

## Article

# Impact of Governance Structure of Rural Collective Economic Organizations on Trading Efficiency of Collective Construction Land of China

Meie Deng <sup>1</sup> , Anlu Zhang <sup>2,\*</sup>, Wei Luo <sup>1</sup>, Canwei Hu <sup>1</sup>, Meng Huang <sup>1</sup> and Congxi Cheng <sup>1</sup><sup>1</sup> School of Management, Wuhan Polytechnic University, Wuhan 430048, China<sup>2</sup> College of Land Management, Huazhong Agricultural University, Wuhan 430070, China

\* Correspondence: zhanganlu@mail.hzau.edu.cn; Tel.: +86-1399-558-1694

**Abstract:** In order to enable urban economic development, the use of the right value and asset value of rural collective construction land (RCCL) is increasingly becoming apparent and this market is experiencing rapid development. However, the arrangement of the governance structure of rural shareholding cooperatives (RSCs) can seriously affect the efficiency of collective construction land market transactions, since the governance of RSCs is related to the interests of farmers. Protecting the rights and interests of farmers while improving the governance efficiency of RSCs is a considerable challenge worldwide. To better deal with this challenge, this study used a field survey in Nanhai District, Guangdong Province, China, to estimate how the governance structure of RSCs affect the efficiency of RCCL market transactions. Tobit models were constructed, and the results show that (1) most of the governance functions of RSCs were not separate from the administrative management of the village committees, which leads to low efficiency of RSCs' governance; (2) leaders of rural collective economic organizations played a key role in governance efficiency; (3) from the perspective of collective land property rights, most village shareholders did not have decision-making power or supervisory authority in the RCCL transfers because they could not complete access to transaction information. Furthermore, most villagers felt that the amount of income distributed was unreasonable, and the rights and interests of farmers and village shareholders were not guaranteed by the RSCs. Therefore, we suggest that the Chinese authorities should strengthen their current efforts to construct a more open and fair governance structure of the RSCs and thus improve their market transaction efficiency. Our work provides some insights into ways to improve the governance structure and market transaction efficiency of RSCs, which can further contribute to the development of the RCCL market in other areas of China and worldwide.

**Keywords:** rural collective construction land (RCCL); the governance structure of RSCs; trading efficiency; transaction costs; transaction uncertainty; farmer shareholders



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## 1. Introduction

Rural collective economic organizations are institutional arrangements that provide organizational members with norms, constraints and coordination of their behaviors on the basis of property rights arrangement, including benefit distribution and incentive and restraint mechanisms [1,2]. The origin of these organizations can be traced to the agricultural cooperation movement in the 1950s. The initial people's commune established during this period has evolved over the past 60 years into two types of rural collective economic organization. One is the normal rural collective economic organization that is stipulated by the Constitution and operates under a two-tier management system [1]. The other, unlike a household contract responsibility system, is a rural collective economic organization that functions through a shareholding system, such as the farmer's professional cooperative [3–6].

The United Nations Sustainable Development Goals 1, 12 and 15 seek to eliminate all forms of poverty and sustainable consumption and production patterns in the world, protect and promote the sustainable use of land resources and promote social, economic and environmental harmony [7–9]. The factors of rural economic development mainly include land, labor and capital. The effective allocation of land, labor and capital factors can improve the efficiency of land use and hence a highly relevant land planning issue to which this paper is contributing. Rural collective construction land (RCCL) is a scarce resource, and its market transaction is costly. Land resources are allocated through the price mechanism. A different allocation of rights will lead to a different allocation of resources. Therefore, the determination of collective construction land property rights and the establishment of rules by the governance structure of rural collective economic organizations are the basis for optimizing the allocation of land resources, which is very important for promoting rural collective economic organizations' governance efficiency and market trading efficiency. The effective governance of rural collective economic organizations can promote the freedom and democracy of rural land market transactions and the fairness, justice and openness of transactions, thus safeguarding the common welfare of farmers, promoting rural economic development and reducing poverty. In addition, the effective supply and efficient allocation of RCCL can promote the sustainable development of the environment in tune with the UN development goals mentioned.

Each member of a rural collective economic organization enjoys typical comprehensive membership rights of identity, property and management characteristics [10–12]. According to the power of ownership, the collective member rights are divided into the right to participate in management, the right to know, the right to benefit and the right to dispose [13]. Among these, the right to participate in management provides participating groups with the right to express their opinions and participate in activities as members [14]. The right to know ensures that members can effectively participate in the collective by understanding and strictly following the regulations of the organizations for RCCL transaction [15]. The collective members have the right to make a request regarding sharing interests of RCCL transfers [16]. The right of disposition allows members to withdraw from the collective economic organization or give up their own rights through legal means. Members can only dispose of their own identity and rights as individuals, and cannot dispose of the rights of other members or the collective property. If they wanted to manage collective assets, they would need a statement of approval from other members. The governance structure of rural collective economic organizations is characterized by integrity, hierarchy and power. Integrity means that rural collective economic organizations should invest in people's willingness to protect the interests of their villages by appointing a board of directors, shareholders' meetings, a board of supervisors, shareholder representatives and owner representatives. Thus, the governance structure of rural collective economic organizations must establish and maintain a reasonable system of processes for effective operation [17–19].

