Instrumental Land Use and Investment-driven Growth in China

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Abstract: In the past decade or so, local governments in China have significantly increased their land development activities by acquiring land from farmers and leasing it on a large scale to industrial and commercial developers. This paper is an analysis of how land is used under China’s existing institutional background as a competitive incentive for local investment. It is argued that local land development activities have contributed to an investment-driven growth in China that is not sustainable in the long run. On the basis of a panel data covering all provinces from 1998 to 2005, we empirically analyze the impacts of public land leasing on local fiscal revenue and gross domestic product (GDP). Policy implications are drawn with regard to further steps in land reforms.

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Introduction

China, with one of the fastest growing economies in the world, is currently in the middle of its drive to industrialize and urbanize. From 1995 to 2005, the share of GDP for the manufacturing and construction industry (known as the secondary sectors) in total GDP rose from 39.9% to 47.5%, while at the same time the official urbanization rate (the share of urban population in total population) rose from 29% to 43.5% (NBS 2006).

Since the mid-1990s, fast industrialization and urbanization in China has been largely investment-driven. Though factors other than capital accumulation were important determinants of GDP growth during the early reform years between 1979 and 1995, during which total factor productivity (TFP) growth accounted for 30% to 58% of China’s development (World Bank 1997; Maddison 1998), the relative contribution of TFP growth to GDP growth declined quickly after the mid-1990s. This implies that China’s annual growth above 9 percent since that time was largely driven by increased capital investment, which grew at the amazing rate of 12.34% per year (Zheng and Bigstein 2006).

Investment-driven industrialization and urbanization inevitably involves the displacement of farmers from land around the cities and from places where industries locate. Indeed, land requisitioning has risen significantly since the mid-1990s in China’s suburban areas with rapid urban expansion and industrialization, as well as large-scale transportation development (Ho and Lin 2004). Accompanying local governments’ promotion of export-oriented development was the establishment of thousands of special development zones or industrial districts (Cartier 2001). Since the early 2000s, “zone fever” emerged in China with an indiscriminate reproduction of economic development zones and industrial parks across different parts of the country (Zhai 2007). However, the land used for such industrial parks and development zones are mostly expropriated with state-defined compensation packages from farmers in suburban areas.

Land use transformations in the processes of industrialization and urbanization in the past decade have resulted in a significant loss of existing arable land in China, as well as causing tens of millions of farmers to become landless. Each year about 2 to 3 million farmers lose their land to land acquisition that is associated with urban expansion (Tu 2004; Han 2005). Under China’s current legal framework system, farmers’ collectives that own the rural land must first sell it to the state and it is then up to the government to determine the compensation package for land requisition for the purpose of urbanization. In practice, many local governments expropriate farmers’ land with very low compensation and lease it to industrial and commercial developers. In the process of intensifying regional competition for investment, a “race to the bottom” type of game pushes local governments to offer low-cost land to attract industrial investment in order to boost future GDP and revenue growth.

Though there has been much anecdotal evidence of local land development strategies in the competition for industrial development, there is little literature to
analyze the issue of local land finance and how it relates to the investment-driven growth witnessed in China during the past decade, nor is there much empirical evidence to evaluate the impacts of local land development on local fiscal revenue and economic growth. By linking China’s investment-driven growth to local land development strategies and evaluating their fiscal impacts, this paper aims to analyze the political economy of local land finance in China. A better understanding of this issue, we believe, will not only help us to understand the political and fiscal incentives of China’s local governments in land development, but will also have important policy implications for future reforms in China’s land institutions.

The rest of this paper is organized as the follows. The next section analyzes the important roles played by Chinese local governments in promoting industrial development and how such roles relate to the investment-driven growth witnessed in China. The third section analyzes the institutional background of local land finance by arguing that one of the key instruments employed by local governments in regional investment competition is providing cheap land for industrial investors. On the basis of a panel data set of China’s provinces from 1995 to 2005, the fourth section examines the simultaneous and lagging impacts of land leasing on local budget revenue and GDP. The final section concludes with policy implications.

Local development state and investment-driven growth in China

Decentralization and local development state

As China experiences a transition from a centrally planned economy to an increasingly market-driven economy in the past two and a half decades, the forces of decentralization, marketization and political legitimization have transformed the country’s local governments into local states with a strong interest in economic development. Under China’s current political regime, the political legitimacy of the state largely builds on its ability to deliver economic growth and employment. This is why the Chinese government started its market-based reform in the late 1970s and the early 1980s after the chaos of the Cultural Revolution. Under the strategy of “Reform and Opening up”, the Communist Party of China has been advocating the objective of catching up with the developed countries, and so high GDP growth has been included in the central government’s policy agenda for decades. Accordingly, local governments in the reform period of China have behaved essentially like a developmental state that is strongly motivated to realize economic progress (Oi 1999). As some scholars have observed (Qian and Weingast 1996; Zhu 2004), all layers of government have strong incentives to push their subordinate levels toward GDP and revenue growth.

Decentralization, both administrative and fiscal, has played a large role in shaping local governments’ behavior during the reform period. The economic reforms initiated since the late 1970s can be characterized as a process of delegating more decision-making powers to the local level, which in turn pushes toward local innovative policies that may gradually lead to marketization (Montinola, Qian, and Weingast 1995; Qian and Weingast 1996). From the administrative perspective, the
role of local governments in investment approval, entry regulation, and resource allocation has been significantly enhanced. Beginning in the early 1980s and continuing through the 1990s, there was also the delegation of more state-owned enterprises to local governments at the provincial, municipality, and county levels.

