grashuis & Su, 2019; Zhang & Kong, 2020; Zhong et al., 2018). Residual claim is the rights to the net profit generated by a firm (Chaddad & Cook, 2004). In cooperatives, net profit is typically distributed in the form of retained surplus, dividends, and patronage refunds. A cooperative can choose various ways to distribute net profit such as separating dividends and patronage refunds, aligning them by recruiting capital investment in proportion to patronage, distributing patronage refunds after fixed dividends are paid, and distributing dividends after a fixed price premium on products (Lin & Huang, 2007; Srinivasan & Phansalkar, 2003). Discounted prices on inputs and price premiums on outputs are regarded as alternative forms of patronage refund respectively by ICA (2015) and Zhang and Wang (2018), both also having been observed in countries such as New Zealand (Aini, 2019; Garnevska et al., 2020; Pringle, 1998). Between dividends and patronage refunds, ICA (2015) proposes limiting compensation on capital subscribed as a condition for membership, and it is well practiced in some developed countries that set ceilings to dividend distribution (Zeuli & Radel, 2005). In addition to financial gains, members also highly value non-financial benefits, such as a guaranteed outlet for sale, access to the market, stable prices, reliable payment, and availability of processing facilities (Aini, 2019; Kurakin & Visser, 2017).

In literature, the principles of user-owner, user-control, and user-benefit apply to all cooperatives in various forms. Among the diverse range of cooperatives, a traditional cooperative involves limiting ownership to member-patrons, providing non-transferable, non-appreciable, and redeemable residual claim rights based on patronage, and ensuring democratic governance (Chaddad & Cook, 2004). However, traditional cooperatives are challenged by the free rider, horizon, and portfolio problems, as proposed by Cook (1995). To address these problems, new types of cooperatives emerged, mainly centered around the organizational structure elements (Chaddad & Iliopoulos, 2013; Chaddad & Cook, 2004; Grashuis & Cook, 2017b; Ortmann & King, 2007). Some are restructured on ownership and residual claim rights bases, requiring members to finance the cooperative or introducing external non-patron investors (Chaddad & Cook, 2004; Nilsson, 1999; van Bekkum & van Dijk, 1997). Some cooperatives restructure their control mechanism and further delegate decision rights from the board to professional managers (Benos et al., 2016; Bijman et al., 2013; Bijman & Iliopoulos, 2014), or depart from the tripartite control system (the traditional GA, BoD, and SC governing mechanism) (Bijman et al., 2014). Despite all these variations, these cooperatives are deemed justifiable as long as they ultimately aim at benefitting members, as argued by Nilsson (1999). Dunn (1988) even points out that the deviation from absolute compliance with the principles is only a matter of degree. As a result, most would agree that there can be no standard model to which all cooperatives will conform (LeVay, 1983).

In China, the agricultural cooperative landscape, influenced by the enactment of the Specialized Farmer Cooperative Law of China (thereafter referred to as the Cooperative Law of China) in 2007 and its subsequent revision in 2017, also exhibits a diverse range of cooperative models. Previous studies have differentiated these cooperatives based on establishment and leadership. Liang and Hendrikse (2013) categorize the cooperatives into bottom-up, top-down government, and top-down entrepreneur cooperatives, emphasizing the prevalence of top-down development. Lin and Huang (2007) have examined these cooperatives through the lens of their founders' socio-economic conditions, identifying categories such as common-farmers founded, large-farmers founded, companies founded, government agencies

founded, and other non-government organization founded cooperatives. [Su and Cook \(2020\)](#) further distinguish between grassroots initiatives and government-promoted cooperatives, expanding the categorization scope. Notably, a recent academic interest has emerged in cooperatives established and led by local CPC (Communist Party of China) party branches ([Meng, 2022](#)). These categories highlight two predominant types within China's agricultural cooperatives: those established and led by regional government agencies and those founded and managed by entrepreneurial individuals (including common and large-scale farmers, vegetable traders, and former government officials) and companies.

Both cooperative types in China require a minimum of five eligible members for registration, according to the Cooperative Law of China. The Law does not explicitly mandate members' capital contribution or patronage but delegates such provisions to cooperative's bylaws. All members are granted basic voting rights by the Law, following the one-member-one-vote principle. However, cooperative bylaws are allowed to allocate additional voting rights to members who are significant capital contributors or higher-volume patrons. The Law grants members and member representatives the rights to attend the GA and cast votes on significant issues, including cooperative bylaw, director election, membership approval and termination, net profit distribution, reserve fund management, strategic merger, and others ([The Standing Committee of NPC of China, 2017](#)).

