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Land and the City

Edited by George W. McCarthy, Gregory K. Ingram, and Samuel A. Moody



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*George W. McCarthy, Gregory K. Ingram,
and Samuel A. Moody*

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PREFACE

The majority of the world's population now lives in urban areas and depends on urban systems for housing and social and economic goods and services. This number will only increase as cities blossom and expand to accommodate new residents, particularly in developing nations. What remains unchanged, however, is the key role of cities as engines of economic growth, social activity, and cultural exchange. In an effort to support the success and sustainability of cities, this volume explores how policies regarding land use and taxation affect issues as diverse as the sustainability of local government revenues, the impacts of the foreclosure crisis, and urban resilience to climate change.

This collection, based on the Lincoln Institute of Land Policy's 2014 annual land policy conference, addresses the policies that underlie the organization, financing, and development of the world's cities. It is the final volume in the Institute's land policy conference series. Over the years, these meetings have addressed land policy as it relates to a range of topics, including local education, property rights, municipal revenues, climate change, and infrastructure.

We thank Armando Carbonell, Martim Smolka, and Joan Youngman for their advice on the selection of topics and on program design. The conference was organized by our exceptional event team, comprising Brooke Burgess, Sharon Novick, and Melissa Abraham. Our special thanks go to Emily McKeigue for her exemplary management of the production of this volume, to Peter Blaiwas for the cover design, to Nancy Benjamin for maintaining the publication schedule, and to Barbara Jatkola for her tireless and reliable copyediting.

George W. McCarthy
Gregory K. Ingram
Samuel A. Moody

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An Evaluation of China's Land Policy and Urban Housing Markets

Joyce Y. Man

China's land reform and changes in housing policy over the past 30 years have contributed substantially to urban expansion, industrial development, infrastructure investment, and a real estate boom. Local governments' leasing of state-owned land to businesses in urban areas for a conveyance fee to finance infrastructure investment and urban development has played a significant role in China's economic growth and urban housing market development. Since 1998, when China ended its socialistic welfare housing system, rapid development in the real estate and construction sectors has led to increases in economic activity, consumer consumption of durable goods, and infrastructure investment, as well as unprecedented urban growth. In addition, many central cities have merged with adjacent towns, smaller cities, and even counties to create large urban districts or form bigger townships and cities (Lin 2009).

The government's land policy has also resulted in some undesired consequences, such as high housing prices, local governments' overreliance on revenues from land leasing fees, increasing local government debt and financial risks, widening disparities in income and wealth, unprecedented corruption, and social and political unrest among farmers who have lost land to local government and urban dwellers who face high costs of living, congestion, and pollution.

This chapter investigates the interdependence of land policy and housing markets in China. It focuses on the analysis of the current housing market development and the impacts of government land policies on the housing market in urban areas.

Housing Reform and Housing Market Development ---

Shortly after the Communist Party took power in 1949, the Chinese government assumed ownership of almost all economic assets, including housing (Chen et al. 2014). Over the next 40 years, Chinese urban housing policy shifted drastically, moving from the nationalization of the housing sector between 1949 and 1978 to the nationwide privatization of housing and the development of a market-oriented system since 1988.

The transition from private to public ownership of housing has been gradually accomplished through the establishment of a residence registration system commonly known as *hukou*. By 1958, the system allowed the Chinese government to divide the entire population into two groups, those with urban residence permits and those without them. Each urban resident was linked with his or her employers or work units, commonly known as *danwei*, an economic institution in the socialist system. The *danwei* became the mechanism by which the central government controlled housing investment, construction, maintenance, operation, and allocation. Housing units were distributed among urban residents as part of a welfare package offered by their *danwei*. Distribution was based on employees' seniority, administrative ranking, occupational status, work experience, needs, merits and performance, and other factors. Housing construction was largely initiated and financed by the *danwei*, and land was allocated to them through the administrative transfer within the government's central planning system. Under this housing system in an absence of a housing market, it was the financial conditions and workplace policies of the employees' work units, instead of the workers' income and other household characteristics, that determined the size and quality and quantity of the housing consumption the urban residents could obtain. Employees were required to pay rent, but it was heavily subsidized and rent was so low in most cases that it was not adequate to cover housing maintenance costs (Man, Zheng, and Ren 2011; Wang and Murie 1996; Zhou and Logan 1996).

