Effects of land incremental value allocation on rural operational construction land (ROCL) under market mechanism: case study in China

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Abstract

The use of the market mechanism to convert the rural operational construction land (ROCL) into urban construction land without ownership changes is currently being introduced into reform pilot projects in China, changing the only form of governmental expropriation in the past. The new system allows rural collective economic organizations and members of the rural collective economy to directly participate in the allocation of land incremental value increases due to changes in land use. This replaces the previous way of allocating only the original use compensation from the government. This paper investigates the collectively owned new system, to establish the positive effects and shortcoming of the new model. Three cases are applied for the analysis using inductive-deductive reasoning methodology based on the property right and land-rent theories. We have found that local government land adjustment charges on the transactions of rural construction land are suggested to be from 16 to 20 percent. The share ownership quantification model (SOQM) of land incremental value allocation between the collective economic organizations and members is effective and beneficial to the development of the rural collective economy and its members.

Topic area: Urban and Regional Policy

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Keywords: property right; land-rent theory; rural collective construction land; land incremental value; share ownership quantification model; China

1. Introduction

Land in China is managed and regulated depending on its location (i.e., rural and urban), ownership (i.e., state or collective ownership) and use (e.g., residential or commercial land; agricultural or construction land) (Ho and Lin, 2003). Collectively owned rural land is classified based on its usage including agricultural land, construction land, and unused land is owned by village collectives (Zou, et al. 2014).

There is a unique dual urban-rural land system in China (Lin and Ho, 2005). All lands in urban areas are owned by the state; whereas state and collective ownership of land have co-existed in rural areas. According to Huang, et al. (2017), urban land use rights can be sold, transferred and leased in the urban land market, and a variety of development activities are permitted on the state-owned land. However, change of use of the rural collective land is restricted and cannot be determined in the land market, unless the land is converted into state-owned land through expropriation by the government for civil and commercial purposes (Ho and Lin, 2003). Construction land can be further categorised as homestead land, public warfare land and operational land. The collectively owned rural operational construction land (ROCL) is the primary focus in this paper.

Since the economic reforms at the end of 1978, urbanisation in China has increased rapidly. The massive employment opportunities that results from urbanisation and the inflow of foreign direct investment has fostered urban population growth. By the end of 2015, 56 percent of the total population live in urban areas, a 26 percent increase from 1990 (National Bureau of Statistics of China, 2016). The fast urbanization process demands a large scale of supply urban construction land. According to the citation by Zou, et al. (2014) that approximately 18 million hectares of collectively owned rural operational construction land is available in rural areas, which is 2.5 times more than the amount of construction land in urban areas. State governments usually expropriate rural land at non-market prices, but sell it at market prices. A large share of the resultant profits is received by the government, whereas collective-land owners received relatively little benefit from land expropriation (Zou, et al. 2014). The proportions of land incremental value were shared by local government, developers and the collective-land owners were about 26 percent, 70 percent, 3 to 4 percent respectively

(Lin, et al. 2013). This inequity of profit sharing has increased tensions between local governments and the collective-land owners, who have become increasingly aware of their potential rights and resist local government's efforts to requisition rural land. It has also put them into a competition over capturing increases in land value (Ding, 2007). The emergence of illegal use of rural collective land and the invisible market has stimulated that cause not only ineffective land use but also, to some extent, increased social instability (Zang, et al., 2008; Lin, et al., 2013; Wang, 2017).

The central Chinese government has realised the challenges associated with the current dual-land system and rural collective land use problems. Several policies have been introduced to reform relevant land institutions. One of the policies is to allow the rural collective economic organizations and their members to directly participate in a market based land value-added distribution. On the premise of prudently promoting rural land reform, the central government approved 15 counties nationwide as pilots of this collectively owned rural operational construction land reform in 2015, aimed to gain the experiences which can be incorporated into the laws if needed. The policy has been tried for around 2 years. The questions are whether the new policy is a success and what are the effects of the new policy?

Previous research focused mainly in two areas, i.e., the practice of collectively owned rural operational construction land acquisition (Ho and Lin, 2003; Fu, 2016) and the distribution of land revenue (Wang, et al., 2016) and marketization (Zou, et al., 2014) under the old system. Few studies have addressed the allocation of incremental value of the collectively owned rural operational construction land under the new policy (Fan, 2016). However, their works have not provided in-depth analysis in the context of property rights and land rent theory under the new system (Cao and Wu, 2014). This paper analyses the rationality of land incremental value allocation under the market

mechanism from the perspective of property rights and land-rent theory by addressing following issues: What institutional experiments of introducing the market mechanism have been initiated for collectively owned rural operational construction land? How do we understand them in their specific context? How to form land incremental value in the operational mode of rural collective operational construction land entering the market? How to allocate land incremental value among the stakeholders effectively? What benefits have rural collective organization and its members received in the new land incremental value allocation mechanism? Three typical pilots are selected to study the effects of land incremental value allocation of rural collective construction land under the market mechanism.