The fiscal dimension of decentralization was no less dramatic. In 1980, the inter-governmental monetary system shifted away from “unified administration of revenue and expenditures” toward "cooking in separate kitchens" (fenzhao chifan), which divided revenue and expenditure responsibilities between the central and the provincial governments (Qian 1999, 2000; Wong 2000). After that, the central-provincial fiscal arrangement experienced further changes, such as the proportional-sharing system in 1982 and the fiscal-contracting system in 1988. In the 1988 fiscal-contracting system, the central government negotiated different contracts with each province on revenue remittances to the state and permitted most provincial governments to retain the bulk of new revenues.

All the administrative and fiscal decentralization measures have provided local governments in China with strong incentives to promote economic growth and mobilize revenue in their jurisdictions. The positive roles of decentralization have been emphasized by some economists who advocate the “second generation federalism”. It is argued that the "market-preserving federalism" witnessed in China has been a key factor in China’s growth miracle in the reform period (Montinola, Qian, and Weingast 1995; Qian and Weingast 1997). Therefore, by devolving regulatory authority from the central to local governments, the interventionist role of the central government can be limited and the initiatives of local governments can be used to cultivate the elements of market economy and facilitate local development.

However, compared to the liberal states that generally do not interfere directly with markets, the developmental state does not retreat to play a minimal role in the face of market forces, but rather involves itself in the market to coordinate economic development, and even aims to govern the market (Zhu 2004). This characteristic is apparent when one observes the development strategies of local governments in reforming China. Though before and after the mid-1990s local governments in China behaved quite differently in their growth-promoting policies, GDP and revenue maximization by market intervention has been a rule rather than exception throughout the reform period.

Empowered local government and regional competition through instrumental land investment since the middle 1990s
As decision making in economic administration is largely decentralized to the local level, empowered local governments have strong incentives to push forward investment in industrial sectors and infrastructure development. However, the economic development strategies of Chinese local government have experienced significant changes as the country’s marketization deepened. Still controlling much of the local state-owned enterprises (SOEs) and being able to influence banks in a decentralized financial system, local governments before the mid-1990s were able to borrow much from the banking system so as to channel the funds to local SOEs and
initiate large-scale industrial projects on their own (Bai et al. 1999). Not only were key input prices such as land, electricity, and other utilities, including water, electricity, etc., kept low through subsidies and controlled pricing, but cheap financing was also channeled into industries, particularly SOEs and township and village enterprises (TVEs), often effectively at zero cost. Preferential tax policies were also widespread before the mid-1990s, which gave local governments much discretion over tax policy and allowed them to use full tax exemption for certain periods of time to promote local SOEs’ and TVEs’ development (Lin and Liu 2000; OECD 2002).

As the Chinese banking system became centralized in the mid-1990s, local governments had much less influence on banks and thus much less access to direct financial resources through the banking system. Because SOEs and TVEs experienced a large-scale restructuring since the mid-1990s, local governments’ development policies have gradually shifted from protecting local SOEs and TVEs to promoting the development of new firms initiated by private entrepreneurs and investors from other regions in China and abroad (Li et al. 1998). Moreover, after the 1994 fiscal reform, tax administration was significantly strengthened and local governments found it increasingly difficult to attract investment by exempting taxes for industrial investors. The tax holiday policy on which local governments previously had some discretion then became limited to the enterprise income tax that constituted a relatively small share of the overall tax revenue. However, land as a key input to any industrial or commercial project is still not fully marketized, and local governments are allowed access to low-cost land under the current land administrative system. As a result, since the second half of the 1990s, land has become a key instrument for local governments in China in regional competition for investment.

By providing land at negotiated and usually very low leasing prices, local governments strived to attract industrial investors through “site-clearing” style “packaged development”. Usually at only nominal prices or even the so-called “zero price”, the prepared land was leased out for 30 years. Since local governments need to finance the land requisition and infrastructure preparation costs ex ante, leasing out industrial land at low prices inevitably implied that local governments were incurring net costs in the process. One example is the Pearl River Delta, one of China’s manufacturing centers. Many cities and townships there offered “zero-price” land in the late 1990s and the early 2000s to compete for industrial investors (Wei and Cong 2005). In Zhejiang, another developed province located in the Yangtze River Delta, the average provincial cost of land requisition and land preparation in the early 2000s was around 1.5 million Yuan per hectare, while the average leasing price was less than 1.3 million Yuan per hectare. For about one fourth of the industrial development zones, the land leasing price was less than half of the land requisition and preparation costs (Huang 2007). The city of Suzhou, which is in Jiangsu Province, is one of China’s most successful cities in attracting foreign direct investment (FDI), the average leasing price in the early 2000s was 2.25 million Yuan per hectare while the average land requisition and preparation cost was as high as 3 million Yuan per hectare. To compete for FDI with Suzhou, the cities of Wujiang and Wuxi, which are in the same province as Suzhou, lowered the average leasing price to 750,000 Yuan and
300,000-450,000 Yuan per hectare, respectively. Since the land requisition and preparation costs were similar in these localities, it is easy to see how much monetary loss was incurred in such investment competition (Gan 2006).

