



# CHINA'S HOUSING REFORM AND OUTCOMES

*Edited by*  
Joyce Yanyun Man

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 LINCOLN INSTITUTE  
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## Foreword

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Many observers and analysts are familiar with the remarkable growth of China's economy, its market-oriented reforms, and the large investments from both domestic and foreign sources that have taken place in the past 30 years. Less known, however, is how these economic changes have profoundly affected China's housing market. For example, China now represents the world's largest construction market in terms of built space, adding over 2 billion square meters of floor area annually—nearly half the global total. About half of China's annual constructed space is residential, which is divided about evenly between urban and rural housing.

This volume provides background and explanations about the causes and consequences of China's boom in residential construction, and it reviews how some well-established and ongoing trends are likely to impact China's housing sector in coming years. The expected demographic shifts and growth in urban populations suggest that the high rate of change in the housing sector will continue.

Since China's population has increased by about a third in the last three decades—from 1.0 billion in 1982 to an estimated 1.33 billion today—some of the growth in housing construction obviously results from this population growth. However, the more significant factor driving residential construction has been the dramatic rise in housing standards in terms of residential space per capita. From 1978 to 2007, residential space per capita quadrupled in urban areas (from 6.7 square meters to 28.3 square meters), and tripled in rural areas (from 9.4 square meters to about 29 square meters). China's per capita floor area now exceeds the averages in Japan and Europe, but this is unlikely to expand much beyond current levels.

Two major housing reforms in the past three decades have transformed China's housing market. The 1988 reforms fostered the privatization of housing, and much of the stock of rental housing was sold to employees of public enterprises at low prices. The 1998 reforms ended enterprise-supplied housing and moved to comprehensive market-based housing provision.

In recent years housing prices have risen much faster than incomes, making housing unaffordable for many. The government has taken steps to moderate housing prices by raising mortgage interest rates, increasing down payment requirements, taxing short-term capital gains from real estate, and constraining household purchases of multiple dwellings. The rapid rise in housing prices indicates that some recent housing demand has been speculative, resulting in urban vacancy rates that may be well above those required for a healthy housing market. However, documenting this is difficult because little data on urban vacancy rates are available.

Looking ahead, at least two major challenges face China's housing market. The first is the continuing high rates of migration from rural to urban areas; it is projected that 15 million migrants annually will move from the countryside to the cities. This flow will maintain demand for urban housing in the next decade or two and will moderate demand for rural housing. The second challenge is the aging of the population; the share of China's population over 65—7.7 percent in 2009—is projected to rise to 11.8 percent in 2020 and 24 percent in 2050. Currently, 70 percent of the elderly live in rural areas, but that share will decline as urbanization increases. The impact of aging on housing markets is complex, leading to both a rise in the demand for specialized housing for the elderly, and a likely decrease in household size as the surviving elderly add to the number of single person households.

These challenges and others are explored in this volume, which contains essays by scholars who specialize in China's housing market. Many of the chapters are empirical, drawing on household surveys and public data related to housing. The volume makes clear that the dynamism of the housing sector in China will continue in coming decades, while posing many policy challenges to public authorities at all levels of government.

GREGORY K. INGRAM  
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# Housing Policy Reform in China



# Housing Policy and Housing Markets: Trends, Patterns, and Affordability

JOYCE YANYUN MAN, SIQI ZHENG, AND RONGRONG REN

1

Since 1978, when the economic reform took place, China's housing policy has experienced dramatic changes. The privatization of public housing and reliance on the market for housing supply in the late 1990s, as opposed to the socialistic housing allocation system, have led to profound changes in housing distribution and consumption in urban China. This has greatly affected social and economic life. The housing reform in 1998 totally abandoned the old system of linking housing distribution with employment units. The housing sector has become a significant segment of economic activity and has provided a sizable tax base for the Chinese government. The housing conditions of urban residents, whose floor area per capita increased from 6.7 square meters in 1978 to 28.3 square meters in 2007, have greatly improved (Zheng, Man, and Ren 2009). Despite the success of the housing reform, the increase in prices and the consequent affordability problem in many cities have posed enormous challenges for the Chinese government, at both the central and local levels. In order to address issues related to housing markets and housing policies in China, this chapter provides an overview of the evolution of China's urban housing system and land market developments.