With the marketization of urban land and the rapid development of township enterprises, urban land is becoming increasingly scarce [20]. The value of rural land assets has been increasing over the years of economic reform [21]. In 2019, the No. 1 central document of the Central Committee stipulated that a reform of RCCL entering the market should be comprehensively promoted [22–24]. A so-called "Nanhai Model" was launched as an experiment in Nanhai District, Foshan City, Guangdong Province [20]. Under this circumstance, land-based shareholding reform was initiated in Guangdong Province in the early 1990s, and this later spread to other regions in China. Individual farmers converted their land assets into a proportion of shares, then voluntarily joined together to establish the rural shareholding cooperatives (RSCs). The governance structure of RSCs attaches great importance to the construction of mechanisms, sets up a reasonable interest distribution system and clarifies the ownership of collective assets, so as to achieve the goal of the RCCL whereby "farmers becoming shareholders, and assets turned into shares" [20,25,26]. In Nanhai district, this transformation is under the "Shareholders' Congress, Board of

Directors and Board of Supervisors" model. The shareholders' congress is the highest authority in a rural shareholding cooperative, and is established according to a certain proportion of the total number of shareholders who are at least 18 years old in each cooperative [27,28]. The board of directors form the executive organ of RSCs, and the board of supervisors form the internal supervisory organ of the RSCs, and each of these members, are usually democratically elected by the shareholders' congress [16]. Rural collective economic organizations provide members with norms of conduct, supervision and coordination of the distribution of farmers' interests, and protect farmers' rights to collective land. The governance structure of rural collective economic organizations mainly protects farmers' ownership of land and property rights through the shareholding system. The perfect governance structure of rural collective economic organizations can standardize and protect the collective member rights to participate in management, the right to know, the right to benefit and the right to dispose of land of villages' shareholders participating in RCCL market transactions in the governance process, which can promote the openness, fairness and justice of the RCCL market transactions [29]. In addition, farmers' enthusiasm to participate in the RCCL market means transactions have grown, which has reduced the transaction cost of collective economic organizations in land supply [24,26]. The development of the collective construction land market can promote the development of the rural economy and promote rural revitalization.

## 2. Theoretical Framework and Hypotheses

### 2.1. Theoretical Framework

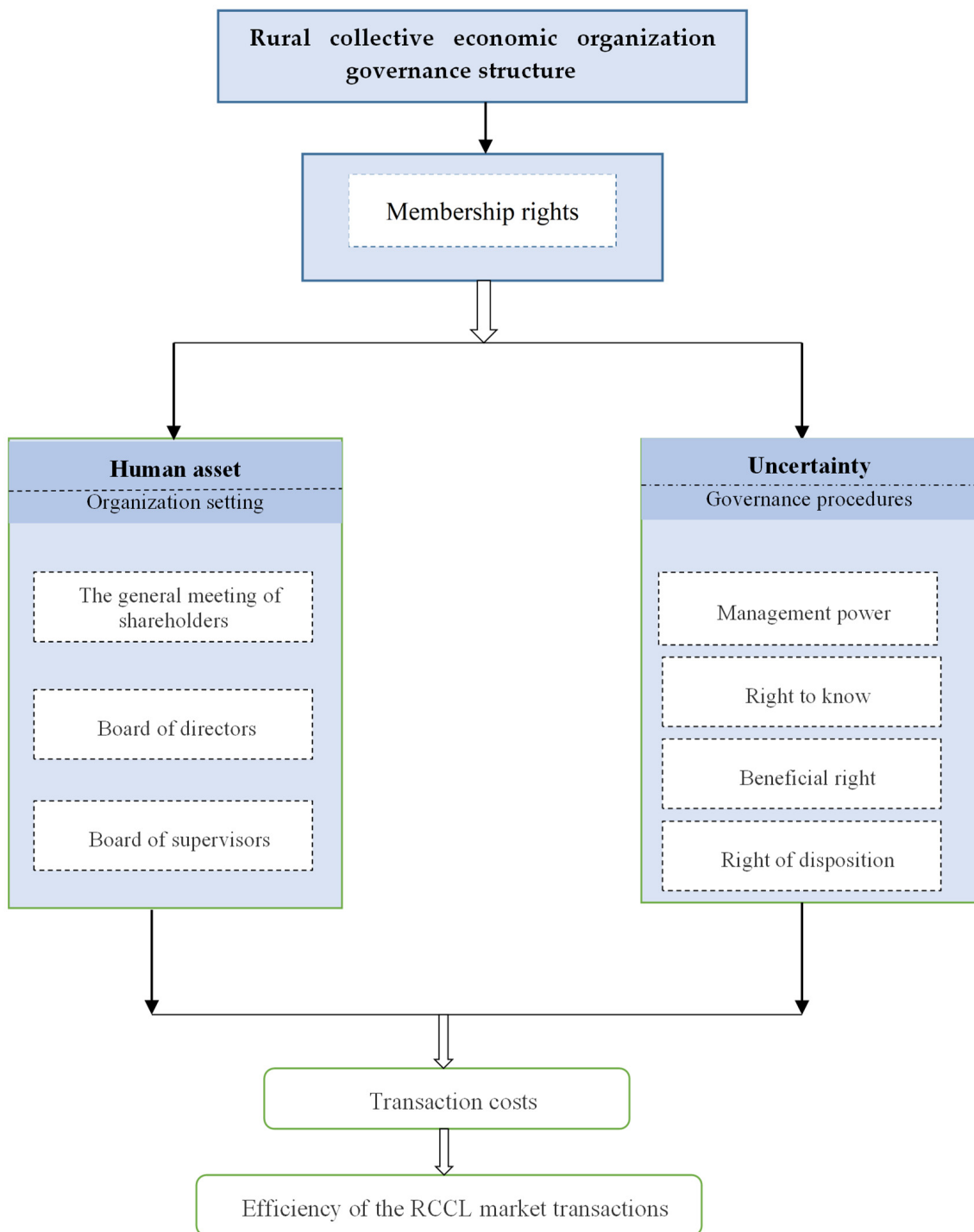
As shown in Figure 1, the transaction cost is a result of unclear property rights [30–33]. Past research has suggested that the governance structure of the rural collective economic organizations and procedures is often flexible and convenient in saving transaction costs. However, the lack of open, just and equal governance and legal protection means that the farmers' land rights and interests cannot be adequately and effectively protected, and this results in RCCL transfer chaos and low efficiency of land use [20,29]. Therefore, the governance of rural collective economic organizations managed in the form of a shareholding system, and a stable governance structure, such as the shareholders' meeting, the board of directors and the board of supervisors, was set up to ensure that the land property rights and interests of village shareholders participate in a fair and just manner. In the governance process of rural collective economic organizations, this includes whether the villages' shareholders rights are being protected, such as the collective member rights to participate in management, the right to know, the right to benefit and the right to dispose. Only the governance structure of rural collective economic organizations fully protects the rights and interests of village shareholders. This perfect governance structure of rural collective economic organizations and procedures is able to reduce the uncertainty of the RCCL transaction environment, and reduce the transaction costs. Additionally, in this structure, land transfer, land information and governance procedures are more open and transparent [20,24].

