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Government intervention in city development of China: A tool of land supply

Li Tian [a,*], Wenjun Ma [b]

[a] Department of Urban Planning, Tongji University, 1239 Siping Road, Shanghai 200092, China
[b] Department of Architecture, Shanghai Jiaotong University, 800 Dongchuan Road, Shanghai 200240, China

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ABSTRACT

There has been continuous debate on whether the state can support market-based activities in the land market. It is widely recognized that land markets do not function by themselves, mainly because they are inherently imperfect; this imperfection provides foundation for state intervention. Under the Land Use Rights System of China, land supply is a powerful tool for intervening into land markets, and proceeds from land supply greatly contribute to local revenue and financing of infrastructure construction. The state, however, is not an impartial entity. Its desire to increase local revenue through land leasing has led to the oversupply of land and housing affordability problems in real estate markets. This paper, using evidence from Guangzhou, argues that land supply intervention is a two-edged sword in Chinese city development. It further claims that the state intervention is becoming gradually professional after the real estate market bubble in the early 1990s. Problems, such as structure imbalance in land supply, however, still have negative impacts on the sustainable development of Chinese cities.

Introduction

The laws of supply and demand cannot operate satisfactorily in land markets because the supply side has a built-in element of monopoly—built in by nature (Bryant, 1972). In other words, land is distinguished from goods, services, and others in that its supply is more or less fixed. Due to the heterogeneity of land plots in terms of location and quality, the urban land market is inherently imperfect (Zhu, 2002). The existence of significant externalities in the functioning of urban land markets is generally regarded as a major reason for state intervention. Moreover, land use control is too important to be left to private greed (Bromley, 1991). For these reasons, state intervention has become inevitable in urban land markets in varying degrees. State regulation of land development aims to minimize the disruptive effect of externalities on the efficient functioning of market processes (Loughlin, 1988).

Since the economic reform, China has adopted a distinctive method of state-led growth. According to Oi (1996) and Zhu (1999), the core of state growth has come from local governments which have acted as both regulators and advocates of local enterprise growth. With the establishment of a Land Use Rights (LURs) system in 1988, a land market has been established and has triggered economic growth in China. Under the LURs system, as the owner of all urban land, the state has substantial control over land supply and land use. This public ownership provides a strong tool for state intervention in the land market.

On the other hand, state ownership places challenges on the capability and integrity of administrative systems and their ability to respond efficiently to changes in demand (Payne, 1997). Where the administration framework is weak, for example, the government is corrupt or does not have enough information to decide correctly on the allocation of land resources, the evidence suggests that in the long term, public land ownership is not able to guarantee either efficiency or equity (Doebele, 1987).

Since the 1988 urban land reform, China has extensively adopted the tool of land supply to achieve its goals of increasing state revenue and controlling land use (Zhu, 1999; Zhang, 2000; Xie et al., 2002). There have been few studies of evaluating the impact of land supply on the real estate markets and city development in China. This research is an attempt to fill that gap and is organized as follows: beginning from the theoretical analysis of state intervention, this paper analyses the characteristics of the developmental state in China. The remaining part examines the evolution of land supply policies and their impact on land markets and city development in China. This paper concludes with policy implications of a more market-oriented land supply approach.

Theories of state intervention

The role of the state in economic growth has frequently been challenged in the western world where the tradition of individual property rights has prospered against the state in terms of private

* Corresponding author. Tel.: +86 13524711878; fax: +86 21 35014188.
E-mail address: Litian262@hotmail.com (L. Tian).

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protection (Donahue, 1980). Basically, there are two fundamental issues of questioning the state. The first one is the predatory state approach which views the state as a "predator." In this approach, the state tries to maximize its own profits, even at the expense of the society it governs (Vandergeest, 1997). Public choice scholars reject the assumption of a benevolent government. Government is treated as a self-interested strategic player who attempts to maximize its own utility in the form of maximized revenue or political support (Buchanan, 1975; Sened, 1997). Booth (1996) argues that the search for material interests turns the controlling authority from impartial adjudicator into an equal partner with the developer. Therefore, the idea of government as an impartial adjudicator acting in the public interest is an inherently false model.

The second issue in questioning the state challenges the assumption of sufficient capability of the state to achieve its own objectives. Coase (1960) states that government actions not subject to the rule of markets may lead to misallocation of resources. North (1981) asserts there is overwhelming historical evidence that the state typically does not supply structures of property rights appropriate for economic growth. In effect, the property rights structure that will maximize rents to the ruler (or ruling class) is in conflict with what would produce the best economic growth.

Realizing the shortcomings of the state, Cheung (1978) and Burton (1978) advocate governments should play a minimal role in the economy, except to protect private property rights, but their judgement is not compelling because they do not evaluate clearly the "costs" and "benefits" of government intervention. Cheung (1978: p. 50) himself realizes that "...Whatever government is, its economic role in society must remain unclear until we can pinpoint the activities where governmental intervention incurs lower costs than private contracting".

Despite critical views of the state, its necessity is generally accepted. The argument mainly focuses on what extent the state can be involved in economic activities. Oi (1996) divides the role of the state into three levels: the first is the *laissez faire* minimalist state whose role is limited to ensuring a stable and secure environment so that contracts, property rights and other institutions of the market can be honoured; the second is the centrally planned Leninist state that directly replaces the market with bureaucratic allocation and planning, such as the former Soviet Union and China under the command economy. Between these two extremes are the capitalist developmental states of Japan and the East Asian Newly Industrializing Countries (NICs) that are neither Communist nor *laissez faire*, but exhibit characteristics of both.

While the minimal role of the state has been vigorously advocated in some western countries such as the United States, evidence from other countries/cities demonstrates that government intervention may play a positive role in economic growth. Stiglitz (1994) attributes the Asia miracle – rapid growth of Japan, Korea, Singapore, and Taiwan – to the crucial role of the state in "governing the market", and argues that transforming to a market economy does not entail a withering away of the state but a redefinition of its role. Castells et al. (1990; p. 2) points out that "...It is generally accepted today in specialized literature that the state has been the engine of the process of hypergrowth in the leading Asian economies, first in Japan, and then in South Korea, Taiwan, and Singapore". Zhu (1997), through his research of property markets in 1980s Singapore, argues that government intervention within the framework of a free market economy can contribute considerably to an efficient property market. Liew's research (Liew, 1995) about Chinese gradualist reform concludes that a strong central state is more fundamental in Chinese economic reform as only a strong central state can provide conditions that will enable the creation and enlargement of a constituent of government and party officials in favour of reform. A strong state itself, however, does not guarantee a successful development process. The role of the state must be integrated in a broader framework of interactions in the international economy (Castells et al., 1990).

Evolution of land supply policies and their consequences in China: an overview

Since the Chinese Communist Party took power in 1949, land policies have experienced several changes. Chronologically, change of land policy can be divided into four phases.

The traditional land supply system under the planned economy

Based on the ideology and political promise that all land was common property, urban land in China has been nationalized since 1949. During the pre-reform era (from 1949 to 1987), land was publicly owned, and nominally worthless. The traditional system has led to a number of problems. Firstly, because land was not considered a commodity, the assignment of land free of charge reflected neither economic nor social opportunity. Costs and users had no incentive to economize on their land use (Dowall, 1993). Bertaud and Renaud (1992) show that in most planned economies, land use patterns are not determined by economic efficiency, but are subject to social and political pressures.

