Land Property Rights and Industrial Land Use Efficiency

A Case Study of Shenzhen

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Abstract

Industrial development contributes significantly to China’s economic growth in the past three decades. As one of the most fundamental institutional arrangements, the urban-rural dual land system plays an important role in China’s industrialization process and hence economic growth. Two types of land including state and collective ownership coexist in the current land administration system. Full rights could be acquired through state-owned land market, whereas collective land cannot be sold, transferred or leased for non-agricultural construction. Property rights theory suggests that property rights have significant effects on economic performance. In the context of industrial development in China, it implicates that different land property rights structure may have different economic effects on industrial development.

Based on available literature, statistical data, a range of unpublished primary sources and the author’s own experience, this study attempts to investigate how different property rights structures on land may affect the efficiency of industrial land use. Shenzhen is selected for the case study.

The Shenzhen special economic zone was established in 1980, to which the state-owned urban land use system was almost thoroughly applied in the four districts from 1992. In the same year, two adjacent new districts were incorporated to Shenzhen city, where most lands were collectively owned. Since then, urban and rural dual land system has come into being in this city. The coexistence of two different types of land ownership in Shenzhen city provides an appropriate case for this study.

The result indicates that the incomplete collective land property rights system causes inefficiency of industrial land use in terms of i) lower Industrial output value and ii) lower development ratio when compared to complete state-owned urban land system. The inefficiency is attributed to two main reasons: i) collective land with incomplete property rights has no access to legal land market and credit market, and ii) collective land is not included in the land management system, thus cannot be guided and controlled effectively by urban development strategies and policies. The study concludes with an assessment of the recent land policy reforms and a discussion of some likely institutional changes in the future.
Introduction

China experienced rapid and significant economic growth in the past three decades, to which industrial sector makes the most important contribution. According to the survey from state statistics bureau, the proportion of industrial added value account to gross domestic production (GDP) has been increased from 20.5% in 1979 to 50.1% in 2007. As one of the most important institutional arrangement, urban-rural dual land system plays a significant role in the process of industrialization and hence economic growth in China.

Two types of land including state and collective ownership coexist in the current land administration system. For state owned land, separating of land ownership and land use right allows transfer of land use rights, and arouses the emergence of urban land market. In another word, the rights of exclusivity, to capture benefits, to transfer all or some of the rights are guaranteed for the land users in the land market. What could be acquired through urban land market are full rights over land during the leasehold period. On the other hand, collective land cannot be sold, transferred or leased for non-agricultural construction including industrial development according to current state land policy.

Classic property rights theory suggests that property rights have significant effects on economic performance. In the more specific context of industrial development over past three decades in China, it implies that different land property rights structure may have different effects on industrial development. Based on the hypothesis, this study examined the economic implications of rural collective land ownership with concern to industrial land use efficiency. Shenzhen is selected for case study.

There has been rich literature contributing China’s industrial development performance to different types of ownership. Perkins (1996) has compared the productivity performance of China’s state owned and non-state-owned enterprises by measuring total factor productivity. Jefferson (2000) has examined differences in marginal factor productivity across ownership types including state, foreign-linked, shareholding, and private enterprises in China. Wang (2007) has explores the differences in pollution control performance of industries with different types of ownership in China – State owned (SOE), collectively or community owned (COE), privately owned (POE), foreign directly invested (FDI) companies as well as joint ventures.

However, there is little consideration of property rights structure on land for the different performance of industrial development in China in existing literature. As mentioned before, China’s industrialization is based on different arrangements of land property rights. According to previous influential studies by well known scholars, land property rights matter for the performance of land-related investment (Galiani 2010, Do 2008, Deininger 2006, Field 2006, Brassele 2002, Besley 1995, Lanjouw 2002, Feder 1987). Thus, this study aims to fill this gap by investigating industrial development performance from property rights perspective. Emphasis will be put on collective owned land & industrial
land use efficiency. Shenzhen is selected for case study.