The farmers in Nanhai District have independently created a land-based shareholding system and interest distribution mode according to the proportion of shares. At present, the governance structure of rural collective economic organizations focuses on the reform of the rural shareholding cooperatives (RSCs) [26]. Set up as the general meeting of shareholders, the board of directors and the board of supervisors, the governance structure of the RSCs standardizes its operation and management practices according to the corporate governance structure of the enterprise [17,18]. This governance structure also allows for voting procedures of the shareholders' meetings and the establishment of the board of directors and the board of supervisors, and constantly improves the financial management system and the income distribution system of the RSCs. Furthermore, because of the RSCs, rural collective assets become share rights and farmers become shareholders. This better defines the rights of cooperative members to distribution benefits, democratic management, information and disposition of collective assets. According to the power of ownership rights,

the collective membership rights are divided into the right to participate in management, the right to know, the right to benefit and the right to dispose. The majority of votes for the confirmation of the RCCL transfer scheme must be held at the shareholders' meeting, which shall be approved by more than two thirds of the members or all of the members' representatives. This shows that village shareholders really enjoy the right to RCCL and participate in management, which not only protects the rights of village shareholders, but also makes the RCCL transactions more effective. The clear definition and protection of the rights of village shareholders in the RCCL transactions make the governance structure of rural collective economic organizations more stable. The enjoyment of the right to know can ensure that village shareholders protect their own rights and supervise in RCCL transactions, which is more conducive to improving the governance structure of rural collective economic organizations and improving the efficiency of transactions. The right to income refers to allowing collective members to share land interests, and ensures that village shareholders can truly obtain their own income and enjoy the fairness and justice of income distribution. The improving governance structure of RSCs is also to protect the interests of villagers. The right of disposition refers to the act of allowing village shareholders to give up their rights. The real trading market should allow free entry or exit, rather than mandatory trading. Otherwise, the market transaction efficiency will be declined. However, in the process of reform, the most villages have basically adopted the mode of "one set of people and several brands", as the collective economic organization and the "two committees" (village committees) cannot be separated for a long time [1,16]. In the current practice and exploration of RSCs in various regions, the structural model of "three meetings" is generally stipulated, and in the governance model this refers to the "shareholder (representative) meeting, board of directors, and board of supervisors". Initially, this model possessed the "appearance" of modern enterprise systems. However, in practice, these systems have not played an effective role [18,27].

According to Williamson, a good transaction system will reduce the transaction costs of the supplier [34]. Therefore, good governance structures of RSCs can positively affect the transaction costs in the RCCL market. Reasonable definitions of governance subject, reasonable governance procedures and strict supervision institutions can reduce the governance costs of RSCs, and also reduce the high costs of land supply caused by complex governance processes and governance structure. So, simplifying the governance process can save time, labor costs and other costs for RSCs. Three types of transaction costs are the most relevant: asset specificity, uncertainty and transaction frequency [20,26]. Asset specificity mainly pertains to human asset, material asset and geographical location [34]. Transaction uncertainty mainly refers to the uncertainty of the transaction environment [20,26].

In Nanhai District under the land-based shareholding system, RCCL commercialization was put into operation locally. Successful RCCL bottom-up marketization at the provincial level triggered the central government to follow an upside-down institutional arrangement for nation-wide RCCL transaction. Over the past 30 years, Nanhai District has sustained rapid development and ranks among the most developed regions in the country. The collective construction land market has been booming since the 1980s. In 2005, Nanhai District promulgated the Measures for the Implementation of Collective Construction Land Transfer Management [22,23]. With the introduction and guarantee of government policies, the RCCL began to enter the market legally using a top-down approach. The management of the transaction procedure and the legal responsibility were all stipulated, and this helped to establish a good trading environment with policy guarantees for the tangible market of collective construction land transaction. It also provided an open, fair and just trading platform for both market supply and demand parties, and this protected the rights and interests of farmers while promoting the development of the RCCL market [24].



