

Article

Institutional Diversity of Transferring Land Development Rights in China—Cases from Zhejiang, Hubei, and Sichuan

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Abstract: With the continuous urbanization, China is facing a dilemma of achieving two conflicting targets in land governance, i.e., the continuous supply of urban construction land to support urbanization and the preservation of cultivated land for food security. Under China's dual land system, the implementation of the "Linkage between Urban-land Taking and Rural-land Giving" (Linkage) policy is of great significance in promoting more inclusive urbanization by commodifying the land development right and connecting urban and rural land markets. In the specific land property right system and changing land governance of China, this policy appears to provide an opportunity for stakeholders other than the state to compete for the value from the transfer of development rights (TDR) and triggers the emergence of diversified approaches in organizing land projects in rural China. Based on the theoretical perspective of New Institutional Economics and empirical evidence from Zhejiang Province, Hubei Province, and Sichuan Province, this paper conducts a comparative institutional analysis for China's TDR practice and argues that the diversified operational approaches in China's practice have aligned various interests of the stakeholders through flexible participation methods and elaborate reallocation of land property rights, in order to fit various institutional environments and material conditions

Keywords: TDR; institutional diversity; land governance; transaction cost; linkage; China



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1. Introduction

The urbanization in China has attracted worldwide attention for its large population and high speed. However, similar to other countries, rapid urbanization also brings a series of externality problems to its society and environment. Therefore, in the past decade, more inclusive urbanization has more and more been suggested and emphasized in China's strategies, plans, and policies, the institutional design and practice of which can be referential to other developing countries.

It is noteworthy that among China's newly-added urban construction land, about 80 percent was converted from cultivated land [1]. To feed a growing population, China's government put forward the "Red Line" of 1.8 billion *mu* (120 million hectares) of cultivated land in 2006. Thus, China's land governance has been facing the dilemma of achieving two conflicting targets—land for economic development and to preserve cultivated land for food security. Due to the land-based and urban-centered development mode, this contradiction has a substantial influence on the following land use and regional planning. From 1996 to 2008, the rural population decreased by 129 million, while the rural residential land had increased by 74,667 hectares. The widespread hollowed villages indicate that the trade-off relationship cannot only exist between construction land and cultivated land but also exists between urban construction land and rural construction land. To make full use of the existing construction land, a series of government-invested projects for land consolidation, reclamation, and development has appeared to offset the reduction of

cultivated land, among which “the Linkage between Urban-land Taking and Rural-land Giving” (abbreviated as the Linkage) policy plays a significant role [2,3].

On 21 October 2004, the State Council introduced the Linkage policy [1,4]. According to this policy, the cultivated land is allowed to be occupied by urban construction, only if the rural construction land can be consolidated to generate the same amount of cultivated land to offset. Through reallocating construction land across urban–rural sectors, the Linkage quota becomes an institutional instrument for the local government to increase farmland conversion beyond the limitation of three command-and-control (CAC) quotas—a quota for the maximum amount of construction land, a quota for the minimum amount of farmland and an annual quota for the amount of newly added construction land [5,6]. Thus, both the total amount of cultivated land and that of construction land can be maintained unchanged (Figure 1).

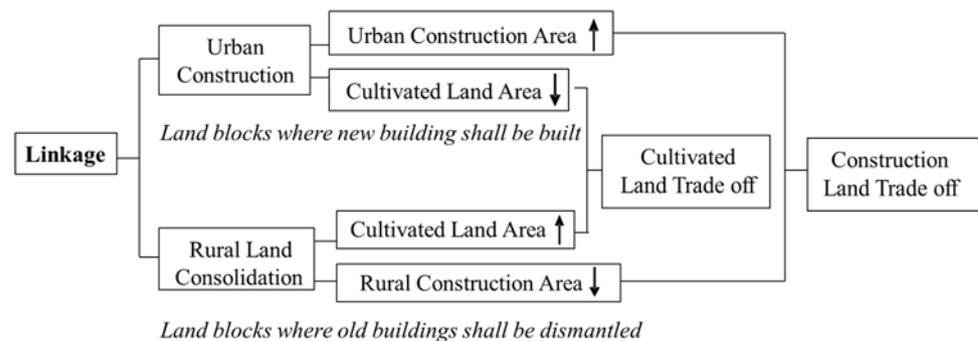


Figure 1. The “Link” relationship in China’s TDR program.

It is well-known that China adopts centralized organizations and top-down authority to govern land resources, such as the land acquisition in the rural areas and the land leasing in the urban areas. However, in recent years, numerous operational approaches to carry out the Linkage policy have emerged in China’s local practice, which displays a possibility of various institutional arrangements in China’s land governance. To comprehend this institutional diversity, two important questions arise as to why the various governance structures of the Linkage projects emerged under China’s centralized land governance system and how they align the interests of various stakeholders to achieve agreement.

To answer these two questions, this article reviews the relevant empirical study and theoretical study in Section 2 from the theoretical perspective of New Institutional Economics; conducts an institutional analysis on China’s Linkage mechanism, mainly focusing on the participation methods and property right arrangements; selects three cases from East China, Central China, and West China to illustrate the influence of local institutional environments and physical materials on micro governance structures; and finally makes some policy recommendations and discusses the possibility and necessity in dealing with sophisticated transactions of land property rights.