The Shenzhen special economic zone was established in 1980, to which the state-owned urban land use system was almost thoroughly applied in the four districts from 1992. In the same year, two adjacent new districts were incorporated to Shenzhen city, where most lands were collectively owned. Since then, urban and rural dual land system has come into being in this city. The typical urban-rural land system in Shenzhen city provides an appropriate case for this study.

Data used in this study includes: 1) Topographic maps, urban planning drawings, land surveys and relevant governmental research from urban planning, land and resources commission of Shenzhen Municipality; 2) Year books, statistical bulletin and other relevant data from Statistics Bureau and Trade & Industry Bureau of Shenzhen Municipality; 3) Relevant data from available literature, for example, published papers, books and so on.

The remainder of this paper is organized as follows. Section 2 discusses the background, process of industrial development on rural collective land in Shenzhen. Main characteristics of rural Industrial land use are also examined in this section. Section 3 evaluates industrial land use efficiency of rural collective land in terms of Industrial output value and development ratio from a comparative perspective. Section 4 then turns to the issue of how collective land ownership has affected industrial land use efficiency. In section 5, land policy reforms aiming to improve land use efficiency have been reviewed and briefly assessed. The study then proposes the prospects and challenges of future land policy reform.

1. Industrial Development: Background and Characteristics

Urban-rural dual land system in Shenzhen

The Shenzhen special economic zone (SEZ) was established in 1980, with the area including current four districts-Luoju, Futian, Nanshan, Yantian District-in which land is rarely developed at that time. In 1992, Shenzhen government carried out urbanization plan for SEZ. According to the plan, all land in SEZ is converted to state owned land. In the same year, two adjacent new districts including Bao’an District and Longgang District were incorporated to Shenzhen city, where most lands were collectively owned. Since then, urban and rural dual land system has come into being in this city. We can roughly say that industrial land in SEZ is state owned land while the industrial land outside of SEZ is collective owned land.
Industrial development process in Shenzhen

In the past few decades, the industry in Shenzhen has developed rapidly from scratch along with the introduction of village shareholding cooperative system. Before 1980s, Shenzhen was only a small fishing village without any industrial development. The area of construction land in Shenzhen is 6 square kilometers in 1980. Until 2007, the area of industrial land use has increased to 269 square kilometers, with the total area of construction land increasing to 750 square kilometers in Shenzhen (来源深圳总规 2010). The characteristics of industrial development process are identified as following two aspects:

1) Evolution of industrial structure in Shenzhen

There have been great changes of the industrial structure from the very beginning to recent years in Shenzhen. The industry type in early 1980s is mainly three-plus-one trading-mix which has very low requirements of human capital. The representative industry includes electronics, apparels, textile and leather. These labor-intensive industrial sectors contribute mostly to the high growth rate of industrial added value.

Along with the development process, the industrial structure is gradually upgrading and optimizing. High-technology industry begins to play an important role in Shenzhen’s industry development. While traditional labor-intensive industrial sectors are still being pillar industry, the new industrial sectors including computer and its software, communication, microelectronics, optical, mechanical and electronic integration, new material and new energy, biotechnology engineering, laser are growing up remarkably.
Until now, high-technology industry has been the most important component of Shenzhen's industry, main industrial types including computer and its software, communication, microelectronics, optical, mechanical and electronic integration, light factory, and energy. According to survey, the gross industrial output value of electronic information industry achieved 3891 billion Yuan in 2004, occupying 55.8% of the total gross industrial output value of the whole city. The industrial added value of electronic information industry achieved 896.28 billion Yuan, occupying 49.4% of the total industrial added value of the whole city, growing 36.7% year on year. Electronic information industry now has become the most important industrial sector in Shenzhen.

To sum up, many types of labor-intensive industry with low added value and serious pollution are gradually eliminated through competition. Some traditional competitive industrial sectors are updated and transformed. The portion of technology-intensive and capital-intensive industry and product is increased rapidly. High-technology industry now plays the most important role in Shenzhen's industrial development.