**Figure 1.** The theoretical framework.

**2.2. Hypothesis**

According to the specificity of human capital in Williamson’s transaction cost view, the human capital in the governance structure of RSCs can affect the efficiency of RCCL market transactions [20,26]. This view also suggests that a more reasonable governance structure of RSCs would bring about greater savings in RCCL transaction costs. The governance structure of the rural collective economic organizations has been primarily focusing on the reform of rural collective economic organizations into joint-stock cooperative enterprises, by establishing the general meeting of shareholders, the board of directors and the board of supervisors. This joint-stock cooperative enterprise is believed to be able to legally

protect the interests of stakeholders at individual levels [3,4]. Other than clarifying the legal status of individuals, it can also standardize the organizational structure and governance procedures of sharing cooperative economic organizations [14]. During the process of the present reform, all villages basically adopt the mode of “one set of people and several brands” between the leadership of RSCs and village committees, so the organizational structure of collective economic organizations and “two committees” (village committees and party branches) for the villagers are not separate. This easily leads to confusion between government and enterprise, and their governance structures. There is also a lack of clarity about the rights and responsibilities of village cadres in the process of RCCL transaction, and for farmers, as a vulnerable group, this confusion can easily deprive them of their rights and interests. Therefore, the governance structure of RSCs must be composed of shareholders’ meetings, boards of directors and boards of supervisors, with clear rights and responsibilities. Only in this way can the integrity and effectiveness of the governance structure of RSCs be safeguarded. In addition, the literature also suggests that in the governance structure of RSCs, the technical level of leaders can affect the efficiency of collective construction land transactions [26]. The higher the technical level of leaders who organize transactions, the more capable they are in saving transaction costs and improving transaction efficiency. The number of leaders can also affect the trading efficiency of collective construction land [20,24,26]. Having a large number of leaders organizing a transaction could increase transaction costs and reduce transaction efficiency. So, this study proposes the following hypothesis:

**Hypothesis 1 (H1).** *The more reasonable the arrangement of the governance structure of RSCs, the lower the institutional cost of organizational transactions generated, and the higher the efficiency of RCCL market transactions.*

The uncertainty of the environment is also an important factor for Williamson. Land resource allocation is actually a transaction of property rights among economic participants with respect to space [30–34]. The lack of rural land property rights is an important reason for the lack of fairness and efficiency in farmers’ land income distribution. With the establishment and improvement of rural land collective ownership, the land rights and interests of farmers’ collectives and individuals are gradually being strengthened by law [35]. The ultimate purpose of determining rural land rights is to protect farmers’ interests and public interests. Therefore, in terms of the protection of farmers’ rights, establishing the legal status of farmers as the direct interest subjects of land, and enabling farmers to participate in collective land management, can make RCCL market transactions more open, fair and just [36,37].

Under the governance structure of rural collective economic organizations, one factor that has an important impact on the certainty of the trading environment of RCCL is whether farmers enjoy full property rights in the governance process of collective economic organizations [34]. The more secure farmers’ rights and interests are, the more farmers will actively support the RCCL transfer, thus improving the efficiency of collective construction land transactions. Therefore, villagers should have the full right to know about the information on RCCL transactions, as well as the procedures and regulatory information on village collective governance. A simplified and improved information disclosure provision of the governance procedures can not only protect the interests of villagers, but also effectively ensure the efficient operation of the village collective governance structure, minimize government corruption and save costs on RSCs’ governance. Secondly, farmers’ shareholders enjoy the right of income, but the regulations on the distribution of farmers’ income in the governance of RSCs are not clear, and the distribution of income is unreasonable, lacking fairness and justice [24]. Therefore, it is very important for rural collective economic organizations to formulate reasonable income distribution of RCCL transfers. It should not only be the core manifestation of farmers’ property rights of collective assets, but should also guarantee a living income for farmers [38]. Thus, income distribution can become

an important factor for farmers to actively participate in the collective construction land transfer and improve its transaction efficiency. The objective of income distribution should be open, fair and just. The management rights and interests of village shareholders on the RCCL transfer are mainly reflected in the villagers’ right to vote and make decisions on the transfer scheme of the RCCL, as well as the right to supervise and complain throughout the whole process of RCCL market transaction [39,40]. The shareholder villagers’ right to dispose of the RCCL should fully follow the premise of entering or exiting the land transaction on a voluntary basis. Based on this, the following hypothesis was proposed:

**Hypothesis 2 (H2).** *Under the governance structure of RSCs, village shareholders enjoy full rights and interests in the process of the RCCL transaction, so that villagers can actively support the circulation of RCCL, thus improving the efficiency of the RCCL market transaction.*

### 3. Study Area, Data and Methodology

#### 3.1. Study Area

As shown in Figure 2, Nanhai District is located in Foshan City, Guangdong Province. The study area comprises seven townships and 274 villages. We chose Nanhai District as our study area because it was the first region to implement the national land shareholding system. In this district, the rural shareholding cooperatives are made up of the economic cooperative and economic joint community [26]. The economic joint community is composed of several economic cooperatives; there are generally 171–1479 shareholders in each economic cooperative, and there are around 1493–11,000 shareholders in an economic joint community.