The second consequence is the serious free rider problem. Administrative land allocation, free of charge, caused government agencies and state-owned enterprises to claim more land than they needed, causing land waste and misuse. Tang (1989) defines the waste in the utilization of land resources as "public squatting": the logic of public squatting is that a publicly owned firm is automatically entitled to a piece of land for its production. Examples of deliberate waste and low efficiency of land use were not uncommon, for instance, a research institute in Dalian city requested a 50,000 m^2 building site when it only needed 600 m^2 (Tang, 1989).

The establishment of LURs (1988–1995)

The LURs system, literally the "paid transfer of land-use rights" (*tudi youchang zhuanran*), was made official by an amendment to the Constitution of the People's Republic of China in 1988. "The right of land use can be transferred in accordance with the relevant legislation" was added to the Constitution. Land still belongs to the state, making LURs acceptable on the basis of the socialist doctrine (Li, 1998). Under the LURs system, land ownership and LURs are separate, i.e., the state owns the land, but not the structure on the land.

Typically, the transfer of land property rights is divided into three levels in urban land markets (Fig. 1). The first level is the primary market, which means both the conversion of collective land into state land and the transfer of LURs between the state and individuals/corporations; in theory, the primary market is monopolized by the state. The secondary market refers to the outright trans-

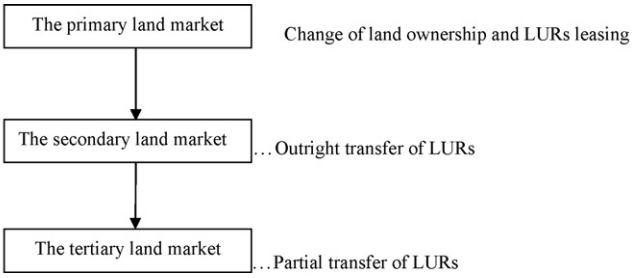

Fig. 1. Stratification of land markets under the LURs system.

fer of LURs as a bundle of rights between individuals/corporations with government permission. If the government needs land for construction of public facilities, it can acquire collective land in the primary market or purchase LURs from other land users in the secondary market; the tertiary market means the partial transfer of LURs between individuals/corporations, for instance, the rental or mortgage of LURs.

With the establishment of LURs, China's real estate market began emerging. As the political situation and economic growth stabilized and foreign investment further increased, the real estate market flourished. In the early 1990s, China's real estate market reached its peak in terms of growth rate. In 1992 and 1993, the GDP growth rate was 14.2% and 13.5%, meanwhile real estate investment increased by 117.6% and 165% respectively (China Statistics Yearbook, 1994, 2006, 2007). With surprisingly high profit from real estate development, local government agencies, banks, enterprises and individuals plunged into the real estate market, and the nation was gripped by "real estate fever (Chen, 1998)". There was a rapid increase of luxury housing. In Shenzhen, for example, the average house price increased from 3000 Yuan/m^2 at the beginning of 1991 to 4000/m^2 by the end of the year (Zhu, 1997). In July 1993, the government announced measures to strengthen control over the country's overheated real estate market along with efforts to tighten monetary policy and speed up banking system reform (Chen, 1998).

The establishment of a land supply market mechanism and land banking system (1996–mid-2003)

With the establishment of the LURs, land leasing became a major resource of local revenue. Realizing the substantial increase of land value, various *de facto* landholders, such as state-owned enterprises (SoEs), *danwei*[1], collectives, and army organizations, rapidly entered into land leasing. These groups either formed a development partnership with the private sector or transferred their free allocated land to developers illegally, which has caused chaotic land supply and weakened the ability of municipalites to control land markets and city development.

Understanding the importance of land banking for enhancing government intervention, circumscribing land speculation, and increasing local revenue, Shanghai established the first land banking agency of China in 1996. Hanzhou city set up its land banking center in 1997, which has been regarded as the most successful among Chinese cities in terms of raising public funds. In 2001, the State Council issued a notice which encouraged local governments to learn from the experiences of the Hanzhou land banking center in order to establish their own successful land banks. At present, more than 2000 cities and counties have set up their own land banking organizations. As a consequence, the role of the government in urban land markets has been substantially enhanced. Theoretically, the government has become the single supplier of land in the primary market, and *danwei* and SOEs can no longer enjoy the privilege of allocated land free of charge.

Usually the bank owned land will be sold through auction or tender several years or just after the municipalities acquire the land, depending on the market demand. Since August 1997 when the Land Banking Center was established, Hanzhou has acquired land of more than 667 ha, leased land of 260 ha, and received a revenue of more than RMB 5 billion by the end of 2003. Only 45% of their revenue was from land costs such as compensation, land servicing and land administration, showing the huge benefit of land banking.[2]

Initially, land banking was proposed for price stabilization and enhancing the ability of government to control land supply. In an ironic turn of events, land banking has been blamed for the rise of average housing prices over the last several years (Liu, 2003). The national average land price increased by 10% during the first half of 2002 when the nationwide land banking system was introduced. The average house price of Hanzhou was around 2700 Yuan/m^2 of building area in 1997, but it jumped to 5565 Yuan/m^2 in 2004.[3] It has been argued that the increasing monopolization by the government and complete implementation of auction or tender in land supply for profit have resulted in the rise of land prices, making housing unaffordable for many Chinese families.

Over time, the way of acquiring land has greatly changed. In the 1980s and most of the 1990s, LURs were acquired through negotiation, tender and auction. Negotiation provided local governments with large discretion of establishing land prices. In the late 1990s, to eliminate under-the-table negotiations and to create a fair and transparent land transaction system, tender and auction were gradually introduced into land supply in costal cities such as Shanghai, Guangzhou and Shenzhen. In March 2002, the MLR issued the no. 11 circular, requiring abolition of negotiation in the supply of all for-profit developable land. Land for commerce, tourism, recreation, finance, services and commodity housing must be supplied through auction or tender from 1st July 2002 onward.

Land policy as a part of national macro-control system (late-2003–present)

Since the early 2000s, the Chinese economy has entered a new period of development. The manufacturing sector with its strong demand for energy, electricity, raw materials and other products fuels a larger amount of investment. The government has had to take a series of measures to deal with the overheated economy, including raising the interest rate and the reserve requirements of banks in order to temper the economy (Xinhua, 2005).

The government believes illegal land supply is a leading cause of the runaway investment[4] (Xinhua, 2006). In September 2003, the central government announced that land policy, along with fiscal and monetary policy, would be applied as a major part of national macro-control measures. In order to contain speculative demand and continuously increasing housing costs, the State Council in 2004 issued the "Eight Measures" and the "Fifteen Measures" which required an increased supply of small flats, a raise in down payment amounts and a sales tax charge if a house is resold within 5 years.

In 2006, land supply policy was transformed from quantity control to structure control. In May, the State Council put forward the "Six Measures" that addressed the structure of housing supply, taxation, real estate loans, land supply, low-rent housing, and affordable housing.

According to the research of China Land and Mine Resources Law Center (2007), changes of land policy since 2003 have had significant but debatable impact on city development and housing affordability. In general, the positive changes have included: (1) Land policy playing an active role in the improvement of indus-

[1] Literally, danwei is a work-unit. According to Lv and Perry (1997), danwei refers to a variety of state-owned enterprises, non-profit institutes and governmental bureaus where most urban residents were employed during China's centralized system. A danwei is a work unit that has such attributes as personnel administration, communal facilities, urban or non-agricultural purview and public sector.

[2] *Source*: http://www.lifeweek.com.cn/2004-10-19/000539901.shtml, accessed on 27/11/2004.