The remainder of this paper is organized as follows. Next section provides a theoretical framework for analysing collectively owned rural operational construction land entering the market. Section 3 investigates the evolution of collectively owned rural operational construction land regime. Section 4 will analyse the formation and allocation mechanism of land incremental value based on the property rights and land-rent theory, followed by the conclusion.

2. Theoretical Framework

The study of land incremental value distribution utilises the rent-land theory and aspects of land property rights.

Land-rent theory

Land incremental value can be defined as an increase or decrease of land value (Cai, et al., 2017). Land is scarce and its value usually increases over time as results of population growth and raised demands for urban land. Classical economist, David Ricardo (Maneschi, 2004) formulated the land-rent theory that states the rent of a land is

equal to the benefits obtained by using the site in its most productive use given the same inputs of labor and capital. The theory held that all rent must be differential rent as the only source of value is the labour and the fertility of the marginal land in cultivation (Ward and Aalbers, 2016). This implies that workers produce value and this value-added are the sources of both the workers' wages and the profit of the capitalist.

The two important innovations Marx contributed to Ricardo's theory of rent include a) differential rent, i.e. rent arising from increases in productivity due to some feature of the land and investment on the land; b) monopoly rents caused by the impairment of competition affects the costs of production and the price of the commodity produced (Ward and Aalbers, 2016). Monopoly rent may also categorised into 'natural' (Ramirez, 2009) and 'absolute' monopoly rents. The 'natural' monopoly exists due to the scarce and non-substitutable of the natural land source that causes limited supply; whereas 'absolute monopoly rent' arises due to barriers to entry for capital or consumers.

While Ricardo's economic theory addressed on relative productivity of agricultural land, Alonso (1964) based on the geographical theories on land use and land value focusing on locational qualities. Many studies found that land or property values were determined by economic factors (Liew and Haron, 2013), population growth and government policy (Ong, 2013), structural, locational and neighbourhood characteristics (Ge, et al., 2016; Oduwole and Eze, 2013), infrastructure and utilities (Famuyiwa and Babawale, 2014), externalities such as dust and noise (Kemiki, et al., 2014).

With the dramatic changes in the socio-economic environment, the research surrounding land rent has applied to many key contemporary urban issues such as the capitalization of land, the governance of urban infrastructure, land acquisition,

gentrification etc. Marx's theory of rent has been expanded to the application of land rent category and redistribution of different property rights in a special social economic institution in the urban context (Guironnet, et al., 2016, Haila, 1988, Zheng, et al., 2009). This research focuses on the effects of changes of land policy on collectively owned rural operational construction land and uses Marx's differential rent and absolute monopoly rent to analyse on the formation of land incremental value.

Land property rights

The concepts of property rights are vital to distribute the land incremental value impartially. A property right is the authority to undertake particular actions related to a specific domain (Commons, 1968). Schlager and Ostrom (1992) updated the original schema of 'diverse bundles of rights' and developed six rights bundles, i.e. Access, withdrawal, management, alteration, exclusion, and alienation. The first order of rights includes the rights of (physical) access and withdrawal, whereas the rights of management, alteration, exclusion, and alienation are the second order. The first-order rights depend on the exercise of the second-order rights (Ostrom, et al, 1994). Table 1 describes the six rights bundles with the matrix of owner types that were summarised by Galik and Jagger (2015).

Table 1: Revised rights bundles as defined by Schlager and Ostrom (1992)

Right	Description	Owner	Proprietor	Claimant	Authorized User
Access	The right to enter a defined physical property	*	*	*	*
Withdrawal	The right to obtain the 'product' of a resource	*	*	*	
Management	The right to regulate internal use patterns and transform the resource by making improvements	*	*		
Alteration	The right to change the set of goods and services provided by the resource	*	*		
Exclusion	The right to determine who will have an access right, and how the right may be transgerred	*	*		
Alienation	The right to sell or lease (some) or (all management, alteration,) and (exclusion) rights	*			
Source: Schager and Ostrom (1992)					

The owner types consist of common ownership, private ownership and state ownership (Demsetz, 1974). The sources of the rights are different. They can be enforced by governments who grant rights to the users; or created among resource users. The right to possess, manage, receive income from and be secure from interference from others are affected by the settings of property rights (Toner, 2005). Sikor, et al. (2017) produced property rights system in three directions including 'use rights', 'control rights' and 'authoritative rights', which is the updated version of property right framework developed by Schager and Ostrom (1992). The 'use rights' replace the 'access' and 'withdrawal' rights from for convenience. The 'use rights' consist of 'direct use rights', that refer to the right to obtain direct benefits derived from a resource; and 'indirect use rights' that is the right to obtain indirect benefits associated with a resource such as cash payments, the use of public goods, in-kind support, etc. They integrated Schager and Ostrom (1992)'s second order rights to 'control rights' and expanded by adding rights of transaction and monitoring. They also added a third-order rights, namely 'authoritative rights' that determines the control rights applicable to particular resources such as defining minimum environmental standards pointed out by Ribot, et al. (2010). Consequently, eight types of property rights were developed as shown in Table 2.