2) Evolution of industrial land use in Shenzhen

In past few decades, along with the fast industrial economic growth is the rapid industrial land expansion in Shenzhen. As mentioned above, Industrial land in Shenzhen has increased enormously from 0 in 1980 to 269 square kilometers in 2007 in the fast urbanization process.

In the early 1980s, Shenzhen industry was developed depending on water ports and land ports close to Hong Kong, thus mainly located in Luohu, Shangbu, Shatoujiao, Shekou-Nantou area. According to historical survey, the construction land of Shenzhen reached 38 square kilometers in 1984, with the industrial land area less than 3 square kilometers.

From late 1980s to early 1990s, Luohu-Shangbu, Shekou-Nanshan, Shatoujiao expanded rapidly to complete Zutuan structure, while new Zutuan including Futian and Shahe emerged. These five industrial Zutuan gradually constituted the main industrial corridor of Shenzhen. In this stage, industry structure in Futian and Luohu began to update. Many industrial areas in these two districts were converted to residential and commercial uses, while a huge number of industrial buildings increased in Guanwai districts. Industry in Guanwei area began to develop based on specialization. For example, industrial development in Shangbu and Bagualing industrial district is mainly based on electron and light factory, Meilin industrial district mainly machining, Longjing industrial district mainly building materials. Industry in Guanwai area experienced rapid and thorough growth mainly along traffic arteries including Guangshen road, Guangshen highway, Shenhui road and Shenshan highway. Towns and villages along these traffic arteries have experienced extensive industrial development in this stage. The industrial spatial layout characteristics could be concluded and expressed as the figure below.
From late 1990s to now, industrial structure in Guannei area has been constantly adjusted and upgraded. Many industrial lands in Guannei have been converted to residential and commercial use. Until now, the industrial land in Guannei is mainly located in Nanshan area, Guanwai area thus turns into the major area of industrial land use. Due to limited land resources and rapid urbanization process in Shenzhen, today there is no new land available for industrial use.

To sum up, industrial land increased rapidly during past three decades. Until now, all the land suitable in Shenzhen for industrial use has been developed already. From analysis above, we can see that policy strategy and district location contribute most to the spatial distribution of industrial land in Shenzhen. Specifically, a huge number of industrial districts in Guannei are gradually converted to redi in early times now industry areas now mainly locate in Guanwai districts which are close to traffic arteries. The characteristics of industrial land evolution from 1980s to now could be summarized as following figures and table.

<table>
<thead>
<tr>
<th>Year</th>
<th>The Whole City</th>
<th>SEZ</th>
<th>Area outside of SEZ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Bao’an</td>
<td>Longgang</td>
</tr>
<tr>
<td>1984</td>
<td>2.546</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>1987</td>
<td>6.607</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>1994</td>
<td>82.38</td>
<td>14.12</td>
<td>68.26</td>
</tr>
<tr>
<td></td>
<td>37.66</td>
<td>_</td>
<td>30.60</td>
</tr>
<tr>
<td>2001</td>
<td>131.19</td>
<td>15.07</td>
<td>116.12</td>
</tr>
<tr>
<td></td>
<td>68.39</td>
<td>_</td>
<td>47.73</td>
</tr>
<tr>
<td>2003</td>
<td>208.33</td>
<td>20.11</td>
<td>188.22</td>
</tr>
<tr>
<td></td>
<td>108.99</td>
<td>_</td>
<td>79.23</td>
</tr>
</tbody>
</table>

Table.1 Evolution of industrial land use area in Shenzhen
2. Evaluating Industrial Land Use Efficiency

Land use efficiency may have different meanings and measurements when serving different purposes in different types of studies. Generally speaking, land use efficiency refers to economic efficiency of land use, which can be generated by relationship between land use area and economic output. In a broad sense, land use efficiency also refers to social and environmental efficiency, for example, employed population created per unit of land, energy cost per unit of land etc.

In this study, we focus on economic efficiency of industrial land use. Specifically, we try to measure industrial land use efficiency in terms of industrial output value, development ratio and land parcel and shape. Data used in this section all comes from reliable sources.