As a result of these policies, by 1977 the private sector's share of the housing market had dropped to 15 percent. In 1978, the per capita floor area in urban areas was only 6.7 square meters, and there was a chronic shortage of housing in most cities. Young urban dwellers had to wait for many years to get a small apartment of their own leased by their employers. For all practical purposes, private housing construction was eliminated, and the central government assumed full responsibility for housing investment through its central planning system and the *danwei* distribution channel. The government's inadequate investment in the housing sector brought about the deterioration of housing units, overcrowding, a chronic housing shortage, and poor living conditions for most urban residents.

The Chinese government started to reform the state-controlled public housing system shortly after it began its general economic reform in 1978. In 1980, it began promoting private ownership and allowed the sale of public housing to urban residents at subsidized costs. Rents were gradually raised to market level,

and private and foreign investments in housing were encouraged. Eight years later, in 1988, the government introduced nationwide privatization and commercialization, initiating the sale of existing public housing, as well as newly built housing, to employees through their *danwei* at very low prices and encouraging the private sector to participate in housing construction and development (Wang 1999, 2011; Wu 1996).

In 1998, the central government began terminating direct public housing distribution to workers and offering cash subsidies for housing to new workers in urban areas. It also began providing subsidies to selected low- and middle-income families for the purchase or lease of housing units. Higher-income families had to rely on the financial assistance available through mortgage financing to purchase housing. The *danwei* were allowed to offer housing subsidies to new employees, but they were prohibited from being directly involved in housing construction, distribution, or management (State Council 1998).

As a result of these reforms, housing was transformed from a public good and service, which was part of the government's social welfare package, to a privately owned commodity that was largely provided by the private sector in the commercial market. Since then, vigorous housing markets have developed rapidly in urban China.

The privatization of China's housing market was accompanied by rapid industrialization and urbanization. According to the data from the National Bureau of Statistics of China (NBS 2013), the urbanization rate increased from 17 percent in 1978 to 53 percent in 2013, and the demand for housing in urban areas has continued to be a driving force in the explosion of new housing construction since 1998. At the same time, rapid industrialization and urbanization have generated income growth among urban households, which has stimulated the demand for larger housing units and better quality and more comfortable living conditions. Data from the NBS (2013) show that since 1998, increases in per capita floor area have lagged behind per capita income growth in urban areas, particularly large urban areas and coastal cities, further fueling the demand for housing and causing housing prices to rise rapidly.

Privatization of the housing sector has benefited a large number of households. Many families purchased public housing from their *danwei* at a heavily discounted price or bought existing or newly constructed housing from the commercial housing market. That privatized housing stock has become an important source of wealth after decades of appreciation of urban housing value. Local governments lease state-owned land for a lump sum fee to real estate developers who seek loans from state-owned banks and financial institutions. Developers often collect down payments from home buyers to finance the construction of housing projects. When a project is completed, buyers may turn to banks for mortgage loans to complete the transaction with the developer. As a result, urbanization, income growth, and the widespread speculation of growing housing prices have driven up the demand for housing and led to rapid development of vigorous housing markets in almost all Chinese urban areas.

The Outcomes and Challenges of China's Housing Reform —————

One of the important outcomes of China's housing reform has been the rapid increase in housing investment and construction. As table 9.1 shows, total investment in urban real estate development increased at an annual rate of 23.3 percent on average from 1998 to 2012, growing from 361.4 billion yuan (US\$55.6 billion) to 7.18 trillion yuan (US\$1.1 trillion). (These and other conversions in this chapter are based on an exchange rate of 6.5 yuan to US\$1.) The total accumulated investment in urban real estate during this period was 36 trillion yuan (about US\$4.6 trillion). Investment in residential buildings increased from 208.2 billion yuan (US\$32 billion) to 4.9 trillion yuan (US\$760 billion), at an average annual growth rate of 26.2 percent between 1998 and 2012. The total accumulated investment in housing reached 25 trillion yuan (about US\$3.87 trillion) from 1998 to 2012.