## Evolution of the Urban Housing System

China's urban housing policies have experienced drastic changes since 1949. Prior to 1978, the Chinese government carried out a policy of nationalizing private housing and allocating public housing through work units under the central planning system. Most urban land was state owned, and governments monopolized all land transactions. Chinese government directly controlled the production, financing, allocation, operation, and pricing of urban housing through the work units of employees. Housing was allocated largely based on seniority, merits, and needs, and employees were required to pay heavily subsidized rent that was so low in most cases

that it was not adequate to cover maintenance costs, let alone the construction of the housing (Wang and Murie 1996; Zhou and Logan 1996; Wu 1996). Home ownership and private property rights had virtually vanished prior to the economic reform that began in 1978. The consequences of such socialist housing policies were low investment in the housing sector, a chronic shortage of urban housing, substandard quality of housing, and poor living conditions for most urban residents.

Since 1978, when the transition from the centrally planned economy to a market-based system began, the housing reform has been at the top of the Chinese central government's agenda. Initially, the government restored private property rights by returning confiscated or nationalized private housing to the previous owners. Then it started to encourage urban residents to share housing costs by gradually increasing the rent they paid for public housing.

Since the 1980s the housing reform has gone through three stages. Prior to 1993, the initial stage of the reform was on a trial basis, with many experiments and pilot projects in different areas and regions. In 1988, the Chinese government introduced a nationwide reform starting the commercialization and privatization of urban public housing to encourage home ownership. A large amount of public rental housing was sold to employees in work units or *danwei* at very low prices.

The second stage of housing reform between 1993 and 1997 focused on the restructuring of housing construction, and on finance, management, and distribution systems. The work unit or *danwei* was still allowed to participate in housing construction and distribution to their employees. At the same time, the Chinese government encouraged the development of housing markets for high income groups, and subsidized the supply of the commercial housing for the middle- and low-income families. The Chinese government also allowed the private sector to participate in housing construction and development. As a result, the nature of housing was transformed from public goods and services, as a part of the social welfare package enjoyed by employed urban residents, to commodities that were privately owned and largely provided by the private sector, with rights to be traded in the market.

Starting in 1998, the third stage of the housing reform terminated welfare-based housing allocation and established a market-based system of housing provision. The State Council Document No. 23, issued in 1998, finally terminated direct public housing distribution to workers, the commonly known *danwei* housing system, and introduced cash subsidies for housing to newcomers entering the urban workforce. Since then, the direct distribution of housing through the work-unit system was abandoned, and urban residents relied upon the market for housing (Wang 2000; Wang and Murie 2000). The government also provided subsidized housing or public rental housing to selected low- and middle- income families and relied on the market-oriented commercial housing to meet the needs of higher income groups with access to mortgage financing. As a result, a vigorous urban housing market developed. Employers were allowed to offer housing subsidies to their new employees but could not involve themselves directly in housing construction, distribution, or management.

Since 2005, with urban housing prices skyrocketing, housing affordability has become an issue. Chinese governments have been called upon to increase the provision of affordable housing to middle- and low-income households. They have also attempted to stabilize urban housing prices, discourage speculative behavior of

home buyers, and reduce the excessive and bad lending practices of state-owned banks and the possible financial risks associated with the housing sectors.

## Housing Market Development Trends

The development of China's housing markets was accompanied by rapid economic growth during the period between 1999 and 2010, when both the gross domestic product (GDP) and urban household disposable income experienced an annual growth rate of about 10 percent on average. The rapid urbanization, from about 20 percent of the total population living in urban areas in the early 1980s to nearly 45 percent in 2007, was also a driving force behind the fast growth of housing markets in urban areas. In this section, the trends of housing market development with respect to housing supply, housing transactions, and housing prices are discussed; due to data limitations, the discussion focuses on new residential housing markets instead of housing stock.

### Land Markets and Land Supply

Development of the housing market in China in the past decade has been fueled by the drastic increase in land supply by central and subnational governments. The central government is determined to stimulate economic growth by developing the real estate market and construction sectors. More land has been provided for the construction of residential and commercial property; home ownership is encouraged as a national strategy for economic growth; and the Chinese government has begun to welcome and facilitate the development of a middle class under Deng Xiao Ping's slogan "Getting rich is glorious."