**Industrial output value**

The urban land productivity in Shenzhen is higher than other mainland metropolitan cities in the past decades. However, when compared to overseas cities like Hong Kong, Singapore and Tokyo, the land use efficiency of Shenzhen is still backward. From available date on land use efficiency in 2004, we can see that land use efficiency of Shenzhen is much higher than other mainland metropolitan cities including Guangzhou, Beijing, Shanghai, Tianjin, Suzhou in the respect of GDP per unit of built-up area, yet much lower than overseas cities including Hong Kong, Singapore, Tokyo. Referring to
industrial added value per unit of land, Shenzhen and Shanghai are almost equal to each other yet much lower than Hong Kong, Singapore, Tokyo.

<table>
<thead>
<tr>
<th>City</th>
<th>Year</th>
<th>GDP per unit of built-up area (Billion yuan/Km²)</th>
<th>Industrial added value per unit of land (Billion yuan/Km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shenzhen</td>
<td>2004</td>
<td>5.1</td>
<td>9.32</td>
</tr>
<tr>
<td>Suzhou</td>
<td>2004</td>
<td>1.43</td>
<td>—</td>
</tr>
<tr>
<td>Guangzhou</td>
<td>2004</td>
<td>2.16</td>
<td>—</td>
</tr>
<tr>
<td>Tianjin</td>
<td>2004</td>
<td>1.17</td>
<td>—</td>
</tr>
<tr>
<td>Beijing</td>
<td>2004</td>
<td>1.67</td>
<td>—</td>
</tr>
<tr>
<td>Shanghai</td>
<td>2004</td>
<td>3.51</td>
<td>9.5</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>2003</td>
<td>53.91</td>
<td>30.51</td>
</tr>
<tr>
<td>Singapore</td>
<td>2003</td>
<td>24.41</td>
<td>74.48</td>
</tr>
<tr>
<td>Tokyo</td>
<td>2002</td>
<td>101.59</td>
<td>57.08</td>
</tr>
</tbody>
</table>

Table 2: Comparison of construction/industrial land productivity in different cities in Year 2004

Source: The first national economic census 2006

Collective owned land and state owned land in Shenzhen have very different performance on industrial land use efficiency. Based on the industrial output data from The First National Economic Census in China and land data by survey, Shenzhen urban planning and research institute made an analysis on spatial distribution of industrial output value in 2003. The main results can be summarized as following table.

According to the result, industrial land use efficiency of state land with complete property rights is much higher than collective land with incomplete property rights. To be more specific, in respect of industrial output value per unit of land, Bao’an District and Longgang District are 13.8 and 11.7 Billion yuan/km² respectively in 2003, while special economic zone is 155.0 Billion yuan/km² in the same year, which is roughly ten times higher than the area outside of special economic zone. Referring to industrial added value per unit of land, Bao’an District and Longgang District are 3.0 and 4.0 Billion yuan/km² respectively in 2003, while special economic zone is 42.9 Billion yuan/km² in the same year. This result suggests that state industrial land with complete property rights has far better economic performance than collective land with incomplete property rights in terms of industrial output value. The spatial distribution of industrial output value per unit of land in year 2003 is presented as the following figure, from which we can see that sub-districts in special economic zone have distinctly better performance on industrial land use efficiency than that outside of special economic zone. This result is also in agreement with previous conclusion.
Figure 4 Spatial Distribution of Industrial output value in Year 2003

Source: Shenzhen urban planning and design research institute 2006

### Table 3 Industrial land use efficiency in Shenzhen in Year 2003

<table>
<thead>
<tr>
<th>Industrial Land Use Efficiency (Year 2003)</th>
<th>The Whole City</th>
<th>SEZ</th>
<th>Bao’an District</th>
<th>Longgang District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial output value per unit of land</td>
<td>27.0</td>
<td>155.0</td>
<td>13.8</td>
<td>11.7</td>
</tr>
<tr>
<td>(Billion yuan/km²)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial added value per unit of land</td>
<td>7.4</td>
<td>42.9</td>
<td>3.0</td>
<td>4.0</td>
</tr>
<tr>
<td>(Billion yuan/km²)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To summarize, state land with complete property rights has higher industrial productivity than collective land with incomplete property rights in terms of industrial output value. In the specific context of Shenzhen, it applies that land in the special economic zone has better performance on industrial output value than the land outside of special economic zone. We have found solid evidence to support this argument as mentioned above.