Table 2: Eight types of property rights (Source: Sikor, et al. 2017)

Right	Definition	Type	Description
Use rights (First order rights)	The rights to enjoy benefits	Use of direct benefits	the right to obtain benefits directly derived from a resource
		Use of indirect benefits	the right to obtain indirect benefits associated with a resource
Control rights (Second order rights)	Determine the scope of use rights	Management	the right to regulate use and transform the resource
		Exclusion	the right to define who has use rights
		Monitoring	the right to monitor the use of benefits and state of the resource
		Transaction	the right to handle the activities required for the realization of benefits
Authoritative Rights (Third order rights)	Define the control rights	Definition	the right to define the discretionary space for the exercise of control rights
		Allocation	the right to assign control rights to particular actors
Source: Sikor, et al. (2017)			

Property rights play an important role in dealing with conflicts that arise with the use of scarce of land resource in the market economy (Alchian and Demsetz, 1973). Kundhlande and Luckert (1998) claimed that property rights influence the expansion of the market system, distribution of output and benefit and incentives to efficiently manage resources. In studying the land value increment allocation for a case of Guangzhou, Cao and Wu (2014) stated that it is difficult to distribute land value increment due to the property right system is not efficient and thus resources cannot be allocated efficiently. The main reasons are that: a) land increment value comes from a combination of multiple sources and to accurately determine who has received the incremental value by how much is a challenging task. b) there is a fundamental conflict between the owners who hold a complete set of rights and all other users, who do not hold complete rights (Schager and Ostrom, 1992).

A dual-track system of land expropriation and transaction is operated in China. The complexity of the system makes property rights are unclearly defined among the stakeholders and thus conflicts raise in particular to the collectively owned rural operational construction land. The reform of land transaction system has changed to rights among the stakeholders and thus affects the distribution of the incremental value. Following the prior examination of the changes of property rights in the new reform system, the next section differentiates the transactions of collectively owned rural operational construction land under the old and new system in China. The analysis will fit into the property right framework produced by Sikor, et al., (2017).

3. Evolution of Collectively owned Rural Operational Construction Land (ROCL) Regime in China

Tracing the history, land ownership depends on whether it is urban or rural land in China. All urban land was owned by the state, whereas rural land was collectively

owned. The state is the various government agents such as the Ministry of Agriculture, the State Commission for Capital Construction and local governments at or above the county level who lease the urban land use rights to developers through a public leasing process. The lease terms of urban land are different depending on the type of urban land usage, typically 70 years for residential, 50 years for industrial and 40 years for commercial use (Zou, et al., 2014). Rural land consists of agricultural land, unused land and construction land which is owned by village collective. Construction land is further classified as homestead land, public welfare land and operational land. Ho and Lin (2003) presented a 1996 survey result of land resources that showed that the state-owned 53 per cent of China's territory and 46 per cent is owned by collectives, who owned 94 per cent of the cultivated land.

ROCL is a branch of collective rural construction land as shown in Figure 1 highlighted in blue. Different terms have been used in the literature interchangeable, such as rural collective construction land or rural collective operational construction land. This paper applies the term collectively owned rural operational construction land to ascertain the nature of ownership.

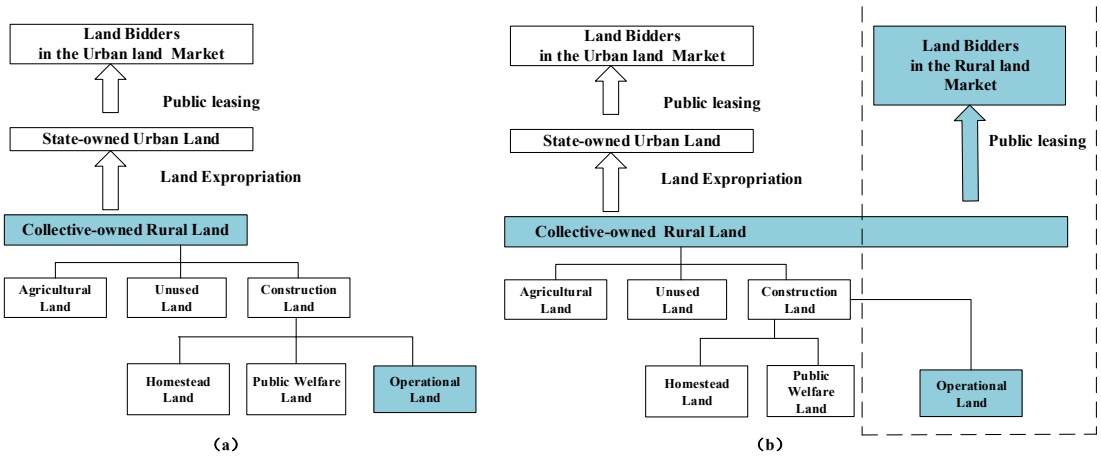

Figure 1: Comparison of rural land transaction procedure under the dual-track land transaction system