Table 9.1

Results of the Chinese Housing Reform in Urban Areas, 1998–2012 (annual percentage increase)

	Total Real Estate Investment	Residential Investment	Floor Area of Residential Buildings	Average Selling Price of Residential Buildings
1998	13.71	35.22	17.43	3.58
1999	13.53	26.75	17.33	0.16
2000	21.47	25.53	-1.81	4.90
2001	27.29	27.32	4.77	3.54
2002	22.81	23.98	4.03	3.72
2003	30.33	29.63	-8.06	5.02
2004	29.59	30.40	3.50	18.71
2005	20.91	22.90	16.25	12.62
2006	22.09	25.57	-4.68	6.20
2007	30.20	32.02	9.16	16.86
2008	23.39	24.63	10.39	-1.89
2009	16.15	14.14	8.07	24.69
2010	33.16	32.84	5.82	5.97
2011	28.05	30.25	17.99	5.67
2012	16.19	11.40	4.70	8.75
Average Annual growth rate (%)	23.26	26.17	6.99	7.9

Source: Data from the National Bureau of Statistics (2013).

The total floor area of urban residential buildings increased from 476.2 million square meters in 1998 to 1.07 billion square meters in 2012, up 125 percent. According to the NBS (2013), between 1998 and 2012 the accumulated area of housing under construction was 32.7 billion square meters, and about 10.4 billion square meters was completed. New construction increased at an average rate of 7 percent annually during this period, a growth rate that is unprecedented in Chinese history. If all this construction is eventually completed, it will be equivalent to 48 square meters per urban resident, assuming a 53 percent urbanization rate.

As mentioned earlier, this massive construction boom has dramatically improved housing conditions, increased home ownership rates, and contributed to rapid household wealth accumulation in urban areas, and economic growth. In an examination of China's Urban Household Survey data for 2010, Man, Zheng, and Ren (2011) found that the home ownership rate (defined as the ratio of owner-occupied housing units to total housing units) for urban areas was 84.3 percent, exceeding that in many developed countries, including the United States (where it is about 66 percent). Even urban households in the lowest 10 percent income group have achieved an impressive 79.3 percent home ownership rate nationwide. In 2010, the average floor area per household was 92 square meters, and the average floor area per capita was 32 square meters, much higher than the 6.7 square meters per capita in 1978. About 40 percent of the formal housing stock in urban areas was distributed and allocated through the commercial housing market.

The impressive outcomes of China's housing reform have been offset by skyrocketing prices, which have made housing unaffordable for many middle- and low-income households and for young people in several coastal cities (Wang and Murie 1999, 2000). In addition, the housing boom has created a huge wealth disparity between homeowners and non-homeowners and between urban and rural residents. As table 9.1 shows, the average selling price of residential buildings (measured as a ratio of total sales revenue to total floor area) went up 8 percent annually between 1998 and 2012. The nationwide average selling price of new residential buildings increased from 1,854 yuan (US\$285) to 5,430 yuan (US\$835) per square meter, up 200 percent between 1998 and 2012 (NBS 2013). This figure is grossly underestimated, however, because data failed to reflect differences in quality, location, and other attributes. In fact, there were double-digit price increases nationwide in a number of years. It is also very likely that in some urban areas, such as coastal cities, housing prices increased even more than the national average. According to the Large-Sample Urban Household Survey conducted by the NBS, the mean housing price in more than 600 cities increased 58 percent between 2007 and 2010, and the mean housing price per square meter went up 46 percent during the same period (table 9.2). These results present a more accurate picture of the housing situation in China because they reflect the price of the existing stock in a large sample of households. Table 9.2 also shows that the home ownership rate increased from 82.3 percent in 2007 to 84.3 percent in 2010.