### Development ratio

Development ratio is also a very important indicator to measure land use efficiency. In academic field, rich previous studies on evaluation of land use efficiency have applied development ratio as a significant measurement of land use efficiency. In practice, land-related public policy makers such as urban planners and officials worldwide use development ratio as an important tool to make sure that land can be used efficiently. In this study, we also choose development ratio as an important indicator to measure industrial land use efficiency.
Primary data used in this section comes from a survey conducted by the Trade and Industry Bureau of Shenzhen Municipality in 2005. This survey investigates the number of industrial parks, industrial land area and industrial building floor area of each district in Shenzhen city. Based on these data, we can calculate land development ratio in each district and make comparison analysis of these districts which stands for different property rights structure on land.

<table>
<thead>
<tr>
<th>District</th>
<th>Number of Industrial parks</th>
<th>Area (km²)</th>
<th>Floor Area (Ten thousand m²)</th>
<th>Floor Area Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luohu</td>
<td>29</td>
<td>0.61</td>
<td>109</td>
<td>1.79</td>
</tr>
<tr>
<td>Futian</td>
<td>9</td>
<td>2.42</td>
<td>377</td>
<td>1.56</td>
</tr>
<tr>
<td>Nanshan</td>
<td>50</td>
<td>1.5</td>
<td>333</td>
<td>2.2</td>
</tr>
<tr>
<td>Yantian</td>
<td>2</td>
<td>0.14</td>
<td>34</td>
<td>2.4</td>
</tr>
<tr>
<td>Bao’an</td>
<td>379</td>
<td>61.05</td>
<td>6039</td>
<td>0.99</td>
</tr>
<tr>
<td>Longgang</td>
<td>157</td>
<td>13.47</td>
<td>1352</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>626</td>
<td>79.19</td>
<td>8244</td>
<td>1.04</td>
</tr>
</tbody>
</table>

Table 4: Industrial floor area ratio in Shenzhen in Year 2005

Source: Trade & Industry Bureau of Shenzhen Municipality 2005

The result shows that development ratio of land in special economic zone is much higher than land outside of special economic zone. Specifically, land development ratio in Luohu, Futian, Nanshan, Yantian District is 1.79, 1.56, 2.2, 2.4 respectively, while land development ratio in Bao’an and Longgang District is 0.99 and 1.0. Relevant detailed information is shown as following table. This result corresponds well to the argument in the earlier section.

**Land parcel size and shape**

Based on the author’s own experience, land parcel size and shape may have significant correlation with land-related investment thus land value and industrial productivity. In his recent study on the demarcation of land, Prof. Gary Libecap suggest that land parcel with regular shape has comparative advantages on production and land values with those land with irregular shape. In this study, land parcel shape has also been chosen as one measurement of land use efficiency.

Primary data used in this section mainly comes from statutory plans and complementary research documents for different districts in Shenzhen. From available statutory plans, we chose two typical districts of which the land has different property rights structure. One is Song’gangnan industrial area located in Bao’an District, of which industrial land is mainly
collectively owned. Another is Bagualing industrial area located in Futian District, of which industrial land is state owned. The area of these two districts is almost equal, one is 138ha, while another is 116ha. The topography of these two districts is also similar, both flat. We then changed the scale of land cadastre maps of these two districts in software AutoCAD to the same scale, thus can compare the land shape and size of these two areas. The land cadastre maps of Song’gangnan industrial area and Bagualing industrial area in the same scale are illustrated below.

