LAND DEVELOPMENT IN URBAN VILLAGES IN CHINA: CONSTRAINTS AND EVOLUTION FROM AN INSTITUTIONAL PERSPECTIVE

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Land Development in Urban Villages in China: Constraints and Evolution from an Institutional Perspective

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CERTIFICATE OF ORGINALITY

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ABSTRACT

Urban village is a unique phenomenon in the rapid urbanization process in China. This study defines urban village as the product of village-led land conversion and development for urban activities. The key question that this study attempts to answer is "How do institutional arrangements on property rights over collective land affect land development behaviours and outcomes in urban villages?" Additional questions include the following: Have institutional arrangements on land property rights evolved in relation to the development of urban villages? How have property rights over collective land been clarified in a reform-pioneer city such as Shenzhen? This study aims to address these questions, which are important yet have been inadequately explored in the existing literature.

Based on the key concepts and analytical methods of the New Institutional Economics (NIE), this study develops a conceptual framework to analyze and assess the institution arrangements on land property rights in the Chinese urbanization process. The implications of the institutional arrangements (and their evolution) to the land development behaviors and outcomes are specified in a set of theoretical propositions. These propositions are empirically examined based on comprehensive data from Shenzhen with rich dimensions and levels. The study shows that the institutional arrangements on land property rights are largely state led, which empowers the local states in the land conversion and development process. Village-led urban development in the urbanization of China suffers from severe institutional constraints because the villages' land property rights are incomplete. The key institutional constraints include (1) the lack of land security caused by the possibility of

government expropriation, (2) unequal access to credit because of unequal land rights, and (3) absence of state regulations on collective land transactions as a result of the lack of de jure property rights. These institutional constraints to villages' land rights weaken land-related investment incentives and the ability of the villages, and result in inferior infrastructure and sub-optimal development.

Although state-led institutional arrangements on land property rights work well in the greenfield development process, they can hardly be implemented in the redevelopment process due to the increasing transaction costs involved. Changes in transaction costs to cities that rely heavily on land redevelopment in sustaining economic growth may create incentives for institutional change. In the case of Shenzhen, almost all the vacant land available for construction has been exhausted over the years. Shenzhen has undergone significant institutional change to promote redevelopment. Institutional change in land property rights has effectively reduced the transaction costs involved in the land development process, and facilitated the redevelopment of urban villages. Urban villages (with collective land system) will be gradually integrated into formal urban areas (with state land system) via redevelopment. The empirical study suggests that village sites with better accessibility to good transportation facilities and the city center are significantly more likely to be redeveloped and thus will be integrated into formal urban areas earlier than those located in less accessible areas.

LIST OF RESEARCH PUBLICATIONS

Refereed Journal Papers and Book Chapters

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CHAPTER 1 INTRODUCTION

1.1 Research Context

Originally an agricultural economy with most of its population residing in rural villages, China is experiencing a widespread and rapid transformation into a country that emphasizes urban economy. From the macroscopic perspective, the relationship between urban and rural areas has been redefined both economically and socially. From the microscopic perspective, most of the population's lifestyles have been deeply changed. On the one hand, in remote rural areas, hundreds of millions of villagers have left for the big cities to make a better living. The villages they left behind have become "hollowed villages" (Long et al., 2012). On the other hand, the coastal urban area of China has grown and expanded rapidly. A large scale of the land in villages located in the expanding urban area has been taken over by the local state for urban development, and the remaining parts are still controlled by the villagers. These villagers engage directly in urban economic activities. As a result, the landscape of these villages has changed fundamentally. These villages are literally called "chengzhongcun" in Chinese and "villages in the city" and "urban villages" in English (e.g., Tian 2008; Zhang et al., 2003). For the sake of simplicity, we use the term "urban villages" in this dissertation. Figure 1.1 shows the landscape of an urban village in Shenzhen.

Figure 1.1 Landscape of an urban village in Shenzhen
(Source: Photograph taken by the author)

Along with the phenomenon of "hollowed villages," the phenomenon of "urban villages" is also prevalent in China. Many big cities across the country have witnessed the emergence and development of these urban villages, some of which are now vanishing. According to China's Vanishing Urban Villages (2013), a total of 2338 urban villages are listed in the redevelopment plans of 24 cities across the country, which together makes up the largest urban redevelopment scheme in the world. Some of these urban villages are undergoing redevelopment, whereas others have been completely rebuilt. Systematic studies on urban villages as a unique form of urban development are now more urgent than ever before these villages vanish. Such studies allow us to understand the rapid urbanization and economic growth that the country has been experiencing in the past decades. They also help us understand the nature of China's institutional transition given that the emergence and demise of these urban villages exemplify the great institutional change in the history of the country's development.

Urban village phenomenon has constantly attracted heavy attention from people, industries, the government, and the academic community. Many local studies on urban villages have provided detailed discussion on the physical characteristics, land use and living conditions of these settlements (Wei, 2000; Zhou and Gao, 2001). International academic discussion on urban villages began in the early 2000s and is still in progress. There are two main pools of literature on the conceptualization of urban villages. The first pool of literature perceives urban villages as special societies with different social groups (He et al., 2010; He, 2014). Urban villages provide temporary livelihood for indigenous villagers and supply affordable housing, education and job opportunities for rural migrants (Song, 2006; He et al., 2010; Hao et al., 2011, Lin et al., 2011). Another pool of literature conceptualizes urban villages as informal settlements. The development of urban villages is considered a form of informal development as opposed to formal development (Zhu, 2004; Tian, 2008; Liu et al., 2010; Wang et al., 2009; Wu et al., 2013). A recent study on urban villages by Wu et al. (2013) highlights the creation of the informality of urban villages through the dual urban-rural land market and land management system.

This dissertation aims to further the existing understanding on urban villages by analysing the effects of land institutions on development outcomes in urban villages. Based on the key concepts and analytical methods of the New Institutional Economics (NIE), this study develops a conceptual framework to analyze and assess the institution arrangements on land property rights in the Chinese urbanization process. The implications of the institutional arrangements

(and their evolution) to the land development behaviors and outcomes are specified in a set of theoretical propositions. Shenzhen is chosen for empirical investigation. With the use of qualitative and quantitative methods that combine a wide range of data sources, including fieldwork, citywide land survey data, planning documents, official policies, and relevant statistical data from different government departments in Shenzhen, the effects of land property rights on land development process and outcomes are empirically examined.

1.2 Research Questions and Objectives

The key question that this study attempts to answer is "How do institutional arrangements on property rights over collective land affect land development behaviours and outcomes in urban villages?" Additional questions include the following: Have institutional arrangements on land property rights evolved in relation to the development of urban villages? How have property rights over collective land been clarified in a reform-pioneer city such as Shenzhen?

The answers to these questions have both theoretical and practical importance. From the practical perspective, this research has explicit policy implications for more efficient and equitable land development in China. From a theoretical perspective, this research makes several contributions to the existing literature. Although theoretical discussion on the role of institutions in economic development abounds, empirical investigations in this field is largely limited to firm-level organizational arrangements. The role of the state and broader institutional environments is insufficiently examined. This study enriches

international theoretical works on institutional analysis by investigating the role and economic effects of land institutions in the urbanization process in China.

The answers to these questions also further our empirical understanding of the urban village phenomenon in the country. The concept of informal development has been widely applied in the existing literature. The development of urban villages is regarded as a form of informal as opposed to formal development (Liu et al., 2010; Wang et al., 2009; Wu et al., 2013). The lack of state regulation and land use planning for collective land is believed to be the key determinant of the sub-optimal development of urban villages (Liu et al., 2010; Tian, 2008; Zhu & Hu, 2009). Although the existing literature provides useful insights into the phenomenon of urban villages, current studies continue to suffer from various limitations. First, they fail to identify the explicit institutional differences between informal and formal development in the context of urbanization in China and the effect of these differences on the land use behaviour of urban villagers. Therefore, the claim that the sub-optimal development of urban villages is solely due to the lack of state regulation is unconvincing. Second, none of the current studies has systematically measured the economic performance of the urban villages. Third, discussions on institutional change in the development of these villages, which occurred recently in several cities, remain limited. These limitations frame the research questions of this study, and the answers to these questions should improve our understanding of urban villages.

The three main objectives of this study are the following:

- To develop a conceptual framework for analyzing the role of institutional arrangements on land property rights in the land development process of urban villages
- To empirically investigate and measure the effects of land rights institutions and their evolution on land development outcomes in urban villages
- To provide appropriate policy recommendations for more efficient and equitable land development in China

1.3 Research Methodology

1.3.1 An Institutional Perspective

The traditional paradigm of neoclassical economics, which is based on the market economies of Western countries, is the dominant model used in land development studies. Although it considerably increases our understanding of the development process for standard types of project in relatively stable conditions, this paradigm offers only a partial view of the subject (Healey, 1991); for example, it has long neglected the role of institutions in land development (Needham et al., 2011). Given that land development is structured by institutions (Healey, 1992) and regulated by the state in different socio-economic contexts, institutions should be considered in the study of the mechanisms and dynamics of an immobile land and property market (Guy and Henneberry, 2002).

In the late 20th century, however, things took a turn with the advent of NIE, and

the role of institutions has been gradually incorporated into economic analysis. This paradigm builds on, modifies, and extends neoclassical theory (Coase 1998, Williamson and Masten 1999, Williamson 2000). Institutions are "the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction... institutions define and limit the set of choices of individuals" (North, 1990). Institutions define and enforce property rights and at the same time determine transaction costs of property rights, both of which are two key concepts in NIE. Generally, property rights are conceived as the bundle of rights of individuals to use and dispose of an economic resource and to derive utility (income) from it. Transaction costs generally refer to the costs involved in economic transactions among individuals. According to Barzel (1997), transaction costs are the costs associated with the transfer, capture, and protection of rights.

This study adopts an institutional approach in understanding the land development in urban villages. Based on the key concepts and analytical tools of NIE and a careful examination of the specific institutional context of land development in the urbanization process of China, this study develops a conceptual framework to analyze the following questions: (1) How have institutional arrangements under the urban-rural dual land system shaped the land property rights of villagers and affected land development behaviors and outcomes in urban villages. (2) How were the changing transaction costs in the land development process generated as a result of regional economic restructuring and strong market demand for land upgrading in urban villages, and how have they induced institutional change on land property rights in the reform-pioneering city of Shenzhen?

1.3.2 Empirical Case

1.3.2.1 Background of the Case

Shenzhen is selected as the empirical basis for the analysis of this study. Shenzhen was originally an agricultural county (Bao'an County) located in the southern part of China; to the south it borders with Hong Kong Special Administrative Region (Figure 1.2). In 1979, Bao'an County was promoted to prefecture level, directly governed by Guangdong province. In 1980, Shenzhen was formally nominated as national Special Economic Zone, which was created to be an experimental ground for the practice of marked-oriented reforms. Shenzhen covers an area of 2050 km^2, in which the area of SEZ (Special Economic Zone) is 327.5 km^2. Since the reform and establishment of the SEZ, Shenzhen has witnessed China's widespread rapid urbanization in the past decades. Shenzhen has transformed from a small agricultural country with a population of 0.31 million in 1980 into a metropolis with a built-up area of over 700 km^2 and a population of over 15 million. It has become one of the largest cities in the Pearl River Delta region as well as the largest manufacturing bases in the world. Figure 1.3 shows the modern landscape of Shenzhen city.

Figure 1.2 Location of Shenzhen
(Source: Shenzhen urban planning and design research institute)

Figure 1.3 Landscape of Shenzhen at present
(Source: Internet)

Before 1980, Shenzhen had an economy with a GDP of about 0.20 billion yuan. By the end of 1990, the economy expanded to 17 billion yuan. In 2009, Shenzhen's GDP reached 820 billion yuan, while GDP per capital was increased from 606 yuan in 1979 to 92,772 yuan in 2009. Between 1979 and 2009, the rate of economic growth was about 26% in average (Table 1.1). While the agricultural sector made up 37% of the GDP in 1979, it dropped to less than 1% in 2001. By

contrast, secondary industries have grown dramatically over the years and industrial development has made a major contribution to the economic growth of Shenzhen. In 1979, secondary industries made up about 20% of GDP. In 2005, the figure increased to 53.3%. Shenzhen's economic output ranks fourth among 659 cities of the country (behind Beijing, Shanghai, and Guangzhou), and its GDP per capita is the highest in China.

Table 1.1 Annual average growth rate of main national economic indicators
(Source: Shenzhen Statistical Yearbook2010)

Year	**Gross Domestic Product** (RMB 10,000)				**GDP Per Capita** (yuan)
		Primary Industry (RMB 10,000)	**Secondary Industry** (RMB 10,000)	**Tertiary Industry** (RMB 10,000)	
1979	19 638	7 273	4 017	8 348	606
1981	49 576	13 343	16 019	20 214	1 417
1985	390 222	26 111	163 586	200 525	4 809
1990	1 716 665	70 220	769 319	877 126	8 724
1995	8 424 833	124 122	4 221 435	4 079 276	19 550
2000	21 874 515	155 656	10 860 852	10 858 007	32 800
2005	49 509 078	97 385	26 425 225	22 986 438	60 801
2006	58 135 624	69 675	30 600 890	27 465 059	69 450
2007	68 015 706	69 412	34 165 740	33 780 554	79 645
2008	77 867 920	82 896	38 604 708	39 180 316	89 587
2009	82 013 176	66 894	38 270 762	43 675 520	92 772

Along with the economic growth was a rapid urban expansion. Considerable areas of agricultural land have been converted to urban land for development. In 1979,

Shenzhen was an agricultural county with an urban built-up area of 3 km^2. The urban built-up area rapidly expanded to 139 km^2 in 1990 (Figure 1.4) and 342 km^2 in 1996 (Figure 1.5). From 1979 to 1996, the annual growth of land area was about 17 km^2 in average. From 1996 to 2000, the annual growth of land area was about 34 km^2 in average. From 2000 to 2006, the figure was increased to 47 km^2. In 2006, the urban built up area reached 703 km^2, with 170.7 km^2 (24.3%) located in the SEZ area and 532.8 km^2 (75.7%) located in the non-SEZ area (Figure 1.6). About 36.2% of the total urban built-up area is used for industrial development. (Urban Planning, Land and Resources Commission of Shenzhen Municipality, 2007). Most of the remaining land area is mountainous and is unsuitable for construction and development.

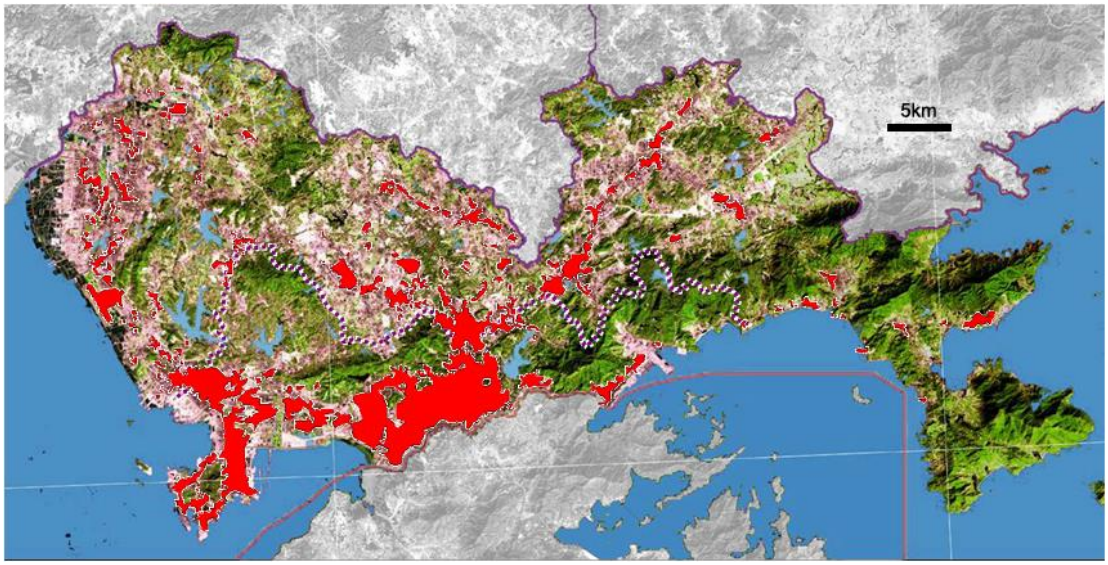

Figure 1.4 Urban built up area of Shenzhen in 1990
(Source: Shenzhen urban planning and design research institute)

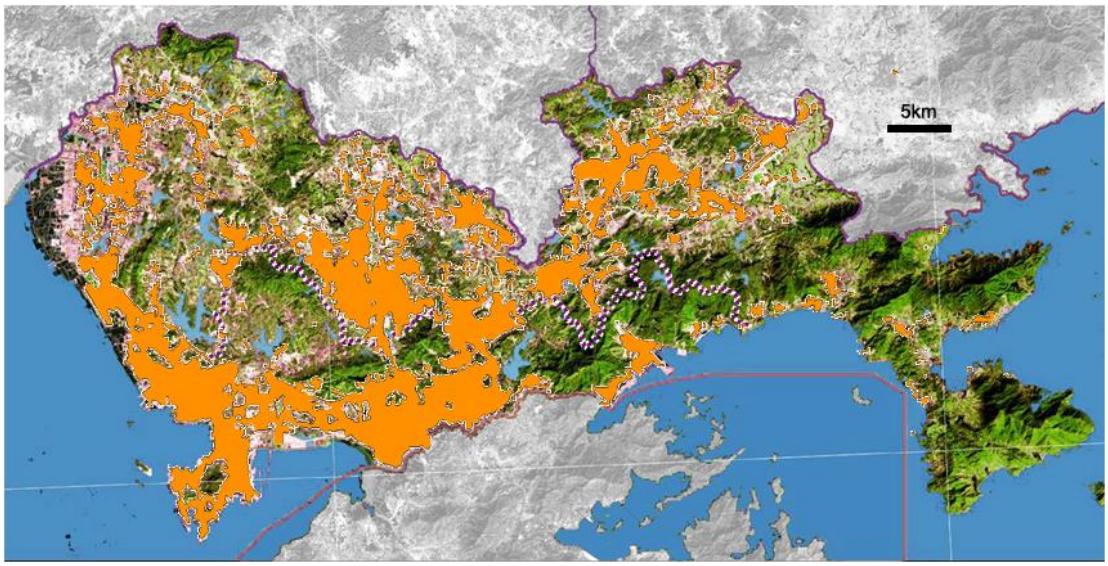

Figure 1.5 Urban built up area of Shenzhen in 1996
(Source: Shenzhen urban planning and design research institute)

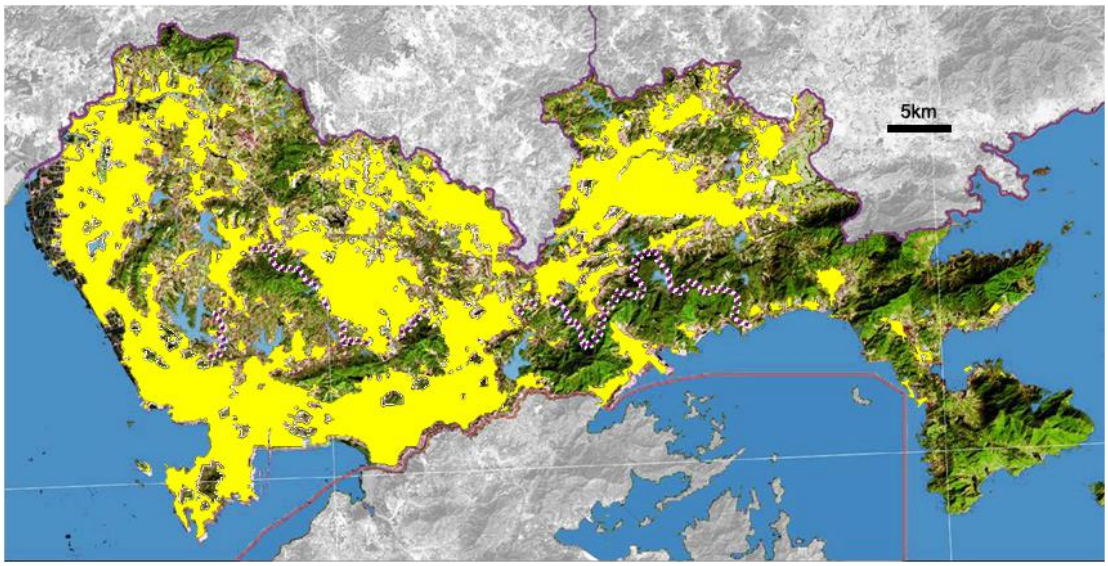

Figure 1.6 Urban built up area of Shenzhen in 2006
(Source: Shenzhen urban planning and design research institute)

Figure 1.7 Administrative divisions of Shenzhen
(Source: Shenzhen urban planning and design research institute)

Shenzhen consisted of two distinctive administrative divisions with six districts: Nanshan District, Futian District, Luohu District and Yantian District are located in the SEZ area; and Bao'an District and Longgang District in the non-SEZ area (Figure 1.7). These areas differ significantly in terms of urban development process and outcomes. The state-owned urban land use system was almost thoroughly applied in the Shenzhen SEZ, which was established in 1980. The city government expropriated most of the agricututral land in the SEZ area for urban development and construction. In 1992, two other adjacent districts (Bao'an District and Longgang District), were incorporated into Shenzhen. Urban development in the non-SEZ area is mainly led by individual villages. The information about the land area, population and density of these six districts in 2006 is shown in Table 1.2.

Table 1.2 Land area, population and density of Shenzhen in 2006
(Source: Shenzhen Statistical Yearbook2007)

Districts	Land Area (km²)	Population (10,000 person)	Resident Population		Density (Person/ km²)
			Registered Population	Non-Registered Population	
Entire city	1952.84	846.43	196.83	645.60	4334
SEZ area	395.81	318.86	122.69	196.17	8056
Futian	78.04	118.22	48.65	69.57	15149
Luohu	78.89	86.78	35.94	50.84	11000
Nanshan	167.05	91.99	34.768	57.24	5507
Yantian	71.83	21.87	3.34	18.53	3045
Non-SEZ	1557.03	527.57	74.14	453.43	3388
Bao'an	712.95	338.01	39.36	298.66	4741
Longgang	844.0	189.56	34.78	154.78	2246

Compared with other Chinese cities, Shenzhen indicates excellent performance on urban land development outcomes measured by Gross Domestic Product per unit of urban built-up land area. Based on relevant statistics, the economic performance of land development in different cities has been summarized and compared, as shown in Table 1.3 . Based on this table, Shenzhen performs much better than other metropolitan cities in China including Beijing, Shanghai, Guangzhou, Tianjin, and Suzhou, but worse than overseas cities including Hong Kong, Singapore, and Tokyo. This data suggest that Shenzhen still needs to improve its economic performance of land development.

Table 1.3 GDP per unit of urban built up area in different cities
(Source: Shenzhen Bureau of trade and industry)

City	Year	GDP per unit of urban built up area (Billion yuan/km^2)
Shenzhen	2004	5.1
Suzhou	2004	1.43
Guangzhou	2004	2.16
Tianjin	2004	1.17
Beijing	2004	1.67
Shanghai	2004	3.51
Hong Kong	2003	53.91
Singapore	2003	24.41
Tokyo	2002	101.59

1.3.2.1 Why Shenzhen?

Like other Chinese cities, the urbanization process of Shenzhen in the past decades was based on the typical urban-rural dual land system. The city's urbanization is a result of both village- and state-led urban development and therefore provides an appropriate case in studying the development of urban villages. Shenzhen was originally an agricultural county before the economic reform and rapid urbanization. In this sense, the urbanization of Shenzhen is like a natural experiment from which the effect of institutional arrangements on the development of urban villages can be learned.

As an experimental ground of the "socialist's market economy" of the country, Shenzhen is a pioneer of China's reform and "opening up" to the rest of the country (Ng, 2005). China's reform trajectories have been shaped by regional decentralization. Regional experimentation is an essential part of the central

decision making process in the country. Beginning in 1978, almost every major step in the path of reform was first tested in a few regions before being launched nationwide (Xu 2011). Shenzhen is a good illustration of this path of reform. For example, many reform-related phenomena first emerged in Shenzhen before they spread to other Chinese cities. Moreover, many reforms in China's transition, such as the separation of urban land ownership and land use rights, were first conducted in Shenzhen before they were launched in the rest of the country. Substantial reforms have been recently albeit quietly implemented in Shenzhen to facilitate the redevelopment of urban villages by redefining property rights over collective land. Thus, Shenzhen provides a timely case for the study of institutional change in land property rights in China.

The development of urban villages in Shenzhen is distinct from that of other cities in the country largely because of the different conditions that characterize the city's urbanization. First, Shenzhen was the first SEZ to be formed after China launched its reform and opening-up policies. Shenzhen's spatial and cultural proximity to Hong Kong and low land and labor costs have attracted many Hong Kong investors to relocate their factories to the city since the early 1980s. This process rapidly transformed Shenzhen from an agricultural into an industrial economy and all its rural villages into urban villages. According to a recent official report (Policy Research Institute of Shenzhen Municipality, 2010), the city had a total of 622 (322 inside the SEZ area, 300 in the non-SEZ area) urban villages as of 2009.

Second, Shenzhen comprises two distinctive administrative divisions: the SEZ and non-SEZ areas. These two areas greatly differ in terms of urban development and outcomes. The SEZ area was established in 1980, and the state-owned urban land use system was almost thoroughly applied in this area. The city government expropriated most of the collective land for urban development and construction. In 1992, two other adjacent districts (the Bao'an and Longgang districts) were incorporated into the non-SEZ area of the city. Urban development in the non-SEZ area is largely based on collective land. Therefore, urban development in the SEZ and non-SEZ areas follows distinct mechanisms as a result of the different land property rights systems. These differences should be considered in an empirical analysis for a comprehensive understanding of the development of urban villages throughout the entire city.

1.3.3 Diversified Analytical Tools

Qualitative and quantitative research methods are integrated to support the empirical analysis of this study. Qualitative analysis addresses the "how" questions, adopts the perspective of those studied (i.e., informants), and examines and articulates processes (Pratt, 2009). Quantitative analysis is useful in making generalizations from the qualitative findings (Lobe, 2008). The prevalent use of quantitative analysis is to test specific hypothesis regarding the relationships between specific variables. Quantitative measures are often most appropriate for evaluations that compare outcomes with baseline data. In contrast, qualitative analysis opens the study by presenting the large, interconnected complexities of a situation. Its focus on processes, reasons, and matters of "why" distinguishes it from quantitative analysis. Thus, each method has its own advantages and extends

our understanding of the research problem. Both the qualitative and quantitative analyses of this study are based on the established conceptual framework.

The empirical analysis of this study is structured into two parts. The first part concerns the key question of this study: How do the institutional arrangements on property rights over collective land affect land development behaviors and outcomes in the Chinese urban villages? To answer this question, the qualitative method is first applied. Based on a conceptual framework on the role of land property rights in land development process, a comparative study of two representative cases is conducted. These two cases include the Dongfang-Tantou and Bagualing areas, which involve collective and state land property rights in Shenzhen, respectively. The comparative study illustrates the mechanism through which the institutional arrangements on land property rights affect the industrial land development in urban villages. Followed the qualitative study, a regression analysis is conducted based on community-level data from non-SEZ districts with an area of 1557 km^2. The quantitative analysis serves two purposes: (1) to test whether or not different property rights for collective and state land exert significant effects on the economic performance of industrial development and (2) to measure how much lower the land rent is that people pay for the incompleteness of the key property rights components.