In the late 1990s and the early 2000s, urban expansion proceeded quickly with a fervent growth of “development zones” across China. After acquiring land from farmers at low costs, many local governments at the city, county and township level, set up local “development zones” and “industrial parks” with basic infrastructure such as water, electricity and road, as well as other supporting facilities. By the end of 2003, the number of local “development zones” or “industrial development districts” had reached 3,837. Among them, only 6% (232) were approved by the national government and 26.6% (1,019) were approved by the provincial governments. The majority of these development zones (2,586) were set up by local governments at the city, county or even the township level. By the end of 2006, the number of industrial development zones had grown to 6,015. At present there are 2,862 county-level administrative units in China, each of which on average has more than two development zones (Zhai et al. 2007).

**Regional competition and investment-driven growth**

Local drive to compete for investment easily led to loss of control on the macro-economy. Over-investment, periodic inflation, and industrial duplication across regions have been characteristics of the Chinese economy throughout the reform period (Lin et al 1999), and this pattern was no less significant in the 1990s than in the 1980s. After a brief recession between 1989 and 1990, China entered a frenzied period of growth, and investment soon reached 43.5% of China’s total GDP in 1993. Though investment dropped significantly after the bursting of a real estate bubble in the middle 1990s, investment surged again after 2000 with massive government funding for infrastructure and heavy manufacturing. At this time, local governments also competed hard for manufacturing and real estate investment by providing cheap land and carrying out large-scale infrastructure construction. China experienced another economic boom as investment in factories and forms of infrastructure reached unprecedented levels. Gross capital formation rose from 36% of the GDP in 2000 to 43% of the GDP in 2003, which was about 5 percentage points above China’s 1978 to 2003 average (Shane and Gale 2004; Zheng and Bigstein 2006).

Many economists studying China’s macro-economy agreed that after the mid-1990s China’s high growth has been largely investment-driven and local governments have played an important role in pushing forward such investment. The contribution of TFP in overall economic growth has been declining since the mid-1990s, which implies significant capital-deepening in the economy as a whole, as well as in manufacturing (Jefferson et al. 2003; Zheng and Bigstein 2006). As Blanchard and Giavazzi (2005) observe, there are signs of too much investment in China’s manufacturing for export, so investments on the margin have low returns. From 1990 to 2003, the share of GDP for China’s manufacturing sector in its total GDP grew from 43% to 52%, while in 2003 this share was only 28% for the world average and the average share for all middle and high-income countries was 41%.
Regional competition with instrumental land use: the institutional background

As discussed in Section 2, since the late 1990s local governments in China have been increasingly dependent on using land as an instrument to compete for investment in the manufacturing and real estate sectors. This section first introduces the urban land use system in China followed by an analysis of China’s intergovernmental system, which constitutes the institutional background for local land development strategies.

Land requisition and leasing system in China

In China the state owns virtually all the land in cities, and so it is the local governments at the city, county and township level that are in charge of urban land administration. Under the Land Administrative Law (LAL) promulgated in 1998, land users are required to pay the government substantial upfront leasing fees, known as the land conveyance fees, for 30 to 70 year periods, depending on the type of use. If cities expand to land in the countryside where land is collectively owned by farmers’ collectives, local governments need to first acquire the land from the rural collectives and then lease it to land users. This implies that any land users, when their needs cannot be met by the existing urban land, have to seek land acquisition. Therefore, by stipulating that the rural collectives cannot directly lease their land for urban usage, the local state in fact monopolizes the markets for land requisition and leasing in Chinese cities.

One of the problems with the LAL is that it fails to define clearly the conditions under which rural land may be acquired for development purposes. The LAL stipulates that land acquisition can be carried out only if it is to serve public interests. However, there is no clear definition with regard to what public interests exactly mean, and this inevitably expands the legal scope of land acquisition. In practice, not only the land used in government infrastructure building needs to be acquired from farmers’ collectives, but also the land used for industrial, commercial and residential projects must go through the government land requisition procedure as well.

It is stipulated in the LAL that the compensation for cultivated land taking includes three components: (1) compensation for land (6-10 times the derived land productivity, which is the monetary value of the average annual agricultural output value in the last three years); (2) compensation for resettlement (4-6 times the derived land productivity value); and (3) compensation for accessory assets in land (Ding 2005). Upon approval from the provincial authorities, the combined amount of resettlement and land compensation cannot be greater than 30 times the derived land productivity value. Though there are significant regional variations in the level of final compensation, farmers on average get 10-15 times of the derived land productivity value. After the land requisition, the state then utilizes the public land leasing system to lease the land at market prices to land developers and investors (Ding 2003, 2005).

Though in a few large cities like Beijing and Shanghai farmers in the suburbs often have considerable power in negotiating settlements for their land,
under-compensation in land acquisition has been pervasive in most localities. In recent years, the hardships and grievances of the dispossessed farmers have contributed to local social unrests and political instability (Guo 2001). The issue became so serious that in 2004 the central government had to take strong actions to constrain local abusive land taking; in the first half of that year, the central government ordered local governments to pay an arrear of 87.4 billion Yuan to farmers for underpayment in land requisition (Han 2005; Yu 2003).