All land use decisions are made by the state and collective. For rural land, the

collectives are prohibited to transfer or sell the collectively owned rural operational construction land (ROCL) to urban land users. Only the state had the right to expropriate collectively owned land and transfer and converted the construction land for the public interest such as urban land. The state-owned urban land was then leased to the auction in the urban market. Figure 1(a) displays the dual-track land administration system. Some drawbacks of the dual-track land system, namely, limited land supply, inefficient use of rural land and creation of social injustice, were identified by (Zou, et al. (2014). The dual-track land system could not meet the rapid urbanization and high demand for construction land, some alternative models were produced for rural land transactions i.e., the rural land use rights were sold or rented without the formal process of land expropriation by the state.

One of the models was the "Regulation in Transferring of Collectively owned Land", promulgated by Guangdong province in 2005. The regulation expanded the traditional system of governmental land expropriation and permitted collectively owned rural operational construction land to be transferred legally in the same manner as urban land. There has been massive foreign investments entering to Guangdong since the 1980s. To meet the high demand for construction land, use rights of the land was transferred to the partnership companies and then leased to factories on behalf of the farmers. In this model, the farmers acted as the shareholders and shared benefits with the partnership companies (Zou, et al., 2014). This model was considered as the cornerstone of innovation and reform of collectively owned rural operational construction land system. The second model, represented by Jiangsu province, was that the collective transferred rural land to the farmers who built factories and warehouses on their land which then rented out to the users (Zou, et al., 2014). Both models played an important role in improving urban land supply to meet the rapid growth of

industrialisation and urbanisation. There were challenges in implementing of rural land use rights transaction without a top-down policy and legal system, due to the constraints of existing system farmland protection, consideration of food security, as well as the conflict of interests in different stakeholders.

To tackle the challenges in implementing the rural land transaction and explore experiences that can be helpful when the laws, are amended, the central government intends to reform the land system by approving 33 counties nationwide as reform pilot studies for a three-year trial from January 2015, of which 15 counties as collectively owned rural operational construction land (State Council, 2014). To ensure the pilot studies are legitimately implemented, some relevant regulations were produced including pilot reform programs and the implementation details issued by the Ministry of Land and Resources and “Land Management Law” “Urban Real Estate Management Law” formulated by the Standing Committee of the National People's Congress (NPC). Under the new regulations, the provisions of prohibiting the transaction of the ROCL use right are suspended, i.e., the use rights of ROCL can be transferred, leased and shared, given that the ROCL is obtained in accordance with the law and meet planning and use control. Further policies have been provided to facilitate the market mechanisms and ROCL has been transferred legally since 2016. The policies included that the Ministry of Finance and the Ministry of Land and Resources jointly issued the Interim Measures on the Administration of Land Value-added Revenue Adjustment in Rural Collective Construction Land; and the China Banking Regulatory Commission and the Ministry of Land and Resources jointly issued Interim Measures for the Administration of Loans for the Use Right of Rural Collective Construction Land. The collectively owned rural operational construction land can for the first time be traded directly in the market and the rural collective economic organizations and their

members can participate in the land value-added distribution directly. Figure 1(b) exhibits the market mechanism of transferring the use rights ROCL under the new reform land system. However, the distribution of land incremental value among the participating stakeholders in the open-market transactions remains for further investigation.

4. Analysis of Changes of Property Rights of ROCL in the New Proposed Land System

It is important to understand what property rights have been altered under the newly proposed land policy in China. The conceptual framework of property rights formulated by Sikor, et al. (2017) is employed to analyse the land property rights changes. As the lower-order rights depend on the exercise of the upper-order rights, the analysis followes the sequences of "authoritative rights", "control rights", and "use rights".

Authoritative rights

The authoritative rights address to define control rights including to definition and allocation rights (Sikor, et al., 2017). Under the new land system, the state or central government holds the absolute authoritative rights to define the control rights by way of suspending the relevant legal provision that prohibited the transaction of collectively owned rural operational construction land, cancelling the land expropriation rights of the local government, and revised the supporting regulations such as mortgage and loan management measures. Definition rights are exercised by Ministry of Land and Resources and local government through formulating regulations that match the state

laws and regulations, such as the interim measures of collectively owned rural operational construction land entering the market. Allocation rights are held by central government, local governments (i.e., county governments) and rural collective economic organizations; that is, central government stipulates the charge rate from the transaction turnover, local government takes charges from the transaction turnover and holds the redistribution right, rural collective economic organization and its' members possess the inner allocation rights of the land increment.

Control rights

The control right determines the scope of use rights which includes the rights of management, exclusion, transaction, and monitoring (Sikor, et al., 2017). Management rights refer to the right to regulate the internal use and transform the resource. In the old land system in China, the collective-owners have not rights to transform the land in the open market. In the new system, management rights generated from the new policy are shared between the county government, township government, rural collective economic organization and its members. The county government is responsible for establishing county-level rural construction land trading platform, supervising the implementation of the transaction, and setting up support systems. The township government does the same things at the township level. In particular, the rural collective economic organization and its members possess management rights than before. The collective-decision rights include whether land parcels should enter or not into the market and channel, and how incremental value should be allocated.

