

Fuzzy Approaches to Industrial Land Conversion in Weak Institutional Environment

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Keywords: Fuzzy Governance, Industrial Land Conversion, Weak Institutional Environment

Abstract

Currently, the maximum tenure of industrial land use in China is 50 years, which far exceeds the manufacturing life cycle. In the absence of an effective exit mechanism and serious supervision, a large number of manufactories are waiting for land value-added income or illegal sublease for commercial use rather than returning the land-use rights for urban redevelopment. As one of the urban central areas in Shanghai, Hongkou District is facing a serious challenge on land scarcity and impending speculative inflows during the critical period of rapid transition.

The objective of this research is to explore fuzzy approach to industrial land conversion in weak institutional environment, eventually strengthening the initiative of land-use cycling of the governments for a better adaption to the changing demand in the future. So the research mainly consists of two parts. (1) Find bottlenecks. After deep investigation and analysis on the causes which restrict land users' access to land transfer, the findings reveal that profit mechanism, no alternative policy for land-use change, low compensation, low costs of illegal behaviour and high rate of planned non-profitable land on these industrial land blocks are the main bottlenecks. (2) Break bottlenecks. The following fuzzy governance approaches are discussed: fuzzy profit distribution mechanism, fuzzy exit mode, priority compensation, trans-regional land supply and combination of regular review and public supervision, as well as their application value and feasibilities.

1. Introduction

With the rapid economic development in China, the gap that system reform lags behind economic development has seriously hampered China's sustainable development. Taking land system for example, the maximum tenure of industrial land use in China is 50 years now, much shorter than the life cycle of most manufactories. As a result, a large number of manufactories are waiting for land value-added income or illegal sublease for commercial use rather than returning the land-use rights for urban redevelopment. This phenomenon forms obstacles to the government for the regulation of industry and space planning, which leads to low efficiency of land use. This is also against government's original intention of providing land as one of enterprise's essential productive factors.

Since the development stage of every city varies a lot, Shanghai as one of the representative of the Chinese first-tier cities is the first to face the issues that are specific to the transition period. One of them is how to make full use of limited land resources, look for further space stock possibilities and provide necessary space for development. But the situation that industrial land-use rights cannot be returned easily aggravates the shortage of land resource objectively and restricts the space supply for building industrial system of the service economy in Shanghai. As one of the central districts with good economic foundation and historical cultural resources, Hongkou District is facing high land prices, which increases land value-added income and illegal sublease for commercial use. This situation also leads to an even more serious challenge on exit strategy of industrial land.

2. Development overview of industrial land in Hongkou district

Based on industrial land and factory survey table of Hongkou District (2006) and author's added research in 2013, the status of Industrial land development in Hongkou District is as follows (statistical units in accordance with the streets administrative divisions of Hongkou District in 2009).

2.1 Spatial distribution

There are 170 blocks of industrial land with 111 hectares in Hongkou District. Its main distribution trends are: in the southern area, smaller block of industrial land scattered layout. While in the northern area, industrial land appears relative agglomeration. In addition, around the boundary of Hongkou and Zhabei Districts, it has linear distribution trends.(Figure 1)