The second part of the empirical study focuses on a second question that is the logical consequence of the key question: Have the institutional arrangements on land property rights evolved in the development of urban villages? A qualitative study is first employed to answer this question. Theoretical perspectives on

transaction costs and a case study of Shenzhen suggest that institutional arrangements on land property rights have been substantially reformed in the land redevelopment process in Shenzhen. Relevant policies and practices are comprehensively reviewed to study the evolving institutional arrangements on land property rights and their implications on transaction costs. This study argues that the dynamic market-driven redevelopment process under the new institutional arrangements defines a gradualist approach in clarifying and formalizing land property rights in urban villages. With the use of a set of comprehensive data that cover all 44 village industrial sites in Nanshan District in Shenzhen, a regression analysis is conducted to investigate the determinants of urban village redevelopment to understand the path of integrating urban villages (with collective landownership system) into formal urban areas (with state landownership system).

1.3.4 Comprehensive Data Collection

A set of comprehensive data with rich dimensions and levels are collected and combined for the empirical analysis. Data that support qualitative analysis mainly come from fieldwork in urban villages in Shenzhen, official reports, planning documents, and other relevant data from the available literature. The first regression analysis uses material from a citywide land survey, Shenzhen statistical yearbooks, and other relevant statistical data. The second regression analysis uses material from a comprehensive survey of the village industrial sites in Nanshan District, Shenzhen.

The data sources used in this study includes the following:

1) Fieldwork

Fieldwork was conducted in urban villages, including the Dongfang-Tantou, Shapu, Gushu, and Chengtian areas, in 2007, 2008, and 2011.Two main components of the fieldwork are (1) interviews with migrant workers, villagers, and officials of urban villages, and (2) surveys on urban development activities, infrastructure construction, land use patterns, and buildings in urban villages. The main constraints and the development processes and problems in the urban villages are discussed with the interviewees. Fieldwork was also conducted in an industrial site developed in the Bagualing area, which was used as a baseline to analyze land development in the urban villages.

2) Policies and planning documents

Relevant policies and planning documents are collected to identify the evolving institutions that govern land development in the urban villages in Shenzhen. The specific laws and policies reviewed in this study include the Land Administration Law of the People's Republic of China 2004 Amendment, Land Management Regulations for Urbanization of Bao'an and Longgang (2004), Provisional Regulation for Urban Village Redevelopment in Shenzhen (2005), Urban Renewal Regulation (2009), Guides for Application of Urban Renewal Unit Planning (2010), and Procedures of Demolition and Redevelopment Projects (2011). The relevant planning documents include the Master Plan of Shenzhen (1996–2010), the Master Plan of Shenzhen (2010–2020), the Regeneration Plan for Urban Villages in Shenzhen (2005–2020), the Regeneration Strategies for

Deteriorate Urban Areas and Industrial Districts in Shenzhen (2007), the Urban Regeneration Plan for Shenzhen City (2010–2015), and yearly redevelopment plans. Data on government land use policies and planning documents were obtained from the Urban Planning and Land Resources Commission of Shenzhen Municipality.

3) Unpublished original data from governmental departments

To support the first regression analysis of this study, the following data were collected: land ownership, land use, population, industrial value added, industrial plant rental price, and fixed investment in the city. The original data on land ownership and use were obtained from a citywide survey of construction land in Shenzhen conducted by the Urban Planning and Land Resources Commission of Shenzhen Municipality in 2006. Data on the industrial value added, fixed investment, and population of the 24 sub-districts were collected from the Yearbooks of Bao'an and Longgang districts (2007). Data on industrial plant rental price of the 24 sub-districts were obtained from a citywide survey and research report on industrial districts in Shenzhen conducted by the Urban Planning and Land Resources Commission of Shenzhen Municipality in 2009.

The data that support the second regression analysis mainly come from a comprehensive survey of the village industrial sites in Nanshan District, Shenzhen. This survey was conducted and completed by the China Academy of Urban Planning and Design (Shenzhen branch) in 2007. The survey provides systematic data on the following: (1) location of sample industrial sites, (2) floor area ratio (FAR) of sample industrial sites, (3) building age in industrial sites, (4) monthly

rental prices of industrial plants in the sample sites, and (5) de facto landownership of sample industrial sites. These data were systematically analyzed in this study.

4) Other relevant documents

Other relevant documents include the following: (1) an official report on housing policy and the distribution of residential space in Shenzhen (2007), (2) an official report on the industrial development strategy and distribution of industrial space in Shenzhen (2007), and (3) an unpublished report on the population governance of Shenzhen (2007).

Given the sensitivity of issues, including land property rights and urban development in a rapidly changing institutional environment, the quality and reliability of the data were a major concern for this kind of analysis. The direct involvement of the first author with projects and the combination of several levels of credible data sources provide a high level of reliability in this respect.

1.4 Thesis Structure

The thesis is composed of five chapters, as shown in Figure 1.8. Below are brief descriptions for every chapter.

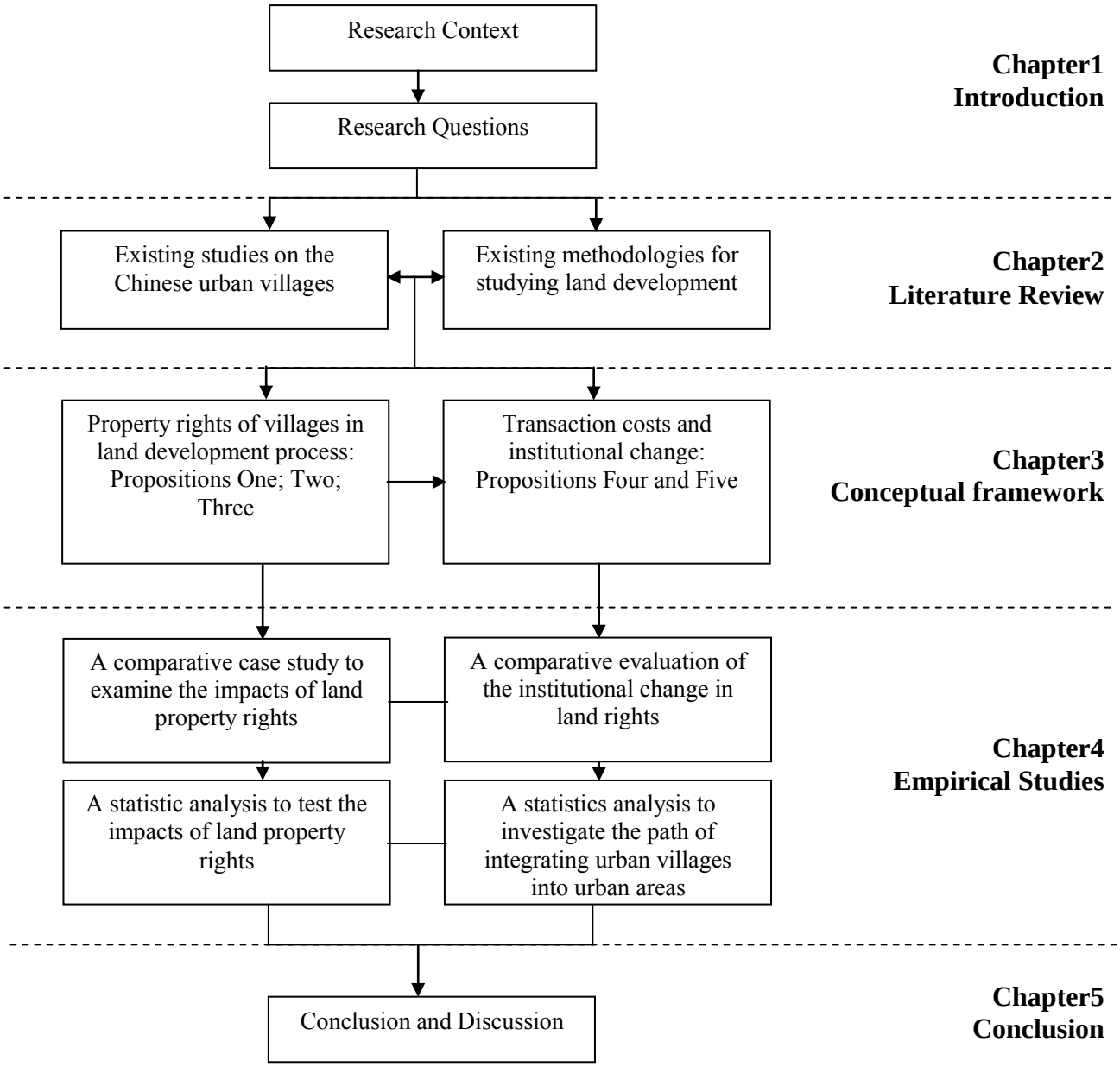

Figure 1.8 Research structure of this thesis

Chapter 1 serves as the overall introduction to this study. It introduces the background of the study, specifies its issues, identifies research questions and objectives, and presents the research methodology and structure of the thesis.

Chapter 2 reviews existing methodologies for the study of urban land development. In addition, research on urban villages is reviewed. Based on an examination of the existing literature, the research gaps to be filled in this study and the theoretical perspectives for this research are presented.

Chapter 3 develops a conceptual framework for examining land development in urban villages. Relevant conceptions and analytical tools of NIE are modified to incorporate the specific institutional context for land development in the urbanization process of China. Institutional arrangements on land property rights are analyzed and assessed. Their implications to the land development behaviors and outcomes in urban villages are fleshed out.

Chapter 4 applies the conceptual framework developed in Chapter 3 to empirically explain and evaluate the development of urban villages in Shenzhen. Qualitative and quantitative methods are used in analyzing the role of institutions in the land development process based on a series of systematic data sources, including fieldwork, citywide land survey data, planning documents, and the other relevant statistical data from yearbooks.

Chapter 5 presents the conclusion. It begins with a brief review of the whole study. It summarizes the major research findings and discussions, and points out the

contributions of this study to the existing knowledge in the field. The chapter also identifies the limitations of the study and the agenda for future research on urban villages in China.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter situates this study within the narrower context of literature on Chinese urban villages and the broader context of global literature on urban land development and markets. It consists of three parts: First, the existing literature on urban villages in the context of Chinese urbanization is reviewed, and research gaps are identified. Second, the theoretical approach to urban land market and development in the global literature is reviewed. The limitations and advantages of different approaches are discussed to inform the methodological basis of this study. Third, an institutional approach to the study of land development in urban villages in the context of urbanization in China is proposed to enrich the theoretical discussion on land development and further our empirical understanding of the urban village phenomenon. Methodological principles are also suggested to guide the study in filling the existing research gaps.

2.2 Existing Literature on Urban Villages in Chinese Urbanization

As a unique phenomenon that is prevalent in the urbanization process of China in the past years, the development of urban villages has constantly attracted heavy attention from people, industries, the government, and the academic community. Many local studies on urban villages have provided detailed discussion on the physical characteristics, land use and living conditions of these settlements (Wei, 2000; Zhou and Gao, 2001). There is also rich literature on the redevelopment

issues of urban villages. Heavy attention has been put on the ways by which urban villages can be redeveloped rather on their causes and social effects (Wu and Zhou, 2005; Wang and Liu, 2003; Wei and Yan, 2005). Moreover, existing local studies espouse contradictory views on urban villages. Some argue that urban villages are problematic settlements in the city because of their high crime rate and poor living conditions; whereas others hold that the urban space of urban villages is much more liveable than that in other areas for human beings because of the mixture of land use and sense of place. Some argue that urban villages hinder urban development because they occupy precious land resources and have poor economic performance, whereas others believe that urban villages contribute significantly to the urban development of China. The understanding of urban villages is far from conclusive.

International academic discussion on urban villages began in the early 2000s and is still in progress. Urban villages are villages engulfed by the expansion of urban areas. They are physically located inside the city and have become de facto urban areas, but the land on which they stand is controlled by the villagers (Wu, 2009). Urban villages have been perceived by previous literature as special societies with different social groups (He et al., 2010). Urban villages provide temporary livelihood for indigenous villagers and supply affordable housing, education and job opportunities for rural migrants (Wang et al., 2009; He et al., 2010; Lin et al., 2011). The formation of urban village is related to particular institutional conditions, such as the institutions of land, hukou and housing provision (He et al., 2010).

The concept of informal development is widely used in the existing literature. The development of urban villages is considered a form of informal as opposed to formal development (Liu et al., 2010; Wang et al., 2009; Wu et al., 2013). The recent study on urban villages by Wu et al. (2013) highlights the creation of the informality of urban villages through the dual urban-rural land market and land management system. Although such studies provide useful insights in understanding the development of urban villages from a comparative perspective, they fail to identify the essential difference of institutional arrangements between formal and informal developments in the context of urbanization in China. The land development behavior of villagers, as the primary developers of urban villages, directly determines the development outcomes and built environment of urban villages. However, existing studies on the informal development in China do not analyze the land development behavior of urban villagers. To overcome these limitations and contribute to a deeper understanding of the development mechanism of urban villages, the institutional differences between the so-called informal and formal development and their effects on the land development behaviour of urban villages should be explicitly identified.

Urban villages are distinct from their counterpart urban areas in the physical environment and urban forms. Rich literature has confirmed the congested built environment, poor living conditions and low quality infrastructure in urban villages. A pool of research emphasizes the lack of state regulation in the formation of sub-standard built environment in urban villages (Zhu, 2004; Liu et al., 2010; Tian, 2008; Zhu and Hu, 2009). Without land-use planning, or without implementation of it, building plots ratios and site coverage in urban village is

very high. The intrinsic value of village land is not being achieved to its full potential (Zhu, 2004). For example, Tian (2008) believes that the combination of rent-seeking opportunities and the lack of state regulation for controlling collective land use have given rise to illegal structures in urban villages. Following Tian (2008), Zhu and Hu (2009) indicate that the absence of land-use planning has resulted in incomplete landowner rights, thereby exacerbating the contested built environment and leading to spatially uncoordinated land development. Based on this proposition, Liu et al. (2010) consider urban villages as "unregulated assets" and transitional neighbourhoods. Land development in urban villages is therefore sub-optimal because of the relative lack of state regulation compared with that in other urban areas (Zhu, 2004; Tian, 2008; Zhu and Hu, 2009).

Because of the lack of regulation and difficulty in enforcing regulation, negative externalities are widespread in urban villages (Tian, 2008). This argument provides an insightful perspective for analysing the development outcome in urban villages with particular reference to the role of the state regulations. However, it should also be noted that the absence of state land use planning is important yet insufficient for long-term investment and development (Lai et al., 2014). Other institutional factors that affect the land development behavior of village collectives should also be included in the analysis for a more comprehensive understanding of urban villages. Furthermore, although the development outcome of urban villages is considered substandard and less satisfactory than that of formal urban areas, none of these studies have

systematically measured the institutional effects on the economic performance of urban villages.

Concerning the contribution of urban villages to urban development, most of the existing literature focuses on their role in providing affordable housing for migrant workers (Liu et al., 2010; Song et al., 2008; Song and Zenou, 2012; Tian, 2008). However, no study has attempted to measure the extent to which these villages have provided affordable housing to migrant workers. Recent studies show that urban villages have many roles in the urban development of many cities. For instance, they also provide infrastructure (Po, 2012) and facilitate industrial development and commercial development (Hao et al., 2012; Lai et al., 2014; Lin et al., 2011; Wang et al., 2009). However, how and to what extent they contribute to these forms of urban development remains unclear.

In summary, although the existing literature provides useful insights into the phenomenon of urban villages, current studies continue to suffer from various limitations. Although some studies have conceptualized urban villages as a form of informal development distinct from state-led formal development, they fail to identify their explicit institutional differences and effects on the development mechanism. Second, the lack of state regulation (e.g., land use planning) is important yet insufficient for the explanation of the sub-optimal development and disordered physical environment in urban villages. Furthermore, none studies have systematically measured the economic performance of urban villages. Third, most of these studies largely focus on the role of urban villages in providing affordable housing. The contribution of urban villages to other forms of urban

development remains relatively neglected. Lastly, discussions on institutional change in the development of these villages, which occurred recently in several cities, remain limited.

The first two limitations are due to the failure of the studies to incorporate the land development behavior of urban villagers into their analysis, which indicates a lack of adequate methodological basis. The third limitation is largely due to the limited scale of the empirical study area. Most of the relevant literature is based on only a small scale of urban village cases. This condition is attributed to the difficulty of collecting systematic data on urban villages. Given the sensitivity of issues, including land property rights and urban development in a rapidly changing institutional environment, the quality and reliability of the data continue to be a major concern. The lack of a citywide study impedes understanding of the role of urban villages in the whole (integrative) urban development process. The fourth limitation indicates a failure of timely observations on the dynamic development practices in these urban villages.

These limitations of the existing literature frame the research questions of this study: What are the important institutional constraints faced by urban villagers under the current urban-rural dual land ownership system? How do institutional arrangements on property rights over collective land affect land development behaviours and development outcomes in urban villages? Have institutional arrangements for land property rights changed in the development of urban villages, and if yes, how? These questions are the core questions of this study, the answers to which should further our understanding of urban villages in the

country.

2.3 Existing Methodologies for Studying Land Development

2.3.1 Neo-classical approach

Early studies on land development are overwhelmingly rooted in the dominant paradigms of neoclassical economics, which focuses on markets and attempts to produce deductive theories. Neoclassical economics views the market as a system that automatically adjusts supply to demand and production to consumption under the coordination of the price mechanism. Land is equated with other consumer goods given its important linkages to employment and industries (Klassen et al., 1987). Consequently, research centered on the principles of land market supply and demand, looking into the determinants of these curves that were seen to shape prices, levels of investment, and location choice. Land prices are determined by the interaction of supply and demand (Serra et al., 2004). Land demand is created by population growth, income, and level of economic activities, while land supply is determined by physical conditions and government policies and regulations to support development (Wu et.al, 2013).

Based on the experience of Western market economies, an established body of neoclassical literature on urban land markets and development gained ground across various disciplines. A general understanding of the work on neoclassical land development can be obtained from many studies conducted in capitalist cities. First, land is developed through market mechanisms in which individuals and

firms are the main actors (Yeh and Wu, 1996). Second, individuals and firms (i.e., property developers/investors) base their development/investment decisions on market signals provided by prices (Adams et al., 2005). Third, neoclassical research on the effect of public policies on land and property markets strongly focuses on how policy directly affects supply and demand outcomes. White and Allmendinger (2003), who reviewed the relationship between planning policy and its effect on the housing market, found that most researchers adopted a neoclassical approach. Econometric models and quantitative methods are widely used in neoclassical studies to explain land development outcomes.

As a mode of analysis, such approaches generally provide good explanations where land property rights are defined well, where active and competitive property market exists with a high number and frequency of transactions, and where institutions that govern the property market are rather stable. The approach worked under certain simplifying assumptions, such as perfect information, rational behavior of individuals who maximize wealth and have stable preferences and unlimited cognitive capabilities, and instantaneous and costless nature of exchange (North, 1993). Although this paradigm considerably increases our understanding of the land development process of standard types of projects in mature market economies, it offers only a partial view of its subject from a limited perspective (Healey, 1991).

The neoclassical approach to studying the land market and development is not without its critics. Healey (1991) acknowledges that neoclassical models of the land development process have earlier identified the significance of planning

restrictions, monopoly public land ownership, and the cost and availability of credit as supply-side constraints. However, she also suggests that such a limited view of supply blockages means that the neoclassical tradition still regards the development process as relatively unproblematic and therefore over-concentrated on the demand side. Since then, considerable work has been undertaken to define and identify a much wider range of supply-side blockages, such as those in relation to physical and infrastructural difficulties (Syms and Knight 2000; Syms 2001) and ownership constraints (Adams et al., 2001). Such research suggests the following: (1) Processes can be as important as outcomes, (2) analysis of land and property markets cannot be restricted merely to matters of aggregate supply and demand (Adams et al., 2005), and (3) more attention needs to be given to the strategies and interests of the "production" side of the land and property development process (Healey, 1991).

Neoclassical economics has also been criticized for neglecting the role of institutions. As long as conventional economics operates in an institutional vacuum and takes market institutions as a given, it will be unable to deal with a variety of critical economic issues (Lin, 1989). Assumptions of frictionless transactions, perfect information, and well-defined property rights are particularly inadequate in addressing economic problems in underdeveloped areas where factor and output markets are imperfect. These assumptions are also inadequate for understanding the evolution of economic history. Literature on land markets and development that lack an institutional dimension fails to provide a thorough explanation of the development process. Land market outcomes are affected by the institutional setting in which consumers and suppliers operate. Institutions

should be considered crucial in understanding the mechanisms and dynamics of an immobile land and property market (Guy and Henneberry, 2002).

2.3.2 Production-based approach

Production-based approaches to land markets and development marks a shift from the neoclassical preoccupation with the price formation in markets to a focus on the way markets are structured through power relations of capital, labor, and landowners (Healey, 1991). Research informed by such approaches explains the social relations attached to construction and development as well as the role of property in capital accumulation (Luithlen, 1997). Production-based analysis is based on Marxist conceptions of commodity production in capitalist societies, the prime focus being the ways in which capital flows into and out of different economic sectors. It also highlights the struggle between landowners and capitalist producers over the capture of "surplus value" generated in production, thereby locating the production processes within the general model of a capitalist economy.

In production-based approaches, the land and property development process is placed in the broader context of capital accumulation. Boddy (1981) identifies three "circuits of capital." The surplus of "industrial capital" is generated by the production of commodities, that of "commercial capital" by the purchase and sale of commodities, and that of "interest-bearing capital" by the purchase and sale of money capital. Development process is thus structured by the dynamics of and tensions among these three circuits. Harvey (1978) firmly places development

activities within the context of all other economic activities and all other spheres of investment. Given that the focus is on the variable flow of capital into different types of activity at different points in time, the mechanisms by which specific forms of development occur are neglected by the analysis. Moreover, existing studies that use this approach tend to be deterministic, in which the role of different actors in the development process is largely constrained by the imperatives of capital flows within and between circuits. Specific empirical applications are weakly developed. Not surprisingly, such studies are difficult to translate into policy recommendations. Nonetheless, studies rooted in political economy have been able to explain land development phenomena that neoclassical approaches have failed to explain.

2.3.3 New Institutional approach

Although still outnumbered by neoclassical studies on land markets and development, the literature that adopts a new institutional economic (NIE) perspective is gradually gaining ground (Alexander, 2001; Webster and Lai, 2003; Buitelaar, 2004, Buitelaar et al., 2007; Lai, 1995, 2002; Needham and de Kam, 2004; Needham et al., 2011; Webster, 2005; Zhu, 2002, 2004, 2005; Zhu et al., 2007). The new institutional economics is an attempt to incorporate a theory of institutions into economics, which builds on, modifies, and extends neoclassical theory. What it retains and builds on is the fundamental assumption of scarcity and hence competition-the basis of the choice theoretic approach that underlies microeconomics. What it abandons is instrumental rationality-the assumption of neoclassical economics that has made it an institution-free theory (North, 1993).

Similar to neoclassical economics, NIE attempts to produce generalizable theories that can be tested empirically. It follows strict methodological individualism and always frames its explanations within the goals, plans, and actions of individuals.

NIE stresses the role of institutions in an economic system. North (1990) conceives of institutions as "the rules of the game in a society or, more formally…the humanly devised constraints that shape human interaction...[and] define and limit the set of choices of individuals." Institutions affect economic performance through their effect on exchange and production costs. "A set of political and economic institutions that provide low-cost transacting makes possible the efficient factor and product markets underlying economic growth" (North, 1992: 6). By contrast, a bad choice of institutional arrangements is likely to have different economic consequences. Institutions are dynamic and evolve over time based on the interactions of individual parties (North 1990). Institutional arrangements are interrelated in a given society, and their efficiency cannot be assessed without referring to other related institutional arrangements in that society (Lin, 1989). Among all institutional arrangements in a society, the government is the most important because it has the capacity to rectify the undersupply of institutions. However, a theory of the state is required to understand if the government has incentives to do so (Lin, 1989).

NIE studies institutions, institutional change, and economic behavior based on two key concepts: property rights and transaction costs. Standard neoclassical economics assumes that what people trade are physical commodities, but as Coase argues in "The Federal Communications Commission," what people really trade

are (property) rights—specifically, the rights to perform certain actions—which with their accompanying duties and privileges are established by the legal system (Coase, 1959). The concept of transaction cost first arose when Coase wrote his 1937 paper entitled "The Nature of the Firm," in which he challenged the standard description of the economy as an automatic process that equilibrates supply with demand by means of the price mechanism. A transaction cost is the cost incurred in making an economic exchange (Cheung, 1987). If the cost of making an exchange is greater than the ensuing gains, then that exchange will not take place. In this way, transaction costs have important implications on the efficiency of the process and must be minimized (Coase, 1993).

The key concepts of NIE have been used in recent land market studies that employ an institutional perspective. Most of these studies are based on cases in capitalist economies; less attention has been given to transitional economies, which are characterized by significant changes and an institutional and socio-economic context that is distinct from those of capitalist economies. Theoretical development of institutional approaches to land development needs rigorous empirical work based on diverse institutional contexts. The role of institutions in Chinese urban land markets and post-reform development has also received increasing attention in the past years (Li, 1997, 1999; Lin and Ho, 2005; Yeh and Wu, 1996; Zhu, 2002, 2004, 2005). Such studies provide timely and valuable insights on land development issues in China from an institutional perspective. However, Haila (2007) suggests improving the ambiguity of the concepts and insufficient empirical evidence in the existing studies. This study attempts to make a contribution to this growing body of literature by providing both a

conceptual framework and rich empirical evidence on land development in urban villages.

2.4 Toward an Institutional Perspective on Land Development in Chinese Urban Villages

2.4.1 The Definition of Urban Villages

Urban villages have been defined differently by previous studies to serve different research purposes in pertinent to different questions. This study defines urban villages as the products of village-led land conversion and development for urban activities. Urban village area is distinguished from the formal urban area because the latter is the product of state-led land expropriation and development. Village collectives are the primary developers of the urban villages. In the case of Shenzhen, urban villages are developed mostly by administrative villages or natural villages. The term "village collectives" and "villages" are used interchangeably to refer to the primary developers of urban villages. According to this definition, as long as the agricultural land in a village has been converted by the village itself (not the local state) to urban use, the rural village has (been) changed to an urban village.

2.4.2 Institutions, Property Rights, and Transaction Costs

This study adopts theoretical perspectives from the New Institutional Economics (NIE), which stresses the role of institutions in an economic system. North (1990) conceptualized institutions as "the rules of the game in a society or, more formally,

are the humanly devised constraints that define and limit the set of choice of individuals and thus serve as the framework for human interaction." Institutions affect economic performance by their effect on the costs of production and exchange. Institutions determine the cost of transacting and producing (transformation) and in the meantime, define and enforce property rights so as to induce potentially mutually beneficial resource uses and activity. There are different ways of classifying institutions – according to their speed of change (slow or fast moving), the arena where they are situated (social, political, economic and cultural), and the degree of formality (informal and formal) (Jütting 2003). In almost all societies, human choice is shaped by the complex interaction between formal and informal institutions. Formal institutions are legally introduced and enforced by the state institutions, which are embedded in state operations based on laws that are enforced and monitored by the government. Informal institutions are a behavioral regularity based on socially-shared rules, which are created, communicated, and enforced outside of officially-sanctioned channels (Helmke and Levitsky, 2003; Pejovich, 1999).