Transaction rights respectively hold by the rural collective economic organization and the township governments in accordance with the ownership is a new type of control rights to them, which depends on the definition of land transaction right

of rural collective operational construction land by the State Council. It means the rural collective operational construction land permitted to transact in the land market freely.

The Constitution Law in China clearly defines who has use rights and thus the exclusion rights remain unchanged. There is not an existing special monitoring system available to monitor the use of direct and indirect benefits and state of the resource with regards to the collectively owned rural operational construction land. This is an area suggested for further investigation. This order rights only discuss two types, including transaction and management rights.

Use rights

The use rights are the rights to enjoy benefits which consist of direct and indirect benefits (Sikor, et al., 2017). Under the old system, profits from land expropriation mainly belonged to the government and only little benefits were received by the collective-owners (Zou, et al. 2014). In the reformed land system, use rights are held by the collective rural economic organization or township governments according to the ownership. The township enterprises possess use rights of a period of time through the contract. The possessors of use rights can obtain the direct benefits derived from operation and production in the rural collective operational construction land, especially can acquire indirect benefits of land incremental value derived from the land transaction. The members of the rural collective economic organization (individuals) who share the use rights based on membership can obtain the part of indirect benefits from the rural collective economic organization. The new policy contributes to indirect benefits from the land transaction for both rural collective economic organization and its member.

In sum, the new policy arrangement for the ROCL have strengthened the property rights of rural collective economic organization and its members. The central

government through the absolute authoritative rights empower more property rights to the rural collective economic organization and fundamentally change the role of local government in the land market, that is, the role of local government in land market changes from the direct participation in land expropriation to providing guidance and supervisory roles through developing rules. Rural collective economic organization and its member possess the free market transaction right, which was prohibited previously and are granted more management rights, as well as enjoy use rights to obtain direct and more indirect benefits from the collectively owned rural operational construction land.

5. The Analysis of Land Incremental Value Allocation Under the New System

The reviews of property rights and rent-land theory have provided a foundation for analysing the land incremental value allocation. This section analyses the effects of land incremental value distribution under the new land system using case studies. Three typical pilots were selected for the analysis.

Selection of typical pilots

The land system reform of collectively owned rural operational construction land started to run in August 2015. As of March 2017, land trades in reform pilots national wide have amounted to 278 land parcels at a total area of 4500 acres, accounting for 5.1 billion yuan according to the public data.

The selection of typical pilots for this research considers three factors, i.e., the results of ROCL reform, the level of economic development and spatial distribution. The three typical pilots were Nanhai District in Guangdong Province, Deqing County in Zhejiang Province and Pi County in Sichuan Province (now renamed Pidu District).

These typical pilots share the common features, such as land ownership, investigation, and planning of the ROCL, trading platform, the establishment of a

benchmark land price evaluation system and a market evaluation mechanism. The supporting system for the pilots was relatively mature and have achieved good results in the reformed system. By March 2017, the total of trading land parcels in the three typical plots amounted to 180 land parcels, accounting for 65 percent of the total trading volume in the same period. In the 180 land parcels, there were 51 land parcels in Nanhai, 100 land parcels in Deqing, and 29 land parcels in Pidu District. In particular, the Nanhai pilots has achieved remarkable results, over the same period, the total trade scale of 51 parcels reached to about one-fifth of national pilots, representing a total area of 1920 acres (i.e., 43 percent) and total turnover of 4.67 billion yuan (i.e., more than 90 percent) of the national level (Southern China Newspaper, 2017). The specific characteristics of the selected typical pilots are shown in Table 3.

Table 3: Specific characteristics of the typical pilots

Pilot	**Location**	**Economic Conditions**	**Features**
Deqing (Zhejiang Province)	The Yangtze River Delta hinterland of east coastal region	Developed economy	Multiple planning integration (2014)
Nanhai (Guangdong Province)	the Pearl River Delta hinterland of east coastal region	Developed economy	New-type urbanization (2016)
Pidu (Sichuan Province)	The core zone of the Western Sichuan Plain in western region	Relatively developed economy	Balancing rural and urban development

The selected three pilots can be used to examine the transaction operational mode with effective implementation of property rights and the determination for land value within the model.

Operating mode of market transaction for ROCL

The previous analysis of the property rights under the new land system shows that rural collective economic organization holds land ownership, transaction and management rights, and use rights of ROCL. The members of a rural collective economic organization possess the use rights and have been granted more management rights. This analysis focuses on the transaction operation mode to support effective implementation of property rights, participants in the market transaction of ROCL.