[3] *Source*: http://house.focus.cn, accessed on 17/11/2004.

[4] A survey of 16 cities by the Ministry of Land and Resources in 2005 showed that nearly 50 percent of the new land under development was acquired illegally. The figure was as high as 90 percent in some cities.

try structure through forbidding land from being leased to projects which are inconsistent with national industry policy, development planning and entry standard; (2) The area of land supply has greatly decreased due to stringent control. In 2004, the total LURs sales area decreased by 23.3% to 219,670 ha, compared with the 2003 level. One year later, the land supply area was reduced to 180,326 ha. Meanwhile, GDP generated by unit of developable land increased substantially. In 2004, GDP per hectare of land was RMB 73 million, and climbed to RMB 101 million in 2005; (3) Brownfield land has replaced Greenfield land to become the major source of land supply. Since 2004 the Brownfield land development has overtaken Greenfield land for the first time, and occupied more than 55% in 2005. As a result, the loss of arable land was alleviated. In 2005, farmland converted into developable land was reduced 37% compared with 2004 levels.

Despite the positive changes, this series of land policy reforms has been criticized for being unable to achieve the expected objectives, such as cooling down an overheated economy and increasing housing affordability. In 2006, fixed asset investments reached RMB 3 billion, increased 26% from 2005. Also, in many cities such as Beijing and Shenzhen, housing prices did not drop as expected, but rose more than 10% (China Statistics Yearbook, 1994, 2006, 2007).

Since there is a time lag between policy changes and their actual consequence, we cannot hastily conclude these policies have failed. Nevertheless, excessive dependence on administrative control instead of market measures has been extensively criticized because of inexperienced policy-makers (Lin, 2006). For example, in 1997, to prevent the loss of cultivated land, a moratorium on land supply for profitable use was put in place for the entire year.

The role of government in land supply has experienced several changes since 1988. Highs and lows in the real estate market have been driven not only by market forces, but also by political force, involving many non-economic factors (Li, 1998). For example, the property boom in the early 1990s was facilitated and reinforced by market inefficiency and pitfalls in the system (Zhu, 1999). A prominent feature of the Chinese real estate market is the variability of policies over short time frames. It is not difficult to understand the frequency of policy adjustments, given the lack of experienced decision makers creating said land supply policies for an infant real estate market.

The role of the State of China in managing land supply

Central government and local government in land supply

Zhang (2000) states that central government and local government have different objectives towards land supply. This point is critical for understanding the land supply policies in China. The central government has a mixed attitude on sprawl: increasing revenue for a bigger budget is welcome, but spending more on agriculture related expenditures, especially on importing food due to cultivated land loss is more serious. Local municipalities support leasing more land since spending on agricultural-related and food supply programs are less a local responsibility, while land revenue is a main source for funding public projects, especially infrastructure extension.

In practice, government departments at the national and provincial levels are more involved in formulating policy and supervision. In contrast, municipal governments have more power in controlling land and real estate affairs. The battle between central and local government is a continuing Chinese conflict.

Under the pressure of budget tightening from the central government and increasing land demand, local governments were motivated to lease as much land as needed to enlarge revenue in the late 1980s and early 1990s. Through the issuance of an amended land law in 1998, the central government strengthened its control in land management. The new law stipulated that development of any basic farmland[5], any cultivated land exceeding 35 hectares, and any land covering more than 70 hectares must be approved by the State Council (Article 45).

Meanwhile, the distribution of LURs leasing fees between the central and local governments experienced several changes. In 1992, the Ministry of Finance issued "Provisional Regulation of Acquisition of LURs Leasing Fees", which stated that the central government could keep 5% of all LURs fees. With the decentralization reform at the end of 1994, all LURs fees went to local governments until 1998 when the Land Management Law was amended. The central government could then receive 30% of the revenues from leasing newly acquired farmland[6]. In 2006, the central government issued another notice aiming to stop local governments from giving land to investors free of charge or at very low prices. Moreover, in order to rein in local governments, the new policy required that land revenues must be incorporated into local budgets so they can be scrutinized by higher authorities.

Observing several big changes of land supply policy, we can conclude that the central government has been playing a leading role in land reform. This is largely due to the nature of the centralized regime in China. While local governments enjoy much freedom in local city development, their autonomy in controlling local growth has been weakening due to increased control from the central government.

Entrepreneurial local state and land supply

Liew (1995) attributes the success of the Chinese gradualist economic reform to strong government and the participation of the cadres in business. Wu (2002) notes that local governments have strong incentive to develop their own business activities in order to increase local revenue sources, The close relationship between the governing and the governed in economic activities at the local level forms a basis for entrepreneurial endeavor. Under this development-oriented approach, local governments are committed to GDP growth and city image. These two elements have been used as the main means of evaluating performance of both the leadership and local officials (Chen and Berrell, 2004).

In land markets, as the agent of the state, local governments become *de facto* landowners, providing it with incentives to maximize its own revenue and minimize the cost of city growth. The decentralization in the early 1990s has made local governments fully-fledged economic actors, not just administrative-service providers as they are in other countries. Due to this new role, coalitions between local government and local industries have arisen to maximize profits (Zhu, 1999).

This coalition is lauded as a catalyst in the rapid growth of the real estate industry which has grown more than 50 times from 1988 to 2005 (China Statistics Yearbook, 2006). In 2003, real estate investment contributed 1.8% to the national GDP growth rate of (9.3%), without considering the multiplier effect of the real estate industry for other sectors such as steel, finance and decoration. The real estate industry has therefore been regarded as one of the pillar industries in China.

[5] The basic farmland protection districts are divided into two levels. The first level consists of high-quality farmland with high productivity, which cannot be converted into non-agricultural uses in the long term. The second level consists of good-quality land, which cannot be converted into non-agricultural uses in the planned periods, say 5–10 years (Ding, 2003).

[6] *Source*: http://www.dnxf.com/article/1/2.00611022309_2.html, accessed on 20/06/2008.

Nevertheless, this coalition also incurs wide criticism. In order to attract foreign investment, some local governments provide foreign investors with free land. On occasion, these governments provide factory buildings for investors, benefitting local governments, but for the national economy, many of the investments are repetitive and excessive (Lin, 2006). Meanwhile, local governments' extensive participation in the market exacerbates the already considerable lack of transparency in local fiscal matters, reducing the effectiveness of budgetary procedures, creating considerable opportunities for waste and corruption, distracting government officials from their primary task of providing public services and hindering market reform (Wang, 2003).

Furthermore, development-minded local authorities are inclined to lower compensation standards[7], either in farmland requisition or in urban redevelopment. Generally speaking, throughout the country standards for compensation were not well defined (Han, 2000). The 1998 Land Management Law has left much leeway for local authorities to formulate their own compensation standards. In many cases, the lives of affected farmers were much worse after losing their land because they could not receive enough compensation to maintain their standards of living in the future.

According to a rough estimation in the Yanze River Delta (YRD), average compensation standard for farmland was 375,000–450,000 Yuan per hectare and the average LURs assignment fee was 2,100,000–5,250,000 Yuan per hectare in 2002. The former figure is around one-tenth of the latter. The number of farmers who have lost their land because of land requisition in the YRD is around 40 million, and the majority of them have no job or social security support.[8]

The ability to offer low compensation has encouraged local authorities to occupy more land than they need. From 1996 to 2002, the average loss of cultivated land area per year was 10,270,000 Mu (Chinese unit: 1 Mu = 1/15 ha) (Bao and Hu, 2003). Owing to the low compensation cost, a large amount of requisitioned land has been acquired by local authorities but not developed. A survey of 10 provinces in 2003[9] shows around 43% of expropriated cultivated land has long been vacant.