2. Literature Review

The coordinated development of urban–rural departments is a general policy objective in most countries. In the urban and peri-urban areas, there is usually more competition for land, so land values are much higher. On the contrary, there is less competition for land in rural areas, so formal land markets are less developed and land values are lower, which further leads to insecure property rights and inequality [7,8]. Under such circumstances, joint urban–rural collaboration has been proposed in some developed countries [9], in other words, to activate the flow of resources between urban and rural areas [10]. However, through the exchange of normal resources and property rights, the deep poverty in deep rural areas is still too intractable to solve, especially in developing countries [11]. Regarding this problem, China’s institutional design of the Linkage policy may provide a meaningful reference.

2.1. An Empirical Review: What Has China Done under the Linkage Policy?

Fundamentally, the Linkage policy was established as a land policy to maintain the dynamic balance of the amount of cultivated land and promote balanced development between urban and rural sectors. It is generally believed that China's dual land system is the fundamental reason that triggers this policy, otherwise, only the state-owned urban construction land can create huge economic benefits [3,12]. Different from the traditional land acquisition, the Linkage policy explores a new way to promote the marketization of rural construction land and offers farmers an opportunity to share the benefits from China's urbanization and modernization [13].

However, this policy engendered controversy over its real impacts on China's rural development. On one hand, this policy has significantly improved the living conditions of villagers and brought more complete infrastructural facilities, especially to the remote rural areas [2]. On the other hand, it has been observed that urban construction usually occupies fertile cultivated land in suburban areas, while the Linkage projects always "produce" barren land in remote rural areas, which threatens agricultural production and villagers' income in the long term [14]. Moreover, the encroachment on villagers' interests becomes a common problem in the implementation of Linkage projects [12], which has become a Gordian knot in China's rural land development. Regarding this question, Zhou [3,15] points out it is the government-led Linkage project that always jeopardizes villagers' interests of farmers, and this governance structure is gradually transferring to a market-based mode.

Though the Linkage Policy was established by the central government, the authority of project implementation has been transferred to the local government, which offers a chance to deliver various operational approaches in different regions. In recent years, diverse Linkage models have drawn more attention, such as the Zhejiang Model [16,17], the Chongqing Model [18], and the Chengdu Model [3,15]. Based on this research on local practice of the Linkage policy, Shi and Tang [19] classify the existing governance structures of the Linkage projects into the government-led structure, the market-invested structure, and the self-organized structure according to various dominant players.

However, most of the existing research focuses its analysis on the specific operational approach in a respective province or the municipality but does not conduct a comparative institutional analysis on various local practices and explain why this institutional diversity emerges in China's centralized land system. To fill these gaps, this research clarifies the transaction that has been made under this policy in 2.2 in order to give a proper position to each stakeholder in this sophisticated interaction (Section 3).

2.2. A Theoretical Review: What Property Right Is Transferred under the Linkage Policy?

As a quota system for farmland preservation, the Linkage in China has been compared with the TDR in the US by Tan and Beckmann [2], both of which have been summarized as restrained tradable market-based quota systems. Essentially speaking, both of these policies are to transfer land property rights, while there are some differences in their emerging backgrounds, operational methods, and policy effects [20,21]. What is the property right that is transferred through these two policies? Generally speaking, it is a type of limited ownership right to develop and tap the land [22–24], which is conceptualized as a land development right (LDR) by New Institutional Economics [18].

According to Coase, the bargains to solve the externality issue are generally focused on whether and how to compensate for the limited ownership realization [25]. Since the 1970s, Coase's insight has been applied in various transfers of development rights (TDR), and it has become widely recognized that the development right is a part of ownership, relevant but different from the right to use, the right of possession, the right to earnings, and the right of disposition [16,26]. For instance, emission trading was experimented with in the 1970s, and the TDR mechanism has also emerged in the land governance of the United States [27].

In the United States, TDR allows flexibility in zoning in designated regions and allows the landowners in “sending areas”, who are encouraged to protect the undeveloped land, to sell their development rights to the landowners in “receiving areas”, who want to build more lots than what is allowed under baseline zoning restrictions [28]. Similarly, the land development right was also separated to solve the incongruity between the planned land use system and real land use needs [16,17].

According to Demsetz’s hypothesis [29], property rights will emerge when the social benefits of establishing such rights exceed the social cost, either as *de facto* rights protected by individuals or as *de jure* rights protected by formal law, all of which can help lower the transaction costs. This paper believes that the LDR in China is just a *de facto* property right that has emerged in the practical but has no legalized definition. Moreover, the rights over a resource can be partitioned among several parties [30], which can be owned by different agents and transferred among them [16].

2.3. An Analytical Framework: How to Govern the Transfer of Development Rights?

New institutional economics (NIE) can provide both a micro-analytic perspective and a macro-analytic perspective, which considers not only the issues relating to the institutional arrangement (revolving around property rights and transaction costs) but also the institutional environment (encapsulating property rights and institutional change) [31,32].

To examine governance structures and improve institutional arrangements, the Institutional Analysis and Development (IAD) Framework by Ostrom [33] proposes that the “action arena” consists of action situations and participants are the core unit of institutional analysis. It is shaped by the physical conditions and community attributes and determines the results of governance. To open the “black box” of institutions, Williamson [34] classifies the institutions into four levels—embeddedness, institutional environment, governance, as well as resource allocation and employment. Moreover, this study delineates the positions of these components of the economics of institutions, as well as the multiple influences of the informal institutions and formal institutional environment on the choice of available governance structures. Furthermore, the study of Shi and Tang [19] adopts this theoretical perspective to construct an institutional analysis framework for China’s TDR practice, which highlights the institutional environments in the choice of governance structure. Based on this framework, this article also considers the influence of physical conditions on institutions (including institutional environments and governance structures) and then on resource allocation (Figure 2).