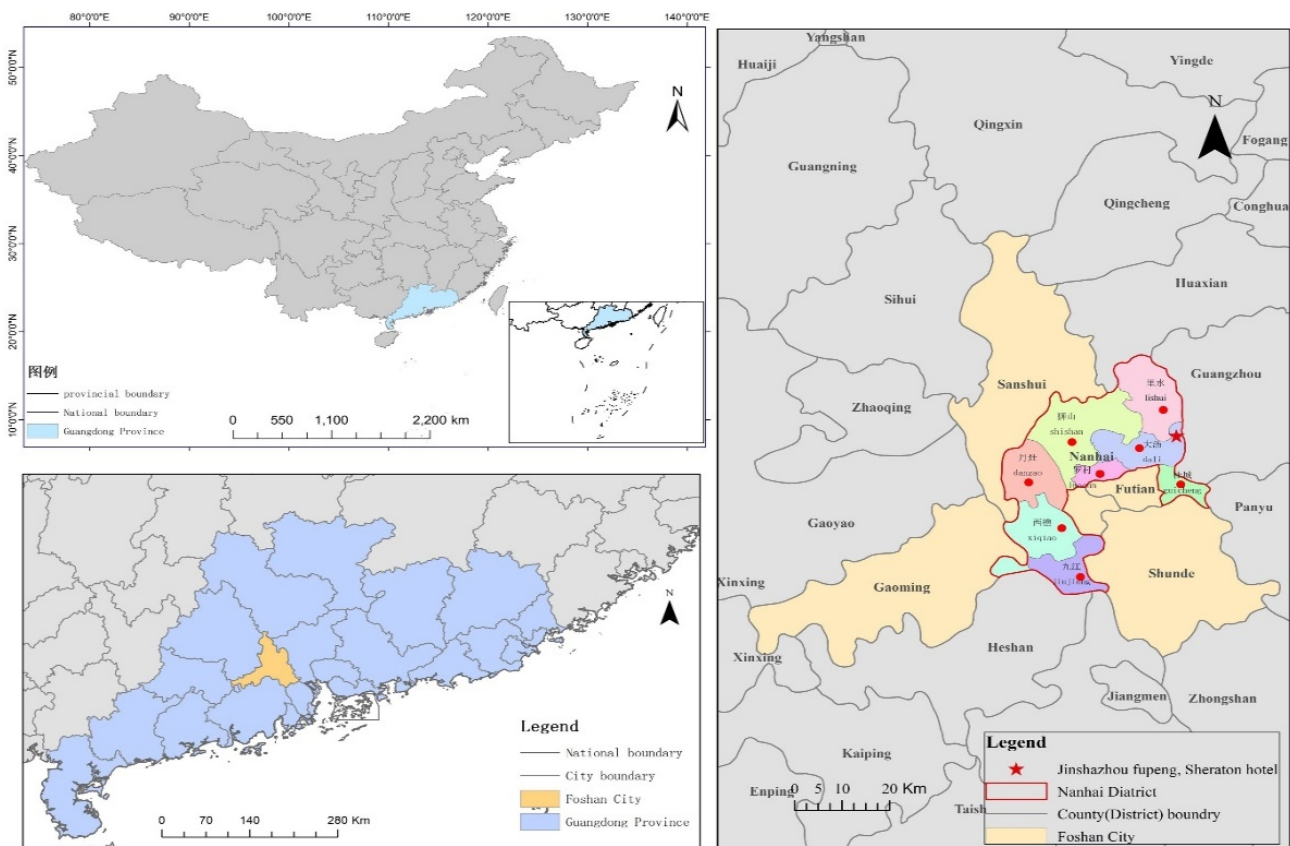


Figure 2. Location of the study area.

### 3.2. Data Collection

We conducted an empirical study that analyzed the data collected from RSCs in Nanhai District in 2020. The survey respondents were the leaders of RSCs, and rural collective shareholders. In order to test the hypotheses, we designed a questionnaire with five sections: The first section was related to the information of the respondents, such as age, education level and income level, etc. The second section inquired about the transaction costs of RSCs under the governance structure. The third section dealt with the governance structure of the RSCs. The fourth section gathered transaction frequency information. The fifth section was on the respondents' understandings of and suggestions for the current RSC governance structure. We collected 220 questionnaires, of which 205 were valid.

### 3.3. Variables

Based on the hypotheses, transaction cost was the dependent variable; the RSCs' governance structure was the independent variable. The human asset attributes were whether there was a general meeting of shareholders, whether RSCs functioned separately from the village committee, the technical level of leaders and whether the number of leaders was reasonable [16,30–34].

The other control variables were asset specificity and transaction frequency. The following indicators were designed based on transaction cost theory [20,24] (Table 1):

1. Physical assets include the area of the traded land parcels. The larger the area of the RCCL, the higher organization cost that was predicted.
2. Geographical location includes parcel location attributes. Location can be characterized as the distance from the parcel location to the town center. The closer to the town center, the higher the value of construction land, so the higher the organizational cost.
3. Uncertainty of transaction environment is composed of the following: (1) Whether the amount of income distribution is reasonable. Under the present governance structure of RSCs, the income distribution of shareholders is not clear, which can affect villagers' active participation in RCCL transfer. (2) Shareholders and villagers have limited right to know. The more information shareholders have, the lower the cost of information search. (3) Whether villagers' shareholders have the right to vote, make decisions and supervise. The right to vote, make decisions and supervise can better protect the interests of the shareholder villagers. (4) Whether shareholder villagers can enter or exit RSCs freely. Voluntarily entering or freely exiting the market can protect the villagers' rights and interests.