In the typical pilots, the institutional innovation of collectively owned rural property rights reform has provided the essential foundation for the ROCL trading in the open market. For example, Nanhai conducted land stock reform by converting the collective property and land into shares to form a collective economic cooperation organization in 1992. The model was further restructured and reformed to ensure long-term stability by defining shares to household and allowing them to circulate in a cooperative in 2015. Similar government top-down reform was carried for Deqing and Pidu in 2001 and 2008 respectively. So far, the three pilots have fully completed the reform to form joint-stock of rural economic cooperations.

The specific transaction operation procedure is as follows (Refer to Figure 2). According to the relevant regulations with regards to ROCL transaction, the land use rights is the object of the transaction. The transferor is the rural collective economic organization (i.e. the village committee or the group of villagers) or the township collective economic organizations with land ownership. Based on the new system, the collective operational assets are transferred to the collective members in the form of shares in the rural collective economic organization, Rural Community Shareholding Cooperatives or Asset Management Companies. For example, township level collective asset management companies in Deqing or village collective asset management companies in Nanhai and Pidu, are authorized by the rural collective economic organization as the executant to implement the operation of entering the market.

As the decision-making body for entering the market transaction and land use right transformation, rural collective economic organizations are responsible for organizing villagers to convene the villagers' congress to make democratic

decisions on land entering market scheme, including a channel to enter the market, the way of participating in transactions, and trading methods. As the executor, representing by the Rural Joint-stock Cooperative Economic Organizations or Asset Management Companies, carries out the land transaction in a county or township level in accordance with the authorized land entering the market scheme. The executor unifies the trading platform by issuing a notice, evaluating of base prices, contract negotiating and signing of contracts. The operational mode is illustrated in Figure 2. The design of such a principal-agent system of property right transaction has effectively achieved land assets that operate in the open market. The system improves rural land transaction transparency and efficiency, as well as protects property rights of the collective-owners of the rural land and prevents to some extent speculation of the main members of the village committee to some extent.

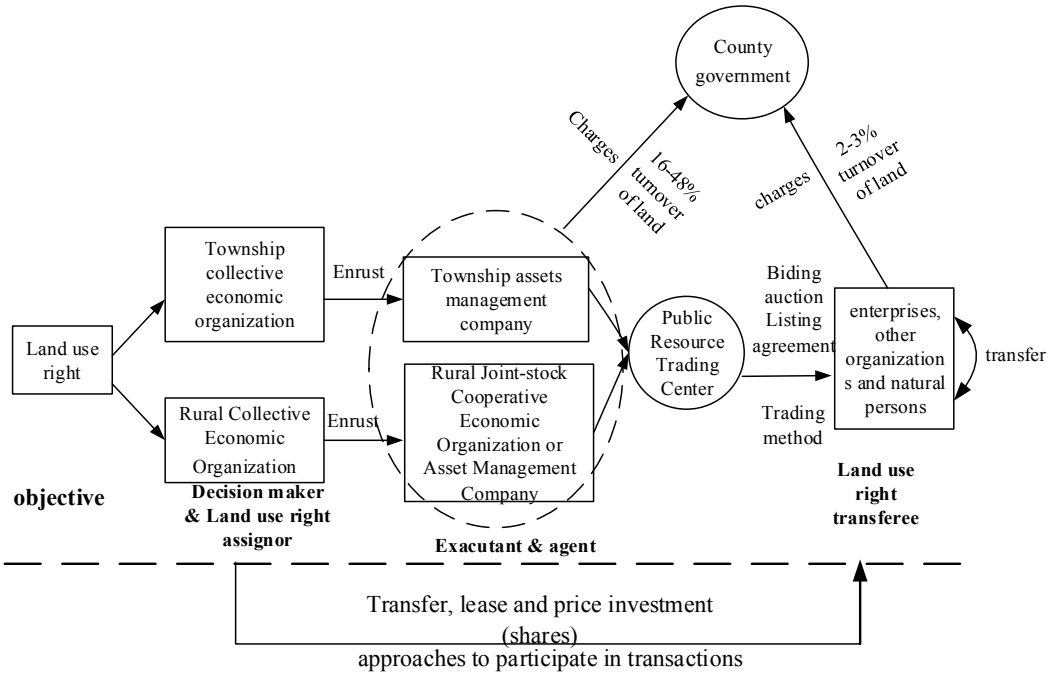

Figure 2: the operation mode of ROCL transaction under the new system

The formation of land incremental value of ROCL

The land incremental value concept provides the theoretical basis for formulating the land incremental value allocation policy and selection of management

tools. As indicated in the literature review, Marx's theory of rent is a traditional theory to analyse land incremental value based on property right and social production relations, which will be applied in this study.

The source of land incremental value

In the current literature, the source of land incremental value are distinguished in two respects, i.e., investment value-added which results from landowners or users' investment, value-added from land appreciation that results from other factors, such as universal social land incremental value caused by regional social and economic development, spill-over effects created by public facilities and infrastructure investment, land value-added resulted from limited of land supply, land beneficial value-added caused by land use conversion or the land use efficiency improved (Ward and Aalbers, 2016). In addition, the formation of the land incremental value is essentially determined by social production relationship in the immediate specific system atmosphere, also responses the change of social production relations resulted from the new policy intervention. Correspondingly, the classification of rent is the foundation to allocate land incremental value.