Between these two types of cooperatives, academic emphasis has primarily been placed on entrepreneur-led cooperatives. Some studies have distinguished between core members and common members and highlighted the dominance of core members in ownership, control, and benefit rights ([Bijman & Hu, 2011](#); [Huang & Xu, 2008](#); [Liang & Hendrikse, 2013](#); [Liang et al., 2015](#); [Zhong et al., 2018](#)). Conversely, government-led cooperatives have received much less attention, particularly regarding their organizational structures.

This study analyzes and compares the entrepreneur-led and government-led cooperatives from the perspectives of ownership, control, and benefit rights, aiming to broaden the understanding of the organizational structures of China's cooperatives.

The theoretical framework of this study is presented in [Fig. 1](#).

3. Methodology

This study employs qualitative methodology and multiple case study in particular. Cases were selected from the green vegetable sector in Shandong province of China.

The green vegetable sector in China was chosen in this study because the country has been transitioning towards sustainable agriculture since the proposal of the Agriculture Green Development initiative in 2016 ([Zhang et al., 2023b](#)). Vegetables are a major constituent of Chinese diets and China is a large vegetable producer. However, the elevated pesticide residues on vegetables make one significant food safety issue ([Calvin et al., 2007](#); [Jin & Zhou, 2011](#); [Zhou et al., 2015](#)). In combatting environmental degradation and food safety challenges, cooperatives are identified by many scholars including [Ma and Abdulai \(2017\)](#) and [Ma and Zhu \(2020a; 2020b\)](#) as a solution to these challenges.

Shandong was selected for this study because it is the largest vegetable production province in China. Located in the lower reaches of the Yellow River and affected by the warm temperate monsoon climate, Shandong has superior climate conditions suitable for high-quality vegetable production, see [Fig. 2](#). In addition, it has about 244 thousand agriculture cooperatives, accounting for 10.86 % of the nation's total. Thirdly, the province attaches great importance to green food production. Statistics from the China Green Food Development Center, an authoritative organization guiding the development and management of green food in China, demonstrate a consistent growth in the number of certified green foods and certified green production firms in Shandong over the past decade ([China Green Food Development Center, 2013–, 2022](#)). More specifically, this study focuses on Shouguang area of Shandong province. Shouguang, acknowledged as the “home of

vegetables” in China and a notable center for greenhouse farming ([Yu et al., 2017](#)), has over 1 600 cooperatives as of 2023, including 13 cooperatives with annual vegetable sales of over 100 million yuan.¹

The top 100 cooperatives were provided by the local cooperative affairs officials for further selection. Specific screening criteria were applied, including operational longevity (over 5 years), primary products (cucumber and capsicum), minimum annual turnover (50 million yuan), and exemplary status (at least recognized as municipal exemplary cooperatives). After the application of these criteria, a list of cooperatives was generated and reviewed by the officials. Consultation with the officials revealed that only two government-led cooperatives were included in the list. Further recommendations from the officials narrowed the list down to six cooperatives. Due to accessibility constraints, we ultimately selected four cooperatives as our sample, comprising two government-led and two entrepreneur-led cooperatives. Three of the selected cooperatives achieved annual sales exceeding 100 million yuan, while the remaining one reached sales of over 70 million yuan. Data were collected in 2023 through semi-structured interviews with five respondents from each cooperative (including managers and members) and an official in charge of local cooperative affairs. Additionally, secondary data were obtained from journal articles, local press, and government/cooperative reports to supplement the research. The data collected were processed and analyzed using thematic analysis, an approach that involves “examining the data to extract core themes that could be distinguished both between and within transcripts” ([Bryman, 2012, p. 13](#)). The analysis followed the steps of transcribing the data, coding the transcription into segments, forming themes and subthemes from the codes, and seeking connection between themes ([Bryman, 2012; Cartwright, 2020](#)). The review and analysis on the interview data for this study resulted in identifying core themes and subthemes related to ownership, control rights, and member benefits within the cooperatives.

4. Results

4.1. Case description

A brief case description of the four cooperatives is presented in [Table 1](#).