There are two important concepts in the New Institutional Economics: property rights and transaction costs. A property right is the exclusive authority to determine how a resource is used, whether that resource is owned by the government, by collective bodies, or by individuals (Alchian, 2008). Property rights can be viewed as an attribute of an economic good. This attribute is often referred to as a bundle of rights: (1) the right to use the good, (2) the right to earn income from the good, (3) the right to transfer the good to others, and (4) the right to enforce property rights rules (Eggertsson, 1990). The importance of a complete

and definitive set of property rights in determining incentives for economic behavior and performance has gained a high level of scrutiny after the formation of the New Institutional Economics perspective. Property rights critically affect decision making regarding resource use, in turn affecting economic behavior and performance. The existence of property rights institutions and their impact on investment and resource use has become a central issue in explaining the differences in economic growth (Alston et al., 1996).

Transaction cost is a core concept in NIE. An economy can be conceptualized as a range of organizations, within each and between each there are a nexus of transactions (of property rights). A transaction cost is the cost incurred in making an economic exchange (Cheung, 1987). Although the term has been defined differently to serve various purposes, its meanings generally refer to the costs other than those of physical production (Wallis and North, 1986; Lai, 1994). According to Barzel (1997), transaction costs are the costs associated with the transfer, capture, and protection of rights. In the transaction cost framework, the transaction is the basic unit of analysis; it can be understood as an exchange of property rights in assets, in which property rights give the owner the right to exclude others from using the asset, to appropriate rent from it, and to transfer it (Maitland et al., 2009). Transaction costs can be divided into three broad categories: (1) Search and information costs; (2) Bargaining cost; and (3) Policy and enforcement costs. (Dahlman, 1979)

Transactions are governed by institutional arrangements on property rights. For two institutional arrangements that provide the same amount of service/production

with given production costs, the one with lower transaction cost is the more efficient arrangement (Lin, 1989). In this sense, the concept of transaction costs provides a useful perspective in evaluating the efficiency of different institutional arrangements in achieving economic outcomes and in understanding institutional changes in particular environments.

2.4.3 Theories of Institutional Change

Since institutions are defined as the rules of the game in a society, the question of institutional change becomes: why and how do rules change? This study examines the change of institutional arrangements on land property rights. The focus is the change in formal rules. There are two pools of literature which offer conceptual foundations for studying institutional change.

Firstly, institutions are perceived to be selected in a decentralized way through evolutionary competition among alternative institutional forms. Demsetz (1967) and Umbeck (1981) see new property rights emerging through the decentralized cooperation of affected parties to find rules to internalize externalities that become significant because of scarcity resulting from changes in relative prices or technologies. Hayek (1973) argues that groups or organizations that, by accident or design, develop less efficient rules will not survive competition with groups that develop more efficient rules. Therefore, through selection, institutions will evolve towards efficiency. Institutions determine the cost of transacting. Depending on the attributes of transactions, some institutions will lead to more efficient economic process than the alternatives (Williamson, 2000). The basic cause of institutional change is a change in the exogenous parameters which affect

transaction costs, such as changes in relative prices (North, 1994). If the existing institutions are no longer efficient following such a change, new institutions will then emerge. From the perspective of transaction costs, institutions will evolve towards minimizing transaction costs and thus improve process efficiency. According to this pool of literature, the outcome of institutional change is deterministic. The most efficient institutions will be selected finally.

Another pool of literature perceives institutional change as the by-products of interaction among different actors with interests seeking distributional gains (Knight, 1992). Different institutional arrangements bring different distributional effects. When the actors perceive that existing rules governing their interactions are unsatisfactory, they may attempt to change the rules for their own benefit. The set of rules that ultimately emerges will depend on the perceived interests of the actors involved in setting the rules, on the ability of various interest groups to act collectively to make their interests count (Olson, 1982). The change from an existing institutional arrangement to an alternative is a costly process; unless the net gains to individual actors from changing to the new arrangement outweigh the costs of the change, a voluntary institutional change will not occur (Lin, 1989). State, in most cases, set the larger rules of the game. Therefore, the role of the state is important in the institutional change. The state has its own consideration of benefits and costs and can have a major impact on institutional change based on its capacity and willingness. In this sense, actors negotiate for institutional change, but outcomes are not necessarily efficient.

2.5 Summary

As a unique phenomenon that is prevalent in the urbanization process of China in the past years, urban village has attracted constant academic attention. Such villages are usually regarded as a form of informal development (Liu et al., 2010; Wang et al., 2009; Wu et al., 2013). Although existing studies provide useful insights in understanding the urban village phenomenon in China, they continue to suffer from several limitations. First, they fail to identify explicit institutional differences between informal and formal development in the context of urbanization in China and the effect of such differences on the land development behaviour and development outcomes in the urban villages. Second, although it has been claimed that the development of urban villages is sub-optimal compared to the formal urban areas, none literature have systematically measured the economic performance of the urban villages. Third, the discussion on institutional changes in the development of these villages, which have occurred recently in several cities, remains limited. These limitations are largely due to the ambiguity of the conceptual analysis and insufficient empirical evidence of these studies.

The present study attempts to fill these gaps by providing a coherent and rigorous conceptual framework on the land development mechanisms and outcomes in urban villages, one that employs an institutional perspective and rich empirical evidence from Shenzhen. This study focuses on the following: What are the important institutional constraints that face urban villages under the current urban-rural dual land ownership system? How do institutional arrangements on property rights over collective land affect the land development behaviours and outcomes

in urban villages? Have institutional arrangements for land property rights changed in the development of urban villages, and if yes, how?

This study argues that the key concepts and analytical methods of the New Institutional Economics provide a useful basis in studying land development in Chinese urban villages, where institutions play an important role and institutional arrangements are experiencing great changes in the country's economic transition. Attempts to produce generalizable theories that can be tested empirically make the NIE attractive to those who are interested in deriving policy implications and recommendations from research. The quantitative advantages inherited from neoclassical economics allow NIE to better explain certain land development outcomes than do non-quantitative approaches such as production-based analysis.

Nonetheless, perspectives from production-based approaches can enhance our understanding of institutions by locating them in a broader socio-political context. The idea of social relations attached to construction and development is particularly important in understanding the formation and nature of institutional arrangements in a specific context. In the case of Chinese urban villages, a deep understanding of the institutional arrangements on land property rights cannot be achieved without understanding the central-local government and the government-village relationships attached to urbanization and land development. These relationships shape the formation and define the nature of land institutions in the development of urban villages. These elements from production-based approaches should thus be integrated into the analysis to provide a more comprehensive understanding of the land institutions and land development processes and

outcomes in Chinese urban villages.

CHAPTER 3 CONCEPTUAL FRAMEWORK

3.1 Introduction

Based on the key concepts and analytical methods of the New Institutional Economics, this chapter develops a conceptual framework to analyze the roles and effects of institutions in land development. The specific institutional context of land development in the Chinese urbanization process is investigated and incorporated into the framework. The institutional arrangements on land property rights in the land conversion and development are then identified and analyzed. The implications of the institutional arrangements to the villages' land development behaviors and outcomes are specified in a set of theoretical propositions. This conceptual framework will also help guide the empirical study in Chapter 4.

3.2 The Relationship between the States and Village Collectives in the Chinese Urbanization Process

3.2.1 The dominant role of local states in land conversion and development

Urbanization in China has involved extensive land conversion from agricultural to urban use in the past decades. According to the China Statistical Yearbook (2011), the area of urban built-up land increased from about 9000 km^2 in 1984 to 40,058 km^2 in 2010. The local states play a dominant role in the rapid urbanization and land conversion process in China.

Since the "open door" policy was put into practice in 1978, a series of institutional reforms have been carried out in China to convey the transition from a centrally planned economy to a market economy. Two tasks were central to the market-oriented reforms: first to create new incentives at the sub-national level to increase efficiency and production; and second to transfer the development pressure confronted by the central state to the lower levels of the state apparatus (Wu 2002). It is against such background China's local governments have become the local developmental state committed to local economic development in the process of economic transition (Oi, 1995; Zhu, 2005).

The relationship between the central and local states has been redefined since the implementation of gradual institutional reforms in post-Mao China (Lin and Liu, 2000; Qian and Roland, 1998; Wong, 1991). State institutions create strong incentives for local states to increase local revenue and economic growth; such effect is particularly true in the case of fiscal decentralization since the fiscal reform in the middle 1990s. The fiscal reform has redefined the financial responsibility of central and local states, to allow the latter have much greater financial flexibility and legitimacy in managing urban development through residual right (Zhang, 1999). Fiscal system reform provides great financial stimulation to the local state and invigorates it to maximize its interest as an enterprise does. This has been discussed under "local state corporatism" (Oi, 1995), "local governments as industrial firms" (Walder, 1995), and "entrepreneurial government" (Duckett, 2001). Zhao (2002) argues that local governments now enjoy much freedom within a clearly defined (financial)

boundary, and are responsible for most of their own profits and losses." The empowered local states have strong incentives to gain local revenues.

Another important factor for shaping the local states' incentives and behaviors in urban development is political centralization, which is characterized by the cadre evaluation and promotion system (Qian & Weingast, 1997; Xu et al., 2011). In this system, merit can be demonstrated by having overseen tangible economic development. Conditional on a harmonious political attitude, a cadre's past performance, evidenced by having overseen high tangible economic development outcomes, is shown to affect his odds of promotion (Maskin, Qian and Xu, 2000; Edin, 2003; Whiting, 2004; Li and Zhou, 2005; Chen, Li and Zhou, 2005). Li and Zhou (2005) provide evidence emphasizing a direct connection between local economic growth and individual career chances of provincial leaders. Based on a sample of provincial governors and party secretaries, they find a positive correlation between promotion probabilities and economic performance in the period between 1979 and 1995. Similarly Chen et al. (2005) confirm higher promotion probabilities for those provincial leaders who outperform their predecessors (1979-2002). Such institutional arrangements provide the local states strong incentives to promote economic growth in their territories.

Land reform further encouraged the changing role of local governments in China. Since this reform, previously state-owned land has become tradable properties (Yeh and Wu, 1996). In particular, 'through enacting the Land Administration Law and City Planning Act, the state has defined the legitimate right of local

governments, especially city governments (to pursue) land development while allowing them to retain most income thus generated within their jurisdictions' (Zhao, 2002). Local governments regard land as an important asset in attracting investment and promote economic growth and as a source of local revenue. According to Zhou (2010), land conversion during urbanization in China has generated a variety of taxes and fees that contribute to the budgetary and extra-budgetary revenues of the local governments. Therefore, China's economic reform has created strong incentives to the local states to promote land development and participate in the process.

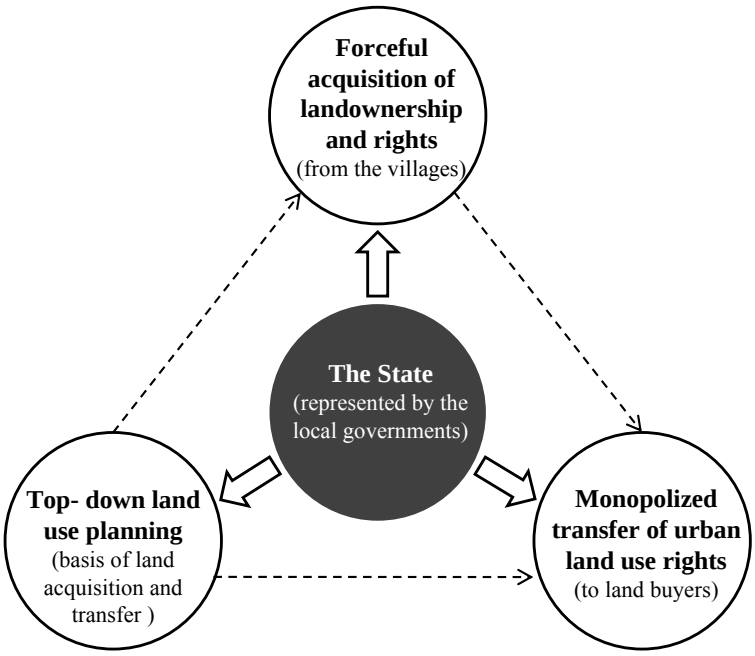

Figure 3.1 Role of local governments under state-led institutional arrangements for urban land development

By reviewing the relevant policies and regulations in different localities, the main role of the local states in the urbanization and land conversion process is

illustrates in Figure 3.1. The institutional arrangements governing the land conversion and development are highly state-led, which are characterized by an emphasis on the government control and top down planning. The key element of the institutional arrangements is the land requisition institution. Under the urban rural dual land ownership system, the local states have the right to acquire the collective land from the village collectives and convert it to state-owned land. The village collectives get the compensation fee for the acquired land based on its original agricultural use. As the basis for land requisition, land use planning for urban development is controlled by the local states, which designates the development areas and guides the future land use in a top-down way. The local states also play as monopolized urban land suppliers. Through the formal institution of land transfer, the local states have the right to transfer the land use rights to external real estate developers and firms. In this sense, the local states defines the formal institutions on property rights over collective land.

Land expropriations have been widely conducted during the country's urbanization in the past decades. According to Lee and Jia (2006), local governments have expropriated 3,389,000 ha of collective land in China from 1991 to 2005. Land Compensation for land expropriation is based on its original agricultural use, which undoubtedly deprives farmers from sharing land rights and interests in the urbanization process. According to a study (UIE, 2007), over 40 million farmers were dispossessed because of land expropriation. About 70% of the complaints lodged by farmers in the past five years are related to rural land expropriation. Compulsory land acquisition has created widespread social problems and political conflicts, and land acquisition cases have increased by

more than 15 times in the past ten years and continued to accelerate in the following years (Lee & Jia, 2006). Land requisition also leads to distinctive economic inequity between urban and rural sectors and population nationwide. Li and Luo (2007) found that income ratio of urban and rural residents increased from 1.70 in 1983 to 3.33 in 2006, indicating the dynamic economic inequity between urban and rural population in China. A huge number of landless peasants are generated. This new vulnerable group with limited access to resources may cause new social problems.

3.2.1 Village collectives as the primary developers of urban villages

Before 1949, most of the land in rural China was owned privately by landlords. The period from 1949 to the early 1980s was characterized by nationalization and collectivization. The initial private landownership system has been reformed to a collective landownership system. Collective farming became the organizational form for agricultural production. Land originally owned by the households was forcefully contributed to the collectives. The collectives (represented by the leaders) exercise management and control of all rural resources such as labor and land. Since collective farming was abolished and replaced by the Household Production Responsibility System (HPRS), which was created by the peasants in the early 1980s, agricultural production has been decentralized to village households. Land use rights have been allocated to individual households for periods of up to 30 to 70 years. The individual households play a key role in agricultural production in the Chinese rural villages.

The rapid urbanization process has generated huge market demand for urban land in the coastal regions in China. State urban land provision is the formal channel to meet the market demand, which can only be realized through a costly process, including forceful land expropriation, top-down urban planning, and monopolized land transfer. Given the fact that village collectives are the original owners of rural land, they have become another major agent in the urbanization and land conversion process. To capture the land rent created by urbanization, many village collectives in the coastal regions in China have undertaken spontaneous shareholding cooperative reform for land development (Po, 2008).

A large number of Village Shareholding Cooperatives (VSCs) have been created voluntarily in Shenzhen since the 1980s. Collective farmland parcels, which were used by the individual households, are consolidated and developed for urban use. The shares of VSCs are distributed to the village members equally based on a formula, which takes into consideration members' prior contribution towards the collective assets-mainly collective farmland. A VSC is run by a management committee, which is elected by the shareholders-village members. Incomes of VSCs are mainly from land/property lease and distributed among village co-operative members according to their shares, albeit about 40-50 per cent of the collective incomes are kept by the cooperative organization for future collective development. In this sense, VSC is a new organizational form of village collectives, within which the relationship between the village members has been greatly changed (Table 3.1). In this study, the term of villages, village collectives and village cooperative are interchangeably used to refer to the primary land developers of urban villages.

Table 3.1 The change from village collectives to shareholding cooperatives

Organizational form	Village collective	Village shareholding cooperative
Development stage	Rural village	Urban village
Member	Villagers as individual farmers	Villagers as shareholders
Leadership	Village leadership appointed by the township government	Management committee (village committee) elected by the shareholders
Land type	Housing spots (Zhaijidi) used by individual households	Housing spots (Zhaijidi) used by individual households
	Collective farmland used by individual households for agricultural production	Collective land consolidated for urban use
Income source	Individual farming	Individual housing rent to external tenants; Collective land lease to external enterprises/users
Income distribution	Individual income	Collective incomes are distributed among villagers according to their shares

Concerning the property rights structure, land in urban villages can be classified into two types: housing spot (Zhaijidi) and farmland. Although both types of land are collectively owned, the de facto land use rights are different. Housing spots are distributed to individual households and are built on, whereas farmlands are consolidated voluntarily from individual households and managed by village shareholding cooperatives. Our theoretical analysis focuses on the development of collective farmland for two reasons: (1) the development of collective farmland is more similar (comparable) to state-led urban development in the sense that collective farmland was converted from vacant land to developed land. By contrast, housing spots have already been built upon and all villagers can do is to increase the height of existing buildings. (2) The area of farmland is much larger

than that of housing spots; therefore, the development outcome of farmland is of greater importance to China's urban development.

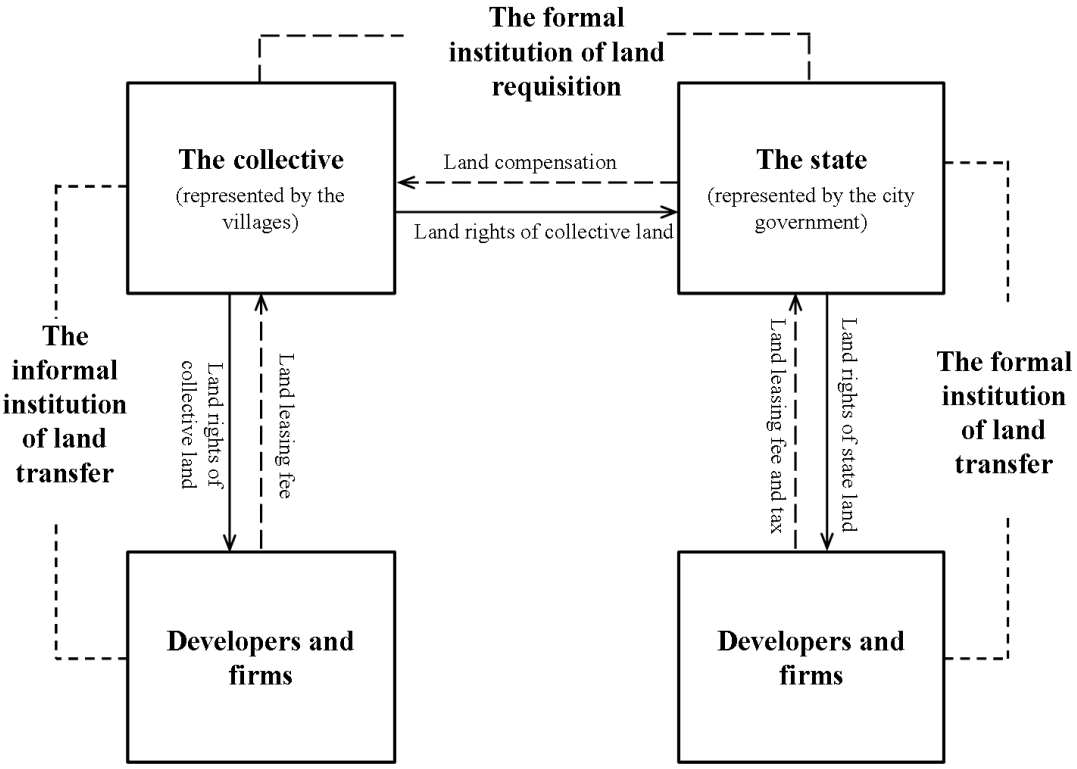

Figure 3.2 A Conceptual framework for understanding the role of the states and village collectives in land development.

In sum, the local states and village collectives are the two main actors in the land conversion process. Figure 3.2 illustrates the relationship between the states and village collectives and their land rights in the land conversion and development process. Legally speaking, state requisition is the only channel to convert rural land to urban land. Represented by the local governments, the state has formal right to acquire land rights from village collectives and transfer the acquired land rights to external developers and firms. Many problems arise under this land requisition system. To resist land requisition and fight for their own economic

development rights, many village collectives in the coastal regions in China, where the demand for urban land is high, have undertaken spontaneous shareholding cooperative reform for land development (Po, 2008). Through the informal institution of land transfer, collective land rights were transferred from village collectives to outside enterprises and individuals for urban development. For example, many housing, industrial, and commercial buildings were constructed on collective land in Shenzhen and Guangzhou (Hao et al., 2012; Lin et al., 2011; Wang et al., 2009). Thus, even though state law deprives village collectives from de jure land property rights, village collectives possess some extent of de facto property rights over their collective land through spontaneous land conversion.

3.3 Property Rights Structure and its Implications for the Land Development in Urban Villages

3.3.1 The Impact of Property Rights on Land Development

Institutional arrangements on property rights critically affect decision-making regarding resource use, and hence, affect economic behavior and economic performance (Libecap, 1989). Based on a comprehensive review of the theoretical works and empirical studies, the main types of impacts of land rights in development are identified. Land property rights affect land development in three primary ways (Figure 3.3). First, well-protected land rights improve land-related investment incentives by reducing expropriation risk. Second, well-defined property rights over land facilitate land transactions in land markets so that

potential gains are earned from the trade. Third, formal rights over land can improve the investment ability of landowners by increasing their access to the credit market. These three main ways are discussed in more detail below.

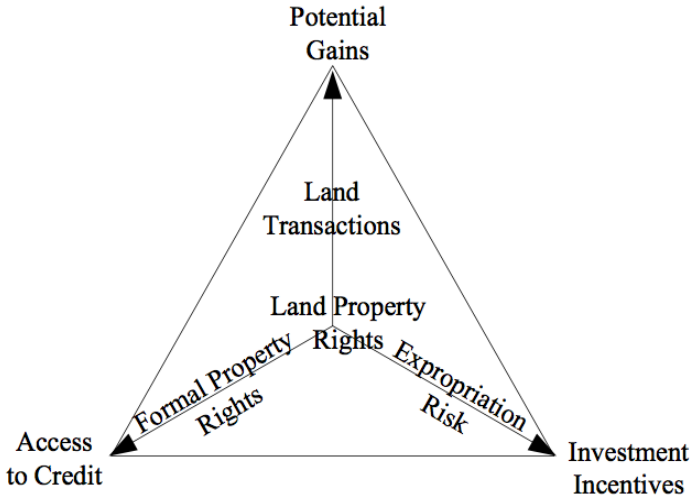

Figure 3.3 A Conceptual framework for understanding the role of land property rights in land development.

First, various empirical and theoretical studies show that secure land rights can enhance investment incentives by reducing expropriation risk, whereas weak land property rights lead to low investment (Alston et al., 1996; Besley, 1995; Brasselle et al., 2002; Deininger & Jin, 2006; Do & Iyer, 2008; Galiani, 2010; Goldstein and Udry, 2008). Do and Iyer (2008) found that improved land rights significantly increased the total area of multi-year crops and irrigation investment after land reform in Vietnam. Deininger and Jin (2006) suggest that government actions geared toward increasing tenure security and transferability of land rights significantly improve rural investment and land productivity. Contrary to these results, a recent theoretical study argued that a landowner may overinvest

in the land when property rights are incomplete or unclear (Amegashie, 2011). However, this argument is yet to be verified by empirical studies.

Second, well-defined property rights over land can facilitate land transactions in land markets; thus, potential gains are gained from the trade. Besley (1995) established the theoretical model that explains the relationship between land property rights and transactions in land markets. Several empirical studies have been conducted to validate this theoretical model. Macours, Janvry, and Sadoulet (2010) found that incomplete property rights sharply reduce transactions in the land rental market in rural areas in the Dominican Republic. Griffith-Charles (2004) found a substantial nationwide increase in land sales after the land titling program specified land property rights in St. Lucia. Lanjouw and Levy (2002) claim that weak property rights in urban areas inhibit land transactions by increasing transaction costs in rental and sales markets. Galiani (2010) found that house rentals are facilitated by land titling in the urban slums of Argentina.

Third, formal rights over land improve the investment ability of landowners by increasing their access to the credit market. This link was emphatically espoused by De Soto (1989, 2000, 2001). As De Soto (2001: 48) argues, "What the poor lack is the easy access to the property mechanisms that could legally fix the economic potential of their assets so that they could be used to produce, secure, or guarantee greater value in the expanded market…assets need a formal property system to produce significant surplus value." Many empirical studies have examined this link in rural areas. Some studies found that land reforms created to establish formal property rights over land increase access to credit and reduce

credit constraints (Feder & Feeny, 1991). However, other empirical studies obtained the opposite evidence. Boucher, Barham, and Carter (2005) showed that access to credit remains limited after land reforms were implemented in Nicaragua and Honduras. Field and Torero (2006) found that property titles failed to increase credit access of the urban poor after the implementation of a nationwide titling program in Peru.

Although most of the above-cited studies were conducted in the context of agricultural development and urban squatting, they provide insightful theoretical perspectives in examining land development in the urban villages in China. However, the growing body of empirical literature on land rights and development is riddled with controversies with regard to the structure of land property rights and the effects of land rights. On the one hand, these controversies partly stem from the different definitions and assessments of land property rights. On the other hand, these issues may be due to the divergent institutional context that determines different preconditions for land development. Property rights are structured by institutions. Voluntary exchange cannot flourish and develop into firms, markets, and governments without institutions that assign, arbitrate, and protect private property rights (Webster & Lai, 2003). Therefore, land property rights should be examined in their specific context. To understand the property rights arrangements that govern land development in urban villages, we need to place this issue in its broader context: the urbanization process and its foundational land institutions in China. The next section discusses these institutions and how they structure the property rights over collective land.

3.3.2 Land Property Rights of the Village Collectives in China

The institutional context of urbanization and land conversion in China is essential to understand the nature of land property rights of the villages. Urbanization and land conversion in China is based on its unique urban-rural dual land ownership system. According to the national land law, two types of land ownership coexist in the current land administration system: state and collective ownership. Chinese land administration law stipulates that urban land is owned by the state, whereas rural land is owned by village collectives. As a key component in the programme of economic reforms, the 1988 amendments (Article 10) to the Constitution formally declare that urban land should be recognised as a special commodity and its use rights, separated from ownership, can be transferred to developers or users for a fixed period after. Property rights are clearly defined over the land supplied under the leasehold. However, the sale, transfer, and lease of collective land for non-agricultural use are forbidden. Collective landownership is thus defined such that the village collective has neither the right to derive income from land by letting it out, nor the right to change its form and substance by developing it for non-agricultural activities.

The urban-rural dual land ownership system determines the legal approach of converting land from agricultural to urban use. Urbanization generates a strong market demand for urban land use. However, the land administration law stipulates that only the state can legally provide urban land use rights. Therefore, land conversion from agricultural to urban use requires the transfer of land ownership from the collective to the state. State requisition by local governments

is the only legal channel through which land conversion is implemented. Rural populations are deprived of land development rights and are impoverished in the land requisition process (He et al., 2009).

As a specific form of urban development, urban villages are constrained by incomplete property rights under the current urban-rural dual land ownership system. According to the theoretical perspective illustrated in the above section, land property rights may affect the development of collective farmland in urban villages in three main ways. Three propositions are deprived accordingly as follows.