Various stakeholders in urban land supply

In principle, under the LURs system, urban land is state-owned, while rural land is collectively owned. Nevertheless, according to Ho (2001), three conflicts arise due to the diversity of stakeholders in land markets. First, is the competition among different state institutions. Second, is the competition between rural collectives, and the final conflict originates through disputes between the state and the collectives.

Under the LURs system, the government is simultaneously the landowner, the provider of collective goods and the owner/manager of *danwei* (Deng, 2003). As mentioned above, local government is not the single supplier of land, while SOEs, *danwei* and collectives played active roles in the land market. As agent of the state, the *danwei* landholders do not pay an LURs fee, and use land as a share to build estates with developers. Usual practice sees developers investing in building structures, and returning a certain amount of floor space to the *danwei* as a condition of receiving free LURs. Although *danwei*, is not permitted to transfer the LURs, danwei land users, through cooperation and special negotiations with developers, can capitalize on the allocated land.

Under large-scale urban redevelopment, and a lack of central regulations, *danwei* land users have invented various methods to convert their land into profitable use. Factory relocation and exchange of land between users are common, and *danwei* may become a partner with a third party, involved in businesses that are unconnected to their function (Wu, 2002). As the principal agent of governments, *danwei* has been granted many privileges through either financial subsidy or the state's implicit approval of their activities. Because of the complex relationship between segmented bureaucracies, authorities find it difficult to control the land use of *danwei* in the same way as other land use in the city is regulated, resulting in dualism in the land market.

Meanwhile, collectives lease much land for urban use in the informal land market. The Land Management Law strictly prohibits collective land from being converted into state land without going through lengthy legal procedures, but collectives, driven by the benefits of soaring urban land prices on the city periphery, have dramatic incentives to develop their land for profitable uses illegally. For example, many village committees collect money from indigenous residents and build apartments for sale (*Jizi* house) with profits shared among the villagers. Since the sale of "*Jizi* house" is against the national legislation that the collective land cannot be transferred, the buyers of "*Jizi* houses" cannot be granted legal titles. The prevalent "*Jizi* house" has had an enormous impact on the urban real estate market. From 1990 to 1998, the floor space of "*Jizi*" housing units amounted to 12 million square meters in Guangzhou, nearly one-third of the total authorized completed floor space (Li, 2004; Tian, 2008).

Therefore, motivated by maximizing land asset value, various landholders actively participate in land supply through leasing their free allocated land to organizations or individuals in the booming informal land market. With establishment of land banking, theoretically, the state has become the single supplier of land in China, but they have yet to control the booming informal market where the *Jizi* is making certain land owners a large amount of money.

Impacts of land supply on city development in China: a case of Guangzhou

Guangzhou, located in the Pearl River Delta of Guangdong Province, is one of the fastest growing cities in China and is considered to be 'one step ahead' of the rest of China in economic reforms and development because of its proximity to Hong Kong (Vogel, 1989). Guangzhou is selected as a case study here based on the following reasons: (1) Guangzhou is one of the cities which took the lead in establishing the LURs system and introducing the auction and tender system of land; (2) The land market of Guangzhou is relatively sophisticated compared with the rest of China.

As stated earlier, land supply is a two-edged sword in Chinese city development. Looking at the first edge of that sword, government incentive is crucial. Qian (1999) argues that competition among localities can foster resource use. Qian and Weingast (1997) assert that linking local government expenditure with revenue generated will ensure local governments face the financial consequences of their decisions. In this manner, local governments gain more discretion and responsibilities over their own economic and social affairs.

[7] There may be some exceptions under some situations where a portion of value of LURs may be offered as an incentive to encourage existing land-users to relocate themselves quicker in order to achieve more speedily goals of urban redevelopment or environmental protection (Xie et al., 2002).

[8] http://www.house2008.com/article.asp?articleid=6048, accessed on 3/29/2004.

[9] *Source*: http://www.house2008.com/article.asp?articleid=6048, accessed on 29/03/2004.

Table 1
Land auction and tender in Guangzhou

Year	Number of LURs sales	Land area (ha)	Floor space (m^2)	Asking price (million Yuan)	Transaction price (million Yuan)
1997	1	0.39	31,552	88.0	88.0
1998	7	10.12	399,378	540.0	564.0
1999	5	5.77	217,241	–*	272.9
2000	7	41.66	1,009,623	1245.1	1387.5
2001	2	9.14	197,330	168.0	168.0
2002	7	22.5	510,912	–*	1186.9
2003	11	23.3	812,031	2082.5	2107.6
2004	4	11.8	366,756	804.7	867.3

Note: * means that LURs are achieved through tender, and therefore no asking price is provided.
Source: Guangzhou Land Development Center (2005).

Table 2
The contribution of LURs fee to government revenue in China

Year	Area of LURs sales ha	LURs fee (million Yuan)	Government revenue (million Yuan)	LURs fee as a % of total revenue	LURs fee per m^2 of land (Yuan/m^2)
1993	57,338	42,078	434,900	9.7	73.4
1994	49,432	63,795	521,810	12.2	129.1
1995	43,092	38,752	624,220	6.2	89.9
1996	34,048	34,889	740,799	4.7	102.5
1997[a]	–	–	865,114	–	–
1998	62,058	50,769	987,595	5.1	81.8
1999	45,391	51,433	1,144,408	4.5	113.3
2000	48,633	59,558	1,339,523	4.4	122.5
2001	90,394	129,589	1,637,104	7.9	143.4
2002	124,230	241,679	1,891,464	12.8	194.5
2003	293,604	542,131	2,171,525	25.0	184.6
2004	181,510	641218	2,571,800	24.9	353.3
2005	163,200	550,515	3,164,900	17.4	337.3
2006	232,500	767,689	3,937,300	19.5	330.2

Source: China Land Resources Yearbook (1993–2007), China Statistics Yearbook (1993–2007).
[a] In 1997 the State Council stopped land leasing for the whole year to provide a buffer for policy adjustment and prevent the loss of cultivated land.

Financial revenue from land leasing provides local governments with incentives to regulate the land market according to local situations and capture surplus value through LURs fees and real estate taxes. Nevertheless, the financially motivated local governments incur many problems, short-termism and rent seeking are the two most prevalent. Local government hastily leases much more land than actual demand necessitates. This is done to capture the short-term land revenue, and thus, problems of sustainable land supply and neglect of provision of social welfare arise. The benefits and problems of land supply reform coexist, which is easily demonstrated in Guangzhou.

Change of land supply means

Before 1997, negotiation was the dominant way of acquiring developable land, and land price varied largely from developer to developer. In November 1997, the Guangzhou Municipal Government required all urban land, except that used for public services, public housing, government agencies and defense, to be acquired through tender or auction, in order to reduce oversupply of urban land, curb land speculation and nurture the land market. Through this municipal edict, Guangzhou took the lead in the comprehensive introduction of auction and tender in the China land market. Nationwide auction and tender was implemented in 2004.