![Land Cadastre Maps](image)

Figure.5 Comparison of Industrial land parcel shape and size on collective land and state land


From the comparison of these two industrial districts which represent two different land property rights, we can clearly see that land parcel shape of Bagualing industrial area with complete land property rights is much regular than Song’gangnan industrial area with incomplete land property rights. Almost every piece of land parcel of Bagualing industrial area is rectangular, while land parcel of Song’gangnan industrial area is of great irregularity. In respect to land parcel size, we found that land parcel size of Bagualing industrial area is larger than of Song’gangnan industrial area.

Since the two industrial districts are representative of other industrial districts with different land property rights city-wide, and the two industrial districts share the same topography and land area, we may safely conclude that land with complete property rights may result in more regular land parcel and larger parcel size thus higher industrial land use efficiency than land with incomplete property rights.
3. Mechanism Analysis

Incomplete property rights structure of collective land

As mentioned before, urban and rural dual land system is the institutional foundation for land conversion and industrial development in China. Under current dual land system, urban land is owned by the state, while rural land is owned by collectives. As far as urban state land is concerned, separating of land ownership and land use right from Year 1988 allows transfer of land use rights, and arouses the emergence of urban land market. Full rights could be acquired through urban land market. On the other hand, collective land is forbidden to be sold, transferred or leased for nonagricultural use. In another word, if collective land is converted to urban use, it has only exclusive rights and income rights. Collective land can’t be transacted through market mechanism, which means it doesn’t have transfer rights and collateral rights. Through black land market, which is illegal, collectives may have part of land transfer rights.

<table>
<thead>
<tr>
<th>Land Ownership</th>
<th>Exclusive rights</th>
<th>Income rights</th>
<th>Transfer rights</th>
<th>Collateral rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>State land</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Collective land</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 5 Property rights of state land and collective land in China

In the context of industrial development in Shenzhen, two different types of industry zones coexist, which is a ubiquitous phenomenon over China- industry zone on urban state-owned land and on collectively owned land. Different development processes on two types of land reflect different property rights structures.

Urban industrial land normally is transferred to competitive large and medium enterprises from governments including city-level to sub-district level. Full infrastructure is provided too by governments on urban industrial land to attract investors and enterprise. Enterprises conducted on urban industrial land are normally well developed with considerable strategic plans and methods depending on sufficient capital from legal credit market. Urban industrial land thus has more excellent economic performance regarding to industrial technology and product output.

In the meanwhile, industry is also prosperously developed on collectively owned land. As mentioned before, collective land doesn’t have transfer rights and collateral rights. Collective land users are not allowed to mortgage the land. The mode of “investment with low technology + labors with low capability + collectively owned land with low price” does not compose a necessary condition for higher and better use of land. Low efficiency of land use is observed on most of collective land of every village in Shenzhen. The chain of “low price land – attract investment – industry development and rent collect – new land development – new land rented” goes on, and pushes the villages to develop land at a low
level to ensure the revue for all peasants.

**Collective land is out of urban management system**

From a governance perspective, collective industrial land is totally out of urban management system. This situation greatly contributes to low efficiency of collective land use in Shenzhen. To understand the lack of governance on collective industrial land use better, we have divided this problem into several main aspects.

![Figure 6 Industrial land management system in Shenzhen](source)

**Firstly**, there is no main body of governmental management for collective industrial land use. Seven different management processes are responsible for different types of industrial land in Shenzhen. Under current industrial land management, industrial land has been categorized into seven types, including: High-technology industrial zone, industrial cluster zone, industrial park area > 5ha in SEZ, industrial park area > 5ha in Bao’an District, industrial park area > 5ha in Longgang District, collective non-agricultural land and Collective illegal industrial land. The specific management points and body for each type of industrial land could be illustrated as following figure. According to this figure, the first five types of industrial land are state owned, and collective industrial land includes the last two types—collective non-agricultural land and collective land. Compared to the first five types of land, there is nearly no necessary supervision and control section for the last two types of industrial land.

**Second**, there is no prophase administration for collective industrial land use. For Hi-technology zone, industrial cluster zone and industrial park area > 5 ha, corresponding agencies have carried out their own land use standards, thus could effectively managed industrial projects in the early stage. However, no prophase administration is available for...
collective industrial land use. What’s more important, since different agencies are responsible for different corresponding types of industrial land respectively, they may have their own special needs and pressure of attracting investment and economic development, this situation may lead to inefficient distribution of industrial projects and thus low level prophase land administration.