Proposition 1: Villages' ownership of collective land is not secure because of the possibility of expropriation by the local state. The expropriation risk imposed by the government will provide strong incentives for the villages to occupy the land for immediate interests instead of long-term investments.

The risk of land expropriation directly affects the perceptions and behavior of villagers in maximizing their benefits from land use. The risk of land expropriation in villages is uncertain in most cases because local states expropriate land unsystematically. To reduce transaction costs involved in land acquisition, local states tend to expropriate vacant land rather than developed land. Therefore, villagers find that they must occupy the land as fast as they can to reduce the risk of land expropriation and to secure de facto land use rights. Developing more land decreases the possibility of expropriation by the local government. The risk of land expropriation reduces the villagers' incentive to plan

any long-term development. Instead, such risk provides a strong incentive for the villagers to occupy the land for immediate interests only. Open public space is therefore rare because it merely raises the risk of land expropriation.

Proposition 2: The lack of de jure property rights will prohibit the villages from gaining access to credit, and hence weaken their ability to finance land-related investments.

In the country's urban development, local states have the right to use state land (forcefully expropriated from villages) as collateral for land-related development, such as infrastructure and public service construction. According to Jiang and Liu (2007), about 60% of the government budget for land-related investments comes from state land mortgages in cities in the eastern part of China. This figure reaches about 70% in cities in the middle and western parts of China. However, collective land has no access to formal credit markets for urban construction. As mentioned above, the only legal way to develop collective land for urban use is through requisition by the local state. Although villages spontaneously convert their collective land to urban land in practice, the lack of de jure property rights over the collective land makes using their land as collateral impossible for villagers. Therefore, villages rely on informal channels to obtain funds for land-related investments. The land acquisition compensation fee is the main funding source of many villages for land-related investments, such as infrastructure construction. According to state land law and local practice, the amount of land acquisition compensation is determined by the original land use. Villages are excluded from the income rights of the potential land use-urban use and remain

under compensated in the case of land requisition. Therefore, unequal land rights deprive the villagers of a formal financial source. This inequality hinders the investment ability of villagers to develop their land.

Proposition 3: Ambiguously defined property rights over collective land will lead to disordered competition and the tragedy of the commons in urban villages.

The lack of de jure property rights over collective land does not inhibit land transactions. By contrast, land transactions are widespread in China's urban villages. The market demand for urban land use is great and diversified as a result of urbanization, but the local government monopolizes urban land supply. To meet the strong and diversified demand for urban land and realize the potential benefits from land conversion, villages naturally resort to transferring their land to outside enterprises for urban development. Village-led land conversion and development can be achieved through a combination of different channels. For example, the villagers can develop the land and transfer (lease or sell) the buildings to outside enterprises. Alternatively, the villagers and outside enterprises can develop the land together and transfer (lease or sold) the buildings to enterprises. Another channel is that the villagers can simply transfer (lease or sell) the land directly to outside enterprises. Transactions in village-led conversion and development are legally forbidden and are therefore not covered by the state land management and regulation system. Although many top-down land use plans are intended for state- and collective-land development, such plans can hardly be implemented in urban villages because of the distinct land development process in

these villages. Land development in urban villages is disordered and sub-optimal without effective state regulation and long-term investment incentives of villagers.

In summary, the urban-rural dual land system in China has imposed severe institutional constraints on the land property rights of village collectives in the development process of urban villages. The property rights of village collectives over collective land are incomplete in the following aspects: (1) lack of land security due to the possibility of expropriation by the local government, (2) unequal access to credit as a result of unequal land rights, and (3) the absence or insufficiency of state regulations for collective land transactions because of the lack of de jure property rights. These institutional constraints may greatly affect land development in urban villages. First, the risk of land expropriation provides strong incentives for urban villagers to occupy the land for immediate and short-term interests instead of long-term investments. Second, collective land transaction is legally forbidden and not covered by the state land management system. Without effective state regulation and long-term investment incentives for villagers, land development in these villages results in an inferior and disorderly environment. Unequal rights to land ownership deprive the villagers of formal financial sources and weaken their ability to finance infrastructure development in their villages. In other words, land development in urban villages is sub-optimal relative to state-led development because of severe institutional constraints on land property rights. These arguments presented here are empirically examined in the next Chapter.

3.4 The Changing Transaction Costs in the State-led Land Development Process and the Evolution of Land Institutions

3.4.1 Transaction Costs in Land Development Process

The concept of transaction cost provides an insightful perspective in understanding land institutions and the land development process. Let us consider closely the concept of land. As a physical object, land can be understood by studying its physical attributes. For example, its location, shape, size, and use determine its basic characteristics. As a property, land can be understood as a bundle of rights: the right to exclude others from using it, the right to generate income from it, and the right to transfer its ownership. Based on these two perspectives, land development involves not only land use change, but also the change of land property rights. From the perspective of transaction cost theories, changes in land property rights and land use occur through transactions with contractual agreements. In this sense, the land development process may be seen as a series of transactions that involves land property rights.

The main types of transactions in the land development process have been identified by previous studies such as Alexander's (2001) study on land development in Israel, Tan and colleagues' (2012) study on the land conversion process in China, Cho's (2011) study on housing redevelopment in Korea, and Buitelaar's (2004) study in housing redevelopment in the Netherlands. Although these studies are set in varying contexts, their insights provide a useful basis for identifying the main transactions in the general land development process through

the lens of transaction cost. Based on these studies and the specific context of China, the main transactions in the land development process from the first to the last stage include the following: (1) land use planning, (2) land purchase/assembly, and (3) land transfer.

The above transactions involve costs shared by different individuals and organizations, which are referred to as the transaction costs and distinguished from production costs. Physical construction cost is not counted as a transaction costs in land development. It is more about the production cost. When the involved parties must put in tremendous effort and time to reach an agreement that is necessary to complete the transactions and ensure that the land development process proceeds, this situation indicates high transaction costs. The main types of transaction costs in land development include: (1) Information costs; (2) Negotiation costs; and (3) Policy and enforcement costs.

Transactions are governed by institutional arrangements. Theoretically, with any given production and transaction costs, one institutional arrangement is more efficient than another when it provides more services. Alternatively, for two institutional arrangements that provide the same amount of service, the one with lower cost is the more efficient arrangement (Lin, 1989). In this sense, although transaction costs do not contribute directly to the output of a development process, they have important implications on the efficiency of the process and need to be minimized (Buitelaar 2004). Institutional structures constrain and shape the interaction and economic choice of individuals during the exchange of property

rights, thus determining costs (North 1990, 1997; Wallis and North, 1986). Transaction costs may vary in terms of their nature and sources (Nabli & Nugent 1989, p.1336), and any changes in them also result in institutional changes (Polski, 2001). In summary, the concept of transaction costs provides a useful perspective in evaluating the efficiency of different institutional arrangements in achieving economic outcomes and in understanding institutional changes in particular environments.

In the case of land development, the institutional arrangements that govern how land rights are delineated and exchanged are crucial in determining the choices of the involved parties, including whether or not and how to proceed with a given transaction, and the level of the transaction costs. Institutional choices and changes can be systematically investigated through changes in land property rights. From an individual perspective, examining changes in property rights in terms of the level of security and completeness is important. From a broader perspective, examining structural changes in the main social stakeholders in land property rights is important. The structural change not only redefines the nature of individual property rights in relation to land (e.g., the level of security and completeness), but also directly affects the attributes and costs of transactions of land property rights.

Based on Buitelaar's (2004) exploratory study on the transaction cost analysis of land development, (the degree/level of) transaction costs in the land development process may affected by the following factors: (1) how land rights are delineated and the information on such delineation, (2) information on the future possibilities

of land development, (3) the number of parties involved in the transactions, (4) the degree of conflict of interest among involved parties when an agreement needs to be reached, and (5) other factors that may affect the duration of the transactions in the land development process. This framework provides an important and insightful basis to study the institutions and institutional change in the land development process. Although such framework is limited to the context of a capitalist economy, it is applicable and modifiable at a certain level of abstraction for a transitional economy such as China.

NIE scholarship has widely accepted that transaction costs and institutions are linked in important ways. However, existing empirical and theoretical analyses of such relationships and how they change over time remain insufficient. This study illustrates such relationships in the specific context of urbanization in China. Recent institutional change in the land property rights in a reform-pioneering city, such as Shenzhen, provide an empirical case for the examination of such issues across time.

3.4.1 Transaction Costs and Institutional Change in Shenzhen

Unlike other newly developed urban areas, many urban villages in China face the imminent need for redevelopment in the economic restructuring process. This need is attributed to the lack of infrastructure and deterioration of the built environment, both of which are the results of severe institutional constraints imposed by the peculiar dual land ownership system in China as illustrated in Section 3.4.2. As urbanization is still ongoing, some manufacturing industries in

China's big cities have moved to second- or third-tier cities in the inland regions for lower production costs. However, most of the existing urban villages in the first-tier cities have failed to attract such investments because of their substandard built environment and infrastructure. Given limited land in big cities, vacant land for new development is scarce. Land redevelopment in urban villages, particularly in good locations, is therefore of great interest to the government, developers, and landowners.

Since the mid-2000s, many local governments in China have made efforts to promote land redevelopment in urban villages. Institutional arrangements that govern the redevelopment of urban villages are mostly state led and emphasize government control and top-down land use planning, similar to that for the greenfield development process. These state-led institutional arrangements have worked well in the conversion and development of land from agricultural to urban use and resulted in rapid and extensive urban growth over the past decades. However, they have incurred various unnecessary time-consuming transactions and subsequent transaction costs in the process of land redevelopment, which have become critical institutional barriers to the redevelopment of urban villages.

The economic condition and bargaining power of the villages have been greatly improved in the urbanization process. Through village shareholding companies, villagers have learned much about adapting to urban transition and profiting from the urban economy since the economic reform. They have also accumulated substantial capital in the early stage of urbanization by leasing their land to foreign industrial firms. In Shenzhen, 853 village shareholding companies were

registered at the end of 2005. Their total assets reached RMB 68.5 billion. Huaide, an urban village in Bao'an District, reported RMB 1.2 billion worth of assets and annual revenue of RMB 220 million in 2009. The villages' financial capability and investment skills have been improved. These autonomous villages have more bargaining power than peasants in the case of state-led land conversion and development, which make state-led redevelopment highly different and infeasible.

There are three key institutions for the land redevelopment in urban villages under the state-led institutional arrangements, including: i) state-led land requisition system; ii) top-down land use planning; and iii) state-monopolized land transfer system. Through the lens of transaction costs elaborated in the above section, the following analysis shows how these institutions have evoked various and unnecessary time-consuming transactions and become the critical barriers to the redevelopment of urban villages under the changing socio-economic conditions.

i) Information costs in making and implementing top-down land use plans. The main task of a land use plan for redevelopment is to designate the redevelopment areas and guide future land use of these areas. Therefore, land use planning is closely related to how land rights are delineated and to information on future possibilities of land development. Formulation of land use plans for the redevelopment of urban villages is controlled by the city government and implemented top-down. Therefore, local governments play a crucial role in delineating land rights and possibilities of land development.

Similar to land use plans that govern greenfield development, redevelopment plans also reflect the local governments' development objectives and blueprint. Redevelopment plans are usually formulated by urban planning consultant institutes appointed by city governments. However, this top-down land use planning approach has resulted in some problems. First, identifying the landowners or users of the land in urban villages targeted for redevelopment is difficult. As mentioned above, the development of urban villages is spontaneous, and villagers are deprived of de jure land development rights. Such development is not covered by the state land management and regulation system. Therefore, information on the landowners or users of the land and the land use status—that is, the basic information necessary in formulating any land use plan for redevelopment—can hardly be obtained by the city governments. Thus, top-down land use planning imposes high information costs on the city government.

Second, the status of land rights in urban villages is highly complicated. As mentioned above, most land in urban villages is developed and transferred without formal titles. In the land development process, the city government dedicates a small portion of non-agricultural land to the village collectives. Property rights over this kind of non-agricultural land are more complete than those for other types of land in urban villages, but less complete than those for state urban land. In most cases, the land bought and developed by outside individuals and enterprises in urban villages have no formal titles, but for some exceptions. For example, a small scale of illegal land, whose landowners have strong power and political relationships, can be transformed into legal land with formal titles. Therefore, the complicated status of land rights, together with the

highly diversified land use type and development density, makes assessing land value almost impossible.

Top-down land use plans for redevelopment can hardly work in practice. The city-level urban village redevelopment plan and other site-level urban village redevelopment plans commissioned by the city government designate the targeted redevelopment area and map out future land use. However, the city government does so without a sufficient and fundamental survey of the existing land use in urban villages. More importantly, the real market demand for redevelopment is unmet in these redevelopment plans because the landowners/users and the potential developers are excluded from this top-down urban planning process. This kind of planning has two important implications. On the one hand, the prepared land use plans for urban village redevelopment hardly work in actual practice. On the other hand, the land use plans needed for regulating the redevelopment of urban villages (initiated by the real markets) are hardly formulated.

This dilemma of top-down land use planning is largely a product of the land requisition system, under which the local governments have every right to expropriate the collective land from the villagers. Given that the rights to expropriate and the expropriated land are totally controlled by the local government before the transfer of land use rights, the local government adopts the top-down approach of land use planning. In the context of land conversion, land use plans serve as an important tool in expropriating the targeted land for urban

development. In the case of the redevelopment of urban villages, however, such plans fail to do so.

ii) Negotiation costs in land requisition. Land requisition is the only legal channel through which urban village lands that are targeted for redevelopment can be purchased. As an important stage of the transactions in the redevelopment of urban villages, land requisition involves many parties aside from urban villagers, potential developers, and the city government. Land requisition involves other entities, including the de facto landowners who bought the land from the village collectives. The transfer of collective land without formal titles between different individuals and enterprises always occurs in the development of urban villages. Therefore, the de facto landowners or users in urban villages are highly diversified and their relationship is very complicated and beyond the control of the local government.

Reaching an agreement on land acquisition in the land redevelopment process is difficult not only because of the large number of parties involved, but also because of the intensified conflict between the government and the affected landowners or users. First, the government faces two main challenges: (1) identifying the de facto land owners or users and the land rights status (legal or illegal) and (2) assessing the land value under (or despite) the conditions of complicated land rights status and highly diversified land use type and development density in urban villages. These two issues are important because they are the basis for any negotiation on compensation. The government in this sense faces severe difficulties in negotiating with the affected landowners or users.

Second, resistance to land acquisition for redevelopment has intensified. The country's economic context has changed. In the context of land conversion, the real estate industry is in its initial stage of the development cycle. After years of development, land and real estate prices have constantly increased in recent years. This price increase signals the promising profits that can be earned from land and real estate development. Therefore, landowners are strongly incentivized to keep their land because they expect high returns and are therefore resistant to sell it to the government.

Given this situation, some critics may hold that the local government can acquire land forcibly without the agreement of every single landowner/user. This recourse may be true in many land conversion cases (from agricultural to urban use). However, it rarely occurs in the redevelopment of urban villages because the economic status and negotiating power of the affected landowners have greatly changed over the decades. In the context of land conversion, the affected party-villagers are the farmers, who do not have enough money to invest in all their land and lack experience in land development for urban activities. In the context of the redevelopment of urban villages, the village collectives (village shareholding cooperatives) and villagers have already accumulated some capital through informal land transfers to outsiders, learned lessons, and gained experience in land development. Therefore, expropriation of their land by the government becomes extremely difficult.

In summary, the land requisition institution, which is the key component of the national dual land ownership system, on the one hand endows rights to the local government to expropriate the land owned by village collectives. On the other hand, it deprives landowners of their development rights in the redevelopment process. The land requisition institution has worked well in the context of land conversion and resulted in extensive land cover change from agricultural to urban use in less than 30 years. However, it incurs extremely high transaction costs because of the large number of involved parties and their strong resistance (disagreement) to the requisition. Therefore, this transaction stage can hardly be realized.

iii) Coordination costs in land transfer. The land transfer mechanism is also primarily state-led and closely related to the land requisition system. Under this land system, the local government is also the urban land supplier. The transfer of land use rights to real estate developers is highly monopolized by the local government through market channels or the so-called tender–auction–bidding (*zhaopaigui*) mechanism, under which the transfer preferences are the highest prices. The great difference between the land transfer price and land acquisition price (which is based merely on the land's original agricultural use) in turn stimulates the local government to reinforce its role in the land requisition and transfer process. Although the land requisition and transfer institution in the land conversion process has generated a large amount of land revenue for the local government and led to urban growth, its implications on efficiency need to be considered carefully. Market demand for urban land use (and redevelopment) is strong and highly diversified. The monopolized land transfer is therefore

extremely inefficient compared with direct transfer between the landowners and the land buyers.

In summary, state-led institutional arrangements that govern the redevelopment of urban villages are inherited from the dual land ownership system. Under this system, the local government has a dominant role in the land development process in terms of state land requisition, control of top-down urban planning, and exclusion of the landowners in urban villages from the land development rights in the process of land redevelopment. Although such state-led institutional arrangements worked in the land conversion process, they greatly hinder redevelopment demand because of high transaction costs.

Transaction costs in state-led land development in China's big cities have become significantly high because of the need for and difficulty of the redevelopment of urban villages. Although redeveloping urban villages creates a profitable opportunity to exploit land rent residuals in the face of economic restructuring, the local government bears extremely high transaction costs in the process. Two significant transaction costs are the information and negotiation costs, which are crucial in determining the efficiency of land development. High transaction costs make redevelopment highly difficult and inefficient. In cities that heavily rely on land redevelopment to sustain their economic growth, the change in transaction costs can create incentives for institutional change toward minimizing transaction costs and promoting efficient development. Substantial reforms have been conducted very recently, albeit quietly, in the reform-pioneering city of Shenzhen to facilitate the redevelopment of urban villages by redefining property rights over

collective land. The newly established institutional arrangements accord more recognition to the potential market actors by endowing development rights to the diversified de facto landowners, such as the village shareholding cooperatives, individual urban villagers, and individuals or enterprises who bought the land from village collectives (without formal land titles). They now have clear and complete property rights over their land in the redevelopment process. First, they have the formal rights to redevelop their land; second, they have the formal rights to derive income from the redeveloped land; and third, they have the formal rights to transfer the land in the redevelopment process. Two propositions concerning the institutional change in Shenzhen are derived as follows.

Proposition 4: Institutional change in land property rights may reduce the transaction costs in the land redevelopment process and hence facilitate redevelopment of urban villages.

Proposition 5: Urban villages (with collective land system) will be gradually integrated into formal urban areas (with state land system) via redevelopment.

The above two propositions will be empirically examined in the next chapter based on comprehensive data sources on urban village redevelopment policies and practices in Shenzhen.

3.5 Summary

Based on the key concepts from the New Institutional Economics, this chapter

developed a theoretical framework to understand the role of property rights and transaction costs in land development. The specific institutional context for land conversion and development in the Chinese urbanization process was investigated and incorporated in the modified conceptual framework. The institutional arrangements for land conversion and development were shown as largely state led under the current dual land ownership system, which empowers the local states in the land conversion and development processes. Village-led urban development in urbanization in China suffers from severe institutional constraints because the village collectives' land property rights are incomplete. The key institutional constraints include (1) lack of land security caused by the constant possibility of government expropriation, (2) unequal access to credit because of unequal land rights, and (3) absence of state regulations on collective land transactions as a result of the lack of de jure property rights. These institutional constraints may weaken land-related investment incentives and ability of villages, and result in sub-optimal development in urban villages.

Transaction costs in state-led urban development in the country's big cities become significantly high because of the need for and difficulty of the redevelopment of urban villages. Although the redevelopment of urban villages creates a profitable opportunity to exploit land rent residuals in the face of economic restructuring, the local government bears extremely high transaction costs (including information and negotiation costs) in the process. The high transaction costs make redevelopment highly difficult and inefficient. In cities that heavily rely on land redevelopment to sustain economic growth, the change in transaction costs creates incentives for institutional change toward minimizing

transaction costs and promoting the efficiency of development. From an individual perspective, individual property rights may be changed in terms of the levels of security and completeness. From a broader perspective, the relationship between the villages, de-facto landowners, and local governments may be restructured. Such changes may directly affect the attributes and transaction costs in land development process, and result in change in land development outcomes.

CHAPTER 4 EMPIRICAL STUDIES

4.1 Introduction

Guided by the conceptual framework established in Chapter 3, this chapter empirically examines the role of land rights institutions (and their change) in the development of urban villages based on a set of comprehensive data with rich dimensions and levels from Shenzhen. An overall review of the urban village development in Shenzhen is summarized in Section 4.2. The main empirical analysis is structured into two sections. Section 4.3 concerns the key question of this study: How do institutional arrangements on property rights over collective land affect land development behaviours and outcomes in urban villages? A comparative study of two representative cases is conducted to illustrate the mechanism through which the institutional constraints on land property rights affect the industrial land development in urban villages. These two cases include the Dongfang-Tantou and Bagualing areas, which involve collective and state land property rights in Shenzhen, respectively. Followed the qualitative study, a regression analysis is conducted based on community-level data from non-SEZ districts with an area of 1557 km^2. The regression analysis serves two purposes: (1) to test whether or not different property rights for collective and state land significantly affect the economic performance of industrial development and (2) to measure how much lower land rent is that people pay for the incompleteness of the key property rights components.

Section 4.4 addresses the following questions: Have institutional arrangements on land property rights evolved in relation to the development of urban villages in Shenzhen? How have property rights over collective land been clarified in Shenzhen? Theoretical perspectives on transaction costs suggest that institutional arrangements on land property rights have been substantially reformed in the land redevelopment process in Shenzhen. Relevant policies and practices are comprehensively reviewed to study the evolving institutional arrangements on land property rights and their transaction costs implications. This study argues that the dynamic market-driven redevelopment process under the new institutional arrangements defines a gradualist approach in clarifying and formalizing land property rights in urban villages, that it, integrating urban villages to formal urban areas. With the use of a set of comprehensive data that cover all 44 village industrial sites in Nanshan District in Shenzhen, a regression analysis is conducted to investigate the determinants of urban village redevelopment to understand the path of integrating urban villages (with collective landownership) into formal urban areas (with state landownership).

4.2 An Overall Review of the Urban Village Development in the Urbanization Process in Shenzhen

All of the 622 original rural villages (322 inside the SEZ area and 300 in the non-SEZ area) in Shenzhen have been transformed into urban villages in the rapid urbanization process. They have played a much more important and diversified role in the urbanization process than previously recognized. We examined the overall spatial outcome of urban village development in Shenzhen from 1980 to

2006 based on systematic citywide land survey data. It is found that urban villages have diverse forms of urban development, including housing, industrial, and commercial development, infrastructure construction, and public service provision. The main urban land use types of the entire city and urban villages are presented in Table 4.1, and their spatial distribution is presented in Figures 4.1 and 4.2, respectively. Table 4.1 shows that the urban built-up area of Shenzhen increased from 3 km² in 1980 to 703.5 km² in 2006. Urban villages accounted for 55.9% of the entire urban area, which was 393.3 km². Further, we found that urban villages play significant roles in industrial and housing development; urban villages occupy 66.2% of the industrial area and 61.7% of the residential area of Shenzhen.

Table 4.1 Role of urban villages in Shenzhen's urban development 2006
(Sources: a citywide survey of the construction land of Shenzhen conducted by the Urban Planning and Land Resources Commission of Shenzhen Municipality.)

Urban development	SEZ area		Non-SEZ area		Entire city		
	Urban villages	Non-urban villages	Urban villages	Non-urban villages	Urban villages	Non-urban villages	Ratio (%)
Urban area (km²)	44.3	126.4	349.0	183.8	393.3	310.2	55.9
Residential area (km²)	12.5	37.8	101.3	32.8	113.8	70.6	61.7
Industrial area (km²)	9.4	11.1	159.3	75.0	168.7	86.1	66.2
Commercial area (km²)	7.7	8.9	7.6	8.1	15.3	17.0	47.4
Public open space(km²)	3.8	18.0	5.1	23.7	8.9	41.7	17.6

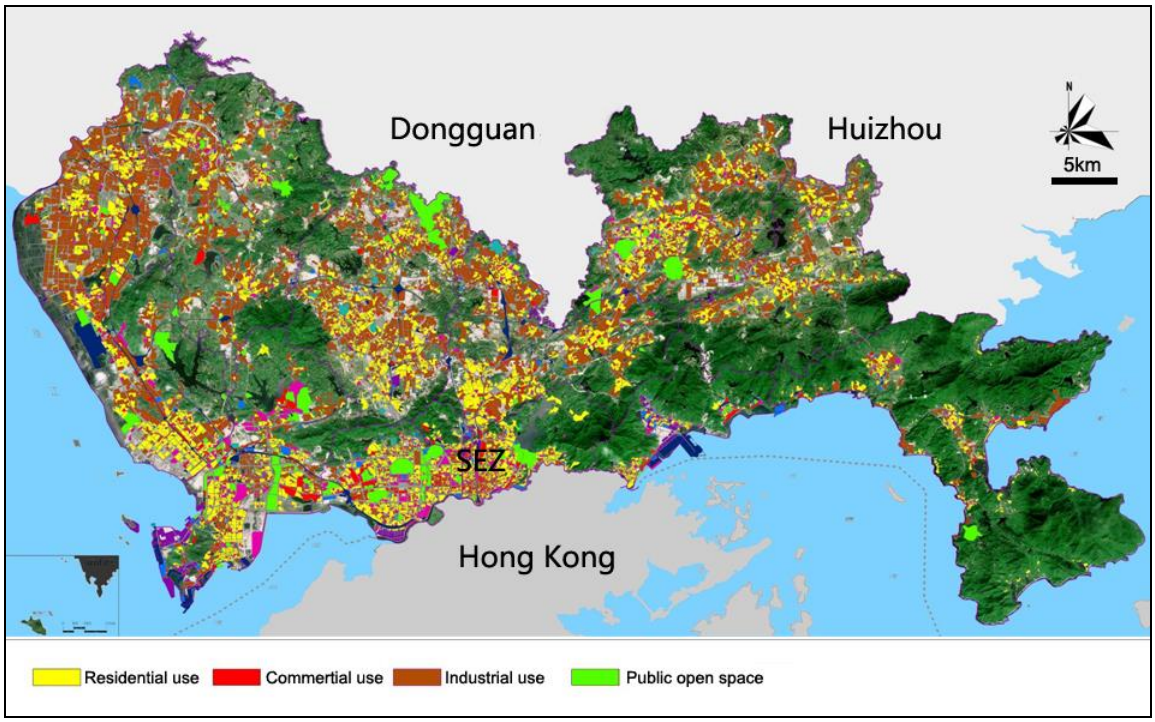

Figure 4.1 Scale and spatial distribution of urban land use of Shenzhen 2006
(Source: A citywide survey of the construction land of Shenzhen conducted by the Urban Planning and Land Resources Commission of Shenzhen Municipality.)