Table 1 shows land area leased by auction and tender in Guangzhou since 1998. Compared with negotiation, auction and tender can reflect market price more precisely and reduce the opportunity for corruption, providing more certainty in the land supply side. In 1993 when negotiation was the major means of land supply, average land price was 524 Yuan/m^2 in Guangzhou. From 1997 to 2004, the average price of land through auction and tender was 5328 Yuan/ m^2, indicating a large difference in prices between the artificial allocation and the market mechanism[10]. From 1997 to 1999, auction of two pieces of land failed because the asking prices were higher than developers' expectation. Since 2000, all auctions and tenders have been successful, and the municipal government, after gaining more experience, has been responsive to market needs.

Contribution of LURs fee to government revenue

Under the LURs system, the government assigns LURs to land users based on contractual arrangements. Besides specifying planning parameters and lease duration, the land use contract indicates the amount of the LURs assignment fee. Only after paying the LURs assignment fee and satisfying other requirements of the land use contract such as Floor Area Ratio and building height limit can the applicant acquire the LURs.

In China, in most cases, the LURs assignment fee is a lump sum premium collected by local governments through negotiation, auction, or tender in the primary market. Table 2 shows that the LURs fees contributed to almost 14.6% of government revenue from 1992 to 2006. Another noticeable phenomenon is the growth of LURs fees generated per unit of land. Compared with 1993, government's revenue from every square meter of supplied land has nearly quintupled from 1993 to 2006. This increase is attributed to government infrastructure investment and the favorable macro-economic environment Fig. 2.

[10] *Source*: Guangdong Land Society (1996). "Study and Exploration of Land Management", Guangdong Map Press (in Chinese).

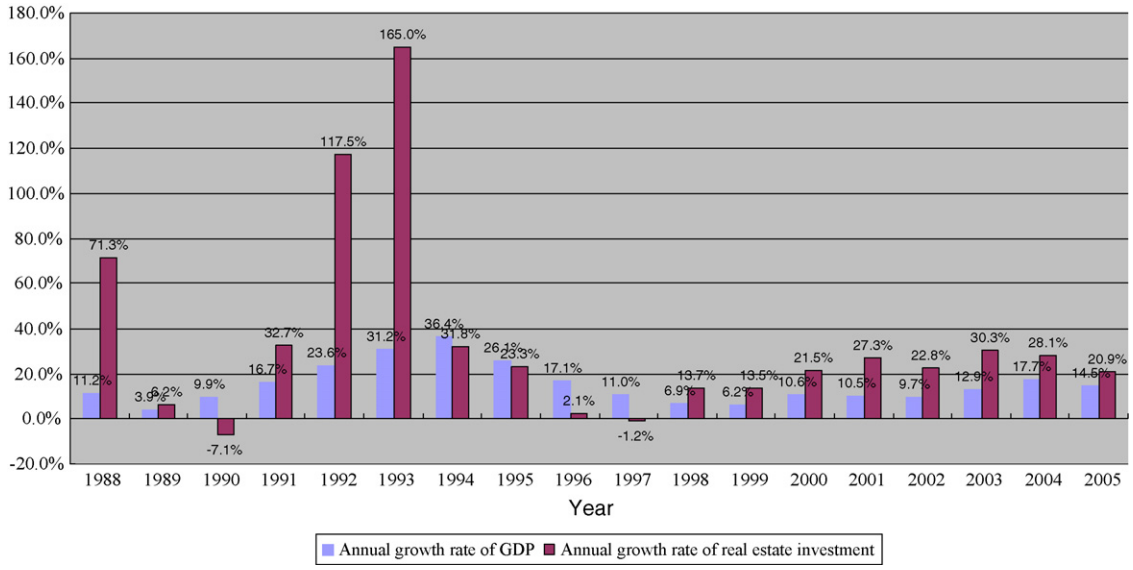

Fig. 2. Comparison between the growth of GDP and real estate investment. *Source*: China Statistics Yearbook (1989–2005).

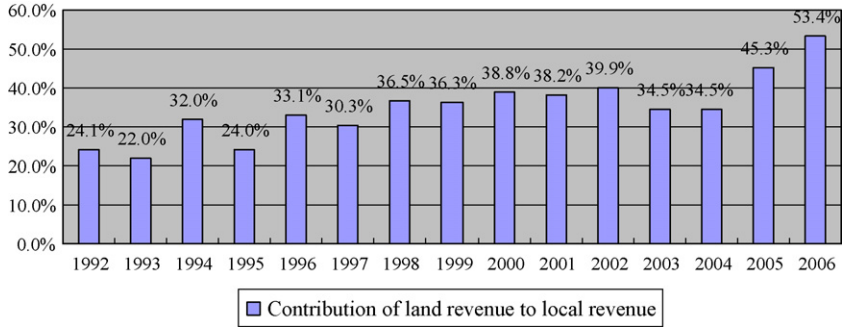

Fig. 3. The contribution of LURs fee to local revenue of Guangzhou. *Source*: Guangzhou Statistics Yearbook (1993–2005), Guangzhou Land Resources Bureau.

At the municipal level, the LURs fee has proved to be a major source of local revenue. Fig. 3 shows that the LURs fee has been playing an increasingly active role in local revenue of Guangzhou since the early 1990s, and its contribution to local revenue ranges from 20% to 55%. As a whole, the Guangzhou Municipal Government received 38.5% of local revenue from LURs fees and real estate taxes from 1992 to 2006 (Fig. 3).

Infrastructure expenditure composes a large portion of local budgets and can lead to increased land prices, therefore giving the government legitimate cause for recouping part of land-value increments generated by its investment. LURs fee is an effective tool to recover the investment in infrastructure. Fig. 4 shows that infrastructure investment increased rapidly during the period of 1992–1999, and then remained relatively stable in Guangzhou.

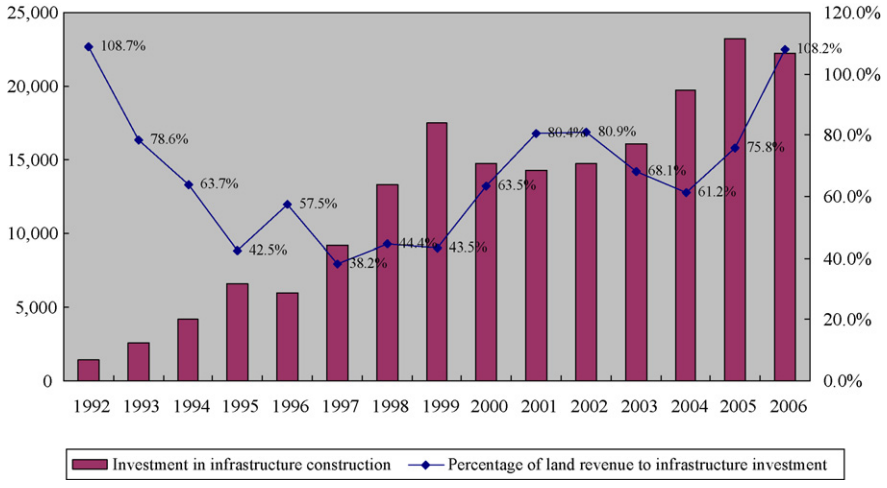

Fig. 4. Percentage of LURs fee to infrastructure investment in Guangzhou. *Source*: Fifty years of Guangzhou, Guangzhou Statistics Yearbook (2000–2004).

Table 3
Growth of Chinese cities

Year	Urban population (Million)	Urbanized area (ha)
1990	302	12,856
1995	352	19,624
2005	562	32,521

Source: Chinese Statistics Yearbook, 2006.

The upsurge in the late 1990s is derived first from the needs of a fast-growing city; and second, is reinforced by the adjustment of macro-financial policy to encourage massive investment in infrastructure.