Last but not least, there is lack of land use standards and follow-up tracking management for collective industrial land use. According to the figure of status quo of industrial land management in Shenzhen, all the industrial land of each type is lack of following-up tracking management by government departments. There is no regulation and administration body concerning on whether industrial project is finished on time or not, nor whether it is built up according to expected requirements, or whether industrial land use is efficient or not.

Because of above reasons, urban planning and control for collective land in Shenzhen does not function at all in the real practice. Construction on collective land is out the control of urban planning system. Taken Dongfang-Tantou area for example, this area is located in Bao'an District, with most of its land collectively owned. Many plans have been worked out for this area before Year 2005. Here we have chose 2005 plan as a standard of comparison to real situation. According to 2005 plan, Dongfang-Tantou area has an excellent transportation network and a well-designed road system. Certain area of land in the northern part of this district is planned as a park to satisfy the recreation and leisure needs of local people. However, the real situation of built environment in this area in Year 2008 is totally different with what have been planned in Year 2005. There was obvious lack of roads and transportation facilities in Dongfang-Tantou area in 2008. Existing road system was problematic because of too limited width, poor connection and road condition. Industrial buildings in this area were also in severe disorder and thus result in low development ratio as well. No green space was created in this district either. All these aspects demonstrate the failure of urban planning system on collective industrial land.


Review of recent land policy reforms
A series of land policy reforms have been carried out in Shenzhen city since the establishment of special economic zone in 1980. As a pioneer city in China’s economic transition, these land policy reforms also present a clear miniature of the main direction and steps of gradual reform towards a more market-oriented economy nation-wide, some of the reforms in Shenzhen city are then directly applied to the country. We roughly summarize important land policy reforms as follows:

In Year 1987, Shenzhen city firstly introduced the system of compensated use of land owned by the State, which is the most significant beginning of land reform in China towards market economy, soon applied to the whole country in the next year.
In Year 1992, Shenzhen government carried out the urbanization plan of special economic zone area, with the great majority of land in SEZ area converted to state owned land, while only minority of land kept collective by previous villages. In the same year, Bao’an and Longgang were incorporated to Shenzhen city. As mentioned before, urban and rural dual land system came into being in this city since then. Roughly speaking, land inside of SEZ is mainly state owned while land outside of SEZ (Guanwai) is mainly owned by collectives.

In 1998, the delineation of nonagricultural land of Bao’an and Longgang district in 1998 started the journey of capitalizing collective land in Guanwai area.

In 2004, Shenzhen government carried out another important reform, the comprehensive urbanization plan of Guanwai area, which is regarded as the most significant land reform by both practice and academic world in recent years. This experiment also gained a lot of attention and praise from the top leaders in China. The main points of this reform will be introduced in next session.

From this series of gradual land reform in Shenzhen, we can clearly see the historical track of institutional change in China towards a more market-oriented economy. These land reforms have produced positive impacts on many aspects of China's economic development. Yet also some problems and shortcomings exist still due to kinds of realistic conditions and constraints.

Assessment of recent land policy reform

Comprehensive urbanization and land conversion of Bao’an and Longgang district in 2004 as the most important institutional change of recent land reforms in Shenzhen city, has significant influence on many aspects in the city’s economic transition. Four main policy documents were issued to implement the comprehensive urbanization plan including: a) Land Management regulations for urbanization of Bao’an and Longgang; b) Compensation standards of land conversion from collective to state land; c) Implementation Procedures of land conversion from collective to state land; Regulations of land banking for urbanization of Bao’an and Longgang.