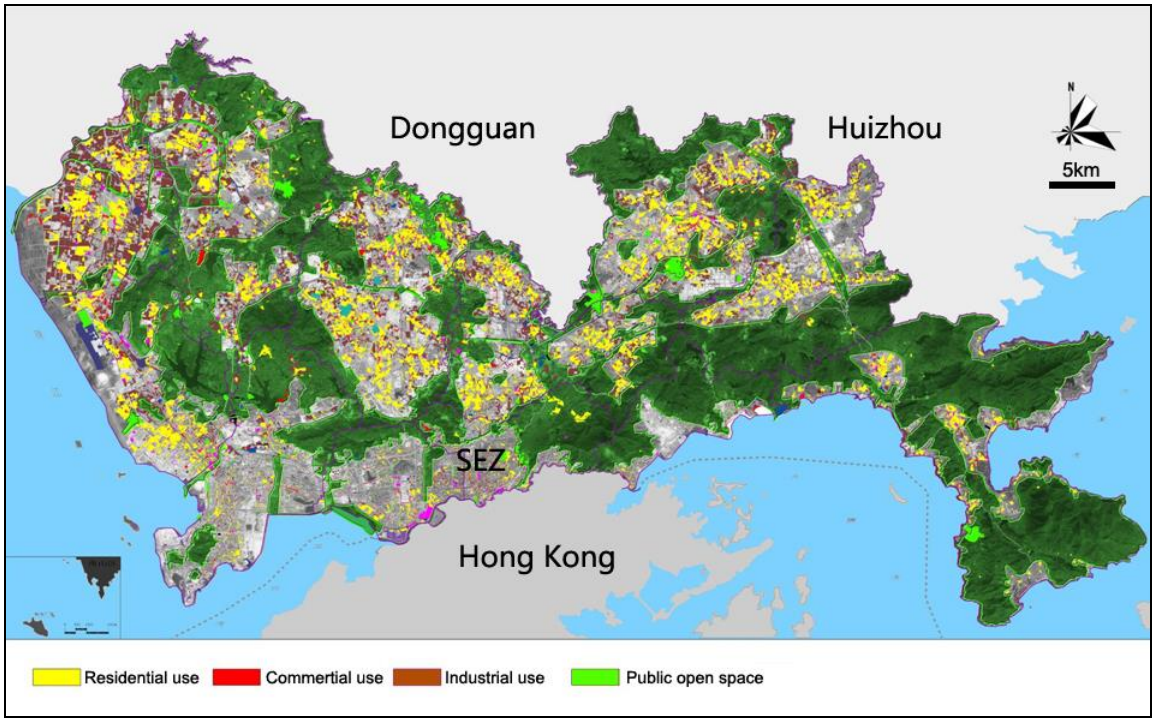

Figure 4.2 Scale and spatial distribution of urban villages in Shenzhen 2006
(Source: A citywide survey of the construction land of Shenzhen conducted by the Urban Planning and Land Resources Commission of Shenzhen Municipality)

Industrial sectors experienced rapid growth and contributed significantly to the urban development in Shenzhen. The industrial value-added increased to RMB 305 billion and accounted for 52.5% of the 2006 gross domestic product of the city, which is RMB 581 billion. The rapid industrial development in Shenzhen is largely attributed to a large inflow of foreign investments after the special economic zone was established. To attract foreign investments and profit, the villagers developed a large scale of their collective farmland for industrial use. Industrial land development in urban villages has two main patterns. First, external manufacturing enterprises purchase the land from village collectives and develop it. Land is delineated in an unsystematic manner and transferred immediately. In some cases, land parcels are further divided and transacted without state land use planning and development regulations. The fragmented and irregular industrial sites result in a disordered built environment in urban villages. Our fieldwork shows that each of these industrial sites is smaller than 5000 m^2 on average. Second, the village collectives develop the land and construct industrial buildings. Our fieldwork shows that these village-developed industrial sites are generally more regular and larger than the fragmented individual industrial sites; each village-developed industrial site is above 50,000 m^2 but below 200,000 m^2 on average. Both the individual and village-developed industrial sites suffer from the lack of infrastructure.

The industries in urban villages are characterized by low-tech and labour-intensive manufactures, which have created massive and diversified job opportunities to the rapidly increased migrant workers. The local villagers benefit

greatly from the industrial development in their urban villages. By leasing land and industrial buildings to outside individuals and enterprises, the local villagers earn solid income, which is far greater than their earnings from agricultural production. The decentralized development of urban villages has nurtured rapid industrialization in Shenzhen in the past decades and made it one of the most important manufacturing bases in the world.

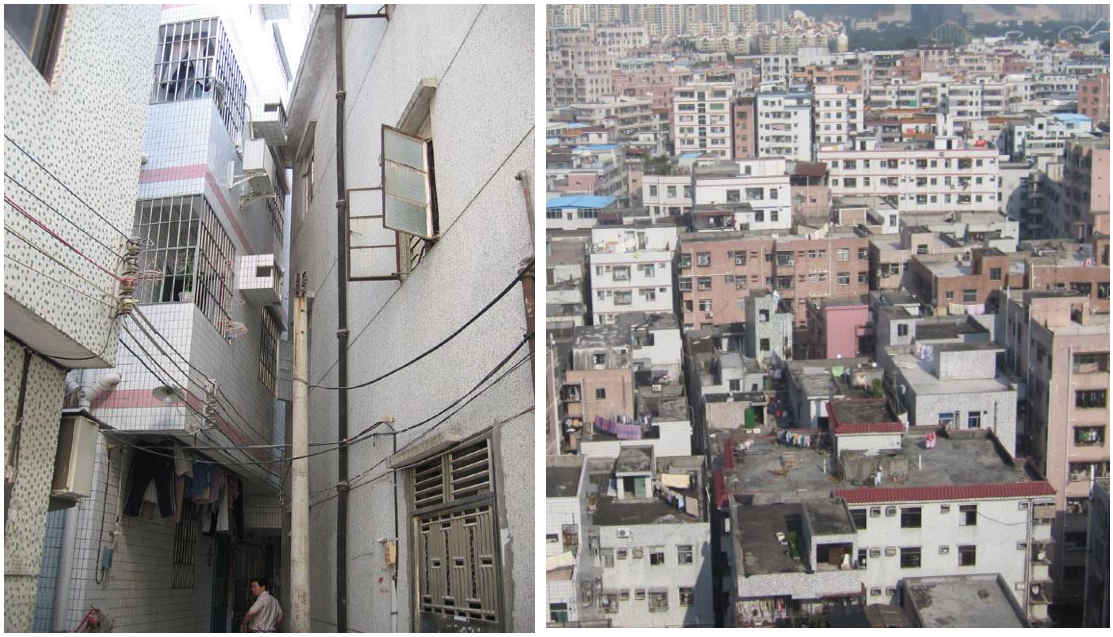

Figure 4.3 Built environment in an urban village
(Source: Photograph taken by the author)

Urban villages have played an important role in urban housing provision. To meet the housing demand of the increased urban population, urban villagers have upgraded their household buildings on the housing spots (Zhaijidi) to maximize floor area. Very narrow gaps are left between buildings, resulting in a street profile of "handshake and kissing buildings" and poor housing condition (Figure 4.3), as evidenced by fieldwork and the self-evaluation of migrants in urban villages. Aside from this kind of urban village housing that features low-quality

built environment, we found many high-quality housing units developed by urban villagers on collective farmland, which is called Xiaochanquanfang in Chinese. Generally, Xiaochanquanfang refers to the housing developed on collective land without state requisition, which is the only legal way to convert rural land into urban land (Deng, 2009; Paik and Lee, 2012). In this study, we used the term Xiaochanfangquan to distinguish it from the urban village housing on Zhaijidi. In many cases, the physical appearance of Xiaochanquanfang is similar to that of a newly developed commercial housing in formal urban areas (Figure 4.4), which is developed in the form of gated and secure housing enclaves (Xiaoqu) that represent an ideal lifestyle. Although the precise number of high-quality housing units is unavailable in citywide land survey data, newspaper reports and other publications suggest that such village-led housing development is extensive.The citywide data show that 245 million m² of urban residential floor area was developed from 1980 to 2006 in the city of Shenzhen. Urban villagers developed 156 million m² (63.7%) out of the total urban residential floor area. The urban population increased from 0.31 million to about 14 million at the end of 2006, and more than 9 million people lived in urban villages (Zha et al., 2007).

Figure 4.4 High quality housing developed by villages based on collective farmland (left) and formal commercial housing based on state land (right)
(Source: Photograph taken by the author)

The development of urban villages in Shenzhen shows great spatial disparity between the SEZ and the non-SEZ area. The non-SEZ area has fewer urban villages (300) than the SEZ area (322), but the urban villages in the non-SEZ area (349.0 km²) are much larger than those in the SEZ area (44.3 km²). According to Table 4.1, the ratio of urban village to built-up area in the non-SEZ area is 65.5%, which is much higher than that in the SEZ area (26.0%). The spatial disparity of urban village development between the SEZ and non-SEZ area is largely attributed to their different initial conditions and land institutions, which have directly shaped the urban development model of these two areas. Both the SEZ and non-SEZ areas have experienced rapid urbanization since the reform in the early 1980s. However, the non-SEZ area was included as part of Shenzhen City only in 1992. In the SEZ area, the city government expropriated most of the collective farmland from 1980 to 1992 to accommodate foreign investments. To facilitate the requisition process, a portion of existing built-up land has been delineated to village collectives as non-agricultural land with certain development rights. According the land survey data, more than 120 km^2 of land available for

construction in the SEZ area has been successfully expropriated by the government from the villages and transformed to state landownership. Property rights over state land are clear and complete in the urban development process. State land has been widely used as collateral to finance high-level infrastructure construction. Land development and transactions are guided and regulated by the state land use planning and land management system. A relatively satisfactory development is enabled in most of the SEZ area, where the scale of urban villages is very limited (Figure 4.5).

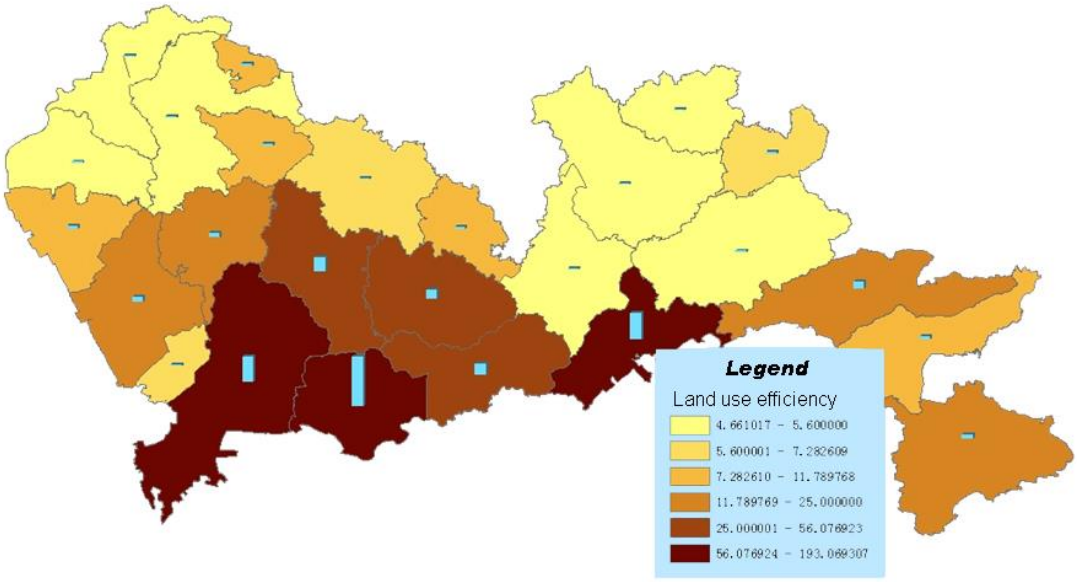

Figure 4.5 Spatial distribution of industrial value added in year 2003
(Source: Shenzhen urban planning and research institute)

Urban development in the non-SEZ area is largely based on collective land and led by villages. The city government mainly focused on the development in the SEZ area before the early 2000s. This emphasis imposes both opportunities and challenges to the development of the non-SEZ area. On the one hand, market demand for urban land use in the non-SEZ area is strong and diversified created

by urbanization. On the other hand, the city government monopolizes formal urban land supply. Formal urban land development requires the change of landownership from the village collectives to the state. This inevitably involves a land expropriation process, which is costly in terms of both money and time. It is impossible for the local states to expropriate all the collective land at one time due to the financial constraints and high transaction costs. Strong demand for urban land use always exceeds urban land supply by the city government. To meet the strong demand of urban land and realize the potential benefits from land conversion, it is natural for the villages in the non-SEZ area to use their land for attracting investments and profit before the early 2000s. Compared to the formal state-led urban land development which involves forceful land expropriation and the making and implementation of top-down land use plans, village-led development is more efficient in terms of the scale of land conversion from agricultural use to urban use because it uses a more market-oriented development model. The transaction of collective land is more direct and convenient between the land suppliers and land demanders, whereas state land provision and transfer is highly monopolized by the city government. The decentralized development of urban villages has resulted in a tremendous scale of collective land conversion in the non-SEZ area, exceeding that of the formal state-led urban development. Table 4.1 shows that 532.8km² of land have been converted from agricultural land to urban land from 1980 to 2006 in the non-SEZ area. Urban villages accounted for 65.5% (349km²) of the total urban area. However, the low level of infrastructure and the poorly built environment in the urban villages have made non-SEZ area much less competitive in attracting high-quality investments than SEZ area (Table 4.2).

Table 4.2 Economic performance of SEZ area and non-SEZ area
(Source: Shenzhen urban planning and design research institute)

Economic performance (Year 2003)	Entire City	SEZ area	Non-SEZ area	
			Bao'an	Longgang
Industrial output value per unit of land *(Billion yuan/km²)*	27.0	155.0	13.8	11.7
Industrial added value per unit of land *(Billion yuan/km²)*	7.4	42.9	3.0	4.0

4.3 Institutional Constraints on Villages' Land Property Rights

4.3.1 A Comparative Case Study of Two Representative Industrial Areas

Guided by the conceptual framework established in Chapter 3, this section empirically examines whether and how institutional arrangements on property rights affect land development in urban villages in Shenzhen. A comparative analysis was conducted based on two representative cases to address the following issues: (1) the risk of land expropriation and the land development behavior of the villagers, (2) the absence of de jure land rights and the resultant lack of financial sources to support land development, and (3) the incomplete land property rights and the inability of the local government to regulate land transactions in urban villages.

This research selected the Dongfang-Tantou industrial area, a typical urban village site, for the in-depth case study. Located in Bao'an District, this industrial area was developed by village collectives and its land is mainly collectively owned. The development process and outcomes of the area were examined in

comparison with the Bagualing industrial area, which is located in Futian District where land is state-owned. These industrial areas have similar land areas (138 and 116 ha, respectively) and topography. Figure 4.6 shows the location of these areas. Data for the analysis were obtained from field study, interviews with village officials, relevant planning documents, and research reports, such as the "Regeneration Planning of Dongfang-Tantou Industrial Area," the "Regeneration Planning of Bagualing industrial Area," statistical yearbooks, and published literature.

Figure 4.6 Location of the Bagualing and Dongfang-Tantou areas

Bagualing and Dongfang-Tantou were both originally agricultural areas owned by rural villages before the economic reform. These areas have undergone rapid urbanization and have become industrialized areas in the past decades. The land development process in these areas is distinct because of the different institutional arrangements for land property rights. Land development in Bagualing is state led

because the collective land has been converted to state land. By contrast, land development in Dongfang-Tantou is village led because the land remains collectively owned. The Bagualing industrial area was used as a baseline to analyze the Dongfang-Tantou industrial area because this study investigates the effects of incomplete property rights on the land development process and outcomes.

The Shenzhen government has expropriated a large amount of agricultural land from the villages to attract foreign investments and to promote urban development because of the establishment of the SEZ. Located in the core area of the SEZ, Bagualing was expropriated in the early 1980s, after which its land was converted to state land. Similar to other converted state lands, the development of Bagualing was shaped according to the following process: First, top-down land use planning was used to guide (regulate) future land use and to transfer land use rights in the development area. Second, the state land was used as collateral to finance the construction of public infrastructure, which mainly includes public parks, transportation, road, electricity, and water infrastructure. Third, the land management system allowed and governed the transfer of land use rights.

The strategic development plan of the Shenzhen SEZ designated the Bagualing area as one of the most important bases for industrial development. The land use rights were transferred to a state-owned firm, the Shenzhen Industrial Development Service Corporation. The road system and public infrastructure was constructed based on site-level land use planning. Large investments supported the construction of infrastructure by using land use rights as collateral. Thus, the

high level of infrastructure in Bagualing is highly competitive in attracting enterprises and investments on land development and industrial production. In less than ten years, Bagualing has developed into an industrial site that has a well-designed road system and built environment (see Figure 4.7). This area has 194 buildings, with a building density of 16.5% and a floor area ratio (FAR) of 1.53.

Figure 4.7 Road system and land use in Bagualing area
(Source: Shenzhen urban planning and design research institute)

Land transactions are active in the Bagualing industrial area and are well regulated by the land management system. Figure 4.6 records and maps the land ownership status in the area as derived from the data from the land cadastral management system provided by the official department and the document "Regeneration Planning of Bagualing Industrial Area." This area has 59 land

parcels, 25 of which are owned by the Shenzhen Industrial Development Service Corporation and 34 by other enterprises and government agencies. Figure 4.8 shows that these land parcels, which are mostly rectangular, have been delineated in a systematic and regular manner. The land parcel system provides an important basis for facilitating land transactions and is more likely to increase property investments and land values (Libecap & Lueck, 2011).

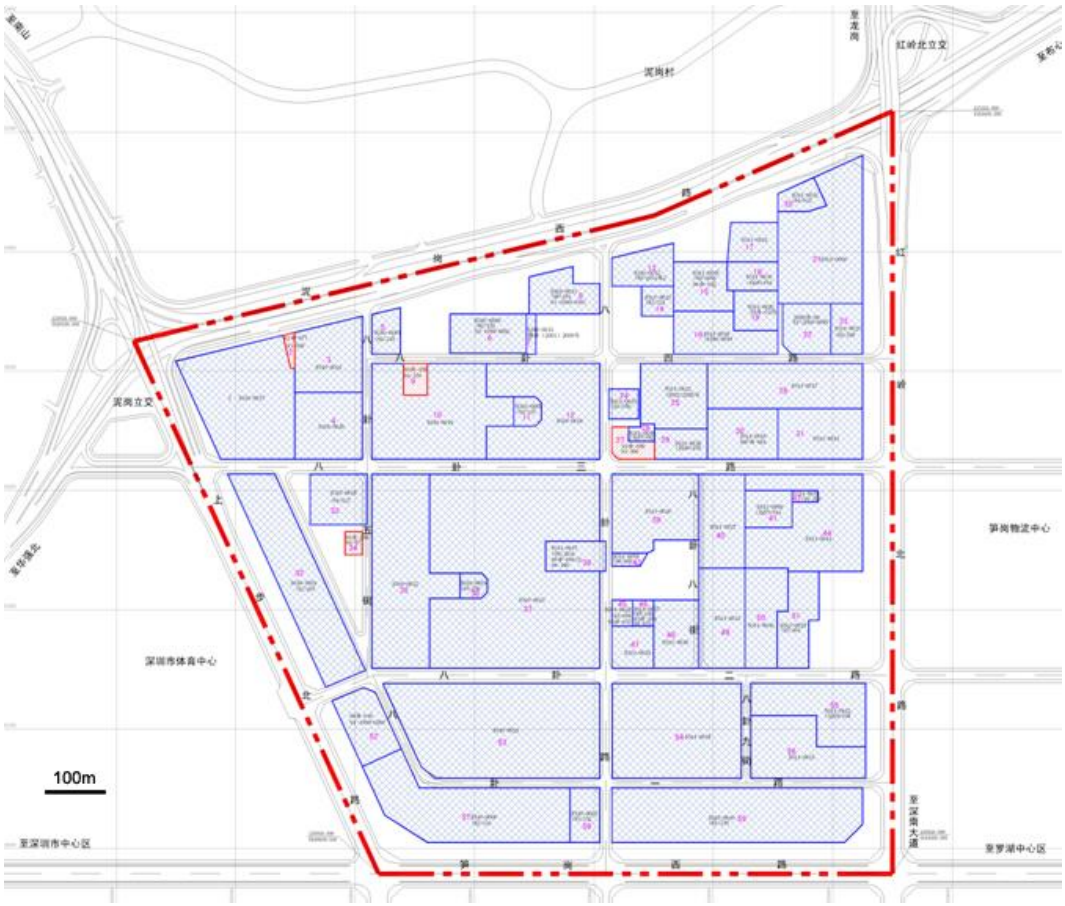

Figure 4.8 Land ownership status in Bagualing industrial area
(Source: Shenzhen urban planning and design research institute)

Bagualing has rapidly developed into a competitive industrial area in the past years and has established an important role in the industrial development and economic growth of Shenzhen. A wide range of manufacturing industries are

located here, such as electronics, telecommunications, textile, pharmaceutical, printing, clothing, and food. This industrial area accommodated more than 800 industrial companies and provided more than 90,000 jobs at its peak. As the area is still undergoing urbanization, some flourishing manufacturing industries from other big cities in the country have moved to second- or third-tier cities in inland regions for lower costs. Therefore, upgrading current land use in Bagualing is necessary. The well-delineated land parcel system and well-designed built environment make upgrading the existing land use technically convenient. Some industrial land parcels in the area have already been upgraded to meet the new market demand.

Land development in Bagualing is state led. The land is used as collateral and access to credit has effectively financed a high level of infrastructure construction. This system has attracted various enterprises and investments in land development and industrial production. Land transactions have thus been quite active in this area. The land use planning and land management system regulate transactions that involve state land. The land parcels have therefore been delineated in a systematic and regular manner, which have facilitated future land transactions and upgraded land use. In the past years, the Bagualing area has rapidly developed into a competitive industrial area and contributed significantly to the economic development of Shenzhen. Recently, this area has been experiencing a transition from traditional manufacturing industry to emphasizing services in the ongoing urbanization process.

The Dongfang-Tantou area is located in Bao'an District. This area is located outside the SEZ, but has convenient transportation conditions. Three villages, namely, Dongfang, Tantou, and Hongxing, own the land in Dongfang-Tantou, which was originally used for agricultural production. Urbanization has created a strong and diversified market demand for urban land use, which exceeds the state land supply of the government. The villagers have re-collectivized to develop their farmlands for urban use to exploit the increased land value caused by urbanization. Land transactions in the area are also active. Village-led land conversion and development of the area was achieved through a combination of different channels. First, the villagers developed the land and transferred (leased or sold) the buildings to outside enterprises. Second, the villagers and outside enterprises developed the land together and transferred (leased or sold) the buildings to enterprises. Third, the villagers transferred (leased or sold) the land to outside enterprises.

However, similar to those in other urban villages, land transactions and development in Dongfang-Tantou suffer from severe institutional constraints. First, collective land is not secure because of the possibility of government expropriation. The risk of land expropriation is uncertain in most cases because the government unsystematically expropriates land. The government tends to expropriate vacant land instead of developed land to reduce land acquisition costs. This approach provides strong incentives for the villagers to occupy and develop their land for immediate and short-term interests. Developing more land lessens the possibility of government expropriation. Therefore, the risk of land expropriation weakens the long-term investment incentives of villagers. Second,

collective land transaction is legally forbidden and therefore not covered by the state land management system. Land development in urban villages is disorderly, without effective regulation on the part of the government and long-term planning on the part of the villagers.

Over the past years, Dongfang-Tantou has developed into an industrial site, which involves a large volume and variety of informal land transactions. Figure 4.9 records and maps the land ownership status in the area as derived from the data from the land cadastral management system, our fieldwork, and the document "Regeneration Planning of Dongfang-Tantou Industrial Area." The area has 222 land parcels, two of which have been expropriated by the government and transferred to developers. The land ownership status in this area is highly complicated because of the unsystematic delineation of land parcels and transactions. This complication is caused by the lack of long-term investment incentives on the part of the villagers and effective regulation on the part of the government. Village collectives still own some of the land parcels, while some have been transferred to other enterprises and individuals. Figure 4.9 shows the unsystematic delineation of the land parcels in the area, the sizes and shapes of which are mostly irregular. Such land parcel system has directly resulted in an inferior and disorderly environment (Figure 4.10) that is unfavourable to efficient land use and sustainable development.