In addition, the big fiscal gap between the expenditure assignment and revenue assignment of most local governments after the 1994 tax reform has forced local governments to seek other revenue sources. In the late 1990s local governments started to collect fees from land leasing, commonly known as land transfer fees, to finance public goods and services, as mandated by the central government.

In anticipation of great profits in the housing sector, a growing number of companies, both state and privately owned, have been entering the real estate market. The reorientation of China's land policy and subsequently booming land markets have contributed to the breathtaking growth of the real estate market. According to the *China Land and Resources Almanac* (2008), the quantity of land transferred for urban use increased at an average annual rate of 22.8 percent during the period from 1999 to 2007. Not surprisingly, the fees collected from land leasing by local governments also grew, at an annual rate of 31.29 percent on average during this period (Man 2010). Investment in land development experienced double-digit growth every year except 2004 between 2000 and 2007. The increased supply of land led to the rapid growth of the housing supply.

### Housing Supply

During the period from 1999 to 2007, investment in real estate development increased by 21.5 percent annually, on average, while investment in residential housing

development increased by 22.9 percent annually. The floor area of new construction has also increased significantly. For example, in 1999, there was only 188 million square meters of newly built floor area. Since then the number has increased every year, amounting to 788 million square meters in 2007, an increase of 320 percent (*China Statistical Yearbook 2008*).

### Housing Sales and Prices

The boom in land supply and real estate investment and the consequent increase in the floor area of new construction demonstrate supply-side forces and policies. But the demand for housing is reflected in the housing transactions and the quantity of housing consumption. The total square meters of sold housing space increased from 130 million in 1999 to 701 million in 2007, an increase of 439 percent, indicating a strong demand for housing and the rapid development of a real estate market.

Although the total value of housing transactions increased significantly during the period between 1999 and 2007, the housing price per square meter did not experience a similar increase between 1999 and 2004. Starting in 2004, however, it enjoyed a double-digit increase, with a growth rate of 18.7 percent.

## Patterns of Urban Housing Consumption

The National Bureau of Statistics of China (NBS) conducted the Large-Sample Urban Household Surveys in 2007 and 2010, each of which covered more than 600 cities. The data set from the survey is unique because it reveals the condition of all housing stocks in China instead of only new construction. For 2010, we studied 265 prefecture-level cities, and analyzed various housing consumption characteristics, including dwelling size, property type and tenure structure, owner-occupancy rate, and housing value. However, the survey covered only formal housing in urban areas; informal housing, such as temporary dwellings, villages in cities, and construction site shelters that are often occupied by migrant workers and low-income people, were not included. Interpretation of the findings based on the survey needs to be put within this context.

### Home Ownership Rate

Home ownership rate is an important measure of the condition of the housing market. We follow the international standard by defining the home ownership rate as the ratio of owner-occupied housing units to total housing units. Based on the Large-Sample Urban Household Survey data, we found that the owner-occupied home ownership rate reached 82.3 percent in 2007 and rose to 84.3 percent in 2010. As table 1.1 shows, this figure varied widely across cities. Among the 265 prefecture-level cities in our sample, the owner-occupied home ownership rates ranged from 34.8 percent to 97.8 percent. But a majority of the sample cities (about 69.1 percent) had an owner-occupied home ownership rate exceeding the national level of 84.3 percent.

Table 1.1 reveals that the average rate of owner-occupied housing for the four largest municipalities in China was 77.1 percent, lower than the provincial capital cities (79.9 percent) and the prefecture-level cities (86.4 percent). The rate of

**TABLE 1.1**

## Owner-Occupied Home Ownership Rate by City Type and Region, 2010

Regions	Owner-Occupied Rate (%)	Region	Owner-Occupied Rate (%)
Municipalities	77.1	East	81.6
Capital cities	79.9	West	80.5
Prefecture-level cities	86.4	Central	85.0
		Northeast	85.7
National average	84.3		

SOURCE: Calculated by authors based upon National Bureau of Statistics of China, Large-Sample Urban Household Survey, 2010.