Under the tutelage of Premier Rongji Zhu, China engaged in an immense Keynesian-type stimulus of public sector spending from 1998 to 2000. Premier Zhu began this spending to successfully counter the deflation caused by insufficient consumption demand. During the early 1990s, LURs fee played a central role in funding the construction of infrastructure facilities. With the dramatic increase of infrastructure investment, LURs fee alone was not sufficient to raise funds for infrastructure construction. The LURs fee, however, has provided a substantial amount toward infrastructure over the period from the early 1990s to present. The percentage of LURs fee to infrastructure investment ranges from 38% to 108%, and the annual average percentage was 68.3% from 1992 to 2006. If all LURs fees were used for infrastructure construction, it would have funded around 68.3% of infrastructure investment from 1992 to 2006.

Land supply and city growth

Driven by an incentive to maximize benefits of land leasing and the pressure from developers to acquire land, local governments were trapped by an oversupply of land. Zhang (2000) defines the rapid city growth in the early 1990s as the Chinese version of urban sprawl. Official statistics demonstrate that at the same time the urban population increased by 16.5% from 1990 to 1995, the urbanized area increased by 52.6%. Therefore, the rapid growth rate of the urbanized area was driven not only by the demand of an increasing urban population but also by the ambition of local governments to raise local revenue and attract investment through land leasing. From 1995 to 2005, the urban population increased by 59.7%, while the urbanized land area only increased 65.7%, meaning that the tight policy of farmland protection after 1995 had curbed urban sprawl to some extent, as summarized in Table 3.

Figs. 5 and 6 present the changes of land supply and the built-up area in Guangzhou from 1992 to 2006, the latter being the actual land demand. The sharp increase of land supply in 1998 was attributed to the forthcoming 1998 Land Management Law. In order

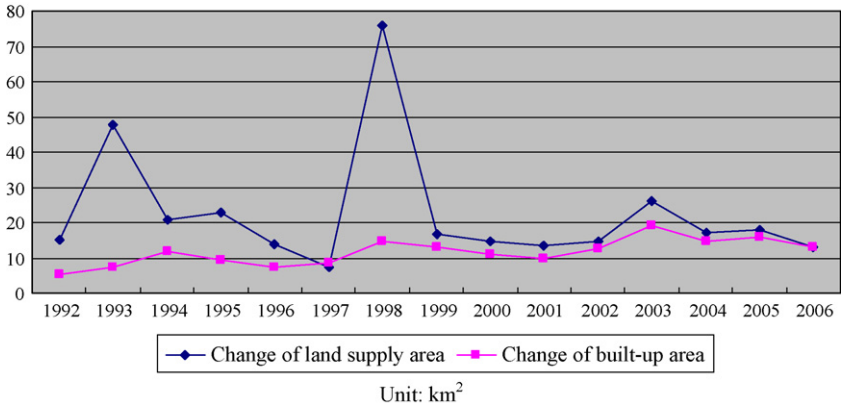

Fig. 5. Comparison of changes of land supply and built-up area of Guangzhou. *Source*: Guangzhou Urban Planning Bureau, Guangzhou Land Resources Bureau.

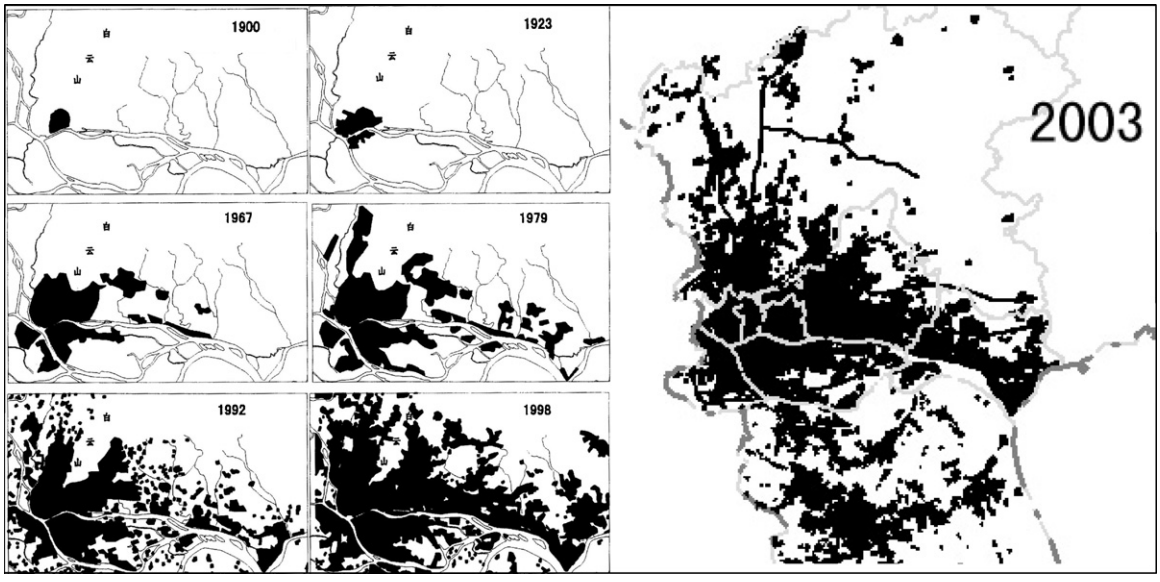

Fig. 6. Rapid city expansion of Guangzhou since the last century. *Source*: Guangzhou Urban Construction Archives.

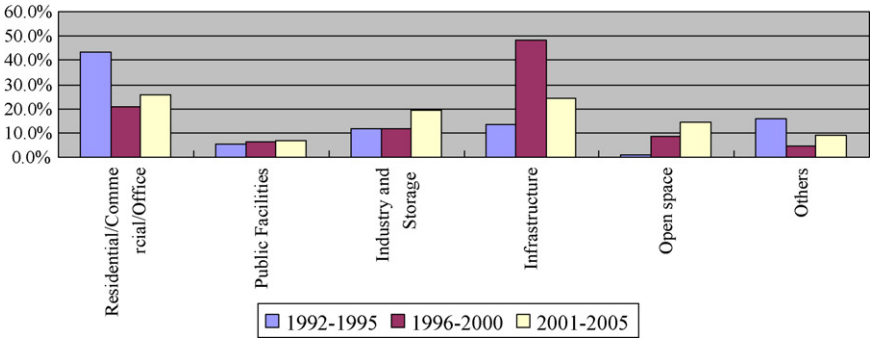

Fig. 7. Changes of the land supply structure in Guangzhou. *Source*: Guangzhou Urban Planning Bureau, Guangzhou Land Resources Bureau. *Note*: Others mainly include the land for military use, religious use and construction in the rural area.

to increase land stock to avoid future application for approval from the State Council, the Guangzhou Municipal Government leased around 37 km^2 of land for Guangzhou Science Park in 1998. The land supply, however, has been approaching actual demand since 1999.

The imbalance of land supply is reflected not only in quantity of land, but also in structure of supply. During the early 1990s, the heated demand was mainly for high-grade housing, high quality office buildings and hotels. The heated real estate market, however, also suffered more severely from cyclical setbacks as macroeconomic conditions became less favorable. In the middle and late 1990s, with the cooling down of the real estate market and numerous problems generated by the neglect of infrastructure facilities, local governments had to adjust the structure of land supply to pay down the debt for insufficient budgeting of infrastructure and open space spending (Fig. 7).