After the land requisition, local governments can then lease the land either through negotiation (xieyi), by tender (zhaobiao), or by auction (paimai). Among these three types of public land leasing, negotiation is the least open or transparent while leasing by tender or by auction introduces at least two competing land users and thus is more competitive. However, most land sites, especially those for industrial users, have been distributed through negotiation. According to Ho and Lin (2003), of the land leased out in China during the five years between 1993 and 1998, 89% was by negotiation and only 11% was transacted by public tender or auction. In other words, the vast majority of land conveyance was done using the least transparent method. This has not changed in the 2000s. Although the central government has repeatedly required urban land leasing to be carried out in more transparent and open ways (either by tender or by auction), local governments still lease most of the land through negotiated prices, especially for land leased to manufacturers. According to Ministry of Land Resources (various years), 87.2% of land transactions in China were leased out through negotiation in 1998 and this figure was still as high as 72.1% in 2005.

Institutional background

To understand the fierce regional competition for investment through land leasing, especially through negotiated land leasing since the mid-1990s, the impacts of China’s intergovernmental fiscal and administrative system cannot be ignored.

Fiscal centralization and local land development

Fiscally speaking, local governments in China today have almost no formal tax autonomy under the current intergovernmental economic arrangement. Though before 1994 local governments enjoyed relatively high fiscal autonomy under the “fiscal contracting system”, the fiscal and tax reforms undertaken since 1994 significantly re-centralized control over formal budget revenue. The revenue-sharing rules between central government and local governments were changed in favor of the state while at the same time the role of transfers was increased. However, expenditure assignments have remained largely decentralized since then (World Bank 2002).

The most important tax introduced by the 1994 fiscal reform is the value added tax (VAT) that is levied on the manufacturing sectors. The central government claims 75% of it while local governments share the remaining 25%. The business tax and the income tax (both on individuals and enterprises) were also introduced as two major local taxes. However, in 2002 the state redefined the tax sharing rule by claiming 50% of the income tax revenue, which was further raised to 60% in 2003. As a result, with
the exception of the business tax levied on service sectors, the tax bases for sub-national governments are mostly minor taxes such as the urban maintenance and construction tax, vehicle purchasing tax, agriculture tax, stamp tax, pollution charge, urban and township land use tax, farmland occupation tax, vehicle and vessel utilization tax, slaughter tax, banquet tax, etc. The property tax, one of the most important local tax bases in many countries, has not been introduced in China.

Though expenditure assignment remained largely intact after 1994, the actual expenditure responsibilities shouldered by sub-provincial governments (prefecture, county, and township) have become much higher due to heavier local responsibility for maintaining the social safety net. This was associated with the transfer of SOE ownership from the state to local governments in the 1980s and the early 1990s, and a large-scale restructuring of China’s state-owned sectors in the late 1990s. Many of the social service and social security responsibilities that had been taken care of by SOEs were now passed to local governments without corresponding resources being set aside to meet them.

The lack of spending changes, corresponding to the revenue centralization since 1994, has created large vertical imbalances that have been offset by a sufficient quantity of equalizing transfers. After 1994, there was also significant revenue centralization at sub-national levels. The response of provincial governments was to squeeze even larger shares of revenue from lower level governments and at the same time assign more responsibilities to them. County and township governments suffered most in fiscal terms during this period (World Bank 2002).

Under financial pressure, local governments in China began to be increasingly dependent on various sources of extra-budget revenue. Despite the fact that the 1994 fiscal reform did not provide any meaningful tax autonomy to sub-national governments, they have gained de facto revenue autonomy by developing some other sources of revenues such as land leasing revenue, profits from SOEs, various administrative charges, as well as penalty and confiscatory income charges. In fact, the extra-budgetary revenue, especially that from land development, gradually became an essential revenue source for urban infrastructure development in many regions. As land leasing markets developed in Chinese cities in the second half of the 1990s, local governments became keen on using land to obtain extra-budget revenue. By the early 2000s, extra-budget revenue from land leasing in many coastal cities was as high as half or more of local budget revenue (Zhou 2004; Zhou 2006). Between 2000 and 2003, the extra-budget revenue from land leasing was 910 billion Yuan. In the year of 2005 alone, it reached 550 billion Yuan (UIE 2007).

**Cadre evaluation system and local land development**

Though local fiscal pressure due to revenue re-centralization can help to account for part of the local incentive to lease land for extra-budget revenue, it does not help to explain why local governments carried out most of their land leasing through negotiation. After all, the prices of land leasing by negotiation are usually very low such that local governments have to incur net costs in the process of land requisition, preparation, and leasing. So why did local governments initiate such “race to the
bottom” style of investment competition? This has to do with the political incentives of local officials under China’s current inter-governmental administrative regime.

China is a unitary party-state with significant political centralization. The Central Committee of the Chinese Communist Party (CCP) acts as the headquarters of local governments at all levels, which ultimately controls the mobility of government officials within the system. This highly centralized structure of personnel control remains intact even to this day (Li and Zhou 2005). In the reform period, the central government gradually developed a new and evolving cadre management system that is an elaborate apparatus overseeing the appointment, evaluation, promotion and dismissal of local cadres in a more decentralized setting (Tsui and Wang 2004). Under this system, the performance of individual government officials at sub-provincial levels is evaluated by a series of indicators imposed by the upper-level governments. These indicators usually include a number of economic targets such as the annual growth achieved in local GDP, the amount of revenue collected and the revenue contributions made to higher levels of the state, as well as the quantities of investment attracted. Successfully reaching or exceeding the targets set up by higher-level governments is very important for local officials seeking political promotion or staying in power.