**TABLE 1.2**

## Owner-Occupied Home Ownership Rate by Income Group in 2007 and 2010

Income Group	Owner-Occupied Home Ownership Rate (%)		Average Floor Area (square meters)
	2007	2010	2007
Lowest 10%	72.9	79.3	67.8
2nd 10%	77.6	80.3	72.2
3rd 20%	80.5	81.2	77.5
4th 20%	83.5	83.7	83.6
5th 20%	86.0	83.6	89.6
6th 10%	86.2	85.5	96.3
Highest 10%	87.4	88.5	107.3
National average	82.3	84.3	84.5

SOURCE: Calculated by authors based upon National Bureau of Statistics of China, Large-Sample Urban Household Survey, 2007 and 2010.

owner-occupied home ownership was lower in the east and northeast regions than in the west and central regions. It may be that housing costs in the big cities and along the east coast affect the owner-occupied ownership rate in the respective areas.

It is not surprising that, as in many other countries, owner-occupied home ownership in China is highly correlated with household income. Table 1.2 reveals that among the seven income groups defined by China's National Bureau of Statistics, the rate of owner-occupied home ownership for the lowest-income group was 79.3 percent, while the highest-income group had an 88.5 percent rate, about 9.2 percentage points higher. The middle-income group had an 84.5 percent rate, about 0.2 percentage points higher than the national average. (By comparison, the American home ownership rate, according to the U.S. Census Bureau in 2000, was 66.2 percent.) This suggests that the Chinese housing reform that started in 1980 has resulted in a higher owner-occupied home ownership rate.

## Quantity of Housing Consumption

In addition to the home ownership rate, the quality and quantity of housing consumption can reflect the condition of the housing market. According to the 2007 and the 2010 surveys, the average floor area of a dwelling is 84.5 square meters per household in 2007 and 91.9 square meters per household in 2010, equivalent to 63.4 and 68.9 square meters of usable living floor area per household respectively. Based on an average family size of 2.98 people per household in 2007, it can be calculated that the average floor area and the usable floor area per capita is 28.3 square meters and 21.3 square meters, respectively. This is consistent with the report of the *China Statistical Yearbook* that the per capita residential floor area was 26.1 and 27.1 square meters in 2005 and 2006, respectively. But by 2010, the per capita average floor area of a dwelling had reached 31.7 square meters, up by 3.4 square meters within three years, suggesting a rapid increase in housing consumption by city dwellers in China.

Table 1.2 shows that in 2007 the lowest-income group occupied 67.8 square meters of floor area per household unit, on average, but the highest-income group of households consumed about 107.3 square meters per unit, on average, indicating a strong correlation between household income and the quantity of housing consumption.

The housing consumption of the lowest-income group, which had 67.8 square meters of floor area, or 50.9 square meters of usable living floor area, exceeds the consumption of the low- and middle-income groups in some countries such as Singapore. This indicates that the housing reform of the past 30 years has successfully eased the chronic problem of overcrowding in the formal housing market in Chinese urban areas. It demonstrates the effectiveness of the market-based approach, as compared with the central planning system, in increasing housing production and housing services to urban residents in China. But due to the data limitations, it does not reflect housing consumption and conditions in the informal markets for migrant workers and the mobile low-income population.

## Housing Tenure Structure

Table 1.3 reports the property type and tenure structure of the housing stock, according to the 2010 Large-Sample Urban Household Survey. Market-oriented commercially provided commodity houses and rental houses account for 38.1 percent of total housing stock. Privatized state-owned houses account for about 28.8 percent of the total housing stock. Affordable housing subsidized by the government and state-owned public rental housing account for 3.4 percent and 5.8 percent, respectively, indicating inadequate government support for low-income households in the area of housing consumption.

## Housing Market Value

The 2007 and the 2010 household surveys report the self-estimated housing value of each household. Based on those data, we calculated the estimated mean market value of all types of residential housing to be 445,000 yuan (US\$65,000; see table 1.4). Calculated by mean floor area, the estimated value is 4,844 yuan per square meter. The housing market value varies by region and jurisdiction. Not surprisingly, the

**TABLE 1.3**

## Property Type and Tenure Structure in 2010

Marketization	Market-Oriented Housing		Subsidized Housing				
	Own	Rent	Own			Rent	
Tenure Structure	Commercial House	Rental of Private House	Original Private House	Private House Obtained from Housing Reform	Economical and Comfortable Housing	Rental of Publicly Funded House	Other
Share of total housing stock (%)	31.7	6.5	20.5	28.8	3.4	5.8	3.4
Total (%)	38.1		58.4				3.4

SOURCE: Calculated by authors based upon National Bureau of Statistics of China, Large-Sample Urban Household Survey, 2010.