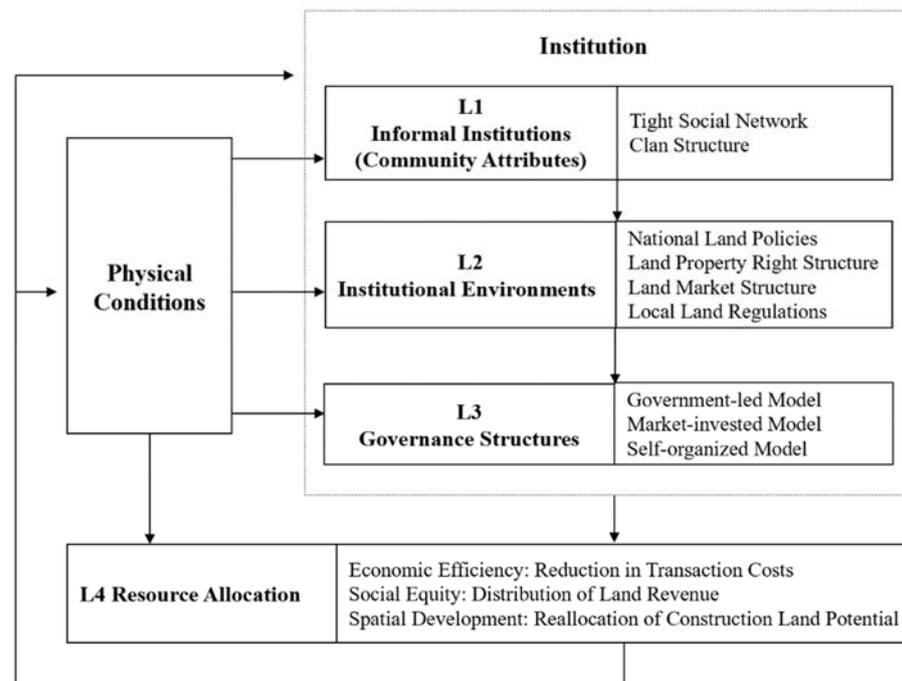


Figure 2. A comparative institutional framework for the Linkage policy.

3. Institutional Analysis of the TDR Mechanism in China

In this paper, since the Linkage in China has been conceptualized as a kind of TDR, three Linkage modes have been structuralized as diverse governance structures to govern such programs.

3.1. Institutional Environment

Recognizing the great significance of land, China's government has endeavored to improve the land rights structure and land governance structure to create an institutional environment suitable for China's continuous urbanization.

3.1.1. Land Property Right

China governs land resources via the Constitution and the Land Administration Law (LAL), which specify that urban land is entrusted to and controlled by the state and the rural land is collectively owned by the farmers in each village, except for what has been specified as state-owned. Specifically, according to the LAL, village collectives, including village agricultural production cooperatives, other collective agricultural economic organizations, and villages' committees, are the actual managers of rural land. However, the land property rights in China have long lacked a clear definition, and ownership disputes still occur among state institutions, between the state and the collective, and among the collectives.

A revised LAL in 1998 specifies that the central state is the ultimate owner of urban land, but it still failed to clarify the ambiguity of collective ownership, and the definition of the real owner of the collective land in villages remains blurred [1]. Furthermore, Ho [35] argues that the brigade and the administrative village are administrative units controlling natural villages, and the ownership of rural land is not in the hands of the natural village or villagers' group but is vested in the administrative village or the township.

Recognizing the ambiguous land rights in China, the research by He [1] concludes that institutions never completely allocate rights, and some valuable rights will remain in the public domain and be subject to competition among different stakeholders. Based on these insights into China's land right structure, this paper argues that this "intentional institutional ambiguity" [35] provides more room for the state to flexibly align the interests of various stakeholders in the social and economic transformation period of China and offers the possibility of the institutional diversity in China's land governance.

3.1.2. Landed Institutional Change

To highlight China's changing land management in the broader context of changing urban governance, Wu [36] argues that the fiscal reform in China both provides the incentive and makes it imperative for the local government to consolidate its control over urban resources and to directly involve in local economic activities, making it the "entrepreneurial government". Furthermore, land reform grants the property rights of state-owned land to the local government, and the essential disposal rights of land have brought a large amount of land-leasing premiums and other land income to the local government [36], which has been interpreted as a form of the decentralization in China's state power [37].

It is for sure that the central government has various public interests to protect through land policies, but local governments often intentionally neglect the national goals. Given the unmatched goals of the central and local governments, the current centralized land control system does not operate well [12,23]. Recently, a new type of decentralization in land governance has been highlighted, described as project-based land governance, which refers to a governance structure of rights and duties that characterized the relationships between central and local governments in China concerning allocating projects (earmarking funds) from multiple sources within the central government to a local government [23].

In China's transition from a centrally planned economy to a socialist market economy, it is not just the relationship between the central government and the local government that has changed in China's land governance. To examine the interactions among various landed interests, Wu [36] outlines how local government, semi-government agencies, financiers, investors, and the general public are configured in the land market. Furthermore, they argue that in order to establish a market institution in a non-market society, the role of China's state has transformed into a market agent, and the production of space can be regarded as an integral part of changing state and market relations. In addition, Yeh [38] argues that the state uses policy intervention to significantly change the relationship between the state and the market, which has enabled China to avoid the common urban problems encountered by many other developing countries. Furthermore, He and Lin [39] highlight the significance of the state–market–society triad in the processes of producing and consuming urban spaces in a rapidly changing global and local context.