Under such a political system, local government officials are keen in competing for industrial investment since fast growth of industrial sectors not only contributes to local revenue growth, but also helps local officials to rank higher in their performance evaluations relative to their peers in other localities, both of which would then raise their chances of promotion. Under a yardstick competition in which local officials strive to perform better, providing cheap land to industrial developers became a major instrument in investment competition, especially when other instruments such as outright tax exemption had been gradually eroded with the strengthening of tax administration during this period. Since under China’s current land administrative system it is much easier and less costly to acquire land from farmers than from urban redevelopment, local governments opt to provide land to industrial investors and real estate developers by setting up various development zones and industrial parks with the newly acquired land from farmers in urban suburbs. Even though in the process of “land requisition-land preparation-land leasing” local governments may incur some net loss, it is hoped that the industrial investment attracted can generate more budget revenues to compensate for the short-term loss, while at the same time the GDP growth brought about leads to better political performance in local cadre career evaluation.

Compared to the less mobile investment in residential and commercial sectors, manufacturing investment is much more mobile and thus has very elastic demand for land. Therefore, in regional yardstick competition for manufacturing investment, local governments usually have little choice but to lease the land by negotiation and at low costs. If local governments lease land by negotiation, and when most of such land is used for industrial purposes, local government will be able to secure a more stable and longer-term budget revenue stream from the VAT when the industrial production capacity solidifies. Though part of the budget revenue generated by investment due to
such cheap land leasing, i.e., 75% of the VAT, has to be shared by the central government, the revenue and GDP growth brought about by the manufacturing investment may still benefit local officials politically since it implies better political performance in cadre evaluation.

On the other hand, local governments can choose to lease the land used for commercial or residential purposes by auction or tender since the demand for such land is much more inelastic. As a matter of fact, though the land leased out by auction or tender for commercial and residential usage constitutes only 20-30% of all the land sites leased out, the extra-budget revenue thus generated constitutes a majority of the total extra-budget revenue from land (UIE 2007). This is precisely the reason why local governments charge low or zero prices for most of the land leased out but still get a lot of extra-budget revenue. Moreover, local governments can also collect some business tax from the construction sectors in the building of commercial and residential property. However, there will not be much long-term revenue streams from the residential and commercial property though the commercial sectors that operate on the auctioned land may continue to generate some business tax. This is because the property tax revenue has not been introduced in China.

Empirical evidence

In section 3, we analyzed the institutional background of local incentives to acquire land from farmers and lease land out on large-scale to industrial and estate developers under China’s current centralized fiscal and administrative regime. Since the data for local extra-budget revenues, especially that from land leasing, is unavailable, our empirical analysis will focus on impacts of land development on local budget revenue. Based on a provincial panel data set between 1998 and 2005, in this section we will evaluate the fiscal impacts of land development both for the current period and for later periods.

Our land leasing data comes from the National Statistical Yearbook of Land Resources for various years. The yearbooks provide the area of land leased for all provincial units. The fiscal data and other socio-economic variables come from the National Statistical Yearbooks and the National Fiscal Statistical Yearbooks for various years. After matching the two data sets, we are able to obtain information about land leasing and budget revenue between 1998 and 2005 for 31 provinces.

Some simple descriptive statistics

Table 1 presents the national total area of leased land and the national average area of per land site leased out from 1998 to 2005. It also shows the national total number of leased land sites and the average number of leased land sites per province for the same period. As shown in the table, overall there was extraordinary growth of the area of leased land in that period. In 1998, the total national total area of leased land was only 20,285 hectare, but by 2005 this rose more than 7 times to 165,586 hectares. As to the average area per land site leased out, there was also a significant rise from 0.19 hectare per site to 1.02 per site from 1998 to 2005. These figures show that land
development activities have been rapidly growing since the late 1990s as local governments get actively involved in competing for industrial and commercial investment.

Table 1 also presents the national total number of land sites leased out by negotiation and that by auction/tender. It indicates that the national total number of land sites leased out by negotiation was steadily rising during the 8 years covered by our data set and it dominated the number of land sites leased out by auction and by tender. Though in 2002 the number of land sites leased out by auction or by tender also rose significantly due to the promulgation of “Regulations on Urban Land Leasing by Auction and Tender”, the share of land sites leased out by negotiation was still over 70% percent in 2005.

(Insert Table 1 here)

Table 2 presents the total locally generated tax revenues as well as the three major categories of taxes (VAT, income tax and business tax) for all the provinces between 1998 and 2005. As shown in the table, significant growth of budget revenue can be witnessed during this period, particularly the VAT, the income tax and the business tax. During the same period, the locally generated total government revenue and the three major tax revenues as a share of local GDP also grew significantly. Since in this period there was no fundamental change of tax rates, this implies that the industrial structure changed to sectors that have higher tax rates, i.e. the manufacturing, real estate and construction sectors.

(Insert Table 2 here)

The simple descriptive statistics above indicate that between 1998 and 2005, local land development activities grew at a very rapid pace. The majority of such growth came from the land leased out by negotiation, while the growth of land sites leased by tender or auction was much smaller. As a purely local tax, the business tax is levied on service sectors, including real estate and construction. Leasing out land for commercial, residential and industrial purposes will help local governments gain business tax from the construction and real estate sectors in the process of land and estate development, while at the same time leasing out land for industrial purposes will also contribute to the growth of VAT that is levied on products of the manufacturing sectors.