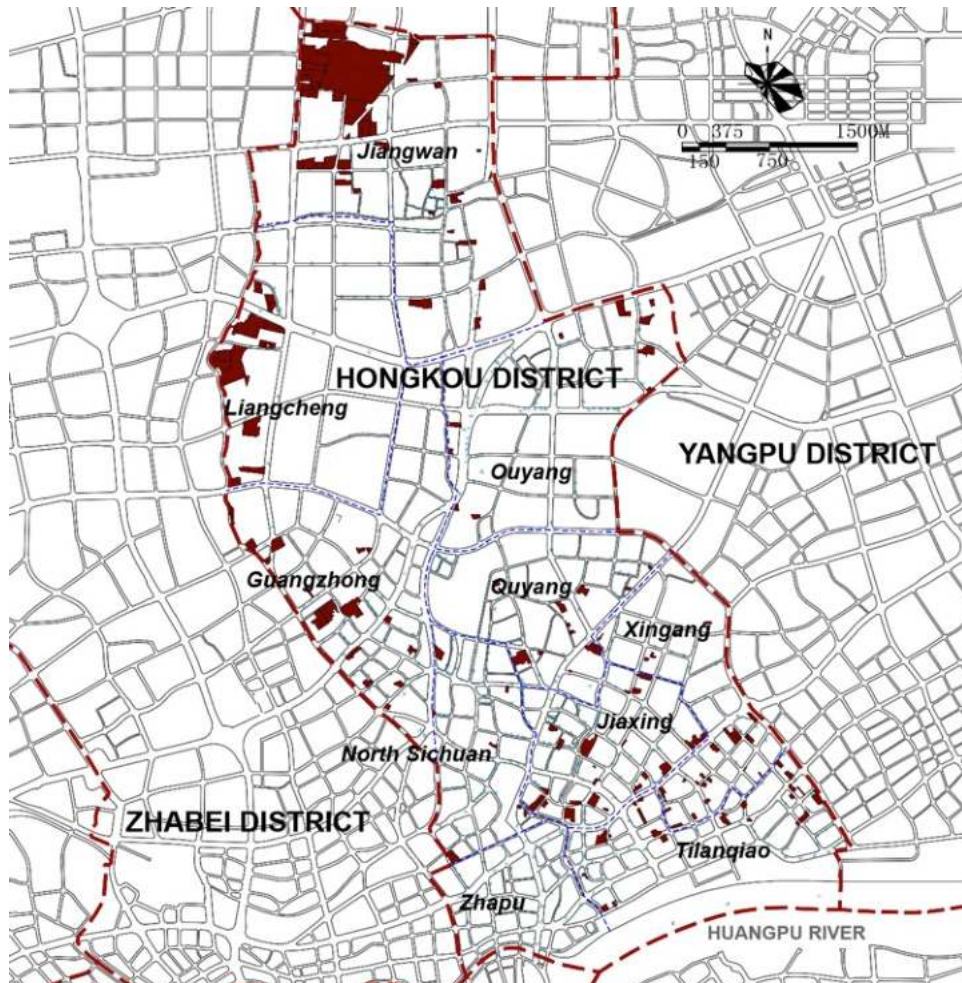


Figure 1. Spatial distribution of industrial land in Hongkou District
Source: Shanghai Tongji Urban Planning & Design Institute

2.2 Functional analysis

In weak institutional environment, from functional perspective, only 25.8% of industrial land blocks in Hongkou District are still used for production activities and 5.3% of them are idle, while up to 68.8% are used for other purposes, such as commercial uses and business, which contains a high rate of illegal sublease. (Figure 2)

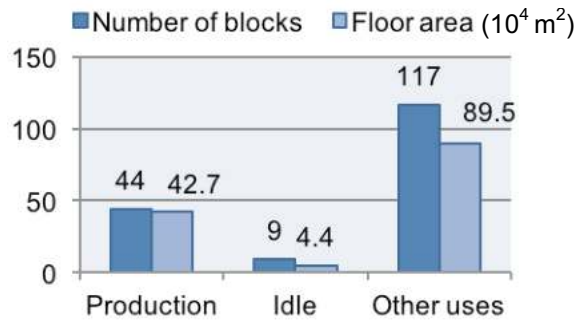


Figure 2. Functional analysis of industrial land in Hongkou District
Source: Hongkou District Government

2.3 FAR

To most of the industrial land in Hongkou District, economic feasibility of redevelopment is quite positive (FAR<2.0). Effective use of these redevelopment resources may relieve the critical situation of lack of commercial land and create good conditions for the restructuring and redevelopment.(Figure 3)