Co-op A was registered in 2015 by five farmers and has increased its membership to 79 in 2023. Since establishment, the cooperative has been engaged in green cucumber and pepper production and marketing. To ensure input quality and increase profit margin, it also supplies seedlings and a limited variety of fertilizers to its members at lower prices. The cooperative is still in the process of applying for green product certification.

Co-op B was founded in 2012 by five experienced vegetable transporters and brokers, and the membership base has reached 102 in 2023. Co-op B also made some strategic investments by using bank loans and constructed 60 standard greenhouses that are leased to cooperative members for vegetable growing. It also runs a wholly owned transportation company and ships the vegetables to target markets using its own fleet. In some marketplaces, the cooperative leases several local outlets for vegetable wholesaling. Apart from marketing its own products, it also collects vegetables from other cooperatives, paying them an administration fee for this service.

Co-op C was founded by the local CPC party branch in 2008 and is under the leadership of the village committee and party branch. Its membership has expanded from 25 to 375 in 2023. It provides loan services to its members with accelerated loan disbursement via its financial assistance department. The cooperative conducted unified planning for the construction of greenhouses and uniformly developed essential infrastructure like high-voltage electrical system. Rather than directly marketing the vegetables, it built a marketplace and leased the

¹ 100 USD = 723.02 Chinese yuan at the exchange rate of Apr 1, 2024

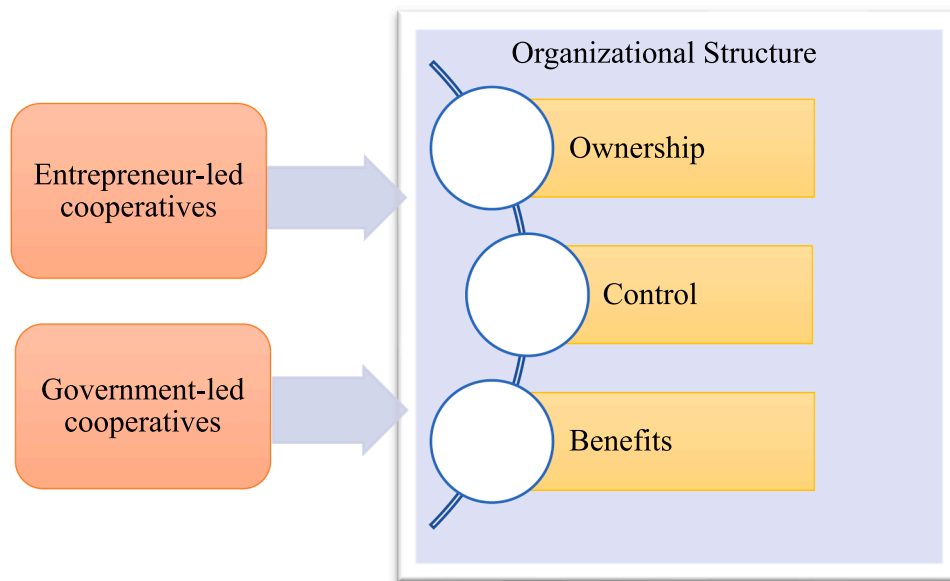


Fig. 1. Theoretical framework.



Fig. 2. Geographic location of Shandong Province.

market operation right to four agents (also members of the cooperatives).

Co-op D was founded in 2014 and is led by the local CPC party branch, with membership size growing from 133 to 165 in 2023. To ensure vegetable quality delivered to the market, it requires its members to purchase quality inputs from the cooperative at discounted prices and purchases only the best quality products from members. It also offers loans to its members at lower interest rate and faster loan disbursement speed. To enhance member profit margins, it coordinated with the Chinese Academy of Agricultural Sciences to promote the cultivation of a new high-quality tomato variety, resulting in a 50,000 yuan revenue

increase per mu. Due to its high product quality and strict production management, it was certified as Global GAP and China GAP in 2022 by CQC.

4.2. Cross case comparison

This section provides a comprehensive cross-case comparison of the four cooperatives based on the organizational structure elements of ownership, control, and benefit.

Table 1
Profile of the four cooperatives.