Table 9.2
Urban Housing in China, 2007 and 2010

	2007	2010
Mean housing price nationwide (yuan)	281,000	445,000
Mean housing price per square meter (yuan)	3,325	4,844
Home ownership rate (%)	82.3	84.3
Dwelling size per household (m ²)	84.5	91.9
Dwelling size per capita (m ²)	28.3	31.7

Source: Large-Sample Urban Household Survey by the National Bureau of Statistics of China (2007 and 2010), and Man, Zheng, and Ren (2011).

As urban housing prices have experienced double-digit annual growth since 2005, housing affordability has become a major issue in a number of large Chinese cities, particularly in coastal areas. According to UN-Habitat's Global Urban Observatory databases, housing price-to-income ratio (PIR) is one of the indicators of urban housing affordability. UN-Habitat regards ratios of 3 to 5 as normal or satisfactory. Using median housing value and income data for 600 Chinese cities (from about 500,000 households) from the Large-Sample Urban Household Survey, Man, Zheng, and Ren (2011) found that the PIR in urban China increased from 5.56 nationwide in 2007 to 7.07 in 2010. These ratios fall into UN-Habitat's "severely unaffordable" category. This finding indicates that the median housing price in these cities is equal to more than seven years of a typical household's median income.

Chinese governments have been called on to increase the availability of affordable housing to middle- and low-income households in urban areas. They have also attempted to stabilize urban housing prices, discourage speculation, promote construction of smaller and cheaper housing units, and control the possible financial risks associated with the housing sector. Despite issuing a series of policies and mandates, the central government has achieved very limited success in these endeavors and continues to face enormous challenges in providing affordable housing.

In China, affordable housing is commonly known as *jingji shiyong fang*, economical and comfortable housing (ECH), and *lianzu fang*, low-rent public housing (LRH). This housing is designed for middle- and low-income residents, including public sector employees and the urban poor. In some cities, such as Beijing, it also includes price-controlled commercial housing, which is restricted in size and price in order to qualify for reduced land use fees and favorable land allocation by the government. This type of housing is intended to help low- and middle-income families become homeowners. In 2005, the Chinese government began to encourage the development of low-rent public housing targeted at fami-

lies with monthly per capita incomes below the municipal poverty line and families whose current floor area per person is less than the minimum standard set by the municipal government.

In general, the central government sets policies and mandates with respect to affordable housing, and the subnational governments, particularly cities, are responsible for the construction, financing, and management of the housing. The central government does not provide financial support to provincial and local governments for affordable housing except in the fiscally strained and underdeveloped central and western regions. Local governments are required to reduce government charges and fees and to control developers' profits in order to lower housing prices for qualified households. They also must provide state-owned land to support affordable housing projects, usually appropriating land to state-owned real estate companies that finance, construct, and sell the ECH units to eligible urban households. Middle-income families seeking private-market commercial housing may receive subsidized loans from the Housing Provident Fund, to which both employees and employers contribute. Low-rent public housing is constructed, owned, and managed by local governments and is offered to poor urban families at below-market rents.

With housing prices too high even for average salary earners, the current affordable housing system faces a number of serious challenges. First, there is enormous demand for such housing. By the end of 2008, there were 7.4 million low-income urban households in need of government support for housing. In addition, according to statistics from the Ministry of Housing and Urban and Rural Development on its website, there was an estimated "floating" population of 147 million. Most are migrant workers, who often fall into the low-income group. At the current rate of urbanization, there is expected to be an increase of about 10 million people living in cities every year. Most of them will be unskilled and semiskilled workers in the low- and middle-income groups in need of housing assistance.

Second, affordable housing accounts for only a very small portion of the total housing stock. Government-sponsored low-rent housing, as well as heavily subsidized ECH units, makes up less than 10 percent of the total housing stock on average in urban areas (Man, Zheng, and Ren 2011). The underdeveloped private rental market in China further aggravates the problem of the inadequate supply of affordable housing.