Land incremental value formation mechanism

In Marx's theory of rent, the rent consists of absolute rent and differential rent (DR). Differential rent is further subdivided into Differential Rent I (DR□) due to increased productivity from an existing feature of the land, and Differential rent □ (DR□) results of increased productivity from investment upon that land. With regards to absolute rent, in Marx's view, is the root of property right relationship and the economic realization of land ownership.

According to the Chinese Constitution and the Land Resource Management Law, the rural collective economic organization has the ownership

of ROCL with incomplete power of ownership since the development right of land is controlled by the state. In the new system with policy intervention, this right is delegated to the rural collective economic organization. Thus, the absolute rent of ROCL should belong to a rural collective economic organization based on the improvement of ownership power.

The DR is the land incremental value caused by the rural collective economic organization direct investment of land parcels. DRI can be derived from the potential changes of existing features of land that arises from external environmental factors, such as land scarcity due to regional economic development and the improvement of location function by public infrastructure investment. The DRI can also result from land value added by a collective economic organization external investment of non-land parcels, land value added by non-investment, and investment value-added by local government. Figure 3 demonstrates the formation mechanism of land value increment under the new system.

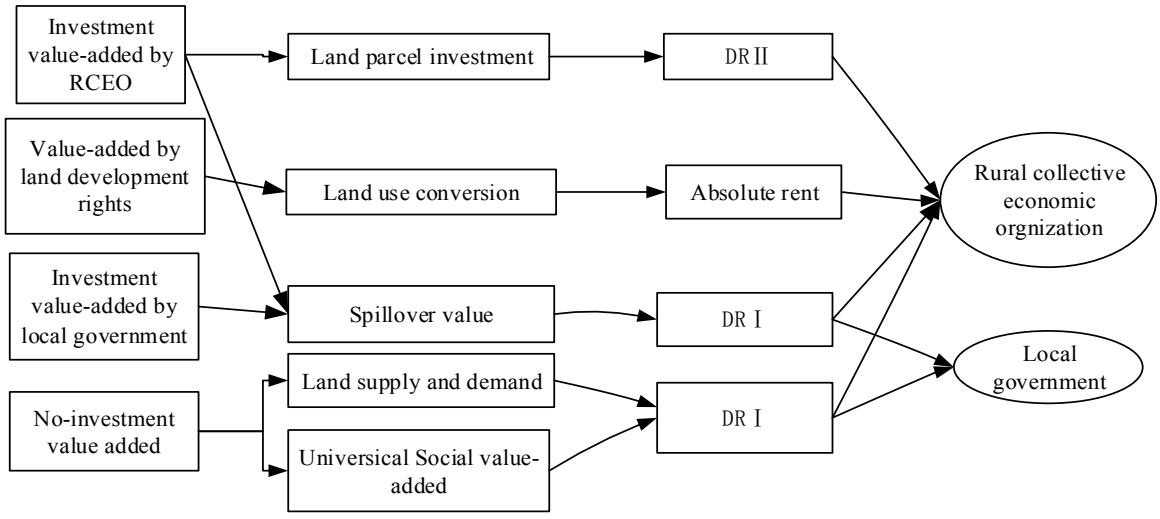

Figure 3: The formation mechanism of land value increment

Research on the allocation of land incremental value under the new system

Based on the policy and practice analysis of typical pilots with the new land system, the allocation of land incremental value is conducted on two levels. The first level is the allocation between the state (i.e., county and township governments) and the collective economic organization; whereas the second level is the internal allocation between collective economic organizations and its members, and the allocation between county government and township government.

Allocation between local government and rural economic collective organization

County government as a state agent participates in the first level allocation through charging fees, named land incremental value adjustment fee, which is paid by the transferor (rural collective economic organizations) in granting land use right (around 20-50 percent of net land incremental value, i.e. the total turnover minus costs), and by transferee in the transferring land use right, i.e., 2-3 percent as stipulated by the state-level regulation. The specific rate of the land parcel is determined by factors such as land use, land grade, trading methods and so on. The level of fee rate is formulated by reference to the government charge on the state-owned construction land, which includes government investment in infrastructure and public welfare funds such as social security fund, educational fund, agricultural development fund and ecological compensation fund and so on.

The rationality of government charge level under the old land system

The rationality of government charge level is the focus of debate. From the perspectives of property right and investment contribution, the government charges on the state-owned land consist of the absolute rent attributed to complete property rights, DR□ attributed to direct investment and DR□ attributed to indirect investment and

other factors. However, the absolute rent of ROCL belongs to the rural collective economic organization is based on the analysis of property rights and the land incremental value. The rural collective economic organization should also have DRII and part of DR□ since the rural collective economic organization invests in the infrastructure in the township region, apart from direct investment to the land parcels. This means that the government should only charge part of DR□ on rural collective operational construction land. Based on this scenario, the level of government charge on ROCL is higher than the reasonable level. In addition, the fee charge in typical pilots' county-level regulation is based on the total turnover. This means that the higher the total turnover, the higher the incremental value and the higher the charges. In this sense, the benefits of county-level regulation are less than state-level regulation.