	Co-op A	Co-op B	Co-op C	Co-op D
Year of establishment	2015	2012	2008	2014
Year commencing green production	2015	2014	2008	2016
Previous work of founders	Farmers	Vegetable transporters; Brokers	CPC party branch committee members	CPC party branch committee members
Founding members	5	5	25	133
Current members	79	102	375	165
Membership eligibility	Investing capital or delivering qualified product	Investing capital or delivering qualified product	Local villager; Contributing 1000 yuan as upfront capital; Delivering qualified products	Local villager; Contributing at least 300 yuan as upfront capital; Buying inputs from the cooperative; Delivering qualified products
Key assets	Warehouses; Packhouses; Cooperative workplace	Warehouses; Packhouses; Cooperative workplace; Greenhouses; Transportation vehicles	Marketplace; Cooperative workplace	Warehouses; Packhouses; Cooperative workplace
Land size (mu)	500	1000	4486	1500
Main activity	Input supply; Product pooling; Marketing	Greenhouse lease; Product pooling; Marketing; Transportation	Physical marketplace provision; Credit service	Input supply; Product pooling; Marketing; Credit service
Main products and proportion of revenue	Cucumber (≥70 %); Pepper (≈20 %)	Pepper (60 %); Luffa (20 %); Cucumber (10 %)	Pepper (≥90 %); Cucumber (5 %)	Tomato (70 %); Cucumber (20 %); Pepper (10 %)
Green certification	None yet in progress	Certified by CGFDC in 2020	Certified by CGFDC since 2013	Certified as Global GAP and China GAP in 2022 by CQC

Note: 1 ha= 15mu

CGFDC: China Green Food Development Center

CQC: China Quality Certification Center, a national certification institute in China

GAP: Good Agriculture Practice

4.2.1. Ownership

The ownership structure of the four cooperatives is presented in Table 2. Both Co-op A and B have five core members providing all the capital and holding all the shares. In Co-op A, the five core members acquired ownership by both capital contribution and patronage. However, following the cooperative’s establishment, two members, including the chairperson, ceased farming and became non-patron members. Noteworthy is the dominant role of the chairperson in the establishment of the cooperative. Required by the Cooperative Law of China, a minimum of five members is needed for registration. The chairperson invited another four farmers to establish the cooperative, but he contributed the majority of the capital, specifically 80 %. Co-op B’s core members acquired ownership only through capital contribution, without any transactions with the cooperative since its establishment, and the shares are equally distributed among them. Common members in both the cooperatives obtained ownership solely through patronage. While primarily supplying their products to their own cooperatives (and the cooperatives are obliged to aggregate whatever quantity of qualified products delivered by their members), they also have the flexibility to sell elsewhere if better prices are offered by other intermediaries experiencing supply shortages.

However, the ownership differs in the case of Co-op C and D. Their members initially contributed both capital and patronage. To enhance economic welfare for more villagers, the two cooperatives later granted membership, upon their capital contribution, to some villagers (5 in Co-op C and 32 in Co-op D) who had ceased farming. Co-op C distributes shares equally to all its members, requiring each to pay 1000 yuan as

upfront capital. In Co-op D, shares are allocated proportionally based on members’ capital contributions, ranging from 3 to 100 shares per individual member at the price of 300 yuan per share. Notably, the village committee used its collective land to acquire 1000 shares, making it the biggest shareholder. But the land was leased to members for vegetable growing. Members of Co-op C may choose to sell their products to other cooperatives for better prices out of the same reason as in Co-op A and B, and two of the interviewed members even sell approximately half of their products elsewhere. In contrast, while Co-op D only purchases the best quality products, its members sell all their best quality products (accounting for about 95 % of their total volume) to their own cooperative.

4.2.2. Control

Although additional voting rights can be granted to significant capital contributors or higher-volume patron members by the cooperative bylaw, all the four cooperatives choose to follow the one-member-one-vote principle, as shown in Table 3. The findings of this study indicate that only a limited number of strategic issues are formally presented for member voting. However, all members have the freedom to, and they do, express their opinions on cooperative strategies and operations informally at any time they wish. This stems from the established rapport between the members and the BoD. For Co-op C and D, issues relating to cooperatives’ strategy and operation are also occasionally discussed in Villagers’ Assembly during the adjournment of the GA.

With respect to other governing bodies, both Co-op A and B have all their core members constitute the BoD without election, but neither of

Table 2
Ownership structure of the four cooperatives.

	Co-op A	Co-op B	Co-op C	Co-op D
Ownership	Core members via capital contribution and patronage; Common members via patronage	Core members via capital contribution; Common members via patronage	Via capital contribution and patronage	Via capital contribution and patronage
Number of current shareholders	5	5	375	165
Number of shareholders who are patrons	Initially 5 but currently 3	0	370	133
Shareholding	80 % by chairperson	20 % by each core member	Equally held by all members at 1000 yuan per member	300 yuan per share

Table 3
Control rights in the four cooperatives.