Third, local governments lack the incentives and financial means to provide affordable housing. The fiscal reform of 1994 left subnational governments responsible for nearly 80 percent of total government expenditures, but they receive only 47 percent of total government revenues (Man 2011). This fiscal imbalance, as well as many unfunded central government mandates and interjurisdictional competition, has driven many local governments to rely on land leasing fees (also known as land transfer fees) to finance infrastructure investment and economic development. Local governments have little incentive to provide land for the construction of affordable housing units, preferring instead to sell the use

rights of state-owned land to the highest bidder through the tender and auction process. They also depend on the Housing Provident Fund and net land transfer revenues to finance affordable housing, both of which are unstable and inadequate revenue sources. According to a 2010 report from the Chinese National Auditing Office (CNAO 2010), some cities, including Beijing, Shanghai, Chongqing, and Chengdu, fail to collect their share (at least 10 percent) of the net land transfer fees earmarked for low-rent housing construction. In 2007–2009, a total of 14.62 billion yuan (US\$2.2 billion) was not collected, accounting for about 50 percent of the 29.68 billion yuan (US\$4.47 billion) that should have been collected.

Fourth, only households with city residence permits through the *hukuo* system may participate in the current affordable housing system. Migrant workers, “floating” populations, and others without urban residence permits cannot participate. These people have to find shelter in the informal housing market, such as the “urban villages” constructed by rural residents on the urban fringe. These villages offer substandard housing and sanitation conditions.

Finally, the affordable housing system suffers from poor administration, widespread corruption, and even fraud. For example, many ineligible applicants receive low-rent housing, and a number of high-income households own ECH units, which they sell or lease to make a profit. At the same time, many qualified families are denied housing assistance or have to wait years to get government support.

Since 2005, the central government has focused on a range of policies aimed at controlling housing prices, dampening the speculative behaviors of some home buyers, and increasing the construction of affordable housing. These policies have produced mixed results, and government regulations have become less and less effective in accomplishing the policy objectives. Among the main obstacles to increasing the stock of affordable housing are the central government’s land policy, the resistance of local governments to lowering land prices, and the numerous taxes and fees imposed at the various stages of land and housing transactions and development.

The Role of Land Policy in China’s Urban Housing Market —————

The development of the housing market in China over the past two decades has been driven by the reorientation of the country’s urban land policy and the subsequent booming real estate market. Prior to the launch of economic reform in 1978, urban land was owned by the state and appropriated for public use at little or no cost. In rural areas, land was owned collectively by the farmers in each village. Farmers could not sell this land or use it as collateral for bank loans, however; only governments could acquire this land for public and commercial use. They often offered farmers compensation equal to the land’s current agricultural use value. Land markets did not exist under the centrally planned economy of that time.

In 1987, the central government allowed the Shenzhen Special Economic Zone (SEZ) to lease its land use rights to foreign investors wishing to locate businesses there (Lin and Ho 2005). By separating use rights from ownership, local governments found a legal and effective way to lease land to for-profit companies without jeopardizing state ownership of the land. The subsequent revision of China's constitution and land-related laws and regulations in the 1990s legitimized the transfer of land use rights for nonpublic uses in urban areas, in exchange for a conveyance fee that is determined by the public tender, auction, and bidding process. State-owned land is currently leased for 40, 50, or 70 years for commercial, industrial, or residential use, respectively. The use rights of leased urban land are permitted by the Chinese government to be transferred or sold. Since the 1990s, the land and housing markets have developed rapidly in China.

Land Supply Policy

Under the current system of state ownership of urban land and collective ownership of rural land, only local governments can supply land for business uses, thus controlling the quantity, location, and use of available land. In an effort to regulate and control the land and housing markets, and consequently the level of economic development, the central government sets an annual quota for the amount of land allowed to be leased or appropriated.