**Table 1.** Definitions of variables and description of statistics.

Variables		Definition	Mean	
Asset specificity	Human asset	Whether there is a general meeting of shareholders, board of directors and board of supervisors ( $X_1$ )	The board of directors = 1, the general meeting of shareholders = 2, the board of supervisors = 3, all of them = 4	2.000
		Whether it is separated from the village committee ( $X_2$ )	Yes = 1, no = 0	0.480
		Technical level of leaders ( $X_3$ )	Years of actual work experience ( $X_3$ )	4.501
		Whether the number and scale of leaders are reasonable ( $X_4$ )	<3 = 1, 3-5 = 2, 6-8 = 3, >9 = 4	3.000
Physical asset	Area of the land that is parcel traded ( $X_5$ )	The actual value ( $m^2$ )	32,035.890	
Geographical location	Parcel location attribute ( $X_6$ )	Distance from the land traded to the town center (km)	9.952	



Table 1. Cont.

Variables		Definition	Mean
	Whether the villages' shareholders have management rights	Whether two thirds of the villages' shareholders participated in the voting ( $X_7$ )	Yes = 1, no = 0 0.670
		Whether villages' shareholders enjoy decision-making power ( $X_8$ )	Yes = 1, no = 0 0.350
		Whether the villages' shareholders enjoy the right of supervision ( $X_9$ )	Yes = 1, no = 0 0.390
Transaction uncertainty	Whether villages' shareholders have sufficient information	Whether the land transaction information is public ( $X_{10}$ )	Little information is disclosed = 1, most of the information is made public = 2, the information is completely disclosed = 3 2.615
		Whether the land income distribution information is public ( $X_{11}$ )	Little information is disclosed = 1, most of the information is made public = 2, the information is completely disclosed = 3 2.052
	Income distribution right	Whether the regulatory information of land transaction is open ( $X_{12}$ )	Little information is disclosed = 1, most of the information is made public = 2, the information is completely disclosed = 3 1.957
		Whether the income distribution amount of villages' shareholders is reasonable ( $X_{13}$ )	Completely unreasonable = 1, a small part is reasonable = 2, mostly reasonable = 3, perfectly reasonable = 4 2.563
Right of disposition	Can the villages' shareholders voluntarily enter or exit the land transaction? ( $X_{14}$ )	Yes = 1, no = 0 0.380	
Transaction frequency	Transaction frequency	Transaction frequency ( $X_{15}$ )	50/years of the contract 3.125

### 3.4. Methods

#### 3.4.1. Estimation of Transaction Costs

Under the governance structure of the rural collective economic organization, the cost of RSCs formulating the RCCL transaction scheme includes time cost and labor cost for formulating an RCCL transfer plan, distributing benefits, voting, resolving conflicts and passing a plan. The total transaction costs can be calculated as [20,26]:

$$C_{total} = \sum_{i=1}^n (Labor_i \times Time_i \times 68.64 + Cash_i) \tag{1}$$

where  $C_{total}$  is the total transaction cost (CNY),  $Labor_i$  is the number of people involved in stage  $i$ ,  $Time$  is the days spent on the trading stage  $i$ , 68.64 is daily salary (CNY/day) and  $Cash_i$  is the direct expense in step  $i$  (CNY).

#### 3.4.2. Tobit Model

The tobit model was used to analyze consequent numeric variables, as well as virtual variables using the maximum likelihood estimation method. The tobit model is constructed as (Tobin, 1958):

$$Y = \begin{cases} \beta^T X_j + \varepsilon_j, & \beta^T X_j + \varepsilon_j > 0 \\ 0, & otherwise \end{cases} \tag{2}$$

where  $Y$  is the independent variable,  $X_j$  is the independent variables,  $\beta$  is the parameter to be estimated,  $\varepsilon_j$  is the stochastic disturbance term and  $\varepsilon_j \sim N(0, \sigma^2)$ . The independent variable  $Y$  is the transaction cost spent by the collective economic organization. When the collective economic organization has no cost which indicates zero, it will be truncated at zero. Otherwise, it will be observed when the cost of transaction is greater than 0.

## 4. Results

### 4.1. Transaction Costs

According to Equation (2), the total transaction cost can be measured by the sum of the costs in each stage of the transaction process, for example, time cost and labor cost. According to Foshan Price Bureau, the minimum standard daily salary is 68.64 CNY/day for the labor cost and time cost calculation. The organized cost by RSCs was about 40,000 CNY.

### 4.2. Tobit Modeling Results

The results of tobit regression models are presented in Table 2. The factors influencing asset specificity mainly include whether it is separate from the village committee, the technical level of leaders and the area of the land that is parcel traded.