	Co-op A	Co-op B	Co-op C	Co-op D
Voting right	One member one vote	One member one vote	One member one vote	One member one vote
Frequency of GA	Irregular	Once a year	Once or twice a year	2-3 times a year
GA attendees	All members	Member representatives	Member representatives	All members
Number of BoD directors	5	5	8	6
BoD composition	5 core members	5 core members	officials in party branch and village committee	Experienced farmers elected by members
Supervisory Committee	None	None	1 official in village committee and 2 villagers	CPC party members elected by cooperative members

them has an SC to oversee the BoD and the strategies and activities of management. In Co-op A, the two non-patron core members exert more control on the BoD, especially the chairperson who holds most of the shares. Co-op B equally distributes BoD control among core members due to their equal shareholding. Co-op C and D have more board directors and present a more democratic control mechanism. In Co-op C, even though board directors are officials from party branch and village committee, they were initially elected to their positions by villagers who are also cooperative members. In the case of Co-op D, members elect their BoD on experience, ability, and responsibility bases, although the position of chairperson is assigned to the party branch secretary, the head of the party branch. Both cooperatives set the SC, with committee members appointed by the village committee in Co-op C and elected by cooperative members in Co-op D respectively. Appointing village official or electing CPC party members to the SC aims to improve the level of supervision, since those people are considered as more responsible and capable.

4.2.3. Benefit distribution

As stipulated by the Cooperative Law of China, the GA holds authority over determining net profit distribution. However, the Law stipulates that a minimum of 60 % of distributable earnings (after reserves) must be allocated to members as patronage refunds, leaving a maximum of 40 % to be distributed as dividends. In all the four cooperatives, net profit is formally distributed by means of dividends, see Table 4. Consequently, in Co-op A and B, all dividends are distributed to

Table 4
Benefit distribution in the four cooperatives.

	Co-op A	Co-op B	Co-op C	Co-op D
Dividend	Only to core members	Only to core members	To all members	To all members
Dividend amount	Variable depending on profit	Variable depending on profit	Fixed amount per member	Variable but steadily growing amount per share
Form of patronage refund benefit	Discounted prices on inputs; Price premiums on outputs	Price premiums on outputs	Access to wholesale market	Discounted prices on inputs; Price premiums on outputs
Input price charged to members	0.05 yuan cheaper per seedling	Not applicable	Not applicable	20-30 % less than market price
Patrons' price premium	Fixed	Fixed	Variable	Fixed
Other benefits	Technical training; Reliable payment	Technical training; Reliable payment	Technical training; Loan provision; Reliable payment	Technical training; Loan provision; Reliable payment

core members as they contributed the cooperative capital. The shareholding structure in Co-op A mainly directs dividends to the chairperson, whereas in Co-op B, dividends are equally distributed among all core members. The dividend amount varies depending on the yearly profit, without any predetermined ceiling set. In comparison, dividends in Co-op C are distributed equally, with 100 yuan to each member. Co-op D distributes dividends at variable but steadily growing amount per share to all its members. For instance, in 2022, the dividend was 45 yuan per share.

Despite the absence of typical year-end patronage refunds, the four cooperatives provide or enable better terms of trade to their patron members, including discounted prices on inputs, price premiums on outputs, or direct access to the wholesale market. Co-op A and D supply quality inputs to members at discounted prices. They and Co-op B pay fixed price premiums of 20 cents, 40 cents, and 40 cents per kilo respectively for members' vegetables. These three cooperatives simultaneously describe such practices as an alternative form of patronage refund benefit. Co-op C does not directly distribute patronage refunds in any form but provides facilities for vegetable sale transactions. It leases the marketplace to four members upon rental payments. The four members joined Co-op C as non-patron members and serve as agents, responsible for expanding the customer base and facilitating the direct transactions between farmers and customers. Entitled to levy a market administration fee of 10 cents per kilo on both farmers and customers, they typically exempt long-term committed members from this fee. This exemption allows these members to receive wholesale spot prices that fluctuate with market conditions, implying that members will receive variable price premiums. Compared to the typical year-end patronage refunds, these better trade terms are regarded as refunds paid in advance, which constitute an important part of members' economic benefits.