3.2. Stakeholders at the Action Arena

Since the Linkage in China can be structuralized as a TDR, these programs definitely involve the reallocation of land revenue among the government, farmers, and developers. Considering the implementation of China's TDR program as a typical representative of project-based governance, the diverse interactions among the stakeholders can be delineated at two levels.

3.2.1. Policy Level

First of all, Linkage is an important land policy proposed by the central government to promote rural development and preserve cultivated land, which can be regarded as a kind of public good with a great social value. To control the range and performance of the Linkage policy, the central government adopts a top-down quota system and bottom-up examination system.

According to Measures for the Administration of the Trial Work of Linking the Increase in Land Used for Urban Construction with the Decrease in Land Used for Rural Construction, the Ministry of Land and Resources is responsible for policy guidance, control of scale, and development, as well as supervision and inspection. Each provincial department of land is responsible for the overall planning and organization within its administrative region. The land departments in each pilot municipality and county are responsible for the concrete organization and implementation of China's TDR program (Figure 3).

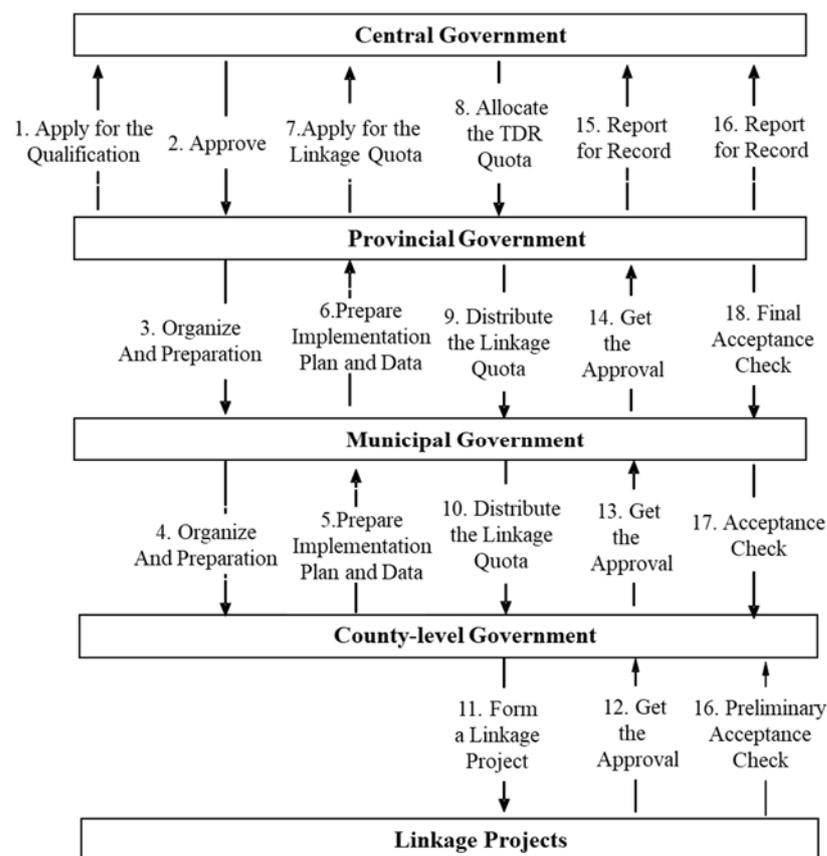


Figure 3. Operational process of China's TDR program.

3.2.2. Project Level

According to the land administration system in China, the local government is the only supplier of urban construction land. Moreover, the management of the TDR project combines administrative region management (focusing on the municipal and county-level administrative region) and project area management (organized by the unit of the project), so the local government plays a significant role in the implementation of TDR projects. As the legal owners of rural land, villagers occupy the most precious resource in this property right exchange. Moreover, different from many other land policies in China, TDR puts more emphasis on the improvement in farmers' life and the preservation of cultivated land. According to LAL, collectively owned land shall be owned collectively by the villagers and managed by village agricultural production cooperatives, other collective agricultural economic organizations, or villages' committees. In addition, according to the current policy, social investment is encouraged to participate in the implementation of TDR projects, which further confirms the significance of the social investors (mainly refer to developers) in the implementation of TDR projects.

Thus, the major stakeholders involved in TDR include the central government and levels of local governments (mainly refers to the municipal and county-level governments) at the policy level, while the most significant stakeholders at the project level include the local government, villagers, village collectives, and developers (Figure 4). Specifically, at the policy level, the central government introduces TDR as an important land policy focusing on the improvement of villagers' lives and the preservation of the cultivated land. However, at the project level, the economic benefits are the most important incentives for all the stakeholders, and their interactions can be conceptualized as a type of transaction, which reflects an economic competition for the maximized profits as the participants' ideal goal.