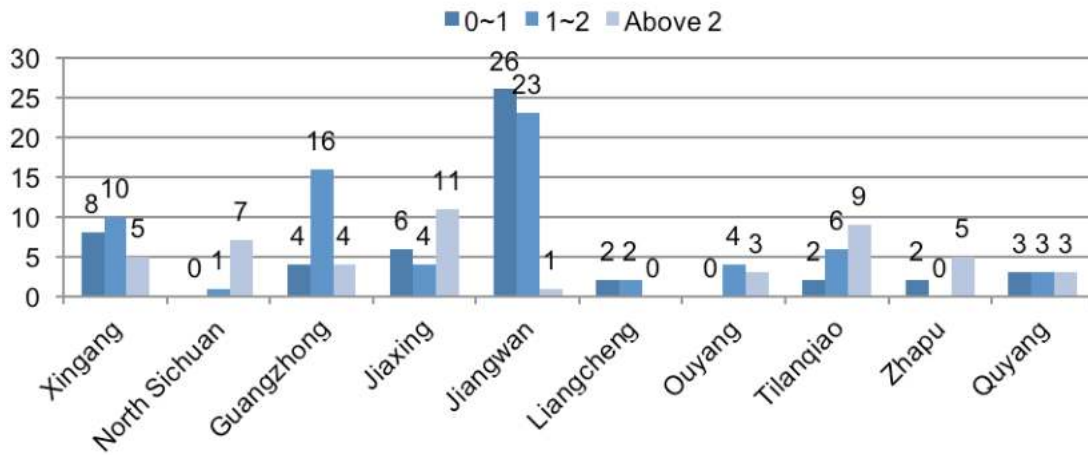


Figure 3. FAR of industrial land in Hongkou District
Source: Hongkou District Government

2.4 Possibility of land transfer

According to official statistics and forecasts, only 31% of the industrial land in Hongkou District may exit in the next five years. While this critical situation does not match the planning intention: master plan of downtown Shanghai (2010 combing Edition) mentioned about the replacement of industrial land in Hongkou District for other kind of land uses. (Figure 4)

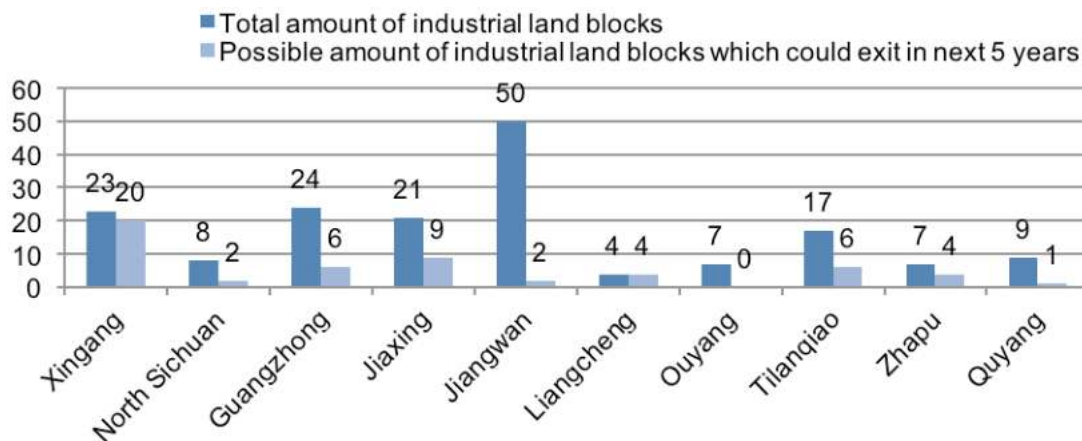


Figure 4. Possible land transfer of industrial land in Hongkou District
Source: Hongkou District Government

3. Bottleneck and constraints of industrial land conversion in Hongkou district

3.1 Huge speculative arbitrage

68.8% of the industrial land in Hongkou District is used for commerce rather than industrial production. The most important reason is that with land price continuously rising in Hongkou District and differential land benefits increasing, it makes bigger profits from value-added income or illegal sublease for commerce.

3.2 Low compensation of land requisition

The current land requisition compensation standard is primarily based on the provisions of Article 47, Land Administration Law of the People's Republic of China (2004 revised version): land requisition and compensation refers to the original land use. Because industrial land price is usually not high enough, this means that the land-use right owner may not be satisfied with the price government departments could offer, which also cannot help break the existing solid interest group.

3.3 Low illegal cost

As to such private rental behaviour, the relevant regulatory authorities have difficulties in ascertaining rights and executing the law. In addition, policy easing during the rapid transition period indirectly contributes to such speculation.

3.4 Rigid procedure of land-use change with no alternatives

Normal procedure of changing land use of the existing industrial land needs public bidding, auction or listing. As a result, the land-use right owner who has demand to upgrade their industries will face three "Uncertainty": Uncertain about the future land cost, uncertain about the possibility of getting the land, and uncertain about the time the project could get started. So, it will take high risks to change industrial land to commercial land through official procedure on the practical level.