The central government also issues various land policies to achieve industrial, regional, and social policy objectives. From 1997 to 2009, it allocated about 75 million *mu* of land (about 12.36 million acres) for construction and collected about 7 trillion yuan in concession fees from land use rights, which have played a key role in local economic development. However, using land as a policy instrument has its limitations, because land is non-reproductive and exhaustible. It is always more efficient and sustainable to use land and property taxes, debt financing, and other regulations to influence economic activities. As an input in the production of goods and services, land use and supply that is driven by market forces and competition leads to the best and highest use of land resources and the fairest and most efficient outcomes. Direct administrative control and allocation of land resources may lead to economic distortion and policy failure. For example, some developers and financial companies stockpile land for speculative purposes, thereby inflating land and housing prices, which has negative social and economic consequences. Moreover, although land supply policy is created by the central government, it is implemented by local governments. Because it is difficult for the central government to understand local needs and local social and economic environments, this system leads to economic distortion and counter-productivity, as demonstrated in the central planning economy. As table 9.3 reveals, between 2010 and 2012 the central government increased the land supply by 61 percent, up from 428,212 hectares to 690,400 hectares. In 2012, 46.8 percent of the land supply was leased through the tender and auction process. Only 16 percent, or 110,800 hectares, was used for housing, down from 26.7 percent

Table 9.3
Share of Total Land Supply by Use, 2010 and 2012

	2010 Hectares (% of total)	2012 Hectares (% of total)
Total land supplied	428,212 (100)	690,400 (100)
Land leased	291,500 (68.1)	322,800 (46.8)
Land appropriated	136,000 (31.9)	362,600 (53.2)
Industrial, mining, and storage	152,722 (35.7)	203,500 (29.5)
Real estate construction	153,100 (35.8)	160,300 (23.2)
Commercial uses and services	38,700 (9.0)	49,400 (7.2)
Housing	114,400 (26.7)	110,800 (16.0)
Public facilities and transportation	122,370 (28.6)	326,600 (47.3)
Social housing	20,600 (3.2)	31,700 (4.6)

Source: Based on data from the Ministry of Land and Resources. www.mlr.gov.cn/mlrenglish/.

in 2010. Land appropriated for social housing projects accounted for less than 5 percent of the land supply in 2012. Table 9.3 shows that the majority of the land supplied by the government was used for public facilities and transportation, as well as for industry, mining, and storage, instead of for housing, thus leaving the high demand for housing, skyrocketing housing prices, and the need for more affordable housing largely unaddressed.

Land Leasing Fees

Local government officials are evaluated on the basis of the GDP and tax revenue growth achieved during their tenures. Facing the challenges of GDP targets, capital expenditures for industrial development and infrastructure investment, and the fiscal gap between own-source revenues and public expenditures, local governments turn to land, their largest and most valuable asset, as a development and financing tool. This use of land is made possible by the 1998 Land Administration Law, which gave the right of approval and supervision of the use of urban and rural land to the central and provincial governments, and assigned the right of implementation to the city and county governments.

As mentioned previously, local governments have strong incentives to provide subsidized land for industrial and commercial use in order to achieve higher GDP and tax revenue growth. At the same time, in order to maximize land conveyance fees, it is in the interest of local governments to limit the supply of land for residential use, which serves to increase the bidding price of land leased for housing. The conveyance fees commonly known as land leasing fees or land transfer fees, which are collected from businesses that wish to lease land from local

governments, have become a significant revenue source for these governments (Cao, Feng, and Tao 2008; Man 2011; Peterson 2006). By using the mechanism of public tender and auction, they are able to maximize revenue from leased land. Not surprisingly, this has led many cities to set up industrial parks and economic development zones, which allows them to attract businesses by offering a large amount of land at a very low price, as well as various tax and financial incentives. At the same time, local governments act as a monopoly, limiting the supply of land for residential use in order to push up the price. In addition, the levy and use of land leasing fees are largely determined by local governments and receive little scrutiny from the central governments; as a result, in many regions, land leasing has become the single most important source of local government revenues.