Fig. 8 compares the proportion of land for various uses in total supplied land in Guangzhou during three periods, namely, 1992–1995, 1996–2000, and 2001–2005. From 1992 to 1995, most land was supplied for residential, commercial, and office use to increase LURs fee, and land supplied for infrastructure was far from adequate. After 1995, due to national real estate regulations and aggravation of urban problems incurred by the lack of infrastructure facilities, in particular transportation facilities, local governments had to adjust their land supply policies. The Guangzhou Municipal Government, at this time, reduced land supply for profitable use and increased land supply for infrastructure, open space and high-tech from 1996 to 2000. After 2000, with the revival of the real estate market, the proportion of land for profitable use increased slightly, and the proportion of infrastructure decreased, owing to substantial supply of land for infrastructure in the earlier period. Meanwhile, the proportion of land for industrial, storage, and open space in total land supply increased, mainly because the Guangzhou Municipal Government put its emphasis of economic development in the port industry and designated much land for ecological corridors in 2003.

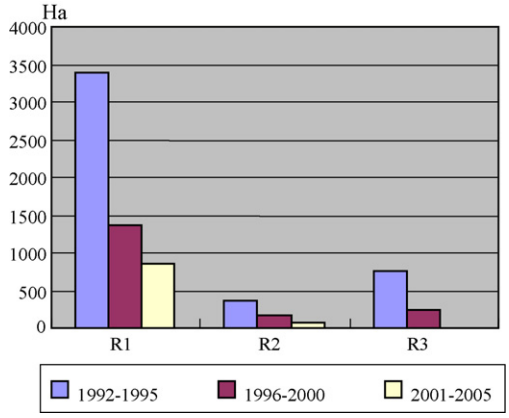

Fig. 9. Residential land supply by different types in Guangzhou. R1: Land for Commercialized Houses. R2: Land for *anju* Projects. R3: Land for Welfare Housing (Built by work-units). *Source*: Guangzhou Urban Planning Bureau.

Land supply and housing affordability

Since 1996, with tightening land supply policies and the abolition of negotiation for profitable-use land supply, the Guangzhou Municipal Government has been more responsive to market demands. The improvement of land management has somewhat squeezed the "bubbles" in the real estate market, and greater hous-

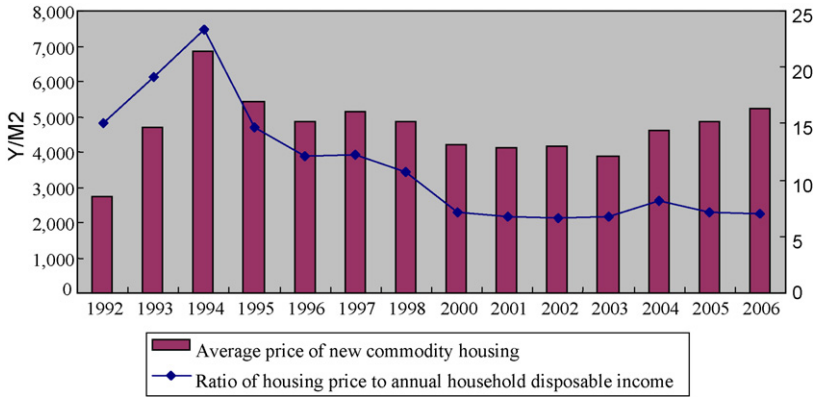

Fig. 8. House price changes and housing affordability in Guangzhou. *Source:* Guangzhou Statistics Yearbook (1993–2005).

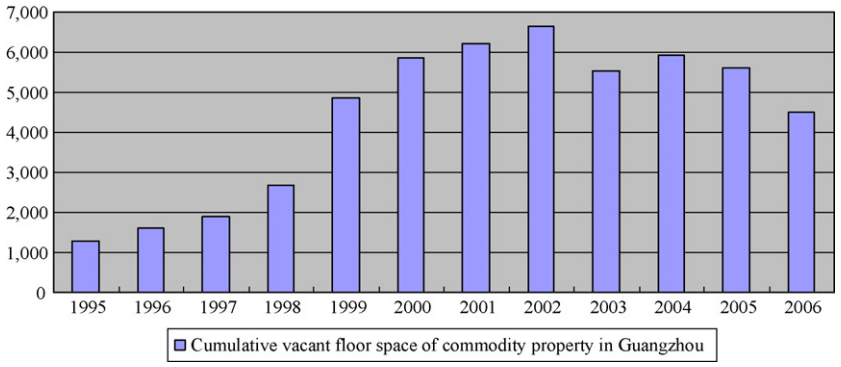

Fig. 10. Cumulative vacant commodity property floor space in Guangzhou. Unit:1000 m^2. *Source*: Guangzhou Statistics Yearbook (1996–2007).

ing affordability serves as an example (Fig. 9). The average new commodity housing price reached its peak in 1994, and then began to decline and remained relatively stable after 1995.

Along with the decrease in housing prices, disposable household income has been increasing. A key indicator of housing affordability, the ratio of housing price to annual household, was largest in 1994, meaning housing was most unaffordable during that year. However, housing became increasingly affordable after 1994 for the succeeding ten years. However, one decade later, the average housing price increased due to the heat up of the Yanze River Delta real estate market, resulting in a decrease in affordable housing.

Land supply for affordable housing has not been high on the agenda of the government. Since 1995 the government has begun to provide some Economic and Comfortable Housing (*anju* projects) for middle and low-income households, and the land for *anju* projects is exempted from LURs fee to lower the price of *anju* houses. Nevertheless, under the development-oriented approach, local governments pay much less attention to land supply for *anju* projects than land supply for commodity housing.

Fig. 10 compares the area of land for R1 (Land for commodity housing), R2 (Land for *anju* projects) and R3 (Land for welfare housing) in three periods, 1992–1995, 1996–2000, and 2001–2005. The result shows that the proportion of R1, R2 and R3 in total residential land supply is 75%, 8% and 17% for 1992–1995, 77%, 10% and 13% for 1996–2000, 89%, 11%, and 0 for 2001–2005 respectively. These figures do not demonstrate that government is paying more attention to affordable housing issues. Though the proportion of land for *anju* projects slightly increased during the research period, the share of *anju* projects is much less than that of commodity houses. For example, the completed *anju* floor space was 670,000 m^2 in 1996 and 1997, but the vacant floor of commodity houses reached 5,632,000 m^2 in 2004 (Fig. 10).

Conclusion

The Chinese economic reform is gradual, incremental and experimental in nature. Public ownership and the role of state in production are rigorously maintained, and urban land reform in China has followed a top-down approach (Li, 1998). Compared with the land freehold system, the LURs system provides important tools to manage the land market. Looking back at the evolution of Chinese cities, government intervention in land supply has had its benefits and its pitfalls. Beneficially, it substantially contributed to local revenue and financing of expensive infrastructure construction, facilitating city growth in China. The pitfall, desire of local governments to open up revenue through land leasing has contributed to the oversupply of land in the early 1990s and soaring land prices since the late 1990s, leading to problems of urban sprawl, loss of cultivated land and making affordable housing more inaccessible to middle and low-income households.

Empirical analysis, investigating the evolution of land supply policies, suggests that as the economy develops and commercialization progresses, the government becomes more professional in land management capability. The fact that land supply is now more responsive to land demand is evidence of a gradual learning curve on government response to the market. Nevertheless, the government has a long and arduous way to make land supply respond to market demand and city development more effectively and efficiently. As a primary study, this paper explored the impact of land supply on real estate markets and city development. Continued research on this subject is suggested to have a firm understanding on how land supply influences city development.