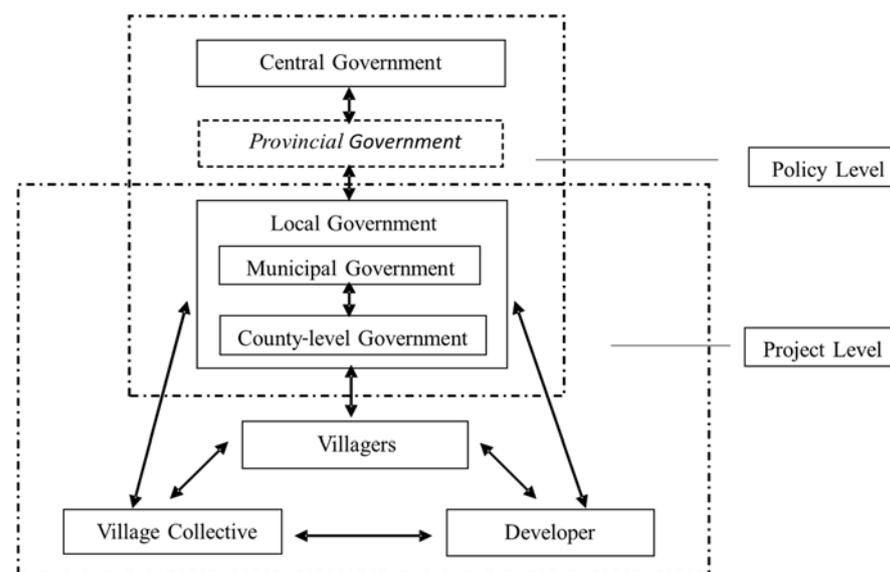


Figure 4. Stakeholders of the TDR policy and project.

Through the action arena, the stakeholder can exchange what they have for what they want to maximize their own profits, which further determines their decision-making mechanisms and behavior strategies [19].

3.3. Institutional Arrangements

3.3.1. Participation Method

According to Simon, the centrality of NIE is markets and exchanges, and all phenomena are to be explained by translating them into market transactions. Thus, the TDR project, which combines the change in physical form, the transfer of property rights, and the redistribution of resources, has been conceptualized as a kind of transaction in this paper, which is not merely the transfer of the TDR quota, but the aggregation of a series of secondary transactions [40].

In a government-led model, as the project organizer, the local government leads the project establishment, planning design, fund-raising, project supervision, and risk-taking from the top down, and recovers the investment through the paid transfer of the TDR quota. In a market-based model, the government is no longer the organizer but takes the responsibility of guidance, coordination, regulation, and service. Accordingly, market mechanisms replace administrative means to operate and manage the TDR project, and the investment is dominated by private capital. In the self-organization model, the project plan is proposed by the village collective according to Land Use Master Plan, approved by the Village Meeting, and reported to the local land administrative department. Specifically, the village collective takes the responsibility of fund-raising and entrusts professional institutions to carry out detailed planning design, project implementation, and project supervision (Table 1).

Based on the analysis above, the three TDR models are three institutional arrangements to determine the position rules and the participation methods of the multiple stakeholders in a series of secondary transactions.

Table 1. Three institutional arrangements to determine participation method.

| Sub Transactions | Involved Parties | | |
|---|---|---|--|
| | Government-Led | Market-Based | Self-Organized |
| Negotiation with the village collective | Government & village collective | Developer & village collective | Internal governance |
| Approval by levels of government | Internal governance | Developer & government | Village collective & government |
| Procurement of professional services | Local government & professional service providers | Developers & professional service providers | Village collective & professional service providers |
| Negotiations between the relevant parties | Local government & relevant parties | Developers & relevant parties | Village collectives & relevant parties |
| Final approval by local government | Internal governance | Developer & government | Village collective & government |
| Negotiations with the involved villagers | Government & villagers | Developer & villagers | Internal governance |
| Management of the project | Local government & professional service providers | Developers & professional service providers | Village collectives & professional service providers |
| Negotiations with the resettled villagers | Government & villagers | Developer & villagers | Internal governance |
| Negotiations with the village collective | Government & village collective | Developer & village collective | Internal governance |
| Transaction with urban land users | Government & developers | Internal governance | Village collectives & developers |

3.3.2. Redistributive Property Rights

In the property rights exchange in TDR projects, what the villagers own is the LDR of rural land, while what the developers finally demand is the LDR of urban construction land, which has a different ownership structure. Whether the LDR of these two “different” lands are homogeneous or not can determine the ownership of the TDR quota and further determine the profit allocation among the stakeholders. For the blurred collective ownership and the ambiguous *de facto* LDR, two logics have come out to transfer the LDR of these two heterogeneous lands.

According to the first idea, the LDR of rural land and that of urban construction land are considered to be heterogeneous, so the local government becomes the only supplier of both the use right and the LDR of urban construction land. According to the second logic, what the villagers own is a homogeneous LDR demanded by the developers, so the villagers can transfer their LDR to the developers directly. In the provinces where the second logic is employed, developers and village collectives can obtain an opportunity to compete for great revenue from the TDR projects. In conclusion, it is China’s land property rights system and the ambiguous LDR of rural land that trigger the existence of two ideas to transfer LDR, as well as three models to carry out the TDR projects (Figure 5).

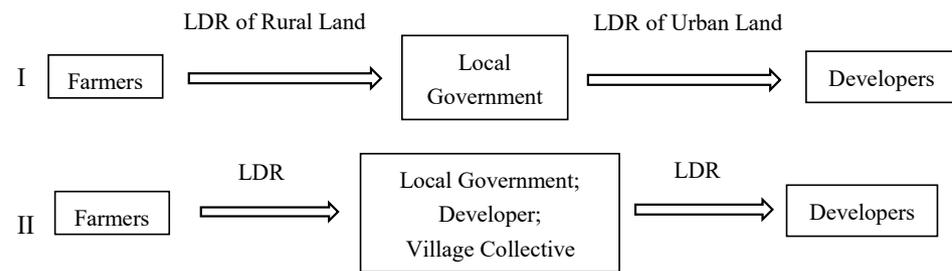


Figure 5. Two methods to distribute land development rights in China.