In Table 3, the GDP and its structural changes between 1998 and 2005 are also presented. Since the growth of the manufacturing, real estate and construction sectors are most dependent on land leasing; in Table 3 we give the share of these sectors in total GDP. As shown, the share of these three sectors grew from 48.7% to 52.3% between 1998 and 2005. Because most of the land was leased out for industrial and commercial purposes and the fiscal revenue from these industries are usually much higher than that from other sectors, this helps to explain, at least in part, the faster growth of fiscal revenue than GDP as shown in Table 2.
Regression-based analysis

In evaluating the impacts of land leasing on local fiscal revenue, more rigorous regression-based empirical evidence is necessary. We will assess the effects of land leasing on local GDP and locally generated budget revenue. Since the impacts may last longer than one period, we will assess the impacts for both the current period and the lagged periods. Since our panel data set covers the 8 years between 1998 and 2005, we can lag our key independent variables for at least several periods. However, since lagging one more period implies a loss of 31 observations, our empirical strategy is to lag as many periods as possible until the coefficients of the last lagged independent variable becomes insignificant. Our final empirical specification is the following:

\[ Y_{it} = \alpha + \delta_0 A_{it} + \delta_1 A_{it-1} + \delta_2 A_{it-2} + \delta_3 A_{it-3} + \delta_4 A_{it-4} + \delta_5 A_{it-5} + \mu_i + \nu_t + \epsilon_{it} \]

Where \( Y_{it} \) represents the local GDP, the locally generated fiscal revenue, and the three major taxes (the VAT, the income tax and the business tax) for province \( i \) in year \( t \). The locally generated tax revenue is all the tax revenue generated in a locality (province), which not only includes all the purely local tax revenues, but also the local and central parts of the shared taxes (the VAT and the income tax). The purely central tax such as consumption tax is excluded. In the equation, \( A_{it}, A_{it-1}, A_{it-2}, A_{it-3}, A_{it-4}, A_{it-5} \), represent the areas of land leased for the current period \( t \) and the earlier periods respectively. \( \mu_i \) and \( \nu_t \) are provincial dummies and year dummies, respectively.

Table 4 gives our estimation results. We run two sets of regressions separately to check the robustness of our estimations. In one specification we only control the provincial and year dummies, and in another specification we controlled another two variables, i.e., the provincial urbanization ratio (the share of urban population in total population) and the provincial per capita GDP.

From Table 4, we can see that the area of leased land generally has very significant impacts on the locally generated budget revenue. The same is true for the impacts on the VAT, income tax and business tax. The impacts on VAT are particularly significant, indicating that most of the land is leased out for industrial purposes and probably through negotiation. The impacts of land leasing on income tax in the same period is not significant. This happens because local governments still have power to exempt some income tax in earlier years of investment. The impacts on the VAT last for 5 years but become insignificant statistically in the sixth year. The empirical results are largely similar even if we control for the provincial urbanization rate and the per capita GDP. Therefore, leasing land out for industrial and commercial uses would indeed contribute to local budget revenue growth by generating a stream
of future revenues, especially the VAT, income tax and business tax. Though most of the land sites are leased out through negotiation, at relatively low prices, and local governments may lose some extra-budget revenue, this loss could be made up by the rise of government budget revenue in the same period and in later years.

We also estimate the impacts of land leasing on local GDP, and the results are shown in Table 5. It is clear that local land leasing also contributes significantly to local GDP growth in the current and following years. This effect is particularly strong in the secondary sectors (the manufacturing and construction sectors). As argued earlier, higher GDP earns better performance in the local cadre evaluation system, which would imply better chances in political promotion.

(Insert Table 5 here)

Conclusion

In the past decade or so, local governments in China have significantly increased their land development activities by acquiring land from farmers and leasing it on large scale to industrial and commercial developers. On the one hand, land development, especially the land leased to commercial and residential developers, provides the badly needed extra-budget revenue after the 1994 fiscal centralization reform. On the other hand, most of the land has been leased out at relatively low prices to manufacturing investors by negotiation due to the strong regional competition for manufacturing investment. As shown in our empirical analysis, though leasing land by negotiation and at low costs may sacrifice some extra-budget revenue in the short run, local governments still have incentives to do so since if they can successfully attract the manufacturing investment, a relatively stable stream of budget revenues will be obtained in the future. It will also contribute to local GDP growth, which may further increase the chances of political promotion for local officials.

Provisioning of cheap land as a primary instrument in regional competition for investment has contributed to the investment-driven growth in China in the past decade. When land as a key production input is under-priced, the overall investment, especially the investment in the manufacturing sector, would be higher than socially optimal. This would lead to an over-industrialized economy, as well as relatively low returns in industrial investment.

Land can be provided at relatively low costs to industrial investors because under China’s current land system, local governments can acquire land from farmers at the state-defined, and usually very low, prices. In the process of land acquisition, farmers have little bargaining power and are largely excluded from sharing the benefits in land appreciation. In regional competition for investment, local governments can afford to lease the land at a very low price since it is hoped that the industrial investment thus attracted can generate a stable stream of budget revenue in the future. At the same time, the GDP growth brought about by manufacturing investment would also promote local officials’ political performance under China’s cadre evaluation system. However, if the farmers who own the land can directly negotiate with land users about
compensation packages, land leasing prices would be significantly higher because farmers would not give up their land unless they would benefit. This would not only help the dispossessed farmers improve their economic welfare, but also contain the “race to the bottom” style of competition for industrial investment that we have seen in China. Therefore, reforming the current land acquisition system by granting farmers the legal status in land transfer would be an essential step forward. It would not only help China shift away from its investment-driven growth, but would also improve land use efficiency and income distribution during China’s urbanization.