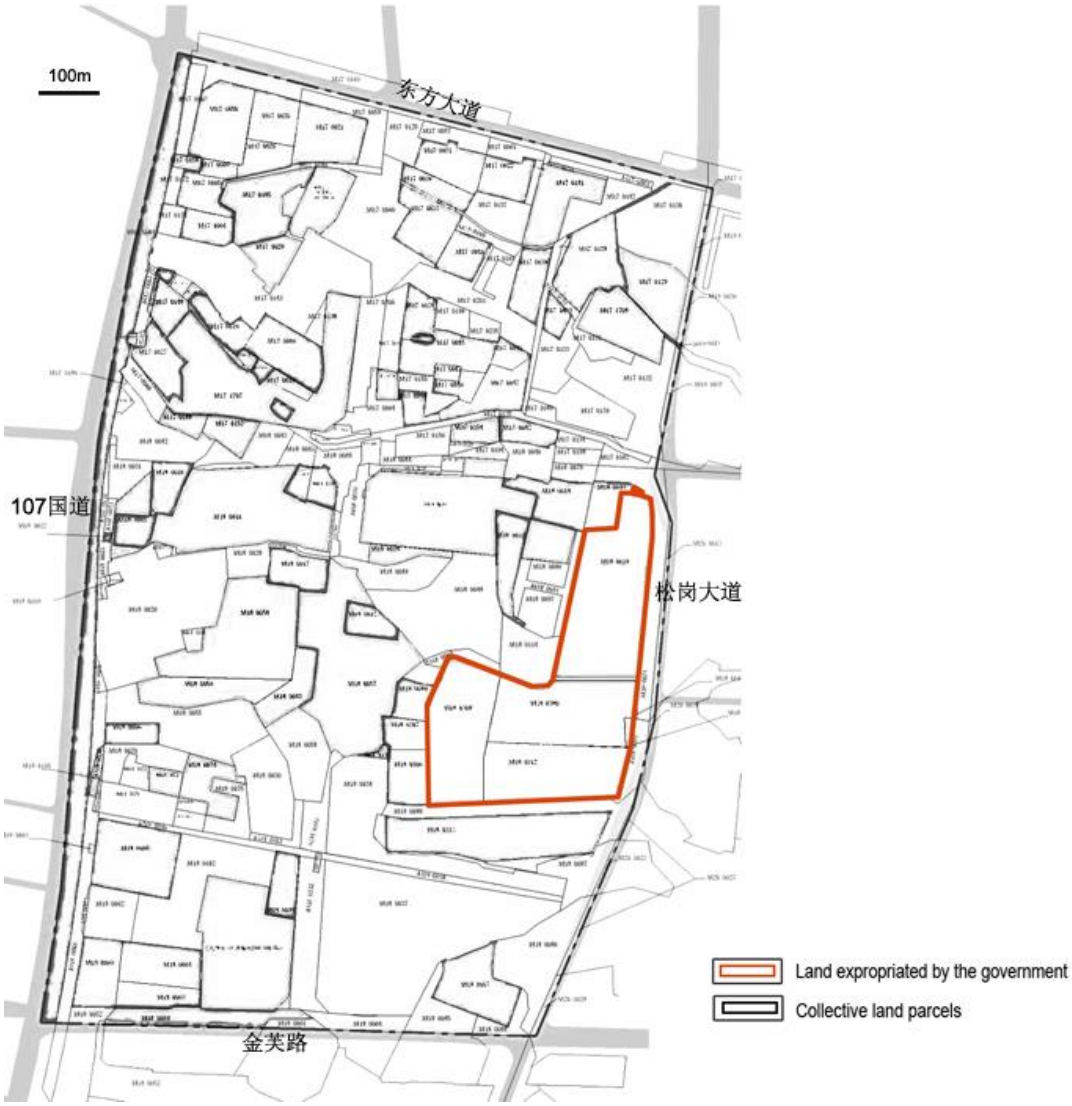

Figure 4.9 Land ownership status in Dongfang-Tantou area
(Source: Shenzhen urban planning and design research institute)

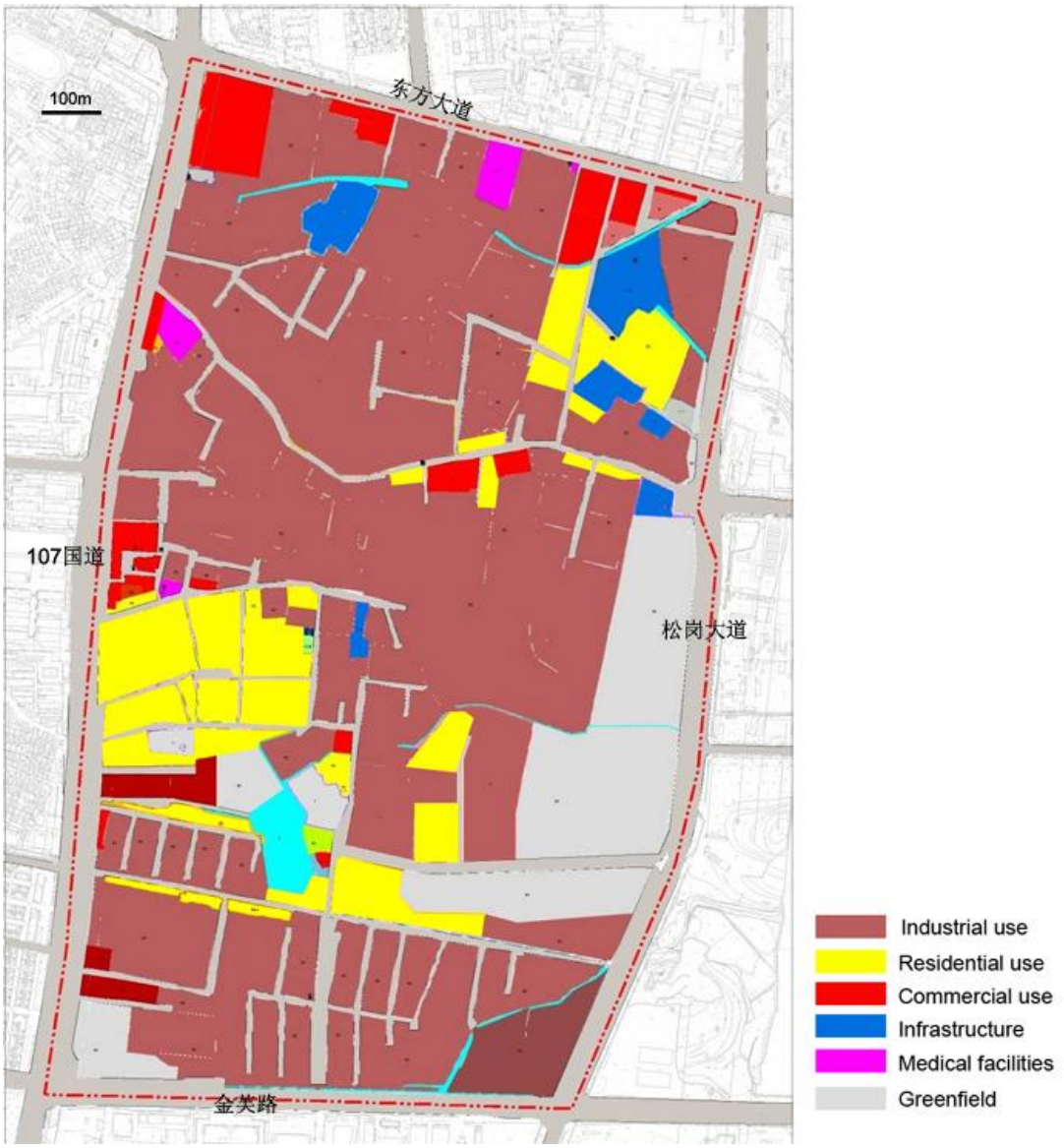

Figure 4.10 Land use in Dongfang-Tantou area
(Source: Shenzhen urban planning and design research institute)

The village-led land development in Dongfang-Tantou suffers from the lack of de jure land property rights. Unequal land rights prevent villagers from using their land as collateral, which in turn weakens their ability to finance infrastructure construction. The fieldwork of this study found that the financial resources for infrastructure construction and other land-related investments mainly came from land acquisition compensation fees. The three villages in Dongfang-Tantou

received compensation fees for their lands expropriated by the government. However, the amount of land acquisition compensation is determined by the original land use, which is agricultural. Villagers are excluded from the income rights of the potential urban use of the land. The villagers are therefore under compensated in land requisition and have limited funding sources. The financial constraints and risk of land acquisition have resulted in inferior infrastructure and environment.

Dongfang-Tantou suffers from lack of infrastructure. Its road system is problematic because of limited width, poor connection, and road conditions (see Figure 4.11). The road network density is only 1.0 m/km², which lags behind that of Bagualing. Other infrastructure, such as water supply, electricity, and drainage, also has poor quality. For instance, insufficient pipes have resulted in unstable water supply. The current electricity power is unable to satisfy the needs of the industrial production. The low level of infrastructure and the poorly built environment makes Dongfang-Tantou less competitive in attracting outside enterprises and investments. The industries in this area include paper, plastic, mold, and ironware, which operate at a low level, with low value added in production and heavy pollution. Table 4.3 shows the information about 14 most important industrial enterprises located in this area. Dongfang-Tantou needs to upgrade its land use to meet new market demands. Thus, the area faces greater challenges than does Bagualing. The area's existing land parcel system and built environment is unable to satisfy the requirements for new land uses.

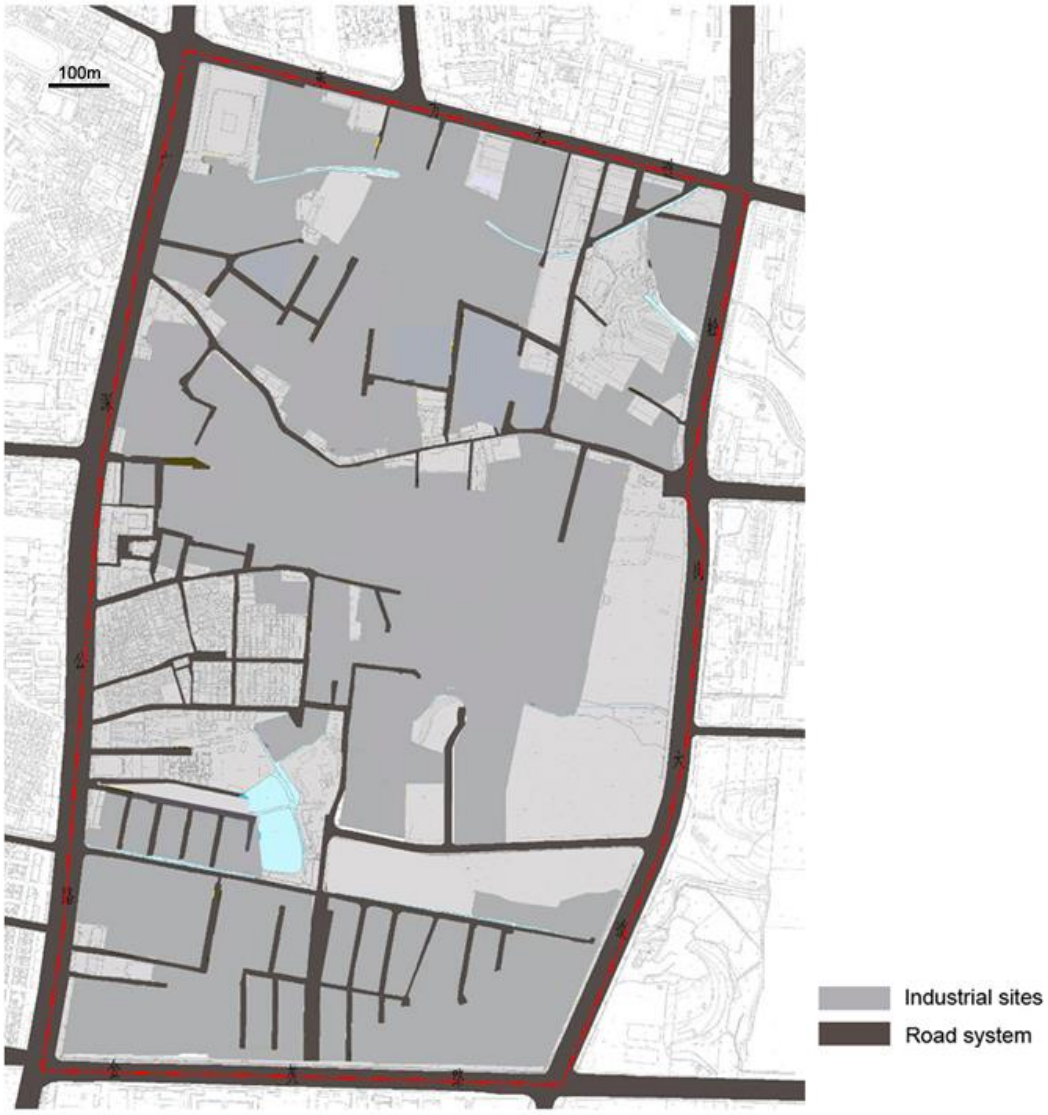

Figure 4.11 Road system in Dongfang-Tantou area
(Source: Shenzhen urban planning and design research institute)

Table 4.3 Main industrial enterprises located in Dongfang-Tantou area
(Source: Shenzhen urban planning and design research institute)

Industrial enterprises	**Income** (1,000yuan/ m^2)	**Total assets** (1,000yuan)
Gedi Electronics	40.3	100,333
Yongfeng Shoe Factory	2.94	133,388
Shengfeng Shoe Factory	1.91	176,723

Helong Manufacture	3.66	75,515
Jingang Electric	2.38	98,791
Diwei Plastic	2.11	50,453
Yasesi Precision Instrument	3.98	11,030
Oubeige Sporting Goods	2.88	7,773
Xilu Glasses	1.01	7,968
Deshiding Manufacture	2.78	15,530
Hongrongyang Machinery	0.82	8,740
Hengsheng Machinery	4.86	36,750
Hengminghui Paper Mill	1.89	60,160

In sum, the comparative case study empirically examined the different land institutions and their effects in state land development and collective land development. It is found that under the current urban-rural dual land system, property rights over collective land are ambiguously defined. The state land requisition institution has empowered the city government in the land development process and imposed heavy constraints to the collective land development in urban villages. These institutional constraints greatly affect land development in urban villages. First, land expropriation risk provides strong incentives for urban villagers to occupy the land for immediate interests (to secure their de facto land rights) instead of long-term investments. Second, collective land transaction is legally forbidden and not covered by the state land management system. Without effective state regulation and long term investment incentives for villagers, land development in urban villages resulted in inferior and disordered environment. The unequal rights of land ownership have deprived the villagers of the formal financial source and have weakened their ability to

finance infrastructure construction in urban villages. The low level of infrastructure has made urban villages less competitive in attracting investments for industrial development. Therefore, land development in urban villages is suboptimal because of the severe institutional constraints on land property rights.

4.3.2 A Statistic Analysis on the Effects of Land Property Rights on Economic Performance

4.3.2.1 Empirical Methods

To test and measure the economic loss in urban villages due to the institutional constraints on land property rights, a regression analysis was conducted to answer the two following specific questions: i) Did significant effects on the economic performance of land development arise from the different property right arrangements on collective land (urban villages) and state land?; ii) In terms of land rent, how much less did people pay for the incompleteness of the key property rights components? In our study, special attention is given to industrial land development, because industrial use is one of the dominant land-use categories in most Chinese cities. The economic performance of industrial land development is measured by the industrial value added per unit of land, whereas land rent is measured by monthly rental prices of the industrial plant. Both questions measure economic loss in the urbanization of China, whereas the first question pertains to land use efficiency.

The analysis is based on a set of community-level data that cover all 24 sub-districts in the Bao'an and Longgang districts of Shenzhen. These two districts are

located adjacent to the SEZ area of Shenzhen. Figure 4.12 shows the geographical boundaries and distribution of the sub-districts. Industrial development is predominantly important to the economic growth of these two districts. Both collective land ownership (urban villages) and state land ownership are important in the industrial development of these two districts. The existence of the dual land ownership system provides an appropriate empirical case study for our regression analysis.

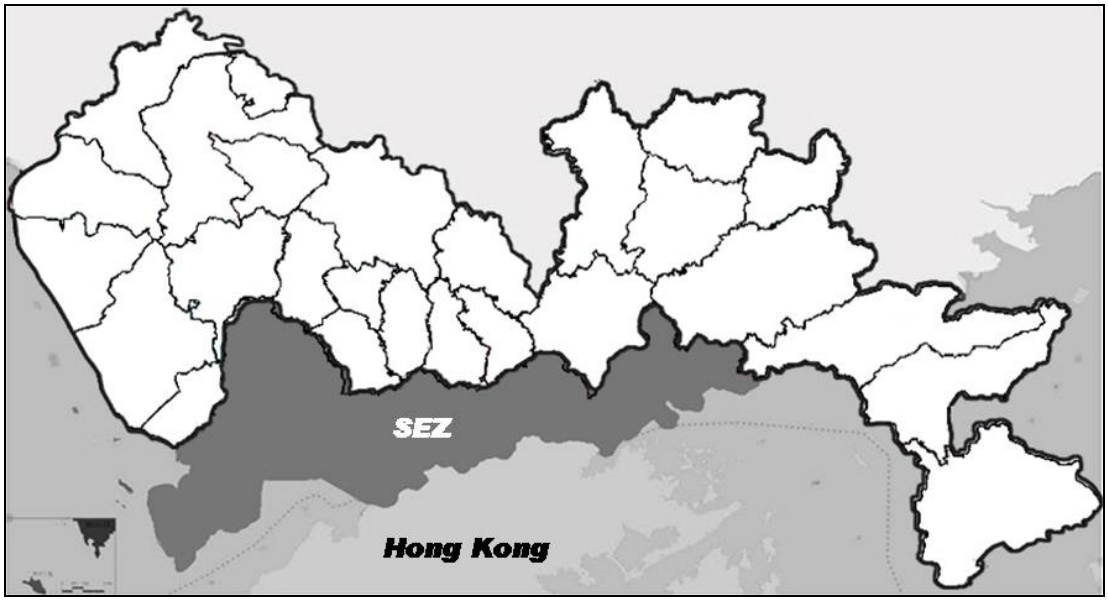

Figure 4.12 Geographical boundaries and distribution of the sub-districts in the Bao'an and Longgang districts
(Source: Shenzhen urban planning and design research institute)

To address the first research question, "Did significant effects on the economic performance of industrial development arise from the different property rights arrangements on collective land and state land?," a model is specified to examine the effects of incomplete property rights on industrial value added based on the modified Cobb–Douglas production function (Douglas, 1976). The dependent

variable is the log-transformed industrial value added of each sub-district, which indicates the economic performance level of industrial development. Incomplete property rights on collective land is the key independent variable of this model, which is measured by the ratio of collective industrial land area to the total industrial land area of each sub-district. The model includes three control variables (Table 4.4) based on the Cobb–Douglas production function. These variables include i) labor, which is measured by the population of each sub-district, ii) capital, which is measured by the fixed investment of each sub-district, and iii) land area of each sub-district. To achieve a normal distribution, three control variables were log transformed before ordinary least square (OLS) regression. The model is shown in Eq. (1).

$$ln(industrial\_v_i)=\lambda_i +\alpha 1(industrial\_collective\_ratio_i) +\alpha 2\ln(land_i) +\alpha 3\ ln\ (population_i) +\alpha 4\ ln\ (investment_i) +\varepsilon. \quad (1)$$

Table 4.4 Description of the variables

Model	Variable	Description
Model 1	industrial_v	Industrial value added of each sub-district in 2006, measured in million yuan
	industrial_collective_ratio	Ratio of collective industrial land area to total industrial land area of each sub-district

	land	Land area of each sub-district, measured in hectare
	population	Resident population of each sub-district in 2006, measured in person
	investment	Fixed investment of each sub-district in 2006, measured in million yuan
	industrial_price	Average rental prices of industrial plants in each sub-district in 2006
	industrial_collective_ratio	Ratio of collective industrial land area to total industrial land area of each sub-district
Model 2	location	Dummy variable indicating whether or not the sub-district is located close to SEZ area
	land	Land area of each sub-district, measured in hectare
	population	Resident population of each sub-district in 2006, measured in person

To address the second research question, "In terms of land rent, how much less did people pay for the incompleteness of the key property rights components?," a model is specified to examine the effects of incomplete property rights on industrial land rent. The dependent variable is the log-transformed average rental prices of industrial plants in each sub-district, which indicates the land rent level

of industrial development. Incomplete property rights on collective land are the key independent variable of this model, which is measured by the ratio of collective industrial land area to the total industrial land area of each sub-district. The model includes three control variables (Table 4.2) based on existing literature on the determinants of land value (Colwell & Munneke, 1997; Kowalski & Colwell, 1986). These variables include i) the location of each sub-district, which is a dummy variable in our study, ii) the land area of each sub-district, and iii) the population of each sub-district. To achieve a normal distribution, the three control variables were log transformed before OLS regression. The model is shown in Eq. (2).

$$ln(industrial\_price_i)=\lambda_i + \alpha 1(industrial\_collective\_ratio_i) + \alpha 2(dummy\_location1_i) + \alpha 3 \ln(land_i) + \alpha 4 ln(population_i) + \varepsilon. \quad (2)$$

In Eqs. (1) and (2), λ_i represents the unobserved heterogeneity, ε is the residual, and α1, … , α4 are the regression coefficients associated with their respective variables. Table 2 describes the specific independent and dependent variables of the two regression models.

4.3.2.2 Data

The original data on land property rights were collected from the Urban Planning and Land Resources Commission of Shenzhen Municipality. The data are in GIS format, including the main attributes of the land parcels, such as land ownership, land use type, and size. After overlaying the geographical boundaries of the target

24 sub-districts on the data on land property rights, the size of the collective and state industrial lands, and the ratio of the collective industrial land size to the total industrial land size of each sub-district were calculated.

The data on the industrial value added, fixed investment, and population of the 24 sub-districts were collected from the yearbooks of the Bao'an and Longgang districts (2007). The data on the industrial plant rental price of the 24 sub-districts were obtained from a citywide land survey and research report on the industrial districts of Shenzhen conducted by the Urban Planning and Land Resources Commission of Shenzhen Municipality in 2009. Other data used in this study include the following: (1) topographic maps, urban planning drawings, and official reports from the Shenzhen Urban Planning and Design Research Institute and the Urban Planning and Land Resources Commission of Shenzhen Municipality and (2) other relevant data from the available literature, such as published papers and books.

Table 4.5 summarizes the samples and observations used in the analysis. The data show a wide range of variations in terms of the following aspects: (1) the incompleteness of land property rights (measured as the ratio of collective industrial land area to the total industrial land area), (2) the industrial value added per unit of land, and (3) the 24 sample sub-districts. To illustrate the level of incompleteness of land property rights in the samples, the size and spatial distribution of the collective industrial land sites and state industrial land sites in the Bao'an and Longgang districts are presented in Figure 4.13. The ratio of the

collective industrial land area to the state industrial land area of these 24 sub-districts is shown in Figure 4.14.

Table 4.5 Descriptive Statistics

	Obs	Mean	Std dev	Min	Max
industrial_vi	24	6518.722	8064.052	70.08	35159.66
unit_industrial_vi	24	974.57	1349.29	67.67	5935.12
industrial_pricei	24	9.71	2.10	6.57	16.36
industrial_collective_ratioi	24	0.58	0.13	0.35	0.81
industrial_landi	24	894.87	596.57	29.2	2266.3
landi	24	6475.083	3524.798	1876	15462
populationi	24	219815.5	134040.2	14666	512104
investmenti	24	2530.452	1605.917	459.77	6079.00

Note: industrial_v is measured in million yuan, unit_industrial_v in yuan per square meter, industrial_price in yuan per square meter per month, industrial_land and land in hectare, population in person, and investment in million yuan.

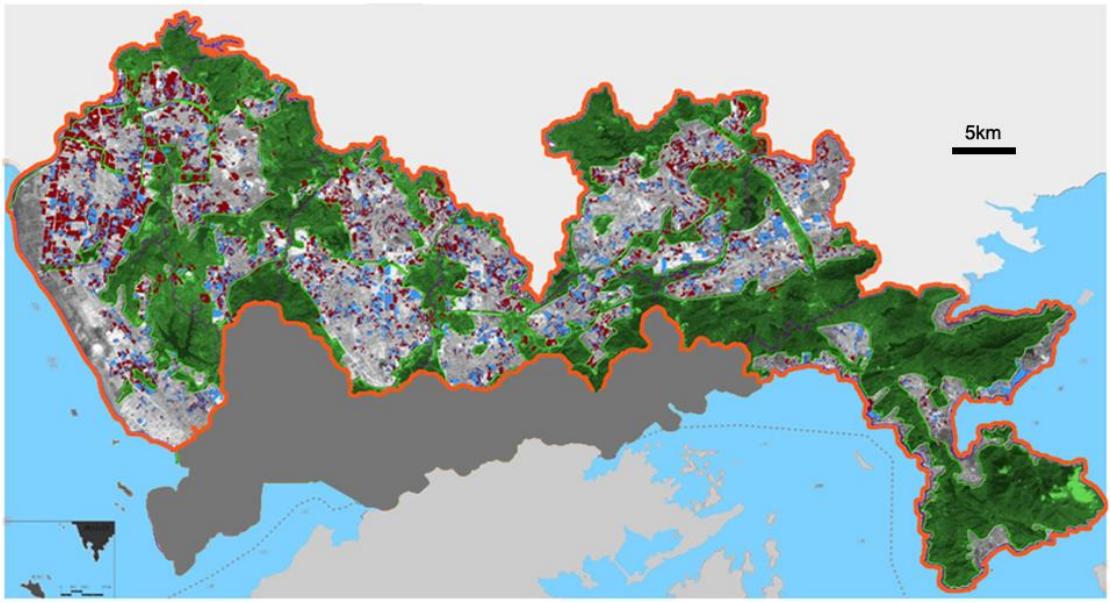

Figure 4.13 Size and spatial distribution of collective and state land for industrial use
(Source: Urban Planning and Land Resources Commission of Shenzhen Municipality)

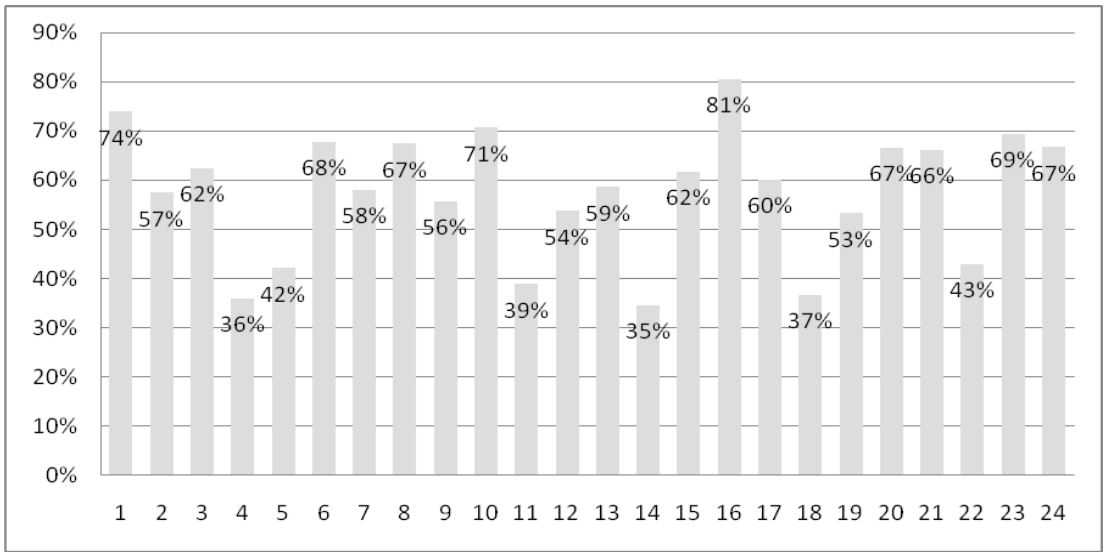

Figure 4.14 Ratio of the collective industrial land area to total industrial land area of each sub-district

Two factors contribute to the variation of the ratio of collective industrial land area to the total industrial land area in these samples. On the one hand, parcels of land with different magnitude and location in the two districts have been unsystematically expropriated by city governments in different periods of the urbanization process. As mentioned previously, in many cases, land conversion from collective land to state land is completed through the land requisition system in China. Shenzhen is not exceptional. To meet the needs of urbanization and economic development, certain portions of collective land in these two districts were expropriated and converted to state land for urban use. However, land requisition in these two districts was conducted in an unsystematic manner. The common land requisition process is as follows: Large real estate developers or industrial firms first conceptualize a specific development project. Then, the developers or firms may discuss the proposal with city governments. The government will initiate the land requisition process on a particular piece of land for the potential developers or industrial firms. This quasi-random requisition process results in the collective industrial land ratio variation in these sub-districts. On the other hand, along with the land requisition system, certain land conversion programs, which confirm the implementation of land rights security and transfer rights on part of the collective land to villages, but in an unsystematic and fragmented way.

4.3.2.3 Regression Results

Concerning the first research question, “Did significant effects on the productivity arise from the different property right arrangements?,” the empirical findings

summarized in Table 4.6 indicate that the incomplete property rights on collective land (industrial_collective_ratioi) has a negative relationship with industrial value added (industrial_vi). The relationship is statistically significant at the 1% level. This finding suggests that the economic performance of industrial development in sub-districts with a smaller ratio of collective industrial land to total industrial land is better than in those areas with higher ratio, whereas other variables are controlled. Specifically, a 1% decrease in the ratio leads to a 6.797% increase in ln (industrial_vi). According to the results of regression model (1), land area (landi) and population size (populationi) have positive relationships with industrial value added (industrial_vi). No relationship is found between fixed investment (investmenti) and industrial value added (industrial_vi) based on the estimation result.

Table 4.6 Empirical estimates for Equation (1)

ln(industrial_vi)	**Coefficient**	**Std.Error**
industrial_collective_ratioi	-6.79671 **	1.79718
ln(landi)	2.535186 **	0.4104178
ln(populationi)	0.5870467 *	0.2539887
ln(investmenti)	-0.3121549	0.2748186

Note: The adjusted R-squared of the model is 0.7260.
*** Value is statistically significant at a level of 1%.*
** Value is statistically significant at a level of 5%*

To calculate the difference between the industrial value added on the collective land and state land, we assume that the industrial value added per unit of the collective industrial land is A, the industrial value added per unit of the state

industrial land is B, and the total area of the industrial land is L. By calculating the total industrial value added, we obtain Eq. (3).

L*(industrial_collective_ratio)*A+L*(1- industrial_collective_ratio)*B

=L*(industrial_v/industrial_land). (3)

To simplify Eq. (3), we obtain Eq. (4).

industrial_collective_ratio*(A-B)+B=industrial_v/industrial_land. (4)

Through the derivative of "industrial_v/industrial_land" with "industrial_collective_ratio," we obtain Eq. (5).