3.5 High ratio of planned non-profitable land

Around 40% of the industrial land in the regulatory detailed plan is all or part of non-commercial land (including park, public service facilities, etc.). Therefore, the economic motivation of the government and developers is limited. So is the land requisition compensation.

4. Fuzzy Approaches to Industrial Land Conversion in Weak Institutional Environment

4.1 Government-dominated profit distribution mechanism

The distribution of benefits and gap between huge speculative arbitrage and low compensation of land requisition are the critical problems to be solved when we talk about exit strategy of industrial land. As to the belonging of the value-added part of land, there are usually three arguments: private benefits, government's benefits or sharing benefits.

On one hand, unauthorized renting by the enterprise itself can be recognized as private benefits, but this does not match the land property and business scope. In addition to the existing low FAR, outmoded buildings and unfit space for commercial needs, the land value has not been fully realized. On the other hand, if we expropriate and redevelop the industrial land with the low price in terms of the Land Management Law, which can be recognized as public benefits, it seems unfair and the land-use right owner will not endorse at all. Therefore, the simple distribution of land value to the private or the public is unfair, inefficient and hard to operate. As a result, only through reasonable benefits balance and promoting efficiency of land use, could our land-use right owners have the initiative and intrinsic motivation to return the land-use right.

Considering the benefit-sharing thoughts (benefits include economic, social and cultural value increment), it is advised to take the following two fuzzy compensation models in order to embody the original owner's right of sharing the fruits of redevelopment.

4.1.1 After-compensation mechanism (for planned land property of the profitable uses)

In addition to the land compensation in accordance with the standard, the District Government could withdraw an appropriate proportion from land-transferring fees and return it to the original land-use right owner or establish a special fund to encourage reinvestment in Hongkou District.

4.1.2 Transfer payments (for planned land property of the non-profitable uses)

In the regulatory detailed plan, a lot of land for public service facilities, green spaces and municipal facilities is planned on these industrial land blocks, resulting in great economic pressure on the implementation level. Hence, it is encouraged to have transfer payments or package sell with planned land of the profitable uses at the district level.

4.2 Fuzzy exit modes

4.2.1 Traditional mode (current mode)

Take changing land-use property from industrial land to commercial land for example (Weiwei Yu 2008). First, changing land property for commercial use must comply with the master plan, and have the approval of the planning authority. Second, if the changing for commercial use complies with the urban planning, according to the provisions of the current approach to land transfer, the transfer should be open to the public by bid, auction or listing. And the original owner and the buyer will not be allowed to conduct this trade by their own. Third, usual practice is that industrial land user contacts with the local land authority and land-reserving institution makes the reserve, according to the annual purchase and reserve plan.

4.2.2 Fuzzy modes

For the various needs of industrial land exit, especially for the enterprises which have a strong willing of self-update, industrial transformation or temporary land-use change, the existing changing process is too rigid with no alternatives, which restricts the initiatives of industrial land exit through a legal channel. Thus it is advised to have multiple fuzzy exit modes for enterprises to choose under fuzzy

policy framework, eventually achieving a win-win situation of the government and enterprises.(Table 1)

Table 1. Comparison of exit modes of industrial land

	Traditional mode (Bid, auction or listing)	Fuzzy mode 1 (Enterprise self-update agreements)	Fuzzy mode 2 (Temporary change of land-use property)
Applicable target	-Strong willing to transfer the land	-Self-update demand -No willing to transfer the land by bid, auction or listing	-High historical and cultural value -Strong temporality of land use -No willing to transfer the land
Common character	Functional exit of industrial land		
Difference	-Have initiative to transfer land by bid, auction or listing	-Self-update demand -Conditional agreements	-Functional update by utilizing original plant
Land property	Change	Change	No change
Building property	Change	Change	Change
Structure	Change	Change	No change
Property relations	Change	No change	No change
Rights of Spiting, transferring and Conducting warrants	Yes	No	No
Benefits distribution	GOVERNMENT (Land owner)	-Land transfer fees under new land use by bid, auction or listing. - Subsequent land tax.	-One-time land transfer fees for price difference in according with remaining years. -Subsequent land tax.
	ENTERPRISE (Land-use right owner)	Compensation of land, buildings and other fixtures	-An annual portion of the land fees for temporary change of land-use property in according with land price difference. -Subsequent land tax.
Typical case		China Publishing Blue Bridge Creative Industry Park	1933 SHANGHAI