During the interview, all members in the four cooperatives expressed their satisfaction with the economic benefits derived from their patronage and highlighted their happiness with the substantial growth of their household income and assets. Respondents frequently cited possession of at least two cars and two houses as indicative of their financial growth.

Beyond financial gains, members in this study highly prioritize stable market access and reliable payment although they are still susceptible to price volatility. These two non-financial benefits serve as the pivotal incentives for farmers to join the cooperatives. Before the establishment of the cooperatives, farmers sold their products to multiple middlemen at disadvantageous prices and bore the risks of unsold inventory and even payment default. Now, the cooperatives are obliged to purchase all qualified products from members and make timely payments. The related risks are born by cooperatives and specifically by core members in the cases of Co-op A and B. Regarding Co-op C, the agents are responsible for facilitating the sale of all qualified products of members. To ensure timely and reliable payments for members' products, customers are required to make advance payments to the cooperative. Members' transactions with the customers are settled via the

cooperative's bank account.

In contrast to these benefits, technical training and loan provision are less valued by members. Years of farming and initial training from both cooperatives and government agencies have shaped the members into proficient farmers who are learning from each other. Having earned considerable revenue, they generally have no demand for loans unless for greenhouse construction purposes.

5. Discussion

Based on the cooperatives' foundation and leadership, Co-op A and B fall into the category of entrepreneur-led cooperatives, while Co-op C and D are government-led cooperatives. In Shouguang, there is a notable scarcity of government-led cooperatives in contrast to those led by entrepreneurs. The organizational structure of these two types of cooperatives is presented in Fig. 3.

5.1. Ownership

Both types of cooperatives have non-patron members whose ownership is acquired solely through capital contributions. These involve core members in entrepreneur-led cooperatives, where shareholding can be highly concentrated to specific core members or equally distributed among all core members. Non-patron members also include certain villagers and/or the village committee in government-led cooperatives such as Co-op D. In entrepreneur-led cooperatives, most members, i.e., common members, do not have capital investment and acquire ownership only on a patronage basis, which has been observed by Ren et al. (2017) in China. In contrast, despite the shareholding by very few non-patron members, the majority of members in government-led cooperatives contribute both capital and patronage. Their mandatory upfront capital contribution is consistent with common practices in many countries as summarized by Grashuis and Cook (2017a) and Pönkä (2018).

In short, diverse approaches exist in China to obtain cooperative ownership. Dunn (1988) and Zeuli and Radel (2005) argue that all members should finance their cooperatives. However, the entrepreneur-led cooperatives in our study and cases from some countries, like Russia (Kurakin & Visser, 2017), illustrate that this is not universally viewed as a prerequisite for cooperative membership and ownership. This study provides fresh evidence aligning with Hansmann's (1988) assertion that ownership acquisition can go beyond

capital contribution to include member patronage, as seen in Co-op A and B.

However, excluding common members from capital contribution has some consequences. Firstly, it limits a financing source for any future expansion/growth of the cooperative. This departs from the efforts of many cooperatives (Chaddad & Cook, 2004; Nilsson, 1999) to adjust their ownership structure to increase member financing. In addition, lack of a financial stake in the cooperatives could potentially diminish the common members' commitment to their cooperatives. This study identified that some members do sell a proportion of their products to other cooperatives for better prices. The decreased members' commitment poses a serious threat to the long-term development of the cooperative, also discussed by Apparao, Shadbolt et al. (2020).

5.2. Control

Although both types of cooperatives have a GA following one-member-one-vote principle, there are differences in how they exercise the control rights. In entrepreneur-led cooperatives, the BoD is automatically formed by core members, and there is no governing body to oversee the BoD or the management. Conversely, government-led cooperatives have a BoD and SC, both of which are elected by members.

The formation of the core-member-only BoD and the absence of an SC in entrepreneur-led cooperatives highlights the dominance of these members in the cooperatives' long-term strategic development. This is similar to the findings by Song et al. (2014) and Zhong et al. (2018) regarding the exercise of control rights in some Chinese cooperatives. Even within this same cooperative category, core members may exercise control rights differently, i.e., primarily by certain core members or equally by all core members. However, the dominance of control right does not follow democratic member control, an ICA cooperative principle, and diverges from the regulations in the Cooperative Law of China, which requires democratic control and a BoD (if there is any) elected by members. Limiting common members' control rights, although leading to lowered influence costs in decision-making, may increase agency costs and jeopardize member commitment over time. Apparao (2020) suggests that member commitment can be strengthened by increasing their participation in a cooperative's control and as such, a cooperative can improve internal control and governance. This is a key factor for the long-term vitality of China's cooperatives, as has also been highlighted by Su and Cook (2020).