**Table 2.** The results of the tobit model.

Variables	Independent	Coef.	Std. Err	t	P > t
Human asset	Whether there is a general meeting of shareholders, board of directors and board of supervisors ( $X_1$ )	0.026	0.012	1.290	0.282
	Whether RSCs are separated from the village committee ( $X_2$ )	0.018 ***	0.016	3.110	0.009
	Technical level of leaders ( $X_3$ )	−0.067 ***	0.005	−3.491	0.006
Physical asset	Whether the number of leaders is reasonable ( $X_4$ )	0.003	0.011	1.332	0.231
	Area of the land parcel trading ( $X_5$ )	0.001 **	0.004	2.360	0.035
Geographical location	Parcel location attribute ( $X_6$ )	0.012	0.020	1.410	0.156
Whether the villages' shareholders have management rights	Whether two thirds of the villages' shareholders participated in the voting ( $X_7$ )	0.015	0.026	1.221	0.317
	Whether villages' shareholders enjoy decision-making power ( $X_8$ )	0.017 ***	0.022	4.602	0.002
Whether villages' shareholders have sufficient information	Whether the villages' shareholders enjoy the right of supervision ( $X_9$ )	0.022 ***	0.023	3.570	0.005
	Whether the land transaction information is public ( $X_{10}$ )	−0.007	0.016	−1.301	0.253
	Whether the land income distribution information is public ( $X_{11}$ )	0.019 ***	0.021	3.350	0.007
Income distribution right	Whether the regulatory information of land transaction is open ( $X_{12}$ )	0.011	0.020	0.960	0.568
	Whether the amount of income distribution is reasonable ( $X_{13}$ )	0.120 **	0.017	2.011	0.045
Right of disposition	The villages' shareholders can voluntarily enter or exit the land transaction ( $X_{14}$ )	0.055	0.024	1.470	0.201
Transaction frequency	Transaction frequency ( $X_{15}$ )	0.004	0.006	1.187	0.320
	Constant	0.206 **	0.026	2.131	0.042
	Log likelihood=		321.068		
	Pseudo R <sup>2</sup>		0.0612		
	LR chi2 (15)=		65.870		
	Prob > chi2=		0.000		

\*\* significant correlations at the 0.05 level ( $p < 0.05$ , both sides); \*\*\* significant correlation at the 0.01 level ( $p < 0.01$ , both sides).

Past research has suggested that when RSCs are established separately from the village committee, they can affect the cost of the RCCL market transaction. This is because, when RSCs and village committees are separate, their rights and responsibilities can be clearly distinguished, and each can function without any interference from the other. Only in this way will RSCs be able to effectively and efficiently govern the RCCL market. At

present, most of China's rural collective economic organizations and village committee governance are not really separate. They are mostly made up of groups of people, whose functions are not completely distinct, suggesting that the government and enterprises are not separate. This can easily lead to a loss of collective assets and confusion in collective financial management, and the organizational management levels of the collective economic organizations can be low. Due to unclear rights and responsibilities, confusion and government intervention, villagers' autonomy cannot be effectively realized and only clear property rights and responsibilities can be put into practice. Additionally, farmer shareholders' rights to benefit from distribution, democratic management and democratic decision making of collective assets cannot be guaranteed. Therefore, separating the collective economic organization from the village committee can improve the governance efficiency of the collective economic organization, reduce the cost of the RCCL market transaction and improve the efficiency of the RCCL market.

The technical level of RSCs' leaders can also affect the efficiency of the RCCL market. The stronger the leadership of the RSCs' managers, the higher their efficiency in organizing and the higher the efficiency of the market trading of RCCL would be. The reason for this is that leaders with more years of work experience will have higher levels of skill and higher organizational governance efficiency, which will also ensure higher efficiency of the RCCL market transactions.

The area of land transacted as a physical asset can affect the transaction cost because large land transactions will involve a higher governance cost for the RSCs. Furthermore, transactions of larger land parcels will also require a greater amount of village shareholders' interests, which will lead to a greater workload for RSCs which will have to ensure that shareholders' voting and income distribution rights are preserved. All of these processes will increase the labor cost.

In short, the arrangement of the governance structure of RSCs should fully consider the rights and interests of villagers, improve the ability of organizational governance and improve the trading efficiency of the RCCL market. These results confirm Hypothesis 1.

The factors influencing transaction certainty (Table 2) are mainly dependent on whether village shareholders enjoy decision-making power, whether the village shareholders enjoy the right of supervision, whether the land income distribution information is open and whether the income distribution amount of village shareholders is reasonable. From the perspective of governance procedures of RSCs, ensuring village shareholders' full rights and interests in the process of collective construction land transaction is crucial. Only when shareholders enjoy full rights and interests, will the efficiency of collective construction land market transactions be high. If shareholders cannot enjoy their due rights and interests, the efficiency of collective construction land market transactions will be low.

Whether shareholders enjoy their management power and whether shareholders enjoy their decision-making powers can affect the efficiency of the RCCL market transactions. When village shareholders have the decision-making power over the scheme of the RCCL entering the market, they are able to fully protect individual farmers' interests and ensure reasonable land value. Moreover, with appropriate decision-making power, they can actively support the RCCL transfer, while reducing the cost of the management of RSCs. In our field survey, most farmers reported that they did not have decision-making power, and the collective construction land transfer was mainly decided by the leaders of the RSCs.

Similarly, the village shareholders' right of supervision can affect the efficiency of the RCCL market transactions. The right to supervise the whole process of the collective construction land market transaction can prevent the RSCs from colluding with the village committees and other enterprises that may encroach on the villagers' interests. In our field survey and interview, most farmers reported that they could not supervise the RCCL transactions because this information was not completely open or accessible, so village shareholders could not implement effective supervision. The village shareholders in our study did not enjoy full supervisory power, and they were deprived of their interests.