The charge gap of specific implementation

In three typical pilots, specific regulations of land incremental value allocation are different. In Nahai, government charges are divided into two categories: charge through taxes and fees simultaneously on the land granted and transferred by the entering market. Taxes on the land are on the lease and shares. There are similar land incremental value distributions in Deqing and Pidu where location, land use, trade method and so on are taken into consideration. To demonstrate the effects of incremental value allocation, Deqing and Nanhai are used as study cases. The fee charges of the land parcel are shown in Table 4.

Table 4: The fee charges of land parcel in Deqing and Nanhai

pilot	Location of land parcel	Commercial land		Mining and storage land	
		Granting	transfer	Granting	transfer
Deqing	County planning area	48%	3%	24%	3%
	Township planning area	40%	3%	20%	3%

	Other area	32%	3%	16%	3%
Nanhai	Urban renewal or rural comprehensive improvement area	10%	3.5%	10%	2.5%
	Other area	15%	3.5%	15%	2.5%

In Deqing, the granting column shows the allocating incremental value based on investment contribution. The row shows land use gradient, reflecting the higher incremental value, the higher the proportion of government taking. In Nanhai, it focuses on land use patterns, not the specific land use, encouraging efficient urban renewal and centralized integrated renovation. Judging from the level of charge, Deqing is significantly higher than Nanhai even including 3 percent stamp tax from transferring of land. From the comparison, it reveals the effects of land incremental allocation are different. The policy of Nanhai is more beneficial to the rural collective economic organization.

Allocation of internal rural economic collective organization

Whether it is top-down policy or bottom-up of the civil forces to promote the "equity quantification" reform, it is an important basis to allocate the land incremental value within the rural economic collective organization. The members of rural economic collective organization acquire cash dividends from the land incremental value based on holding shares and participate in the decision-making of land incremental value re-investment.

The main stipulations of the land incremental value allocation for each pilot land are as follows: In Nanhai, 10 percent of the total land incremental value is retained as community fund, 49 percent of the remainder is cash dividends, and 51 percent of the remainder is used for collective economic development and public welfare. In Deqing, land incremental value from the land transfer is

allocated to the collective economic development and public welfare. Land incremental value from the land lease is used to daily operating expenses, and land incremental value from the land price investment is equivalent to collective asset investment income. Cash dividends are not less than 30 percent of total collective asset investment income. In Pidu, cash dividends, public welfare fund, community accumulation fund and risk fund account for 20 percent, 30 percent, 40 percent, and 10 percent of land incremental value respectively. Although the policies of land incremental value are different in the three pilots, the use of land incremental value is similar: public welfare fund for social security, public infrastructure maintenance, community accumulation fund for the rural collective economic development, daily operating expenses for rural collective economic organization, risk fund, cash dividends based on members of economic organization or holding shares.

The distribution proportions indicate that the level of direct revenue of collective members with cash dividends is from high to low, Nanhai, Deqing and Pidu. But the indirect revenue of collective member is mainly from the reinvested income derived from land increment value, such as foreign investment, purchase of property, shares and government bonds, which are influenced by the various factors, for instance, asset management level and regional economic development level. In Nanhai and Deqing, asset managers are rural economic stock cooperatives, the collective members based on the holding shares can participate in the decision of asset management and supervise asset management. In Pidu, asset managers are asset management companies, the collective members based on the membership supervise asset management but can’t participate in the decision of asset management.

In summary, the “share quantification” mode of land incremental value allocation based on the rural stock cooperative system is more flexible, where the collective members get to be allocated more benefits. To ensure income sustainability, more institutional supply is required to regulate the distribution of income decision-making procedures and regulatory procedures.

6. Conclusion

In the context of new policy, the property rights of collectively owned rural operational construction land have been improved with land development rights and transaction right. The rural stock cooperative system provides a good institutional basis for entering the market, trading operation, and the land incremental value allocation of rural collective construction land. Collectively owned rural operational construction land entering market promoted farmers to improve the income of the collective members, to share the benefits of rural economic development and rural land capitalization in the process of urbanization and industrialization.

The analysis of land rent based on changes of the property relationship provides a theoretical basis to analyse the rationality of land incremental value allocation. The research has shown that the level of government charge of state-level regulation is higher than the national level. In typical pilots, the level of direct revenue of collective members with cash dividends has a large difference. The “share quantification” mode of land incremental value allocation is advanced experience, which can stimulate collective member to participate in the decision-making. To ensure economic development of the collective economic organization and indirect revenue of collective member, more institutional supply

is required to regulate the distribution of income decision-making procedures and regulatory procedures.

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