Studies consistently show that land leasing fees amount to 30–50 percent of subprovincial government budgetary revenues, and in some regions they make up 50–60 percent of city revenues (Man 2011). As table 9.4 shows, land leasing fees increased dramatically from 1999 to 2012. In 2012, local governments

Table 9.4
Land Leasing Fees, 1999–2012

	Land Leasing Fees	Ratio to Local Government Budgetary Revenues	Ratio to National Government General Revenues	Share of GDP
	(100 million yuan)	(%)	(%)	(%)
1999	521.7	9.3	4.6	0.6
2000	624.9	9.8	4.7	0.6
2001	1,318.1	16.9	8.0	1.2
2002	2,454.3	28.8	13.0	2.0
2003	5,705.8	57.9	26.3	4.2
2004	6,458.8	54.3	24.5	4.0
2005	5,941.7	39.3	18.8	3.2
2006	8,109.1	44.3	20.9	3.8
2007	12,247.2	52.0	23.9	4.6
2008	10,414.4	36.4	16.9	3.3
2009	17,285.1	53.0	25.2	5.1
2010	27,512.8	71.7	35.0	7.3
2011	32,176.7	61.2	31.0	6.8
2012	28,517.0	46.7	24.3	5.5
Total	160,000.0			

Source: Based on data from the Yearbook of Land Resources and the Chinese Ministry of Finance. www.mlr.gov.cn/mlrenglish/.

collected a total of 2.85 trillion yuan (US\$438 billion) in land leasing fees, reaching 46.7 percent of local government budgetary revenues, 24.3 percent of national government general revenues, and 5.5 percent of GDP. It indicates that land leasing fees generate an amount of extra-budgetary revenue that is equivalent to nearly half of local budgetary revenues. For example, if local governments collect US\$100 million from taxes and fees, they will receive an additional levy of US\$50 million from land leasing fees. By contrast, in 1999 land leasing fees were only 9.3 percent of local government budgetary revenues, 4.6 percent of national government general revenues, and 0.6 percent of GDP. During the period from 1999 to 2012, a total amount of 16 trillion yuan (about US\$2.5 trillion) has been generated from leasing use rights of state-owned land to businesses, and a large share of the revenue has been used to finance infrastructure investment and urban development.

The Impact of Land Policy on Housing Prices —————

As discussed in the previous sections, the development of the housing market in China over the past two decades has been greatly influenced by the land policy carried out by the central and subnational governments. On one hand, the real estate and construction sectors are viewed as important engines of economic growth. Increasing amounts of state-owned urban land have been provided for the construction of residential buildings, and home ownership has been encouraged as a national strategy for achieving economic growth. Housing reform has paved the way for market-oriented development and financing of urban housing and consequently a booming housing market in the past two decades. On the other hand, local governments rely heavily on land leasing fees to finance infrastructure development and public goods and services. To generate higher leasing fees, and thus more extra-budgetary revenue, they use the mechanism of public tender and auction to bid up the price of land, which in turn leads to higher housing prices.

According to data collected by the NBS, construction costs of housing increased from 1,218 yuan (US\$187.4) in 1998 to 2,498 yuan (US\$384.3) in 2012, a jump of 105 percent. Housing prices, however, increased from 1,854 yuan (US\$285.2) to 5,430 yuan (US\$835.4), or 193 percent (NBS 2013). Factors such as land price may well have contributed to the rapid rise in housing prices. This hypothesis may be tested by estimating the relationship between housing prices and land prices as follows:

$$LHOUSEPRICE_{it} = \alpha + \beta LLANDPRICE_{it} + \delta Z_{it} + \epsilon_{it}$$

where $LHOUSEPRICE_{it}$ is the average price of commercial housing per square meter for i provinces and t time periods in the form of a logarithm;

$LLANDPRICE_{it}$ is the average land price for residential use per square meter through the public tender, auction, and bidding process;

Table 9.5
Regression Results of the Housing Price Estimation Equation

Explanatory Variable	Coefficient	Beta	t-statistic	Standard Error
LLANDPRICE	0.182	0.30	8.33	0.02
LLINCOME	1.03	0.71	20.16	0.05
LPOP	-0.10	-0.20	-7.20	0.01
Constant	-2.0	NA	-4.73	0.42
Observation = 186				
F = 398				
R ² = 0.868				

Note: The dependent variable, LHOUSEPRICE, was the average sales price of newly constructed commercial housing per square meter at the provincial level from 2003 to 2008 in the form of a logarithm.