Even though the LDR of rural land, which is derived from the ownership of rural land, is the substantial objective of the TDR transaction, it still cannot become the tradable commodity in the land market directly and naturally. This tradeable quota should be “produced” through building demolition, land reclamation, and villager resettlement, and the leadership in this process becomes an approach to request for the ownership of the resulting quota. Hence, the three TDR models are actually three institutional arrangements to redistribute property rights and conduct transactions.

Based on the analysis above, the TDR in China is essentially a type of TDR which is rooted in China’s unique land property rights system and changing land governance. Furthermore, we can obtain the hypothesis that the three TDR models align the interests of different stakeholders through diversified institutional arrangements to determine the participation rules and redistribute the ambiguous *de facto* land property rights.

4. Cases from Zhejiang, Hubei, and Sichuan

As a significant land policy to produce new urban space under the pressure of food security, TDR is designed and controlled by China’s central government through a top-down quota distribution system to promote rural development and cultivated land preservation. On one hand, to lead the operation of the Linkage projects to achieve the goals of the Linkage policy, the central government has built a national institutional environment based on its right to design national policies and regulations, the supreme power to approve and examine pilot projects, and the authority to distribute TDR quotas. On the other hand, the central government also authorizes local governments to manage the organization of TDR projects, which gives them more room to design concrete institutional environments according to diverse material conditions. To comprehend the operation mechanism of the TDR projects in China, this paper does not only focus on the formal institutions at the national level but also distinguishes the diversified formal institutions at local levels, as well as some informal institutions within the rural community.

4.1. Methodology

To evaluate the actual performance of land policies and continuously adjust the institutional design of the land system, the Land Surveying and Planning Institute of China has organized a series of investigation projects since 2011. Through these projects, decades of TDR projects across six provinces have been observed and recorded in detail. In these recorded TDR projects, we have observed an obvious institutional diversity in organizing rural land adjustment projects in local China, which is different from the classical literature on government-led governance structure.

According to various dominant players in these projects, the existing governance structures of TDR projects can be classified into the government-led mode, the market-invested mode, and the self-organized mode [19]. To reveal the organizational methods and income distribution of these three governance structures, this research selects the most representative case for each category. Thus, the government-led case in Zhejiang Province, the market-invested case in Hubei province, and a self-organized case in Sichuan Province have been selected. Moreover, since these three cases are located in East China (Zhejiang), Middle China (Hubei), and West China (Sichuan), the local institutional environments and

project governance can also reveal the various needs and prior interests of different regions in TDR policy.

To collect convincing information for this comparative case study, this research combines public documents, project documents, field observations, and in-depth interviews. To verify the credibility of the information, this research organizes interviews with villagers, government officers, and village cadres. In the following section, each case is introduced on the local institutional environment, physical condition, governance structure, cost allocation, and income distribution.

4.2. Case Study and Comparative Analysis

4.2.1. A Case from Zhejiang Province

As an economically developed province with poor land resources, Zhejiang always faces a serious mismatch between distributed land quotas and desperate development needs, which gives a strong incentive to the local government to explore institutional innovation within the fundamental institutional environment. Thus, Zhejiang is one of the pioneers to explore more efficient land utilization through the reclamation of the rural construction land. In its policy innovation, TDR has shown its great superiority in balancing a rising demand for urban construction with a desire for cultivated land preservation in Zhejiang Province.

Specifically, the provincial government designed several policy documents to strengthen the policy effectiveness on rural land adjustment, rural development, and the construction of the small town. Furthermore, the municipal government of Jiaying packaged a series of land comprehensive improvement projects as “TDR Projects” and set detailed replacement principals, operational mechanisms, replacement policies, and examination and incentive methods, making it “Two (separations of man from land) for Two (exchanges for urban residential identity and housing) Project” to encourage an intensive agricultural productive and residential method in concentrated resettlement communities. Following the municipal policy, the county-level government of Jiashan constructed a large-sale centralized urban community with multiple functions and complete supporting facilities to resettle the farmers who would like to give up their homesteads. In this specific local context, the TDR project in W Village was approved in 2010, involved 23.05 hectares project area as well as 436 villagers, and produced 9.42 hectares for the TDR quota.

In this project, the township government played the most significant role in designing detailed project plans, surveying present land-use situations, adjusting the land use plan within project areas, and organizing the land reclamation and villager resettlement. As the project leader, the township government burdened 80% of project costs, mainly including the reclamation cost (CNY 90,000 (CNY 1 \approx USD 0.1564) per hectare), resettlement cost (CNY 749,000 per hectare), and the compensation to the villagers (CNY 1,576,000 per hectare). Correspondingly, the “produced” quota belonged to the local government, which can recoup the investment by transferring the TDR quota to the urban land users.

In addition, the village collective acted as the intermediary between the local government and the villagers in cooperating with the local government and representing the interest of villagers. The village collective, who lost the LDR of part of collective construction land, can receive some financial support from the local government to improve the infrastructure construction for the village and village committee.