Case 1: China Publishing Blue Bridge Creative Industry Park (enterprise self-update agreements)

The owner of the park is China Book Import and Export Company, one branch of the China Publishing Group in Shanghai. It used its own land and planned a Creative Industry Park oriented by content industry and new media, featured by digital publishing. Formerly known as Shanghai Jing Cheng printing factory, it was primarily used for rental before the transformation. The total area of the park is 31,000 square meters. The occupancy rate of the park was 100% with over 70% industry concentration. Its 2011 annual park operating income was CNY37.85 million, while cultural enterprises' total income was CNY22.19 million.(Figure 5)



Figure 5. Design sketch of China Publishing Blue Bridge Creative Industry Park
 Source: <http://finance.eastday.com/hdqxb/lq/index.html>

Case 2: 1933 SHANGHAI (temporary change of land-use property)

Built in 1933, the main building was originally used for slaughter for the Municipal Council with land area of about 15,000 square meters and construction area of 26,300 square meters. It was known as the most modern Far East slaughter field at that time, which was selected as one of the outstanding historical buildings in Shanghai.

The property of the building belongs to the Shanghai Great Wall Biochemical Pharmaceutical Factory. However, the building could only be on lease as a general warehouse before renovation. The total rental income was only about CNY2 million per year. Shanghai Creative Industry Investment Company rented the building with overall CNY10 million yuan a year for 15 years and invested more than CNY70million for renovation, which finally made this unique historic site reborn as a landmark of creative and fashion industry in Shanghai. Economic benefits of the project are quite significant - rental in 2007 reached CNY5yuan per day per square meter, higher than the overall rental level of the North Sichuan Road office area. In the recent years, only the round show site on the third floor of the main building charges more than CNY20million yuan.(Figure 6)



Figure 6. 1933 SHANGHAI and its round show site

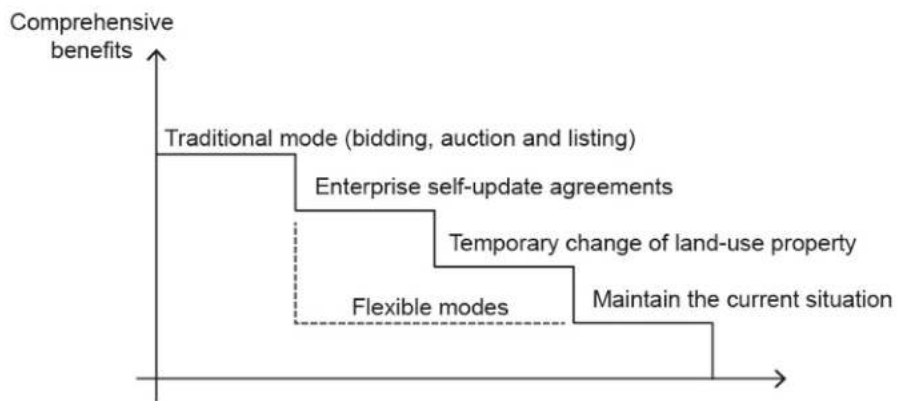


Figure 7. Comprehensive benefits comparison of exit modes

Regardless of the transaction costs and property rights system, the comprehensive benefits of traditional bid, auction and listing is the highest under market mechanism. But in such case, enterprise self-update agreement and temporary change of land-use property are more feasible options than maintaining the current situation. Therefore for Hongkou District, the long-term goal is to abolish the industrial land and accomplish industrial land exit completely. In addition, the short-term goal is to encourage traditional bid, auction or listing by preferential policies or subsidy. In case any difficulties exist, it should be considered to conduct guide according to applicable condition of enterprise self-update agreement and temporary change of land-use property.(Figure 7)

4.3 Six Priorities

Due to limited local funds and realistic conditions, Hongkou District is suggested to take exit strategy in turn. Based on industrial land and factory survey table of Hongkou District (2006) and the Twelfth Five-year Plan, the following six types of industrial land should be encouraged to exit by priority compensation.