The configuration and composition of the governing bodies in

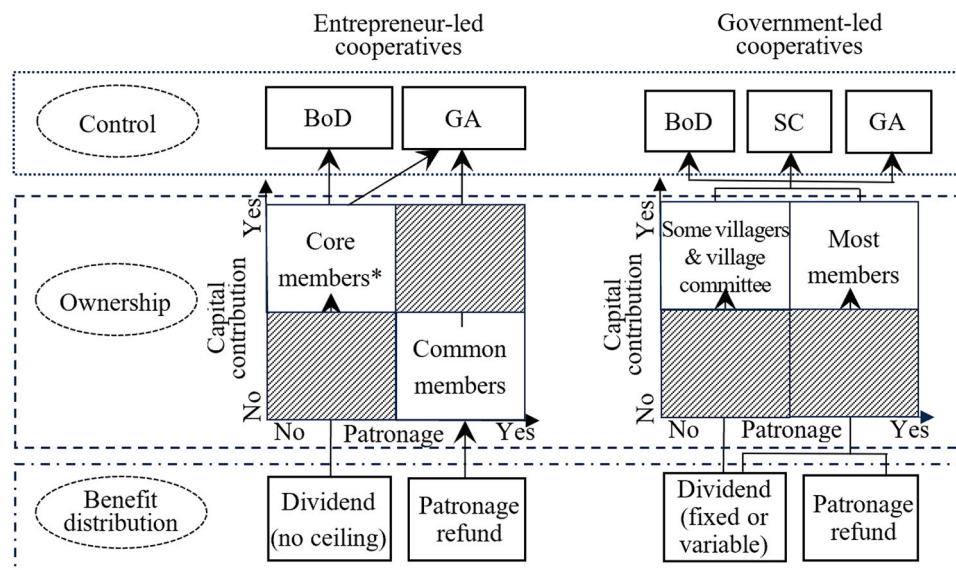


Fig. 3. Organizational structure of the two types of cooperatives. Note: *Despite the existence of some patron-core-members in Co-op A, their patronage is limited.

government-led cooperatives demonstrate a more democratic control structure. Such a structure is mainly based on the *Regulations of the Communist Party of China on Rural Grassroots Organizational Work* which emphasizes democracy in elections, decision-making, administration, and supervision. However, the direct involvement of government agencies in the governance of cooperatives could potentially degrade the autonomy and independence of the cooperatives, departing from the fourth ICA principle and negatively impacting the organization's vitality and longevity. In addition, granting equal control rights to non-patron members may provoke discontent among patron-members whose continuous patronage underpins the cooperative's long-term development and success. This potential problem can be addressed by the practice in some countries where non-patron owners are only granted non-voting rights (Benos et al., 2016; Zeuli & Radel, 2005).

5.3. Benefit rights

Net profit distribution correlates with ownership structure, resulting in different distribution approaches. In both types of cooperatives, non-patron members derive ownership from capital contribution and receive dividends. Notably, dividends in entrepreneur-led cooperatives fluctuate based on annual profit with no upper limit; whereas in government-led cooperatives, they remain fixed or steadily growing over time. Conversely, common members, relying solely on patronage, only receive patronage refunds. In government-led cooperatives, most members contribute both capital and patronage, and consequently are remunerated with both dividends and patronage refunds.

For both types of cooperatives, the patronage refunds manifest as improved terms of trade, including discounted prices on inputs and fixed-price premiums on outputs, also found in other countries such as New Zealand (Aini, 2019; Garnevska et al., 2020; Pringle, 1998). In this study, members widely embrace this method because it enables precise calculation and timely disbursement of patronage refunds for each transaction, avoiding the uncertainties associated with end of year payments. The results of this study offer a broader interpretation of benefit distribution compared to earlier studies in China (Liang & Hendrikse, 2013; Liang et al., 2015; Ren et al., 2017; Su & Cook, 2020) where it was noted that core members dominate benefit rights without the consideration of alternative forms of patronage refunds. However, Apparao (2020) argues that refund distribution alone does not significantly enhance member commitment. This is evidenced in three of the cooperatives studied where members sell some of their products to other cooperatives in pursuit of higher prices.