ACKNOWLEDGEMENTS

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### Table 1 Local Land Leasing: 1995-2005 (hectare)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Area of Land Leased of the Nation</th>
<th>Total Number of Land Sites Leased</th>
<th>The Average Area of Per Land Site Leased</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>total by negotiation by tender or auction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>20285</td>
<td>105339</td>
<td>91885</td>
</tr>
<tr>
<td>1999</td>
<td>45596</td>
<td>99017</td>
<td>83692</td>
</tr>
<tr>
<td>2000</td>
<td>48630</td>
<td>118846</td>
<td>99632</td>
</tr>
<tr>
<td>2001</td>
<td>90394</td>
<td>180257</td>
<td>128695</td>
</tr>
<tr>
<td>2002</td>
<td>124294</td>
<td>242673</td>
<td>196619</td>
</tr>
<tr>
<td>2003</td>
<td>193604</td>
<td>207387</td>
<td>157381</td>
</tr>
<tr>
<td>2004</td>
<td>178331</td>
<td>184850</td>
<td>138111</td>
</tr>
<tr>
<td>2005</td>
<td>165586</td>
<td>163112</td>
<td>117642</td>
</tr>
</tbody>
</table>

Data source: NBS(various years), China Statistical Yearbooks, China Statistical Yearbooks of Land Resources.

### Table 2 Budget Revenue and Revenue/GDP: 1998-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Locally Generated Budget Revenue</th>
<th>VAT</th>
<th>Income Tax</th>
<th>Business Tax</th>
<th>Total Budget Revenue/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RMB 100 million</td>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>1998</td>
<td>7710</td>
<td>993</td>
<td>3630</td>
<td>1340</td>
<td>9.31</td>
</tr>
<tr>
<td>1999</td>
<td>8620</td>
<td>1180</td>
<td>3940</td>
<td>1470</td>
<td>9.70</td>
</tr>
<tr>
<td>2000</td>
<td>9900</td>
<td>1510</td>
<td>4590</td>
<td>1630</td>
<td>10.08</td>
</tr>
<tr>
<td>2001</td>
<td>11800</td>
<td>2340</td>
<td>5370</td>
<td>1840</td>
<td>11.04</td>
</tr>
<tr>
<td>2002</td>
<td>16700</td>
<td>3450</td>
<td>6240</td>
<td>2300</td>
<td>13.95</td>
</tr>
<tr>
<td>2003</td>
<td>21200</td>
<td>3990</td>
<td>7210</td>
<td>2750</td>
<td>15.67</td>
</tr>
<tr>
<td>2004</td>
<td>25000</td>
<td>4960</td>
<td>8480</td>
<td>3330</td>
<td>15.92</td>
</tr>
<tr>
<td>2005</td>
<td>30700</td>
<td>6090</td>
<td>9990</td>
<td>3870</td>
<td>16.42</td>
</tr>
</tbody>
</table>

Data source: NBS(various years), China Statistical Yearbooks, China Finance Statistical Yearbooks.
### Table 3 GDP and GDP Structure: 1998-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP</th>
<th>Secondary sectors</th>
<th>Tertiary sectors</th>
<th>Share of manufacturing, real estate and construction sectors in total GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 million RMB</td>
<td></td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>1998</td>
<td>84402</td>
<td>39004</td>
<td>30780</td>
<td>48.70</td>
</tr>
<tr>
<td>1999</td>
<td>89677</td>
<td>41034</td>
<td>34095</td>
<td>48.23</td>
</tr>
<tr>
<td>2000</td>
<td>99215</td>
<td>45556</td>
<td>38943</td>
<td>48.19</td>
</tr>
<tr>
<td>2001</td>
<td>109655</td>
<td>49512</td>
<td>44627</td>
<td>47.54</td>
</tr>
<tr>
<td>2002</td>
<td>120333</td>
<td>53897</td>
<td>50197</td>
<td>47.00</td>
</tr>
<tr>
<td>2003</td>
<td>135823</td>
<td>62436</td>
<td>56318</td>
<td>47.94</td>
</tr>
<tr>
<td>2004</td>
<td>159878</td>
<td>73904</td>
<td>65018</td>
<td>50.80</td>
</tr>
<tr>
<td>2005</td>
<td>183085</td>
<td>87047</td>
<td>72968</td>
<td>52.30</td>
</tr>
</tbody>
</table>