According to these policy documents, 227 administrative villages in 22 sub-districts are changed to communities in this land reform, 270000 villagers are changed to urban residents, 960 km² areas of collective land is converted to state ownership land. To be more specific, 260KM² Land available for new construction is expropriated successfully by city government with compensation. 300KM² forest land and 150KM² Land not suitable for construction is also expropriated successfully by city government without compensation. About 50 KM² built-up land is delineated as nonagricultural land, villages continue to have land use rights of nonagricultural land, which can be transacted in the land market and have full property rights after procedures. For another 200KM² built-up collective ownership land, city government intended to expropriate the part of land from
rural collectives too but not successful in the end. This type of land continues to be used by collective economic organizations, but the land property rights is incomplete, they just have exclusive rights and income rights as before. To sum up, after this reform in 2004, all the collective ownership land is converted to state ownership land. Villages continue to have land use rights of nonagricultural land, which type of land can have full property rights after procedures.

For villages, the property rights structure of their land is substantially changed after 2004. Pre 2004, the land is owned by collectives, most of the land has just exclusive rights and income rights. Post 2004, the land is all owned by the state in name. According to Land Management System of Shenzhen municipality, the land is categorized into four groups, Legal Land, Land without complete procedures, Nonagricultural Land and Illegal Land. Legal land has full property rights including exclusive rights, income rights, transfer rights and collateral rights. Land without complete procedures and Nonagricultural Land have exclusive rights and income rights. They can also have transfer rights and collateral rights after completing relevant procedures. Illegal land has only exclusive rights and income rights, but the security of these two kinds of rights is lower compared to pre 2004 because of the regulations of illegal land and construction carried out by city government.

<table>
<thead>
<tr>
<th>Year</th>
<th>Real User</th>
<th>Ownership</th>
<th>Land Tenure</th>
<th>Exclusive rights</th>
<th>Income rights</th>
<th>Transfer rights</th>
<th>Collateral rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre2004</td>
<td>VSC</td>
<td>Collective</td>
<td>Vague</td>
<td>Yes</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>VSC</td>
<td>State</td>
<td>Legal Land</td>
<td>Yes</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Post 2004</td>
<td>VSC</td>
<td>State</td>
<td>Land without complete procedures</td>
<td>Yes</td>
<td></td>
<td>Yes, but need to complete relevant procedures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VSC</td>
<td>State</td>
<td>Nonagricultural Land</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VSC</td>
<td>State</td>
<td>Illegal Land</td>
<td>Yes</td>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Table 6 Land tenure pre and post 2004 reform in Shenzhen (Land tenure in this table is classified according to Land Management System in Shenzhen municipality)

Source: Summarized by author according to relevant policies

The main significant consequences of comprehensive urbanization and land conversion in 2004 can be summarized as follows:

a) The expropriated land is successfully incorporated to land market and urban land management system, and provides the necessary foundation for future urban development and economic growth.

b) Rural collectives and individuals are officially entitled to urban economic development
opportunity for the first time in China’s urbanization process through delineation of nonagricultural land.
c) Nonagricultural land needs to complete procedures to enter land market. Until today, still some of nonagricultural land isn’t converted to urban land with complete property rights, thus is partly out of urban land market and land management system.
d) Part of land remains illegal and belongs to collectives, which is totally out of land market land management system.

**Conclusion: future prospects**

Collective land in Shenzhen suffers inefficiency of industrial land use in terms of i) lower Industrial output value and ii) lower development ratio when compared to state-owned urban land system. The inefficiency is attributed to two main reasons: i) collective land with incomplete property rights has no access to legal land market and credit market, and ii) collective land is not included in the land management system, thus cannot be guided and controlled effectively by urban development strategies and policies.

To improve land use efficiency in Shenzhen, the government has carried out a series of gradual land reforms which have produced very important positive effects on the economic development. However, we still need to go through a long and arduous journey to proceed to a more economic effective society. There is still a lot of room to improve land use efficiency and thus more effective industrial development and economic growth. There are two possible directions for future institutional change:

a) New efforts need to be made to improve the transferability and management of nonagricultural land in Guanwai area.
b) Effective mechanism and specific policies need to be established to transfer the illegal land to legal land which could have full property rights and be governed by land management system.

**Reference**

Field E., Torero M.(2004) Do Property Titles Increase Credit Access Among the Urban Poor?