(A-B) = d (industrial_v/industrial_land)/ d (industrial_collective_ratio). (5)

Through the derivative of "industrial v" with "industrial collective ratio" in Eq. (1), we obtain Eq. (6).

d [ln (industrial_v)] = -6.79671*d (industrial_collective_ratio) (6)

By simplifying Eq. (6), we obtain Eq. (7).

d (industrial_v) / d (industrial_collective_ratio) = -6.79671* industrial_v. (7)

By combining Eqs. (5) and (7), we obtain the difference between the industrial value added per unit of collective industrial land and the industrial value added per unit of state industrial land shown in Eq. (8)

(A-B) = -6.79671 * (industrial_v/industrial_land). (8)

Through the mean value of the industrial value added per unit of industrial land obtained in Table 4.5, we infer that the annual industrial value added of collective land was reduced by RMB6.624 billion per km^2. The findings suggest a significant economic loss of industrial development in the collective land because of incomplete property rights.

Concerning the second research question, "How much less did people pay for the incompleteness of the key property right arrangements?," the results of regression model (2) summarized in Table 4.7 suggest that the incomplete property rights on collective land (industrial_collective_ratio$_i$) has a negative relationship with industrial land rental value in terms of industrial plant rental price (industrial_price$_i$). The relationship is statistically significant at the 1% level. This finding suggests that the rental value of industrial land with incomplete property rights is much lower than that of areas with full property rights, whereas other variables are controlled. To be specific, a 1% decrease in the ratio leads to 0.57% increase in ln (industrial_price$_i$). Following the results of regression model (2), land area (land$_i$) also has a negative relationship with industrial land rental value (industrial_price$_i$), whereas population size (population$_i$) has a positive relationship with industrial land rental value (industrial_price$_i$). Surprisingly, no relationship is found between the location (location$_i$) and industrial land rental value (industrial_price$_i$) based on the estimation result.

Table 4.7 Empirical estimates for Equation (2)

ln(industrial_pricei)	**Coefficient**	**Std.Error**
industrial_collective_ratioi	-0.570518 **	0.2053385
dummy_location1	0.0727012	0.0600364
ln(landi)	-0.1077838*	0.0466377
ln(populationi)	0.1803762 **	0.0309581

Note: The adjusted R-squared of the model is 0.7597.
*** Value is statistically significant at 1% level.*
** Value is statistically significant at a 5% level.*

To calculate the difference between the values of the collective land and state land, we assume that the value of collective industrial land is C, the value of state industrial land D, and the total area of industrial land L. By calculating the total value of industrial land, we obtain Eq. (10).

L* (industrial_collective_ratio) * C+L * (1-industrial_collective_ratio) * D

=L * (industrial_price). (10)

From Eq. (3), we obtain Eq. (11).

d [ln (industrial_price)] = -0.570518 *d(industrial_collective_ratio). (11)

By following a similar process as shown above, we obtain the difference between the values of the collective land and state land as shown in Eq. (12).

(D-C) = 0.570518 *(industrial_price). (12)

Through the mean value of the industrial land rent obtained in Table 4.5, we infer that the difference between the industrial plant rental price for state land and that for collective land is as high as RMB5.71 per m² per month. The monthly rental prices for industrial plants on collective land are approximately 57% less than those for plants on state land. The correlation between industrial land rent and industrial value added per unit of land is estimated by performing T-test. The results suggest that industrial plant rental price has a significant positive relationship with industrial value added per unit of land at a confidence level of 95%.

The empirical results show that industrial land rental value dissipated because of the institutional constraints on land property rights in urban villages. The monthly

rental prices for the industrial plants in urban villages (collective land) are approximately 57% less than those for the plants on state land. More productive firms may have the willingness and ability to choose more valuable state land, whereas less productive firms may choose collective land because of its lower cost. This situation may explain to a great extent the significant difference between land use efficiency in urban villages (collective land) and in non-urban villages (state land) in terms of industrial value added per unit of land, which is approximately RMB 6.6 billion per km^2 per year. In sum, the institutional constraints on land property rights have caused significant economic losses to land development in the urbanization process of China.

4.4 Evolution of the Institutional Arrangements on Land Property Rights

Land development in Shenzhen has undergone significant institutional change. Since 2010, the government has replaced state-led institutional arrangements with market-driven ones to promote redevelopment. After three decades of rapid urbanization, almost all the vacant land available for construction has been developed into urban built-up areas. Urban villages account for more than half of urban built-up areas in the entire city. As the urbanization process continues, some manufacturing industries in Shenzhen have moved to second- or third-tier cities because they offer low production cost. However, most existing urban villages in Shenzhen have failed to attract new investments and sustain economic growth because of fragmented land parcels, substandard built environment, and lack of infrastructure. Thus, most land in urban villages urgently needs

redevelopment even though the buildings are relatively new (most of them are less than 30 years old).

The redevelopment of urban villages has been an important policy in Shenzhen since 2004. The Shenzhen government has made a series of urban village redevelopment policies and strategies to promote land redevelopment in urban villages over the past years. The first period of land redevelopment (2004–2009) was primarily state led. The institutional arrangements that govern land redevelopment in this period were similar to those for greenfield development and were consistent with the urban-rural dual land system. Local states play a dominant role in the redevelopment of urban villages. First, the land use plan for the redevelopment of urban villages is controlled by the government, which designates the redevelopment areas and guides the future land use in a top-down manner. Second, as in the greenfield development process, the government has the right to expropriate urban village land for redevelopment. Third, as the monopolized urban land supplier, the government has the right to transfer land use rights to real estate developers. Under such institutional arrangements, the de facto landowners, such as the village collectives, villagers, and the individuals and enterprises who have bought land from village collectives (without de jure property rights and formal titles), are deprived of development rights and excluded from the redevelopment process of urban villages.

Although such state-oriented institutional arrangements worked well in the land conversion process, they can hardly be implemented in the redevelopment process. The government faces extremely high transaction costs, including information and

negotiation costs, in land expropriation. Information costs rise because of the difficulty of collecting information on the landowners/users and the land rights/use status in the urban villages targeted for redevelopment. Collective land, which was owned by village collectives before urbanization, has been constantly delineated into fragmented land parcels, which results in diversified land uses and complicated land rights status. Negotiation costs rise because of the following factors: (1) A large number of diversified de-facto landowners are involved in the transaction even though the village collectives own most of the land. (2) The degree of conflict of interest between the government and de-facto landowners is increased. Given the constant increase in real estate prices in the country in recent years, landowners expect to earn profits through redevelopment. Our field interviews in 2007 show that most of the de facto owners of collective land, including urban village collectives and enterprises, have a strong incentive to redevelop their land by themselves. (3) The bargaining power of village collectives is greatly increased in the previous land development process. Their development experience and financial conditions have greatly improved.

Although redeveloping urban villages creates a profitable opportunity to exploit land rent residuals in the face of economic restructuring, high transaction costs make state-led redevelopment highly difficult and inefficient. This difficulty greatly impairs the feasibility of most urban redevelopment projects and results in a low level of redevelopment. Although the government objective of redeveloping urban villages is ambitious, our study found that most of the planned projects failed to be implemented. According to the yearly plans of the urban village redevelopment program formulated by the government, 184 urban village

redevelopment projects that cover a total area of 1693 ha have been listed in the redevelopment plans for the period of 2004–2009. However, only ten projects have been implemented or have begun implementation by 2009.

To facilitate land redevelopment and support future urban growth, the Shenzhen government quietly yet rapidly set up new institutional arrangements for land redevelopment. New land development policies were introduced at the end of 2009 and implemented at the beginning of 2010. These institutional arrangements are characterized by market decentralization. Compared with the state-led redevelopment in the period from 2004–2009, the newly established institutional arrangements accord more recognition to the potential market actors by endowing development rights to the diversified de facto landowners, such as the village shareholding cooperatives, individual urban villagers, and individuals or enterprises who bought the land from village collectives (without formal land titles). They now have clear and complete property rights over their land in the redevelopment process. First, they have the formal rights to redevelop their land; Second, they have the formal rights to derive income from the redeveloped land; and Third, they have the formal rights to transfer the land in the redevelopment process.

The new governmental policy stipulates the following changes: (1) The de facto landowners and some other potential market actors have the right to develop the land parcels in urban villages on the condition that these parties reach an agreement and organize a single project (officially called “urban renewal unit”). (2) The de facto landowners have to right to apply for urban renewal unit planning,

with the documents illustrating their preferred land use for redevelopment. (3) Collective land and real estate without formal titles within the project area can be registered as state land with formal titles. The de facto landowners need to pay for the registration fee before the redevelopment project implementation. The formalized land and real estate in the redeveloped urban villages have the same level of rights as those of the state land in the terms of land security, access to formal financial sources, and the rights to be covered under the state regulations, such as land use planning and development control. (4) The de facto landowners have to the right to transfer land based on agreement between transacted parties for the redevelopment project.

4.4.1 Transaction costs implications of institutional evolution in Shenzhen

How do the new institutional arrangements differ from the traditional ones? An answer to this question needs a comparative evaluation of the institutional change in land property rights in redevelopment. In this section, a comparative analysis is conducted via a comprehensive review of the policies and official documents on the redevelopment of urban villages in Shenzhen. Based on the transaction costs framework, I compare the different institutional arrangements in land property rights and land redevelopment process embedded in two different policy periods. The first is the state-led institutional arrangements from 2004 to 2009. The second is the urban renew unit-led institutional arrangements from 2010 to present. The following aspects are carefully compared and analyzed: (1) the main transactions in the redevelopment process; (2) the main participants involved in the transactions; (3) the rules governing the transactions between different

participants; (4) the associated transaction costs. The comparative analysis is shown in Table 4.8.

Table 4.8 A comparative evaluation of the institutional evolution in Shenzhen

Institutional change in land property rights	State-led redevelopment (2004-2009)	Urban renewal unit-led redevelopment (2010-present)
Main transactions	• State-initiated top-down land use planning; • Land requisition; • Monopolized land transfer	• Urban renewal unit initiated planning; • Land adjustment & development
Main participants	• The city government • The villages • The other de- facto landowners • The developers	• The city government • The villages • The other de- facto landowners • The developers
Formal rules for transactions	• The city government plays a dominant role in terms of the making of land use plans, acquire the land rights from the villages and the other de-facto landowners. • The villages and the other de facto landowners have no right to redevelop their collective land.	• The villages and the other de-facto landowners are the main actors in initiating renewal unit planning and redevelopment. • The city government plays roles in planning permission and management of land registration and management.
Transaction costs implications	• Information on the de-facto landowners or users and the land use (rights) status is difficult to obtain. • High negotiation costs are borne by the government. (1) A large number of diversified de-facto landowners involved; (2) The degree of conflict of interest between the government and de-facto landowners	• High information costs borne by the government are decentralized to the villages and the other de facto landowners who has much more local knowledge. • High negotiation costs are decreased in many cases. (1) The retreat of the government in acquiring land rights; (2) The social capital in

	is increased; (3) The negotiation power of village collectives is greatly increased; and (4) The financial constraints.	urban villages; and (3) The increased financial ability of the villages.
Redevelopment outcomes	• A total of 184 urban village redevelopment projects that cover a total area of 1693ha have been listed in the redevelopment plans for the period of 2004–2009. • However, only ten projects have been implemented or have begun implementation by 2009.	• 397 applications have been slated for the urban renewal unit planning, which covers an area of 3500ha, until 2013/12. • Of these applications, 210 have been approved by the government and 92 are in the construction phase. • The size of the redeveloped land has reached 545 ha, and the new floor area of the urban redevelopment projects has reached 19.23 million m².

As a city that relies heavily on land redevelopment in sustaining economic growth, Shenzhen has substantially reformed its traditional state-led institutional arrangements for land development to facilitate the redevelopment of urban villages. State land requisition institution has been phased out and replaced with the newly established urban renewal unit institution. The market actors, including the de facto landowners and the potential external developers, instead of the governments, become the key decision-makers for initiating the redevelopment of urban villages under the newly established urban renewal unit-led institutions. The role of the local government has shifted from monopolistic land supplier to land use regulator in the redevelopment process of the urban villages. In the land development process under new institutional arrangements, the city government plays main roles in planning permission and management of land registration and regulation. These changes were induced by the increasing transaction costs of

redevelopment under the traditional state-led institutional arrangements, which have created severe institutional barriers to the redevelopment of urban villages.

The urban renewal unit institution has redefined the relationship between the government and village collectives and their property rights over collective land. These institutional arrangements are distinct from the traditional state-led arrangements under the urban-rural dual land ownership system. Under the traditional institutional arrangements, the city government plays a dominant role in terms of the making of land use plans, acquire the land rights from the villages and the other de-facto landowners. The villages and the other de facto landowners have no right to redevelop their collective land. Under the new institutional arrangements, the government has retreated from acquiring land rights from the original landowners-villages and returned the land rights over collective land to the de facto landowners.

Now the de facto landowners, mainly the village collectives, have comparatively clear and complete property rights over their collective land in the urban development process. To be specific, they have the right to use their land, the right to derive income from it, the right to change its form and substance (develop it), and the right to transfer the rights mentioned above to another party at a price mutually agreed upon. From the individual perspective, the change in property rights structure have empowered the de facto landowners land development incentives and abilities. From a broader perspective, the change of institutional arrangements in land property rights has remarkably reduced the overall transaction costs in the redevelopment process. High information costs borne by

the government under the state-led institutional arrangements are devolved to the de facto landowners, mainly the village collectives, who have stakes in the redevelopment under the new institution. Bottom-up organized urban renewal units are responsible for collecting information on (1) redevelopment willingness and preference of the involved parties and (2) land rights/use status. These tasks are much easier for urban renewal units than for the government because the former has much more local knowledge than the latter. High negotiation costs are also reduced by the new market-driven institutional arrangements. The conflicts of interest between the government and de-facto landowners are deflected by their common interest in the institutional transition. The government has an incentive to sustain economic growth by promoting redevelopment. By giving land development rights back to the landowners, the government refrains from hindering bottom-up redevelopment. The new established institutional arrangements are thus more favourable for urban redevelopment.

The newly established institutional arrangements have effectively smoothed land redevelopment process. Urban redevelopment has become much more active since the implementation of the new institutional arrangements in 2010. Urban renewal unit planning applications and redevelopment activities (measured by the amount of actual construction works) have flourished. Most of these activities are related to the redevelopment of urban villages. Our investigation shows that 397 applications have been slated for the urban renewal unit planning, which covers an area of 3500 ha, until December 2013. Of these applications, 210 have been approved by the government and 92 are in the construction phase. The size of the redeveloped land has reached 545 ha, and the new floor area of the urban

redevelopment projects has reached 19.23 million m^2

The redevelopment of urban villages in Shenzhen has been institutionalized since the reform of land institutions. Under such institutional context, the redevelopment of urban villages not only becomes an important means to improve the built environment and upgrade land use, but also defines a gradualist approach for clarifying the ambiguous and incomplete property rights over collective land in urban villages. Two important points concern the issue of land rights in the redevelopment of urban villages. First, incomplete property rights over collective land in the redevelopment area may be clarified and completed by applying for registration of formal land titles. Second, the redevelopment of urban villages is essentially based on the agreement and contract of the involved actors, which include the de facto landowners and possible external developers. These regulations clearly show that conversion from collective land (with incomplete property rights) to state land (with well-defined property rights) can now be realized via redevelopment, which is based on the choice of the potential market actors. This process is institutionally distinct from the previously state-monopolized land conversion and land rights creation in Shenzhen.

Formalized land and real estate in the redeveloped urban villages have the same level of property rights with other state land. First, land tenure is secure. Under the urban-rural dual land ownership system in the previous period, collective landownership is not secure because of the constant possibility of expropriation by the local government. The improved land security enhances the villagers' land investment incentive. Second, the formalized land and real estate in the

redeveloped urban villages can be used as collateral to finance land-related investments. Increased access to formal financial sources improves the investment ability of the villagers. Third, the formalized land and real estate are now covered by the state land management system. State land-use planning and regulations can effectively govern land and real estate development in the redeveloped urban villages.

Therefore, the redevelopment of urban villages has much wider implications apart from improving the physical built environment and upgrading land use. Ambiguous and incomplete property rights over a large scale of land will be gradually clarified in the dynamic redevelopment process. The informal collective land is integrated into the formal land system as well in the land rights clarification process. Property rights have been regarded as one of the most important institutional arrangements in the economic development process. The change in collective land rights is widely believed and claimed to improve the current land use efficiency in the country. The redevelopment of urban villages in Shenzhen may be understood in this sense as an integrative mechanism that improves built environment, upgrades land use, and reforms land rights and the land management system.

The reforms in land rights and land management system in Shenzhen differ from the land titling programs implemented in other developing countries. Rich and diverse land titling programs have been implemented in many developing countries to clarify ambiguous property rights and promote economic development. The effect of such programs on economic development has been

investigated by researchers such as Besley (1995) in Ghana, Field (2003, 2005, 2007) in Peru, Do and Iyer (2008) in Vietnam, Goldstein and Udry (2008) in Ghana, and Galiani (2010) in Argentina. Although land titling programs are widely believed to be beneficial to economic development in the long run, some studies question if they are cost effective (Jacoby and Minten, 2007). Land titling programs in China's urban villages may involve high costs. First, large-scale land survey, adjustment, and registration costs are high. Second, great transaction costs emerge when land needs to be redeveloped. Compared with large land titling programs, the redevelopment of urban villages provides a lower cost and more manageable way of reforming land property rights in a dynamic manner.

In sum, the rapid urbanization process in the past decades has exhausted most of the greenfield sites and produced a large scale of urban villages in Shenzhen. The redevelopment of urban villages becomes an important issue due to the ongoing urbanization and economic transformation process. To facilitate the redevelopment urban villages, Shenzhen government has established a new institution for land development, which is called urban renewal unit institution and distinguished from traditional state-led institution. The new institutional arrangements have redefined the relationship between the government and village collectives and their property rights over collective land. The institutional change in land property rights has remarkably reduced the transaction costs in the traditional redevelopment process and have effectively promoted land redevelopment in the economic restructuring process.

4.4.2 The Path of Integrating Urban Villages into Urban Areas

The newly established urban renewal unit institution have effectively reduced the high transaction costs and smoothed land redevelopment process. Redevelopment of urban villages not only becomes an important means to improve the built environment and upgrade land use, but also defines a gradualist approach for clarifying the ambiguous and incomplete property rights over collective land. In the redevelopment process, urban villages (with collective landownership system) will be gradually integrated into formal urban areas (with state landownership system). To understand the path of transformation and integration of urban villages into urban areas, we need to carefully examine the mechanism and pattern of land redevelopment in urban villages. The following important questions need to be addressed: What types of urban villages are more likely to be redeveloped earlier than others? Why is land redevelopment more likely to occur in some urban villages than in others in the market-driven development process?

4.4.2.1 Empirical Model

To address the questions above, the determinants of land redevelopment in urban villages need to be investigated. This study focuses on industrial sites, which account for a large portion of land use in urban villages. An empirical analysis is conducted based on a set of data that cover all 44 village-owned industrial sites in Nanshan District in Shenzhen. Located in the SEZ, Nanshan has been an important industrial district in the city since the economic reforms in the 1980s. The location of Nanshan in Shenzhen is shown in Figure 4.15. In 2004, the industrial enterprise profits reported for Nanshan (RMB20.5 billion) constitute

42.9% of the total reported for Shenzhen (RMB47.7 billion) even though the industrial land area of Nanshan (16.52 km^2) makes up only 6.5% of Shenzhen (240.3 km^2) (The First National General Economic Survey of Shenzhen, 2005). As in other districts of Shenzhen, industrial development is based on land conversion from agricultural use to industrial use. Village-led land conversion has an important role in Nanshan's industrial development process.

According to a survey on urban villages in Nanshan (2007), 44 village-owned industrial sites have been established in the district by 2007. The total area of village-owned industrial sites is 4.08 km^2, which accounts for 24.7% of the industrial land use area in the district. The spatial distribution of village-owned industrial sites in Nanshan is illustrated in Figure 4.16.

Figure 4.15 Location of Nanshan in Shenzhen
(Source: Shenzhen urban planning and design research institute)

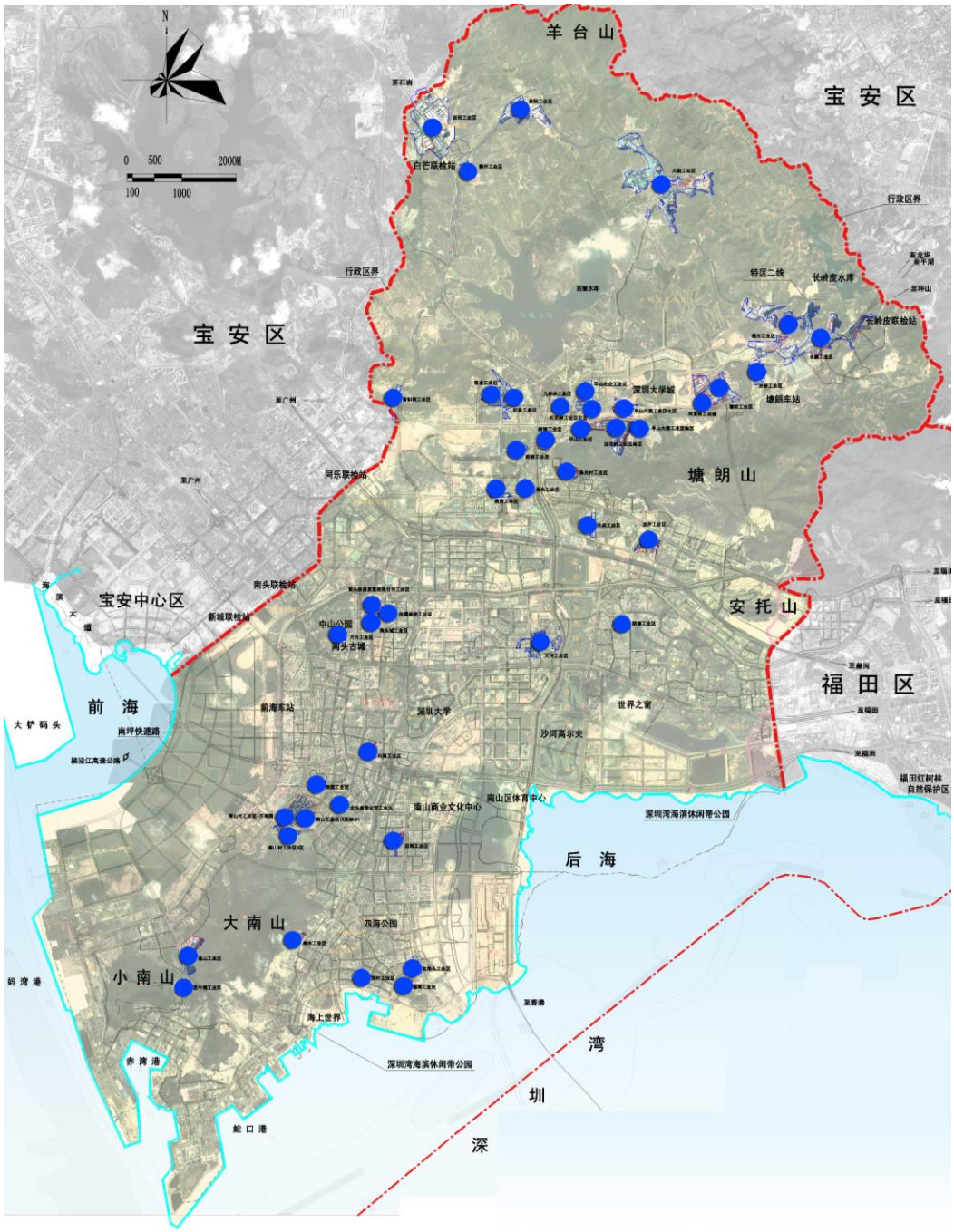

Figure 4.16 Spatial distribution of village industrial sites in Nanshan
(Source: China Academy of Urban Planning and Design Shenzhen branch)

Urban villages have played an important role in Nanshan's industrial development in the past decades. Since the mid-2000s, efforts have been made to upgrade Nanshan's land use; the redevelopment of urban villages in this district has been active since the implementation of market-driven institutional arrangements.

Among the 44 village industrial sites, 11 have been developed or are in the process of being redeveloped.

From a microscopic perspective, economic outcome is determined by a decision-making unit's behavior to maximize its own interest given limited resources and some constraints. Therefore, the main decision making unit, its main interest, and key constraints it faces must all be identified to understand the economic outcome. In the case of the redevelopment of village-owned industrial sites, the decision making unit is the village collective, which is the main de facto landowner of an industrial site in an urban village. The village collectives' willingness, constraints, and choices directly determine the redevelopment outcome of the village industrial site.

Our empirical model is based on the theoretical work on "rent gap" (Smith, 1979, 1987). Rent gap theory is initiated from the suburbanization process in Western countries, which decreases inner city land prices and results in poor upkeep and neglect of properties by owners and landlords. The depressed land is then devalued, which causes rent to be significantly lower than the potential rent. The disparity between the actual economic return from a property given its present land use and the potential return, if it were developed to its highest and best use, is called the rent gap (Smith, 1979). When the rent gap grows sufficiently large and potential benefits exceed redevelopment costs, the landowners, land developers, and other people with vested interests pursue profits in the form of investment in urban renewal. In other words, redevelopment occurs. Economists used a similar concept—the value differential—to explain urban redevelopment (Bruckner, 1980;

Wheaton, 1982). The two theories that underlie the concepts of ground rent and land value differ significantly. However, the theories are similar in that they address the difference between the profits from the real estate in its original land use and that from its potential redeveloped use.

The rent gap framework is also applicable in understanding the redevelopment of urban villages in China. The urbanization process in China in the past decades has been characterized by extensive land conversion from agricultural to urban use. Industrial use is one of the dominant urban land use categories in most Chinese cities. In the case of Shenzhen, industrial use accounted for 36.2% (258.4 km^2) of the urban built area (703.5 km^2) by the end of 2006 (The Master Plan of Shenzhen City, 2007). Urban villagers developed a total area of 168.7 km^2 of industrial land, which accounts for 66.2% of the industrial area of the entire city. As the urbanization process continues in the country, the demand to upgrade industrial land into commercial and housing land has greatly increased the potential value of developed industrial land in big cities. Nevertheless, the existing physical construction in industrial sites in urban villages often fails to meet the market demand for upgrading land use because of the disordered land parcels, congested built environment, and lack of infrastructure. An increasing number of manufacturing enterprises have moved from big coastal cities to cities in the middle and western part of the country as a result of real estate pressures and labor costs. These factors contribute to a rent gap between the actual economic return from the present land use of developed industrial sites in urban villages and the potential return from them had they been developed to their highest use.

Theoretically, when the rent gap in developed industrial sites in urban villages grows sufficiently wide—that is, when the potential benefits obtainable from converting an industrial site into a new use and the net of redevelopment costs exceed the present profits from the existing industrial site—the village collectives are incentivized to redevelop their land and maximize profit. Consider a village collective that owns a developed industrial site with deteriorating buildings in a good location. The potential benefits after redevelopment are denoted as PV, defined here as utility; the redevelopment cost is denoted by RC; and existing benefits from land use before redevelopment are denoted by EV. The village collective will redevelop its industrial site if and only if

$$PV - EV >= RC \qquad (11)$$

To meet this condition, the most important factor is the land rent difference between the site before and after redevelopment. If the land rent is much higher after the redevelopment than under its current use, the site is likely to be redeveloped. Alonso's classic bid rent theory emphasizes the effect of distance from the central business district on the price and demand for land use. The location factor is significant in determining the land rent and urban land use in the city. We therefore include the location factor in our empirical model to understand the redevelopment decision for profit maximization. Given two sites with similar current uses—industrial use in our case—the site with a better location is more likely than the site with poor location to be redeveloped for commercial and residential uses to realize the potential higher land rent.