Source: Data from the National Bureau of Statistics (2013).

Z_{it} is the vector of other factors affecting the average selling price of housing, such as population size, disposable income, and urbanization rate, among others; and

ϵ_{it} is the error term.

The regression results from the estimation of housing price equation reported in table 9.5 indicate that the most important factor in predicting housing prices was disposable income. The income elasticity of the demand for housing was 1.03, indicating that a 10 percent increase in disposable income will lead to 10.3 percent increase in housing price. It is safe to say that housing is a necessity good for most urban residents. The second most powerful predictor of housing prices was land prices. That variable was positively correlated with housing prices with a coefficient of 0.18, which was statistically significant. It provides empirical evidence that the higher the bidding price for land, the higher housing prices will be. A 10 percent increase in the bidding price of residential land will lead to a 1.8 percent increase in average housing price per square meter, after controlling for other factors. The population variable had a negative and statistically significant coefficient, suggesting that the bigger the city, the more heterogeneous the housing market and the slower the growth in per square meter housing prices will be. This variable is more likely to measure the city's attributes and local housing supply conditions.

This result supports the hypothesis that local government behavior of leasing land rights to the highest bidder for the purpose of maximizing conveyance fees has led to higher housing prices and thus a shortage of housing that is affordable for ordinary urban residents. To ensure sustainable economic development in

China, this infrastructure financing mechanism should be replaced with a modern property tax system and debt financing.

Conclusions

This study of the evolution of land and housing policies in China over the past 30 years reveals that separating land use rights from ownership has led to the rapid development of land and housing markets in urban areas, which has in turn led to urban expansion, rapid urbanization, and economic growth. China's housing reform through privatization of public housing and marketization for housing provision has helped hundreds of millions of people become homeowners, live in more spacious and comfortable dwellings, and accumulate wealth. However, the increased demand for housing in coastal areas and big cities, and the bid-up land price for residential uses, has drastically pushed up the price of housing in China. As a result, housing has become less and less affordable for low- and middle-income families, the urban poor, and younger people entering the workforce. Although the central government has tried to establish an effective affordable housing system, the local governments have little incentive to carry out the central government's mandates and policies. Rather, it is in their interest to maximize land leasing fees, which in turn drives up land and housing prices (Cao, Feng, and Tao 2008).

The use of land supply as a policy instrument leads to a huge distortion in economic development and housing markets in China. The overreliance on land leasing fees to finance infrastructure investment and urban development is risky and unsustainable. The regression analysis presented in this chapter suggests that land prices and disposable income have significant impacts on housing prices. The empirical evidence indicates that the growing cost of land, determined through the public tender, auction, and bidding process, is being shifted to home buyers in the form of higher housing prices. To prevent housing prices from increasing further and to strengthen the affordable housing system, local governments need to reduce their reliance on land leasing fees as a revenue source, reform the current property tax structure, and establish a sustainable local public finance system.

REFERENCES

- Cao, G., C. Feng, and R. Tao. 2008. "Local 'Land Finance' in China's Urban Expansion: Challenges and Solutions." *China & World Economy* 16(2): 19–30.
- Chen, J., J. Jing, Z. Yang, and J. Y. Man. 2014. "Public Housing in Mainland China: History, Ongoing Trends, and Future Perspectives." In *The Future of Public Housing: Ongoing Trends in the East and the West*, ed. J. Chen, M. Stephens, and J. Yanyun Man, 13–35. Berlin: Springer-Verlag GmbH.
- CNAO (Chinese National Auditing Office). 2010. Report on Land Transfer Fees. www.audit.gov.cn.