The village shareholders' right to know and whether the income information of RCCL transfer is fully open can also affect the efficiency of RCCL market trading. During the circulation of collective construction land, the villagers were most concerned about the distribution of the income arising from the affected land. However, since the income distribution information was not open, the villagers did not know where the land income was going, so they could not protect their own rights and interests. This situation will most likely lead to corruption of the RSCs and related officials.

From the perspective of village shareholders' right to income distribution, the amount of income distribution of village shareholders can affect the efficiency of the RCCL market transactions. In our field survey, most farmers reported that the amount of income distributed was unreasonable. Senior adults had the strongest reaction. This was because the older adult's daily living expenses are derived from their land. After a land transfer, the older adults lost the guarantee of a stable income, since the amount of income distribution from land transfer was unreasonably small and inadequate. Therefore, most of the older adults did not support RCCL transfer. These results confirm Hypothesis 2.

## 5. Conclusions and Discussion

### 5.1. Discussion

First, since the governance structure of rural collective economic organizations is diverse, the governance model is not always the same. This paper mainly discusses the most common shareholding governance model used by rural collective economic organizations. Second, we discuss the influencing factors that village shareholders most care about, which are the land property rights in the governance process of rural collective economic organizations, the shareholding governance structure and the rule arrangement in the RCCL transactions. In this regard, nearly all other authors only discussed qualitatively the protection of farmers' property rights, especially in terms of the distribution of land income, information acquisition and villagers' management rights. How to better separate the collective economic organization from the village committee, how the village shareholders can better supervise the governance behavior of the collective economic organization and examining the impact of other influencing factors on property rights will be our next research objectives. Third, our work provides some insights into ways to improve the governance structure of rural collective economic organizations for the protection of villagers' rights and interests. This will also help the development of RCCL markets in other regions of China and around the world, but the protection of villagers' rights and interests is not always the case. Fourth, according to the Coase theorem formulated by Stigler [41], no matter how the initial rights are allocated, free trading will achieve the optimal use of resources, but in real life transaction costs are positive and hence institutional arrangements matter [42]. Negotiations should be carried out, supervision should be implemented and dispute resolution mechanisms should also be established which need transaction costs, and under the condition that the transaction costs are positive, the arrangement of the governance structure of rural collective economic organizations and the definition of property rights are very important for promoting transaction efficiency. Our study found that the cost of organizing was very high, the rights and interests of farmers were not protected and governance efficiency was low. As the transaction cost calculation for the supplier (for collective economic organizations), a tobit model was applied in the previous research [24,26]. The model we used can be relevant for other regions. How to better save the transaction costs of supplier cost will need to be further studied, because the cost of the RCCL supply (for collective economic organizations) was not only affected by the governance structure of collective economic organizations, but was also affected by market transaction rules.

## 5.2. Conclusions

Based on Williamson's transaction cost view, we analyzed the impact of the governance structure of collective economic organizations on the transaction efficiency of the collective construction land market, so as to better improve the governance structure of rural collective economic organizations. The summary of our results is as follows: First, although the rural collective economic organizations currently have a general meeting of shareholders, a board of directors and a board of supervisors, most of the governance of the rural collective economic organizations and the administrative management of the village committees are not really separate, and their functions are not completely separate either, which leads to the low governance efficiency of RSCs. This suggests that practical work experience of RSCs' leaders is essential for higher organizational governance efficiency and higher RCCL market transaction efficiency. However, the labor force employed in the governance of rural collective economic organizations could not attain the maximum benefits of land resource allocation. The RCCL market transaction was not completely competitive, and also was not fair, just or open enough to better safeguard the common welfare of farmers, not to mention to reduce rural poverty.

Second, from the perspective of collective land property rights, ensuring that the full rights and interests of each RSC's village members are upheld during all land transaction processes is crucial. This will improve the efficiency of RCCL market transactions. Without full rights and interests, villagers as shareholders will not have the power to make decisions regarding land transfers, because in the collective construction land transfer the leaders of RSCs have the final say. In addition, access to the information about collective construction land transfer is not completely open, so villagers cannot implement any supervision strategies to monitor all of the land transfer processes. Furthermore, from the perspective of the right to income distribution, the amount of income shared among villagers should be reasonable or else it can affect the efficiency of the collective construction land market trading. However, in our study, most farmers stated that the amount of income distribution was unreasonable, and did not quite support the collective construction land transfer.

## 5.3. Policy Implication

The government should improve the governance structure of rural collective economic organizations to protect farmers' rights and security when collective construction lands enter the market. In addition, three reforms for collective economic organizations should be established to protect farmers' property rights and to save transaction costs.

First, rural collective economic organizations run in a shareholding system, which can better protect farmers' land property rights and promote the openness, fairness and justice of RCCL market transactions. Collective economic organizations should be separated from village committees, with clear distinction between rights and responsibilities, and transparent information on land transactions.

Secondly, leaders of rural collective economic organizations play a key role in governance efficiency. The leadership of leaders plays a very important role in the governance efficiency of rural collective economic organizations. Therefore, selecting people with rich experience and stronger leadership is an effective way to improve the efficiency of village collective economic governance.

Third, in the process of governance and the operation of collective economic organizations, farmers' land property rights should be fully reflected. In particular, the villagers' rights of management and income in the RCCL transfer should be fully reflected. Under the condition of clear property rights, village shareholders should have complete freedom to enter the market, that is, neither collective economic organizations nor the government can force village shareholders to conduct involuntary transactions.

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## Abbreviations

Rural collective construction land (RCCL); rural shareholding cooperatives (RSCs).

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