References

Bao, H., Hu, X., 2003. Establishment of a social security system for farmers whose land is acquired. China Real Estate Research 2003 (4), 1–27 (in Chinese).
Bertaud, A., Renaud, B., 1992. Cities without land markets, World Bank Discussion paper no. 227.
Booth, P., 1996. Controlling Development: Certainty and Discretion in Europe, the USA and Hong Kong. UCL Press, London.
Bromley, D.W., 1991. Environment and Economy: Property Rights and Public Policy. Basil Blackwell, Inc., Cambridge, MA, USA.
Bryant, R.G.W., 1972. Land: Private Property Public Control. Harvest House, Montreal.
Buchanan, J.M., 1975. The Limits of Liberty: Between Anarchy and Leviathan". University of Chicago Press, Chicago.
Burton, J., 1978. Epilogue: Externalities, Property Rights, and Public Policy: Property Rights of the Spoliation of Nature. In: Cheung, Steven N.S. (Ed.), The Myth of Social Cost: A Critique of Welfare Economics and the Implications for Public Policy. The Institute of Economic Affairs, London. Hobart paper 82.
Castells, M., Goh, L., Kwok, R.Y.-W., 1990. The Shek Kip Mei Syndrome: Economic Development and Public Housing in Hong Kong and Singapore. Pion Limited, London.
Chen, A., 1998. China's Urban Housing Market Development: Problem and prospects. Journal of Contemporary China, Princeton, 7–17.
Chen, L., Berrell, M., 2004. China's expanding real estate market: are the current growth rates healthy. In: Proceedings of the 16th Annual Conference of the Association for Chinese Economics Studies, Australia.
Cheung, S.N.S., 1978. The myth of social cost: a critique of welfare economics and the implications for public Policy. The Institute of Economic Affairs, London. Hobart paper 82.
China Land and Mine Resources Law Center, 2007. The evolution of land policy's involvement in macro-control policies of China, China Land 6, 53–56 (in Chinese).
China Statistics Yearbook, 1994, 2006, 2007. China National Statistics Bureau. China Statistics Press, Beijing.
Coase, R.H., 1960. The Problem of Social Cost. In: The Firm, the Market and the Law (1973). The University of Chicago Press, Chicago, London, pp. 95–156.
Deng, F.F., 2003. The political economy of public land leasing in Beijing, China. In: Steven, C., Bourassa, Yu-Hung Hong (Eds.), Leasing Public Land: Policy Debates and International Experiences. Lincoln Institute of Land Policy, Cambridge, MA, pp. 229–250.
Ding, C., 2003. Land policy reform in China: assessment and prospects. Land Use Policy 2003 (20), 109–120.

Doebele, W.A., 1987. The evolution of concepts of urban land tenure in developing countries. Habitat Int. 11 (1), 7–22.
Donahue, C., 1980. The Future of the concept of property predicted from its past. In: Penncock, J., Chapman, W.J. (Eds.), Property. New York University Press, pp. 28–68.
Dowall, D.E. 1993. Establishing urban land market in the People's Republic of China, APA, Journal of the American Planning Association, Chicago, Spring.
Han, S., 2000. Shanghai between state and market in urban transformation, 37. Urban Studies, 2091-2112 (11).
Ho, P., 2001. Who owns China's land? Policies, property rights and deliberate institutional ambiguity. The China Quarterly 166, 394–421.
Li, L., 1998. Urban Land Reform in China. St. Martin's Press, Inc., New York.
Li, J., 2004. Renovation of Chengzhongcun. Science Press, Beijing (in Chinese).
Liew, L.H., 1995. Gradualism in China's Economic Reform. Journal of Economic Issues 29 (3), 883–895.
Lin, J.Y., 2006. China's macroeconomic conditions in the first half of 2006: policy options and reflection on macroeconomic theories. <http://www.cenet.org.cn/article.asp?articleid=25136> (accessed 15.02.08).
Liu, W., 2003. The changes of land banking. China Real Estate Finance 3, 18–21 (in Chinese).
Loughlin, M., 1988. Apportioning the infrastructure costs of urban land development. In: Barrett, Susan, Healey, P. (Eds.), Land Policy: Problems and Alternatives. Gower Publishing Company Limited, Avebury, pp. 229–248.
Lv, X., Perry, E.J. (Eds.), 1997. Danwei: The Changing Chinese Workplace in Historical and Comparative Perspective. M. E. Sharp, Armonk, NY.
North, D., 1981. Structure and Change in Economic History. Norton, New York.
Oi, J.C., 1996. The role of the local state in China's transitional economy. In: Walder, A.G. (Ed.), China's Transitional Economy. Oxford University Press, pp. 170–187.
Payne, G., 1997. Urban Land Tenure and Property Rights in Developing Countries: A Review. Intermediate Technology Publications, London.
Qian, Y. 1999. The institutional foundations of China's market transition. Working papers 99011, Stanford University.
Qian, Y., Weingast B.R., 1997. Federalism as a commitment to preserving market incentives. Journal of Economic Perspectives 11 (4), 83–92.
Sened, I., 1997. The Political Institution of Private Property: Theories of Institutional Design. Cambridge University Press.
State Council, 2004, "Eight Measures" and "Fifteen Measures", <http://bj.house.sina.com.cn/focus/2006xinzheng/index.html> (accessed 15.10.07).
Stiglitz, J., 1994. Withering Socialism. The MIT Press, Cambridge, Massachusetts.
Tang, Y., 1989. Urban Land Use in China. Land Use Policy 6 (1), 53–63.
Tian, L., 2008. The Chengzhongcun land market in China: boon or bane?—a perspective on property rights. International Journal of Urban and Regional Research 32 (2), 282–304.
Vandergeest, P., 1997. Rethinking of property, Common Property Resource Digest, p. 41.
Vogel, E.F., 1989. One Step Ahead in China: Guangdong under Reform'. Harvard University Press, Cambridge, MA.
Wang, C., 2003, September. Economic growth under decentralization: old wine in new bottles? Another look at fiscal incentives in China. Paper at Workshop on National Market Integration, Beijing.
Wu, F., 2002. China's changing urban governance in the transition towards a more market-oriented economy. Urban Studies 39 (7), 1071–1093.
Xie, Q., Chanbari, A.R., Redding, B., 2002. The emergence of the urban land market in China: evolution, structure, constraints and perspectives. Urban Studies 39 (8), 1375–1398.
Xinhua, 2005. Investment growth to slow down, <http://english1.mofcom.gov.cn/aarticle/counselorsreport/westernasiaandafricareport/200503/20050300022606.html> (accessed 15.02.08).
Xinhua, 2006. Land supply tightened to curb economic overheating, 05/09/2006, <http://english.gov.cn/2006-09/05/content_378180.htm> (accessed 15.02.08).
Zhang, T., 2000. Land market forces and government's role in sprawl. Cities 17 (2), 123–135.
Zhu, J., 1997. The effectiveness of public intervention in the property market. Urban Studies 3 (4), 627–646.
Zhu, J., 1999. Local growth coalition: the context and implications of China's gradualist urban land reforms. International Journal of Urban and Regional Study 23 (3), 534–548.
Zhu, J., 2002. Urban development under ambiguous property rights: a case of China's transition economy. International Journal of Urban and Regional Research 26 (1), 58–79.