Villagers, who lost the use right of their homesteads and the ownership of original houses, burdened 20% of the resettlement costs. In return, their production conditions and residential environment have been improved a lot through the construction of a concentrated resettlement community. In addition, they can receive monetary compensation (including kinds of compensation money, reward, and subsidy) and physical compensation (apartment or terrace near cultivated land) according to the area of their original houses and the agricultural population in each household. Moreover, considering the traditional structure of the agricultural production in W Village, a breeding base was planned to be built and rented to the villagers in order to improve their production conditions and skills.

In the first case, the involved village has an attractive location and superior economic foundation, so the villagers have a stronger incentive and capacity to improve their living conditions and land utilization efficiency. At the same time, located in an economically developed province, levels of local governments have an incomparable financial power to burden the tremendous project costs and multiple risks, which is the most common problem faced by government-led land projects. On the other hand, facing the extremely high resettlement costs, only the local governments have the capacity and motivation to initiate and operate the Linkage projects.

4.2.2. A Case from Hubei Province

Different from the development situation in Zhejiang Province, the local governments in Hubei Province have less financial resources to support huge land development projects. To relieve the fiscal pressure of local governments, the urban land users are encouraged to organize the Linkage projects. If they apply for urban construction land relying upon the TDR quota, the fee of newly-added construction land and the fee of land reclamation can be waived.

To protect the interests of involved villagers, the provincial land department of Hubei Province clarified that the project areas of TDR should be consist of “demolishment area” on rural construction land, “construction area” on urban land, as well as “resettlement area”. Furthermore, local policy documents make more detailed requirements for resettlement areas and strengthen that the construction of the resettlement area must be accomplished first before the old rural houses are demolished.

It is noteworthy that the Linkage policy can play a more significant role in poverty reduction, especially in remote rural areas. Different from the use right which completely relies on the land and is constrained by the location of the “sending areas”, the development right can be totally separated from the land and be transferred on a broader scale. Thus, the remote rural areas obtain an opportunity to participate in the resource exchange with the urban sector, which is far more difficult in other urban–rural transactions.

At the count level of Shayang, the land department further clarified the capital source to organize TDR projects: 20% of the land revenue produced by the “construction area” and the price of the TDR quota (CNY 450,000 per hectare). Considering the small proportion of the commercial real estate in Shayang and the deduction of the management cost, the county-level government set the reward for the newly-added cultivated land (TDR quota) as CNY 387,000 per hectare. Moreover, the policy documents of Shayang County appointed the township government to be the liability subject of the TDR project and encouraged social capital to invest in the TDR projects.

In this specific institutional environment, the TDR project located in G Village was organized by a market-based method. G Village adjoins a national road as well as a provincial highway, only 18 km away from the downtown area, and this project involved 184 households and “produced” 16.27 hectares for the TDR quota. On one hand, the reward for the newly-added cultivated land set by the county-level government could not cover all project costs, so the township government preferred to attract social investment into the TDR project. On the other hand, F Company, which was applying urban construction land in Shayang, would like to cooperate with the township government to “produce” this land quota.

As the primary investor and project leader, F Company took responsibility for building demolition, resettlement, and land reclamation. Through this project, the infrastructure was improved and a manufacturing industrial park of agricultural products was built to improve the production conditions and residential environment for the villagers. In the resettlement area, the villagers received two-layer townhouses as compensation, which would cost CNY 120,000. Specifically, F Company paid CNY 70,000 for each house, and the remaining CNY 50,000, together with the decoration cost, was burdened by the villagers.

From an investor’s point of view, F Company spent CNY 12.88 million on the villager resettlement, and it received only CNY 6.3 million from the county-level government for

the newly-added cultivated land. In return, when applying urban construction land, F Company enjoyed a fee reduction. From the villagers' point of view, who lost the property rights and burdened some resettlement costs afterward, they received some improvements in their living conditions. After respective benefit–cost comparisons, both the investor and the villagers can negotiate and compete with each other to maximize their own benefits.

In addition, the local government participated in this project as a macro project manager, who approved the project plan, examined the project result, and invested in part of the infrastructure construction. Through this project, the local government can not only obtain the price difference between the land transferring fee and the reward for newly-added cultivated land but also promote the local economic development.

4.2.3. A Case from Sichuan Province

To ensure the efficient allocation of land resources and protect farmers' interests in the urbanization process, Chengdu Municipality began to implement a rural–urban integration reform to reduce poverty and inequality. Specifically, to give a clear and comprehensive picture of the land property rights and prevent infringements by collective entities, individuals, or the government itself, Chengdu promoted the titling of all rural land and assets under the guidance of *Provisional Opinion on Strengthening Protection for Arable Land and Further Reforming and Improving the Property Rights System of Rural Land and Buildings*. This program was completed in 2010, with the issuance of 33,400 certificates of collective land ownership, 1.5 million certificates of use rights to collectively-owned land, and 1.8 million certificates for contracted land management rights [37]. Based on clarified property rights, the Chengdu Rural Property Rights Exchange, established in 2008, serves as a platform for the market trading of the property rights of rural lands (including the LDR of rural lands) in order to respond to farmers' increased awareness of property rights and their demand for a fair share in the incremental benefit of new urban land.