Building age may also contribute to the land rent gap. Once land has been developed, the buildings undergo an aging process. As buildings age, their structure deteriorates, and the real estate rent depreciates; consequently, the land rent gap increases. Thus, industrial sites with older buildings are more likely to be redeveloped. The FAR may have an effect on the land rent gap. A lower FAR may signify the potential for a larger land rent. Weber et al. (2006) found FAR to be the most important determinant of demolition and redevelopment.

Lastly, the rent gap itself may not necessarily lead to redevelopment of deteriorating sites. This phenomenon is evidenced by many cases of deteriorating areas in inner cities that are not redeveloped both in developing and developed countries. Redevelopment cost is an extremely important factor in the practical redevelopment process. However, many studies on economic analysis of redevelopment include only demolition costs, which is a very limited and simplified assumption relative to actual conditions in the real world (Rosenthal and Helsley, 1994; Munneke, 1996; Dye and McMillen, 2007). In reality, land assembly is one of the most challenging barriers to redevelopment (Breheny and Ross, 1998; Adams et al., 2001). In the case of urban villages in Shenzhen, the diversified de facto landowners (ownership) may affect the negotiation process in land assembly and thus the redevelopment outcome. In addition, land rights in urban villages are incomplete and ambiguous unlike those in other urban areas. The level of legality differs across urban village sites because of the complicated relationship between state requisition and village-led land conversion in the urbanization process. The level of legality may also affect the redevelopment of

urban villages, in which the collective land without tenure is inevitably converted to state land.

In summary, the redevelopment of urban villages may be affected by the existing land rent, location, FAR, building age, landownership, and legality of land rights. The empirical model is specified by Eq. (12).

$$Redevelopment_i = \lambda_i + \alpha 1(Location)_i + \alpha 2 ln(FAR_i) + \alpha 3(Building\_age_i) + \alpha 4 (Landownership_i) + \alpha 5(Legality_i) + \alpha 6(Existing\_rent_i) + \varepsilon. \quad (12)$$

The dependent variable $Redevelopment_i$ refers to the redevelopment status of the sample village industrial sites. The dummy variable in the empirical model is defined as a discrete variable that equals one if an industrial site is developed (or is in the process of redevelopment) between January 1, 2010 and December 31, 2013, and zero if otherwise.

The independent variables include (1) location, (2) FAR, (3) building age, (4) land ownership, and (5) legality of land rights. The location of the sample industrial sites was classified into three categories: good, medium, and bad. The data come from a comprehensive survey of village industrial sites in Nanshan; this survey was conducted and completed by the China Academy of Urban Planning and Design (Shenzhen branch) in 2007. The classification of the location of the sample industrial sites is based on a professional scoring of the site's access to transportation and the city center. FAR indicates the existing development density of the sample industrial sites. This variable was log transformed to achieve a

normal distribution. Building age is a continuous variable that was transformed into three dummy variables to indicate whether the buildings within an industrial site were built in the 1980s, 1990s, or 2000s. Land ownership of the sample industrial sites was classified into two groups: industrial sites owned by a single village and industrial sites owned by more than one village. The legality of land rights is measured by the ratio of illegal site area to total site area. This continuous variable was transformed into four dummy variables to indicate the legality level of the sample industrial sites: legal, less legal, less illegal, and illegal. We include the existing land rent as a control variable in the empirical model, which is measured based on monthly rental prices of industrial plants on the sample sites in 2006. This variable was transformed into three dummy variables: above RMB18 per square meter, between RMB15 and RMB18 per square meter, and below RMB15 per square meter. Table 4.9 summarizes the description of the variables in Eq. (12).

Table 4.9 Description of variables

Variable	**Description**
Redevelopment	The redevelopment status of a sample village industrial site equals one if the industrial site was developed (or was in the process of redevelopment implementation) between January 1, 2010 and December 31, 2013, and zero otherwise.
Location	The location of a sample industrial site is classified into three categories—good, medium, and bad—based on a

	professional scoring that captures the site's access to transportation and the city center.
FAR	The FAR of a sample industrial site is measured by the ratio of the existing floor area to the size of industrial site.
Building_age	The age of a building in a given industrial site is classified into three categories: built during 1980s, 1990s, or 2000s.
Landownership	Landownership of a given industrial site is classified into two categories: ownership by one single village and ownership by two or more villages.
Legality	The legality of land rights, measured by the ratio of the illegal site area to the total site area is classified into four categories: legal, less legal, less illegal, and illegal.
Existing_rent	The monthly rental prices of industrial plants, measured by yuan per square meter, are classified into three categories: above 18, between 15 and 18, and below 15 yuan per square meter.

4.4.2.2 Data

The data on all the 44 urban village-owned industrial sites in Nanshan were obtained from three main sources. The first data source is a comprehensive survey of the district's village industrial sites. This survey was conducted and completed by the China Academy of Urban Planning and Design (Shenzhen branch) in 2007.

The survey provides systematic data on the location, FAR, building age, monthly rental prices of industrial plants, and de facto landownership pertinent to the sample industrial sites. The original data on land rights are GIS-formatted cadastral system from the Urban Planning and Land Resources Commission of Shenzhen Municipality. Village-owned industrial sites in Nanshan were identified first by selecting land parcels of industrial land use and collective landownership. The cadastral data also provided the foundational information in measuring the level of the illegality of the land rights of the sample industrial sites.

Information on the redevelopment status of the sample industrial sites was obtained from the Urban Regeneration Bureau of Nanshan District Government. An industrial site was confirmed as redeveloped or in the process of redevelopment when redevelopment of the industrial site was approved by the district-level municipal government and vice versa. Information on all redevelopment permits Nanshan issued between January 1, 2010 and December 31, 2013 was collected from the Urban Regeneration Bureau of Nanshan District Government.

Based on the systematic data, we summarized the samples and observations in Table 4. 10. The table shows that the sample industrial sites vary widely in terms of location, FAR, building age, monthly rental prices of industrial plants, landownership, legality of land rights, and redevelopment status. The size of the sample sites also ranges significantly from 0.69 ha to 65.1 ha. Among the 45 sample sites, 4 have an area of less than 1 ha, 21 range from 1 ha to 5 ha, 11 range

from 5 ha to 10 ha, and 9 are larger than 10 ha. A total of 11 village industrial sites have been redeveloped or are in the process of redevelopment as of 2013.

Table 4.10 Descriptive Statistics

Variable	Obs	Mean	Std dev	Min	Max
Redevelopment	44	0.25	0.4380188	0	1
Location	44	2	0.7470874	1	3
FAR	44	1.7482	0.4906297	0.7	2.82
Building_age	44	1.75	0.7193343	1	3
Existing_rent	44	2.4318	0.6954245	1	3
Landownership	44	0.8636	0.3471418	0	1
Legality	44	2.0682	0.8995536	1	4

Note: Existing_rent is measured by yuan per square meter per month.

4.4.2.3 Regression Results

To empirically test the role of different factors in determining the redevelopment of village industrial sites, three models were used: an OLS model, a probit model, and a logistic model. The empirical results are summarized in Table 4.11. The table shows that the regression results of the three models have great similarity in explaining the determinants of redevelopment. Location significantly affects the redevelopment of the village industrial sites. The control variable—the existing land rent—is also significant for redevelopment.

The estimation results indicate that the village industrial sites, which have better accessibility to good transportation facilities and city center, are significantly more likely to be redeveloped than those located in less accessible areas. Location factor is significant for redevelopment; the relationship is statistically significant at 1% level. This finding is consistent with previous theoretical work on the land use model (Alonso, 1964; Muth, 1969; Mills, 1967). The variable location is measured by several separate sub-variables in previous empirical studies, such as (1) distance to the city center, (2) distance to bus stops, and (3) distance to the nearest subway station. In these studies, the effects of location on land redevelopment are based on the estimation of these separate variables. In the present study, the treatment of location as an integrate variable allows for a more integrative understanding of its effects on land redevelopment.

According to the results, FAR and building age have no effects on the redevelopment of the village industrial sites. This result differs from that of previous empirical studies in Western countries. A lower FAR and an older building age do not necessarily lead to earlier redevelopment of village-owned industrial sites in Nanshan. Although the buildings vary in age across the different industrial sites, all of them were built within 30 years. No statistic relationship was found between land ownership and redevelopment. Industrial sites owned by a single village are not necessarily more likely to be redeveloped than those owned by two or more entities. This result is interesting because it is different from what traditional wisdom suggests: that less landownership leads to lower negotiation costs. In Nanshan, most industrial sites in the urban villages are still under single village ownership, and the rest are owned by two or more entities.

The de facto owners of the village industrial sites owned by two or more entities are generally the village collectives and town governments. On the one hand, more entities increase negotiation costs on redevelopment. On the other hand, connection to the government facilitates procurement of resources, such as information and funding sources, and increases the possibility of redevelopment.

Table 4.11 Empirical estimates for Eq. (12)

Redevelopment$_i$	Probit Model		Logistic Model		OLS Model	
	Coefficient	Std.Error	Coefficient	Std.Error	Coefficient	Std.Error
Location	1.2997**	0.4904	2.2114**	0.6884	0.2552**	0.0937
ln(FAR)	-0.9332	1.0100	-1.6428	1.7913	-0.2651	0.2230
Building_age	0.3404	0.3993	0.5551	0.6884	0.0354	0.0910
Existing_rent	-0.8452*	0.3960	-1.4130*	0.6992	-0.1868*	0.0941
Landownership	-1.0485	0.7578	-1.6633	1.3688	-0.1554	0.1848
Legality	-0.6065	0.4919	-1.0228	0.8114	-0.1065	0.1107
Summary statistics:						
N	44		44		44	
R2/pseudo-R2	0.3670		0.3625		0.3193	
Log likelihood	-15.6622		-15.7743		—	
Prob > chi2/F	0.0113		0.0123		0.0392	

*Note: ** Value is statistically significant at 1% level;*
** Value is statistically significant at 5% level.*

No significant relationship was found between the legality of the land property rights of the industrial site and the possibility of its being redeveloped. The different levels of legality of land rights resulted from unsystematic land requisition. The new market-driven institutional arrangements allow the de facto landowners, whether legal or not, to redevelop their land. Unlike those who already have complete and legal property rights over their land (with formal titles),

landowners with illegal property rights need to apply and pay for registration of their collective land. Theoretically, if this transaction (the application of landowners and the approval of the government) is not costly, then the legality of the land property rights of the existing sites will not matter. The insignificant relationship between the level of legality of land property rights and redevelopment in the empirical tests suggests that the new institutional arrangements that govern land rights clarification are effective and efficient.

In summary, three regression models based on the systematic data on all the 44 village-owned industrial sites in Nanshan were employed to empirically examine the factors that affect industrial land redevelopment in urban villages. Although these factors, such as FAR, building age, and land ownership, are theoretically important in determining redevelopment, the empirical results found no significant relationship between these factors and redevelopment. Consistent with both theoretical work on land use model and the other relevant empirical works, this study found that location is the key determinant for redevelopment. Village-owned industrial sites that have better accessibility to good transportation facilities and the city center are significantly more likely to be redeveloped and thus will be integrated into urban areas earlier than those located in less accessible areas.

4.5 Summary

Guided by the conceptual framework established in Chapter 3, this chapter examined the role of land institutions in the development of urban villages based

on the empirical evidence from Shenzhen. The effects of institutional constraints on property rights in land development in urban villages were empirically investigated based on two representative cases: Dongfang-Tantou (the urban village area) and Bagualing (the formal urban area) in Shenzhen. The findings show that the risk of land expropriation, the unequal access to financial sources because of the lack of de jure land rights, and the inability of the local government to regulate collective land transactions result in inferior development in urban villages compared with that in other formal urban areas. These arguments are further confirmed by the quantitative analysis based on community-level data from the non-SEZ area with an area of 1557 km^2. The empirical estimates suggest that the monthly rental prices of industrial plants in urban villages (on collective land) were approximately 57% less than those in the other formal urban areas (on state land) in 2006. The industrial value produced from collective land was RMB6.624 billion less than that produced from state land per km^2.

The empirical study shows that the institutional arrangements on land property rights in Shenzhen have been changed substantially. State-led institutional arrangements have been replaced with market-driven ones. The new institutional arrangements have redefined the relationship between the government and village collectives and their property rights on collective land. These arrangements differ from the traditional state-led institutional arrangements under the urban-rural dual land ownership system. The government has returned the development rights of collective land to the de facto landowners. The new market-driven institutional arrangements have substantially reduced the information and negotiation costs that the government formerly faced in the redevelopment process and have

effectively promoted land redevelopment activities. The redevelopment of urban villages becomes the institutionalized channel in clarifying the ambiguous and incomplete property rights over collective land in Shenzhen. Under the new institutional arrangements, urban villages (with collective landownership) will be integrated into formal urban areas (with state landownership) gradually. This gradualist approach of clarifying land rights in Shenzhen is distinct from the land titling programs in other developing countries. Under such institutional arrangements, land property rights are clarified earlier in village sites that are redeveloped earlier. Theoretically, village sites that have better accessibility to good transportation facilities and the city center, lower FAR, less landownership, and older buildings will be redeveloped earlier. Our empirical study on village-owned industrial sites in Nanshan district shows that location is the key factor that determines land redevelopment in urban villages. The empirical finding suggests that village sites that have better accessibility to good transportation facilities and the city center are significantly more likely to be redeveloped and thus will be integrated into urban areas earlier than those located in less accessible areas.

CHAPTER 5 CONCLUSION

5.1 Introduction

This chapter marks the conclusion of the thesis. It first discusses the main research findings of the study, followed by its contribution to the existing knowledge. This chapter concludes with a discussion of the limitations of the study and indicates future directions for land development research in China's transition.

5.2 Discussion of the Research Findings

5.2.1 Institutional Constraints and Sub-optimal Land Development

The urbanization of China in the past decades has led to great changes in both its rural and urban areas and the relationship between them. Urban villages are a unique phenomenon in the Chinese urbanization process. Adopting theoretical perspectives from the New Institutional Economics, this study examined the role of institutional arrangements on land property rights on land development behaviours and outcomes in urban villages. The traditional state-led institutional arrangements under the urban-rural dual land system have imposed severe constraints on the villages' land property rights and led to sub-optimal and unsustainable land development in urban villages. Compared with previous studies, this study not only aligned the development of urban villages to the urban-rural dual land system, but also explicitly identified the institutional

constraints faced by the villagers in the collective land development process, thus deepening our understanding of urban villages. In this study, the essential institutional differences between state-led and village-led land development were investigated based on a property rights framework and were further illustrated through a comparative study of two representative cases in Shenzhen. The key institutional constraints on land development in urban villages include (1) lack of landownership security caused by the possibility of government expropriation, (2) unequal access to credit as a result of the unequal land rights, and (3) the absence of state regulations on collective land transactions because of the lack of de jure property rights.

These institutional constraints greatly affect land development in urban villages. First, the risk of land expropriation provides strong incentives for urban villagers to occupy the land for immediate and short-term interests instead of long-term investments. Second, collective land transaction is legally forbidden and not covered by the state land management system. Without effective state regulation and long-term investment incentives for villagers, land development in urban villages results in an inferior and disorderly environment. Unequal land ownership rights have deprived the villagers of formal financial sources and weakened their ability to finance infrastructure construction. The low level of infrastructure has made urban villages less competitive in attracting high-quality investments for development than other newly developed urban areas. The severe institutional constraints on the property rights over collective land lead to sub-optimal and unsustainable land development in urban villages.

To measure the economic losses associated with land development in urban villages (relative to state-led land development), an econometric method was applied to estimate the effects of institutional constraints on industrial land development outcomes in terms of land rental value and industrial outputs. A unique set of community-level data on all the 24 sub-districts of the non-SEZ area was analyzed. The regression results show that the economic performance of land development in urban villages is inferior to that of state-led land development. The monthly rental prices of industrial plants in urban villages were about 57% less than those of plants on state land in 2006. The industrial value produced on collective land was RMB6.624 billion less than that produced on state land per km^2.

5.2.2 Evolution of the Institutional Arrangements on Land Property Rights

As one of the most important institutions that govern land development in the urbanization process in China, the urban-rural dual land system is still at work in most regions in the country. The state-led institutional arrangements remain unchanged, particularly in the following aspects: (1) urban land still belongs to the state; (2) state requisition is the only legal approach to develop collective land; and (3) the local states continue to monopolize the urban land supply. Under such institutional arrangements, the role of the state remains dominant. The development rights of villagers remain incomplete and constrained. However, in the reform-pioneering city of Shenzhen, which relies heavily on land redevelopment to attract new investments and sustain economic growth, the institutional arrangements on land property rights have been quietly yet

substantially changed since 2010 due to the significantly increased transaction costs involved the redevelopment process.

After three decades of rapid urbanization in Shenzhen, most of the vacant land available for construction has been developed and transformed into urban built-up areas. Given that the urbanization and economic transformation of the country is still underway, manufacturing industries in many of the country's larger cities have moved to second- or third-tier cities because of real estate pressures and labor costs. Therefore, the big cities are challenged to sustain their urban development and economic growth. The city government is now determined to promote land redevelopment for future growth. Given that urban villages account for more than half of the urban built-up area throughout Shenzhen and most of the existing urban villages have failed to attract new investments for economic development because of the sub-standard built environment and a lack of infrastructure, redevelopment of urban villages is therefore of great interest to the government, developers, and landowners.

The redevelopment of urban villages has been an important policy issue to the Shenzhen government since 2004. The first period of land redevelopment (2004–2009) was primarily state led. Institutional arrangements that governed land redevelopment in this period were similar to those that govern the greenfield development process and were consistent with the urban-rural dual land system. The role of the local states in the redevelopment of urban villages was dominant. The de facto landowners, mainly the village collectives, villagers, and the individuals and enterprises who bought land from the village collectives (without

de jure property rights and formal titles), were deprived of their land development rights and excluded from the redevelopment process of urban villages. Although such institutional arrangements worked well in the land conversion process, they can hardly be implemented in the redevelopment process because much higher transaction costs are involved. The government bears extremely high information and negotiation costs in the redevelopment process. This situation greatly impaired the feasibility of most urban redevelopment projects and resulted in low redevelopment activity in this period.

To reduce transaction costs and facilitate the redevelopment of urban villages, the government of Shenzhen quietly yet rapidly replaced state-led institutional arrangements with market-driven ones. New policies for land development were introduced at the end of 2009 and implemented at the beginning of 2010. The new policies stipulate that (1) the de facto landowners and other potential market actors have the right to develop the land parcels in urban villages on the condition that these parties reach an agreement and organized a single project (officially called “urban renewal unit”), and (2) collective land and real estate without formal titles within the project area may be registered as state land with formal titles. The formalized land and real estate in the redeveloped urban villages have the same level of rights as those for state land in terms of land security, access to formal financial sources, and the right to be governed by state regulations (such as land use planning and development control).

The new institutional arrangements have redefined the relationship between the government and village collectives and their property rights over collective land

in the land development process. The government has returned the development rights over collective land to the de facto landowners. The new market-driven institutional arrangements have substantially reduced the information and negotiation costs the government formerly faced in the redevelopment process and have effectively promoted land redevelopment in the economic restructuring process. These institutional arrangements also constitute a gradualist approach to clarifying collective land rights in urban villages via redevelopment. Urban villages (with collective landownership) will be gradually integrated into formal urban areas (with state landownership). Theoretically, village sites that have better access to good transportation facilities and the city center, lower FAR, less landownership, and older buildings are more likely to be redeveloped earlier. Our empirical study shows that location is the key factor that determines the redevelopment of village-owned industrial sites. This finding suggests that village sites that have better accessibility to good transportation facilities and the city center are significantly more likely to be redeveloped and thus will be integrated into urban areas earlier than those located in less accessible areas.

Urban redevelopment has become much more active since the introduction of the new institutional arrangements in 2010. Urban renewal unit planning applications and redevelopment activities (measured by the amount of actual construction works) continue to flourish. However, many urban villages continue to have a rather complicated and diversified landownership and land rights status. The existing institutional arrangements for such sites are inadequate for promoting redevelopment. High transaction costs are incurred in the self-organization of the urban renewal unit, which is an important and necessary transaction in the current

redevelopment process. To move toward a more efficient and equitable land redevelopment process, the institutional arrangements must undergo continuous change to minimize transaction costs involved in the redevelopment process.

5.3 Contribution of the Research

This study makes several contributions to the existing literature. Although still outnumbered by neoclassical studies on land markets and development, a growing body of literature has adopted an institutional perspective and employed NIE concepts. However, most of these studies are based on capitalist economies; less attention has been given to transitional economies, which have a distinct institutional and socio-economic context and continue to experience significant changes. This study contributes to this growing literature by providing both a conceptual framework and rich empirical evidence on land development in Chinese urban villages based on the key concepts and analytical tools of the NIE.

As a unique phenomenon of urbanization in China, urban villages have attracted extensive attention from people, industries, the government, and the academic community. Nevertheless, the current understanding of urban villages suffers from several limitations. First, although some studies have conceptualized urban villages as a form of informal development as opposed to state-led formal development, they fail to identify their explicit institutional differences and effects on the development mechanism. Second, some scholars claim that the lack of state regulation (e.g., land use planning) is the determinant that has led to sub-optimal development and disorderly physical environment of urban villages.

Nevertheless, the validity of such arguments needs to be supported by solid empirical evidence, which is lack in the existing literature. Furthermore, none of the studies have systematically measured the economic performance of these urban villages. Third, most existing studies focus on the role of urban villages in providing affordable housing. The contribution of urban villages to other forms of urban development has been relatively neglected. Fourth, the discussion on the institutional change in the development of urban villages, which has recently occurred in several cities, remains limited. The first two limitations of the existing studies are due to their failure to incorporate the land development behavior of urban villagers into their analysis. The third limitation is largely due to the limited scale of the empirical base of the study. Most relevant literature is based on only a small scale of urban villages. The fourth limitation indicates the lack of timely observations on dynamic development practices of Chinese urban villages.

This study fills these gaps and deepens our understanding of the urban village phenomenon in the context of Chinese urbanization. It develops a conceptual framework based on the concept of property rights and transaction costs to understand the role of land rights institutions (and their changes) in the development of urban villages. A set of comprehensive data from Shenzhen with rich dimensions and levels are collected for the empirical study, which combines both qualitative and quantitative analysis. The study shows that the institutional arrangements for urbanization are largely state led under the urban-rural dual land ownership system, which empowers the local states in the land conversion and development process. Village-led urban development in the urbanization of China suffers from severe institutional constraints because the villagers' land property

rights are incomplete. The key institutional constraints include (1) the lack of land security caused by the possibility of government expropriation, (2) unequal access to credit because of unequal land rights, and (3) absence of state regulations on collective land transactions as a result of the lack of de jure property rights. These institutional constraints weaken land-related investment incentives and the ability of the villagers, and result in inferior infrastructure and sub-optimal development. This study also presents the first attempt to measure the effects of institutional constraints on the economic performance of industrial land development in urban villages. The regression analysis based on the community-level data on the non-SEZ area suggests that the monthly rental prices of industrial plants and the industrial value per unit of land in urban villages are significantly less than those on state land.

As one of the most important institutions that govern land development in the urbanization of the country, the urban-rural dual land system is still at work in most regions in China. However, in the reform-pioneering city of Shenzhen, the institutional arrangements that govern land development have been quietly yet substantially changed since 2010. These changes are embedded in the land redevelopment process in the urban villages. The new institutional arrangements have redefined the relationship between the government and village collectives and their property rights over collective land. The government has returned the development rights over collective land to the de facto landowners in the redevelopment of urban villages. The new market-driven institutional arrangements have substantially reduced the transaction costs that the government formerly faced in the redevelopment process and have effectively promoted land

redevelopment in the economic restructuring process. Redevelopment becomes an institutionalized channel for upgrading land use and clarifying collective land property rights in urban villages. Under the new institutional arrangements, urban villages (with collective landownership) will be gradually integrated into formal urban areas (with state landownership). Theoretically, village sites that have better access to good transportation facilities and the city center, lower FAR, less landownership, and older buildings are redeveloped earlier than other sites. Our empirical study shows that location is the key factor that determines the redevelopment of village-owned industrial sites in Nanshan. The findings suggest that village sites that have better accessibility to good transportation facilities and the city center are significantly more likely to be redeveloped and thus will be integrated into urban areas earlier than those located in less accessible areas.

5.4 Limitations and Recommendations for Future Research

This study has its own limitations. First, the study of institutional constraints in the development of urban villages is mainly focused on industrial land development. As this study demonstrated, urban villages have actually played a diversified role in the Chinese urbanization process. Diverse forms of urban development have been found in these urban villages, including housing, industrial, and commercial development, infrastructure construction, and public service provision. Among them, industrial and housing development are of the greatest importance to urban development. The empirical findings of this study suggest that institutional constraints on villages' land property rights have led to inferior infrastructure construction and disordered delineation of land parcels and

transactions, and finally resulted in unsatisfactory industrial land development in urban villages. However, village-led housing development based on collective farmland in urban villages has resulted in diverse outcomes. The coexistence of the different urban development forms contributed by urban villages suggests a necessity to examine these together. Future research needs to extend the analysis to housing development in urban villages.

This study finds that the state land requisition institution have been substantially phased out and replaced with urban renewal unit institution in the reform-pioneering city of Shenzhen. The new institutional arrangements constitute a gradualist approach to clarifying property rights over collective land (land titling) in urban villages. Under such institutional context, redevelopment defines the path of integrating urban villages into urban areas. To contribute to an understanding of the path, this study investigated the determinants of village-owned industrial sites in Nanshan District. The empirical findings suggest that location is the key determinant for the redevelopment of village-owned industrial sites, which confirms the important role of locational accessibility in boosting land redevelopment for future growth. It is also demonstrated that fragmented landownership and a high level of illegality of land rights are not determinative barriers for the redevelopment of such industrial sites. However, it should be emphasized that this finding is merely based on the village-owned industrial sites due to the limitations in the gathered data. There is another type of industrial sites in urban villages. These sites are developed and managed by individual enterprises based on collective land, which is delineated in an unsystematic manner and transferred from village collectives. In some cases, land parcels are

further divided and transacted without state land use planning and development regulations. These industrial sites are also widely existed in urban villages, and their ownership and legality of land rights are much more complicated than the village-owned industrial sites. Besides, there is also a large scale of urban village sites for other types of land use, such as village housing sites, small property rights housing sites, etc. Does landownership status and illegality of land rights affect the redevelopment of these different types of urban village sites? If yes, how? To address these questions, more efforts are needed to contribute to a more comprehensive and integrative understanding of the redevelopment of urban villages in China. Future research needs to extend the study area to other types of industrial and residential sites in urban villages.

The development of urban villages is extensive and diverse across the whole country. Although these practices are broadly shaped by the national urban-rural dual land ownership system, the different local institutional arrangements and socio-economic conditions in various regions may also affect the development process and outcomes of urban villages. Institutional changes in different localities may also differ. To obtain a big picture of the urban village phenomenon across the country, future research needs to extend the scope of study to other cities and regions with different local institutional arrangements.

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