4.3.1 Exit priority of Industrial land near key development areas

Main content about spatial planning of the Twelfth Five-year Plan of the Hongkou District is “one region, one street, one circle” development model: North Bund Shipping Service area achieves major breakthroughs ; Sichuan Road business, travel, culture & leisure Street makes new achievements; Dabaishu knowledge innovation and service trade circles develops rapidly. Therefore the industrial land relevant to these three areas should be encouraged to exit first. From the research investigation, the removal process of industrial land in Dabaishu area is at a fast pace and those in radiation circle can be removed step by step; industrial land around North Sichuan Road is relatively less and small but hard to be removed due to high FAR. Considering surrounding traditional urban context and texture, it is suggested to conduct fuzzy mode 2 (temporary change of land-use property); industrial land in North Bund is extensive with high FAR. But considering the long-term income of the North Bund development and high cost of land acquisition compensation in the future, the recent land acquisition seems to be a sensible choice in the medium or long term.(Figure 8)

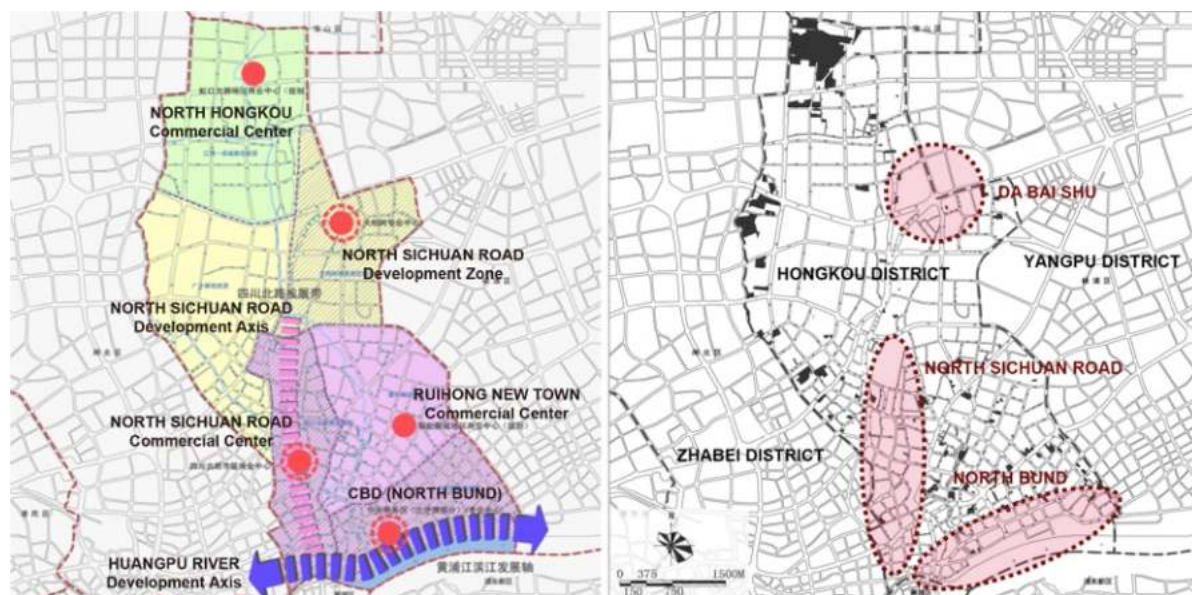


Figure 8. Key development areas and relevant industrial land in Hongkou District
Source: Shanghai Tongji Urban Planning & Design Institute

4.3.2 Exit priority of larger industrial land

Due to historical reasons, industrial land property rights in Hongkou District are dispersed and the size of industrial land varies significantly. In addition, from previous experience, small acquired industrial land can not form industrial agglomeration. Thus, from the view of redevelopment, regardless of the demolition or the update of the original plant, a certain land area is the threshold of highly efficient reuse. Priority should be given to large block or a certain land scale after joint land transfer with adjacent block, which may eventually form a tiered compensation system and encourage exit strategy of industrial land along with old residential district renovation (Figure 9 Left) and the municipal facilities relocation (Figure 9 Right) simultaneously.