Data source: NBS(various years), China Statistical Yearbooks.
<table>
<thead>
<tr>
<th>Area of Leased Land</th>
<th>Locally generated budget revenue</th>
<th>VAT</th>
<th>Income Tax</th>
<th>Business Tax</th>
<th>Locally generated budget revenue</th>
<th>VAT</th>
<th>Income Tax</th>
<th>Business Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>184.199</td>
<td>167.921</td>
<td>349.375</td>
<td>393.153</td>
<td>384.701</td>
<td>106.524</td>
<td>44.435</td>
<td>44.003</td>
<td>33.779</td>
</tr>
<tr>
<td>(1.86)*</td>
<td>(2.08)**</td>
<td>(2.88)**</td>
<td>(2.03)**</td>
<td>(0.86)</td>
<td>(1.04)</td>
<td>(1.22)</td>
<td>(0.90)</td>
<td>(1.62)</td>
</tr>
<tr>
<td>L. Area of Leased Land</td>
<td>176.442</td>
<td>65.676</td>
<td>67.286</td>
<td>38.320</td>
<td>184.203</td>
<td>62.197</td>
<td>60.774</td>
<td>39.565</td>
</tr>
<tr>
<td>(2.08)**</td>
<td>(3.18)**</td>
<td>(3.27)**</td>
<td>(2.25)**</td>
<td>(1.81)*</td>
<td>(1.22)</td>
<td>(0.90)</td>
<td>(0.90)</td>
<td>(1.62)</td>
</tr>
<tr>
<td>L2. Area of Leased Land</td>
<td>167.921</td>
<td>45.297</td>
<td>44.003</td>
<td>39.955</td>
<td>155.532</td>
<td>44.435</td>
<td>44.003</td>
<td>33.779</td>
</tr>
<tr>
<td>(2.03)**</td>
<td>(2.25)**</td>
<td>(3.27)**</td>
<td>(2.25)**</td>
<td>(1.81)*</td>
<td>(1.22)</td>
<td>(0.90)</td>
<td>(0.90)</td>
<td>(1.62)</td>
</tr>
<tr>
<td>L3. Area of Leased Land</td>
<td>155.532</td>
<td>349.375</td>
<td>44.003</td>
<td>33.779</td>
<td>155.532</td>
<td>44.435</td>
<td>44.003</td>
<td>33.779</td>
</tr>
<tr>
<td>(2.03)**</td>
<td>(2.25)**</td>
<td>(3.27)**</td>
<td>(2.25)**</td>
<td>(1.81)*</td>
<td>(1.22)</td>
<td>(0.90)</td>
<td>(0.90)</td>
<td>(1.62)</td>
</tr>
<tr>
<td>L4. Area of Leased Land</td>
<td>106.524</td>
<td>54.426</td>
<td>54.003</td>
<td>33.779</td>
<td>40.524</td>
<td>54.426</td>
<td>54.003</td>
<td>33.779</td>
</tr>
<tr>
<td>(0.86)</td>
<td>(1.81)*</td>
<td>(3.47)**</td>
<td>(2.48)**</td>
<td>(0.19)</td>
<td>(0.90)</td>
<td>(0.90)</td>
<td>(0.90)</td>
<td>(1.62)</td>
</tr>
<tr>
<td>L5. Area of Leased Land</td>
<td>155.532</td>
<td>44.435</td>
<td>44.003</td>
<td>33.779</td>
<td>155.532</td>
<td>44.435</td>
<td>44.003</td>
<td>33.779</td>
</tr>
<tr>
<td>(1.04)</td>
<td>(1.22)</td>
<td>(3.47)**</td>
<td>(2.48)**</td>
<td>(0.19)</td>
<td>(0.90)</td>
<td>(0.90)</td>
<td>(0.90)</td>
<td>(1.62)</td>
</tr>
</tbody>
</table>

| Observations | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| Number of provinces | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 |
| R-squared | 0.75 | 0.63 | 0.80 | 0.68 | 0.81 | 0.73 | 0.83 | 0.77 |

Note: 1. Absolute value of t statistics in parentheses; 2. * significant at 10%; ** significant at 5%; *** significant at 1%; 3. L, L2, L3, L4, L5 means 1,2 3, 4, 5 period lagged values respectively; 4. All revenues are deflated using 1998 as the base year.
<table>
<thead>
<tr>
<th>Area of Leased Land</th>
<th>Deflated GDP</th>
<th>Deflated Secondary Sector GDP</th>
<th>Deflated Tertiary Sector GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1720</td>
<td>1001</td>
<td>520</td>
</tr>
<tr>
<td></td>
<td>(3.01)**</td>
<td>(3.89)***</td>
<td>(1.48)</td>
</tr>
<tr>
<td>L. Area of Leased Land</td>
<td>1710</td>
<td>1001</td>
<td>540</td>
</tr>
<tr>
<td></td>
<td>(3.50)**</td>
<td>(4.57)***</td>
<td>(1.81)*</td>
</tr>
<tr>
<td>L2. Area of Leased Land</td>
<td>1280</td>
<td>860</td>
<td>380</td>
</tr>
<tr>
<td></td>
<td>(2.68)**</td>
<td>(4.02)***</td>
<td>(1.30)</td>
</tr>
<tr>
<td>L3. Area of Leased Land</td>
<td>1930</td>
<td>1020</td>
<td>780</td>
</tr>
<tr>
<td></td>
<td>(2.76)**</td>
<td>(3.24)***</td>
<td>(1.82)*</td>
</tr>
<tr>
<td>L4. Area of Leased Land</td>
<td>1000</td>
<td>680</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>(1.41)</td>
<td>(2.13)**</td>
<td>(0.37)</td>
</tr>
<tr>
<td>L5. Area of Leased Land</td>
<td>170</td>
<td>440</td>
<td>-510</td>
</tr>
<tr>
<td></td>
<td>(0.20)</td>
<td>(1.13)</td>
<td>(0.96)</td>
</tr>
<tr>
<td>Observations</td>
<td>93</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>Number of provcode</td>
<td>31</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.73</td>
<td>0.80</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Note: 1, Absolute value of t statistics in parentheses; 2, * significant at 10%; ** significant at 5%; *** significant at 1%; 3, L, L2, L3, L4, L5 means 1, 2, 3, 4, 5 period lagged values respectively; 4, All variables of GDP are deflated using 1998 as the base year.