In this unique institutional environment, the third case, located in H Village, 22 km away from the urban areas of Chengdu Municipality, was organized by the villager collective itself. To conduct the TDR project, a rural cooperative company was founded voluntarily. The villagers who applied to participate in the project transferred the use rights of their homesteads and signed a contract with the collective company. Thus, the company acquired the use right of 32.6 hectares of collective construction land and legally confirmed this change in the property rights. According to the professional evaluation, the estimated value of these land (CNY 5,775,000 per hectare and CNY 187 million in total) was calculated into the company asset legally, based on which the company applied for a loan (CNY 132 million) from the bank and financial support (CNY 103 million) from the financing platforms operated by the local government. Through the negotiation with villagers, the company proposed the resettlement plan and entrusted the building design, project construction, and project management to several professional companies. Finally, they sold the TDR quota to the financing platform and other developers at the price of CNY 570,000 per hectare and distributed the project profits to the villagers according to the agreement.

In this project, the village collective, who acted as a project leader through a rural cooperative company, burdened the land adjustment costs, resettlement costs, and compensation costs. In return, the collective received the profit mainly through the transfer of the TDR quota to the financing platform. In addition, it also left some quota as a collective asset for independent operation, which was given more considerations about the future development of the village. Through the financing platform, the local government participated in this TDR project and burdened 30% of the project costs. In addition, it also took the responsibility in purchasing the TDR quota at a unified price and transferring them to the developers at the market price, through which the local government can obtain the price difference.

From villagers' point of view, those who lost property rights and burdened part of the resettlement cost can receive some monetary compensation (CNY 26,000 per capita)

or physical compensation (35 m² per capita for resettlement and CNY 5000 per capita for relocation subsidy) from the collective, as well as kinds of bonuses from the collective company afterward.

Essentially, the implementation of rural land titling and the existence of the Chengdu Rural Property Rights Exchange is of substantial significance in facilitating the market operation of the TDR in Chengdu by lowering transaction costs, especially the costs spent on information searching. Especially in the self-organization model, good credibility, a strong operating capability, as well as other informal institutions also played an important role in lowering transaction costs, especially the costs spent on negotiation.

5. Conclusions and Discussion

In order to improve the overall land utilization efficiency and meet the requirement for urban construction land under the pressure of food security, the land development rights of rural land have been separated as a transferable commodity to produce new urban spaces beyond the three CAC quotas. At the macro level, the Linkage is a significant land policy established by the central government to solve the dilemma in practice and achieve specific policy goals; at the micro-level, it is also a type of land development project involving several stakeholders with limited rationality (local government, villagers, village collective, and developer). Essentially, the Linkage quota in China is a restrained transferable quota that brings market mechanism into China's traditional quotas system to offset the negative externality resulting from economic development and urban expansion, just the same as the TDR in the United States. However, different from the TDR in the US within a unified land governance system, the Linkage policy transfers development right from the rural sector to the urban sector, two of which have totally different land ownership structures and markets. This obvious difference also determines the unique characteristics in China's institutional design of TDR practice, as well as the result of resource allocation.

At the level of the national institutional environment, the land development right is still a *de facto* property right in China. Due to the dominant role of the local government in the urban land market, there are two methods to transfer this new property right at the local level. If there is a market to allow the free trade of land development right from the "producers" to "users", the county-level government, market investors, and the village collective could obtain an opportunity to compete for the gap between the price of the *de facto* property right and its "production" costs, which further triggers three governance structures in some provinces: government domination, market operation, and self-organization. On one hand, these three governance structures provide an example of institutional diversity in China's centralized land governance system. On the other hand, various governance structures define different positions of stakeholders in this sophisticated interaction between institutions and resource allocation.

To give a full view of China's TDR practice and delineate the sophisticated interaction between physical conditions and resource allocation, as well as the role played by institutions in this interaction, this article selects three cases from East China, Middle China, and West China. According to the empirical study, we argue that due to the various physical conditions (including development situation of the region, fiscal capacities of local governments, and land use conditions), there are obvious differences in local institutional environments, which also help shape the action arena of stakeholders. To maximize their benefits, the local government, market investors, and the village collective interact in diversified ways under various local institutional environments and informal institutions, which are also influenced by physical conditions (including the location, development situation, and living conditions of the village). Furthermore, we conclude that in the highly developed regions, due to the tremendous resettlement cost, the local government becomes the chief organizer for TDR projects. Under such a governance structure, villagers can usually receive the highest economic compensation, because compared to other stakeholders, the local government cares more about the social impacts of the land projects. In developing areas such as Middle China and West China, market investment can significantly relieve

the fiscal pressure of the local government, but the results of governance rely much on the detailed local institutional environment and informal institutions. If the rural land development right is clarified and there is a market to allow the trade of land development right from the owners to users directly, the self-organization structure may be adopted by some developed villages, which has a strong incentive to improve living conditions and a strong capacity to lead the land project. Under such a governance structure, villagers' willingness can be respected and considered to the largest extent and more space would be preserved for future rural development.

Based on the theoretical study and empirical study, this research suggests that the local government should be more careful in designing local institutional environments, which has a direct impact on the actual policy performance. By constructing a mature TDR market, various stakeholders could be encouraged to contribute their respective strengths to improve governance outcomes. Regarding this point, the clarification of rural land property rights on a national scale and the legalization of the land development rights are also of great significance to stimulate bottom-up initiatives in the organization and operation of TDR projects. In addition, various physical conditions should also be considered in the institutional design for land projects in rural China, which has sophisticated interactions between institutions and resource allocation. Moreover, China's TDR practice can also be referential to other developing countries in reducing poverty in deep rural areas. However, due to the limitation of the case study, the conclusion still needs more cases to test or support in the next stage.

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