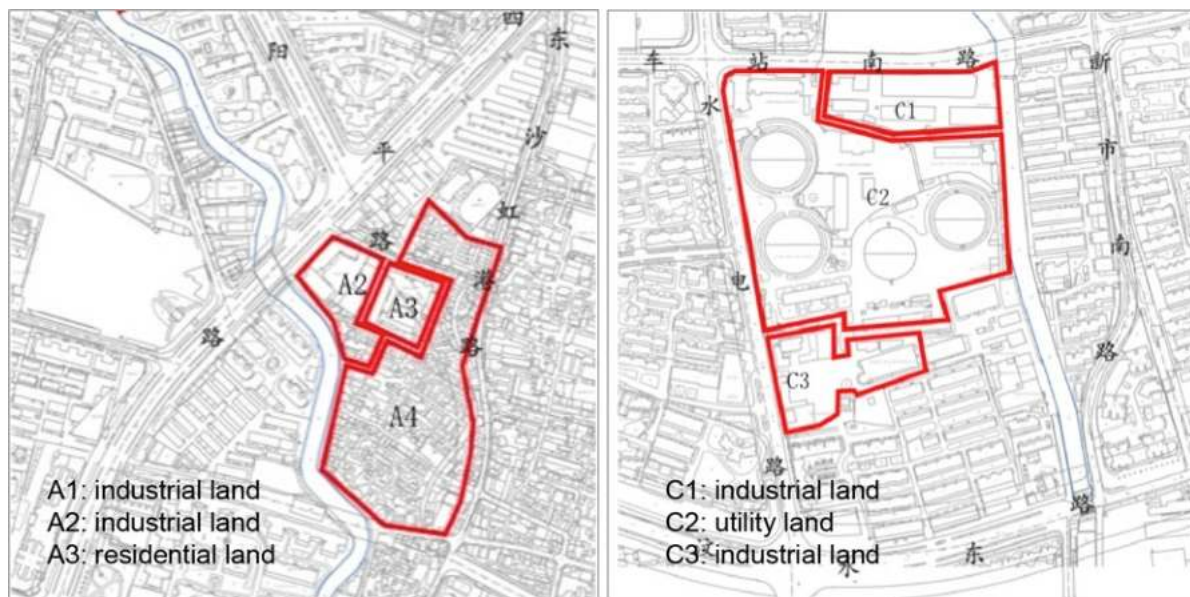


Figure 9. Joint land transfer

4.3.3 Exit priority of industrial land with poor building quality

The building ages, initial investments and maintenance managements all make the differences of building quality. Taking economic costs into account, owners of dilapidated flats are generally more willing to transfer the industrial land. In addition, the early-built flats are always with dirty and messy characteristics, which have a big impact on the living environment of residents nearby. Taking Shanghai Huaguang Instrument Factory (Figure 10) for example, after the production ceased, it was used for accommodation and bathing, which had a negative impact on the lives of residents. Later on, it was planned to conduct removal after negotiation by Hongkou District government.



Figure 10. Shanghai Huaguang Instrument Factory

4.3.4 Exit priority of industrial land with low FAR

Considering economic feasibility for redevelopment, those industrial land blocks of which original FAR is more than 2 are of low redevelopment economy, so priority should be given to those with lower FAR. The amount of industrial land in Hongkou District with FAR from 0 to 1 and 1 to 2 is 53 (31%) and 69 (41%) respectively. Among them, FAR in Jiangwan, Xingang, Guangzhong is generally less than 2, so it should be prioritized to exit in these areas.

4.3.5 Exit priority of industrial land controlled by the easy-negotiators

During the process of the Game and negotiation between government and enterprises, the existing relationship of government level structure makes it difficult or even impossible for the government to negotiate with enterprises with higher or lateral background level. The transaction cost is relatively high in this situation. On the contrary, when government negotiates with enterprises with lower background level, the transaction cost is lower and acquisition is normally easy to conduct. (Figure 11)