Regarding dividend distribution, the absence of a predetermined ceiling in entrepreneur-led cooperatives diverges from the ICA (2015) principle and the widely adopted practice in many cooperatives observed by Zeuli and Radel (2005). In addition, it is also a deviation from the Cooperative Law of China where a maximum of 40 % of distributable earnings is set for dividend distribution. While ICA (2015) emphasizes the critical role of reserves in bolstering a cooperative's business and securing its long-term viability, core members' pursuit of financial gains through unrestricted dividends could potentially undermine the cooperative's reserve accumulation. For government-led cooperatives, the fixed or annually growing dividend policy, while incentivizing member investment, could also negatively impact reserve accumulation during periods of reduced profit.

The patronage refunds paid in advance to patron members and the dividends paid to core members are widely employed in entrepreneur-led cooperatives. However, it may potentially create tension between core and common members. Particularly, common members have no access to increased net profit during thriving markets, as most of it is channeled to core members through dividends. This consequently may discourage patronage among common members and weaken member commitment, as has also been identified by Grashuis and Su (2019).

To summarize, there is significant divergence of entrepreneur-led cooperatives from ICA principles and prevailing practices in many

countries. Cooperatives within this type may also slightly differ in their structures. However, their structural arrangements are generally accepted by members during the development stage of the cooperatives. The reason, as expressed by some common members, is due to the improved financial gains and the reduced risks related to sales and payments. It can also be explained from a cultural perspective, such as a strong reverence for authority and a great desire for internal harmony (Child, 1996), as well as the weak notion of democracy (Shao & Xu, 2013). Ma and Zhu (2020a, 2020b) attribute the dominance of core members to efficiency considerations. The authors further view members' acceptance of such departure as an incentive to attract and maintain capital investment from rural capitalists.

6. Conclusion

This study investigates the organizational structures of China's agriculture cooperatives from the perspectives of ownership, control, and benefit rights. Two types of cooperatives, entrepreneur-led and government-led cooperatives, were studied and analyzed.

It is evident that even within the same legislation and cultural background, China's cooperatives exhibit different organizational structures. Previous findings regarding the dominance of core members in ownership, control, and benefit rights were primarily directed at entrepreneur-led cooperatives. However, their findings presented an incomplete understanding of the means of ownership acquisition and benefit distribution in cooperatives. Despite operating more akin to investor-oriented firms due to the rights distributed to core members, the entrepreneur-led cooperatives extend the ownership and benefit rights to common members based on their patronage, which incorporates certain traits of traditional cooperatives. Therefore, with core and common members respectively situated at the two poles of the cooperative continuum (investor-oriented firms and traditional cooperatives), this type of cooperative does not fit into any of the categories in the typologies proposed in existing literature. Instead, they present some widely applied models specific to China's context. In contrast, government-led cooperatives, disregarding the very few non-patron members, showcase traits more aligned with traditional cooperative models.

This study presents a broader landscape of China's agriculture cooperatives, circumventing the pitfalls of other research that has narrowed its focus on entrepreneur-led cooperatives. Empirically, it provides evidence of how cooperatives evolve and differ within a unique legislative and cultural context. In addition, it offers crucial insights into improving the sustained growth and longevity of these cooperatives. Enhancing member commitment is pivotal, which is achievable through increased financial involvement and active participation in cooperative control. A higher financial involvement can be established by requiring member capital contributions and is reinforced by providing better prices on outputs. Reserve accumulation should also be safeguarded to secure stability and further growth of the cooperatives.

The study's limitations primarily arise from the small number of cooperatives studied from Shandong province within the green vegetable sector, potentially limiting the broader applicability of the findings. The diversity of organizational structures among these case cooperatives implies the potential existence of other variations of each type of cooperatives that need further investigation. As cooperatives continue to evolve, questions arise concerning whether common members in entrepreneur-led cooperatives might seek participation in shareholding and cooperative control. Furthermore, questions might also emerge regarding whether local government agencies in government-led cooperatives will decrease its interventions over time to enable greater autonomy and independence for the cooperatives.

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Nicola Shadbolt: Writing – review & editing, Supervision, Methodology, Conceptualization. **Yan Liu:** Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Elena Garnevska:** Writing – review & editing, Supervision, Methodology, Conceptualization.

Declaration of Competing Interest

None.

Data availability

The authors do not have permission to share data.

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