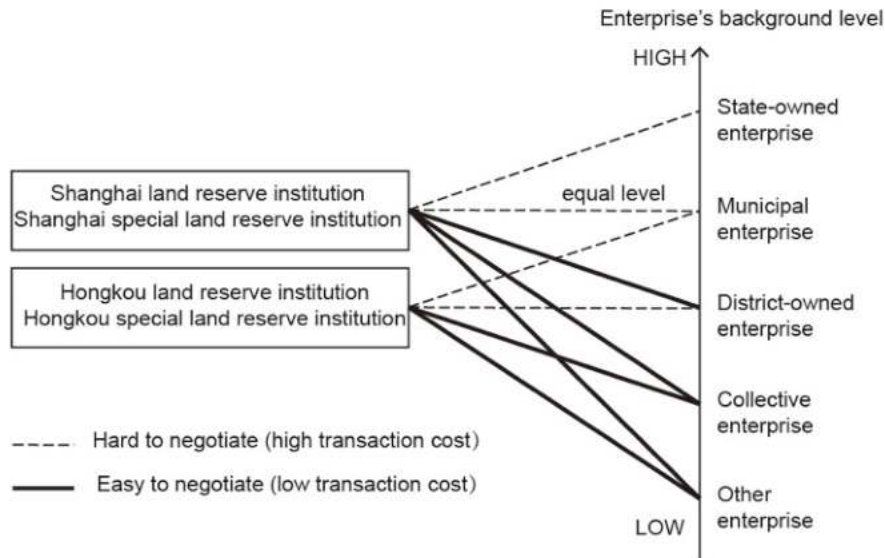


Figure 11. Government-enterprise relations Game from the perspective of administration level

4.3.6 Exit priority of industrial land with planned commercial projects

Based on the planned land property from industrial land and factory survey table of Hongkou District (2006) and relevant supporting list, related industrial land is suggested to be transferred first under the principle of “industry development priority and social driving effect priority”. In addition, compared with planned non-profitable land, land acquisition compensation of industrial land with planned commercial intention or profitable project is considerable and exit strategy is easy to implement.

4.4 Regional coordination and cross-district transfers of land

For enterprise’s owners who are willing to reproduce and conduct gradient transfer of industrial land, it has not been relevant preferential policies in Hongkou District to encourage industrial enterprises to be removed from the central area to industrial park. By comparison, some of the suburbs of Shanghai have more abundant land stock and more willingness to import “high, new, top” industrial projects into the industrial park. So, if region coordination and cross-district transfers of land are implemented, huge difference of land stock, land composition and facing problem in every district will be planned as a whole. Meanwhile, for Hongkou District government, this behavior also benefits the negotiation between government and enterprise’s owner. Besides, the specific transfer destination should be included 104 industrial blocks mentioned in 2009 Shanghai “two planning in one”. (Figure 12)



Figure 12. Gradient transfer of industrial land in Hongkou District

4.5 Regular inspection and public supervision

4.5.1 Regular land inspection

For unauthorized plant rental and lack of supervision, the relevant department of the district government should strengthen the regular land inspection. One is to check whether the enterprise has privately changed land-use property and do business out of the authorized business range. The second is to check whether the enterprise breaks the rules of environmental, safety, health or fire-fighting requirements.

4.5.2 Public supervision

The introduction of public report and media exposure should be encouraged to enlarge the channels of supervision in order to reduce the cost of government enforcement and increase the enterprise illegal cost. Since industrial land rental is normally accompanied by a large number of floating population and instability, residents will have enthusiasm and initiative to report illegal rental, which may force residents to be active stakeholders on exit issue of industrial land.

5. Conclusion

During the critical period of innovation drive and transition development, whether we can make full use of the limited land resources and explore efficient fuzzy policies, concerning exit strategy of 111

hectares industrial land, is a prerequisite for the future space development in Hongkou District. Only by innovative system and policies, could we break the passive situation of the government nowadays, turning from the passive to the initiative.

Firstly, it is proposed that under the government-dominated profit distribution mechanism, after-compensation and transfer payments should be implemented to promote benefits balance of industrial land exit among the various stakeholders and to ensure initiative of returning the land-use right and intrinsic motivation of cooperation. Secondly, instead of rigid exit mode with no alternatives (only by bid, auction and listing), it is suggested to encourage Fuzzy policies such as enterprise self-update agreement and temporary change of land-use property for various demands of different enterprises. Thirdly, “six priority” strategy should be implemented to ensure Hongkou District to make full use of limited resources and give priority to the development of the most potential industrial land. Fourthly, regional coordination and cross-district transfers of land should be implemented to guarantee the productive land demand of enterprises for further production. Last but not least, it is proposed to combine with regular land inspection and public supervision, in order to restrict enterprise’s illegal arbitrage and add government’s chips for negotiation.

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