**TABLE 1.4**

## Housing Value by City Type and Region in 2010

Regions	Housing Value (10,000 yuan)	Region	Housing Value (10,000 yuan)
Municipalities	85.90	East	69.20
Capital cities	43.70	West	25.50
Prefecture-level cities	28.00	Central	26.70
		Northeast	21.80
National average	44.5		

SOURCE: Calculated by authors based upon National Bureau of Statistics of China, Large-Sample Urban Household Survey, 2010.

four largest municipalities have an average of 859,000 yuan (US\$126,324) estimated market value, followed by capital cities of 437,000 yuan (US\$64,265) and prefecture-level cities of 280,000 yuan (US\$41,176). But the estimated housing market value for the east region is more than twice that for the western, central and northeast regions, posing political challenges for assisting the poor in the big urban areas and east regions with their basic housing consumption.

In addition to the regional disparities in housing value, there also exist large variations in the market values of residential housing among different income groups. Table 1.5 reveals that the higher-income group, the higher estimated housing value, demonstrating a strong positive correlation between income and housing consumption in urban China. The highest 10 percent income group has a market value of 644,000 yuan (US\$95,000) on average, about 130 percent higher than the national average of

**TABLE 1.5**

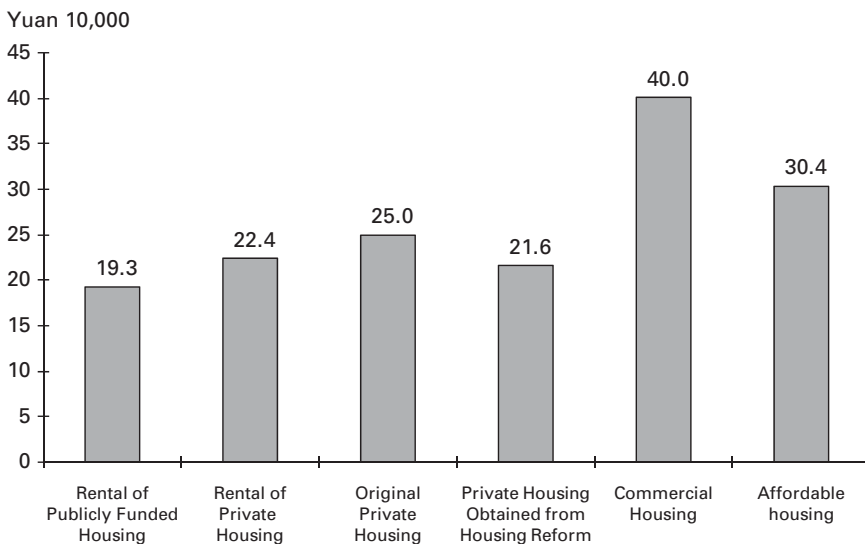
## Housing Value by Income Group in 2007

Income Group	Market Value of Residential Housing (10,000 yuan)
Lowest 10%	13.0
2nd 10%	15.0
3rd 20%	18.6
4th 20%	22.7
5th 20%	32.1
6th 10%	41.4
Highest 10%	64.4
National average	28.1

SOURCE: Calculated by authors based upon National Bureau of Statistics of China, Large-Sample Urban Household Survey, 2007.

**FIGURE 1.1**

## Housing Values by Housing Type



SOURCE: National Bureau of Statistics of China, Large-Sample Urban Household Survey, 2007 and 2010.

281,000 yuan (US\$41,000). There is about a 400 percent difference in the market value of the housing of the richest and poorest 10 percent of urban households. This finding suggests that the wealth disparity among Chinese urban residents is alarmingly noticeable and problematic, and it may well be a side effect of the otherwise successful urban housing reform and the consequent rapid increase in housing prices in the past 10 years.

Housing value also varies by property type and housing tenure. The most expensive housing is commercial housing, which has an average price of 584,000



yuan (US\$85,882), followed by affordable housing (466,000 yuan or US\$68,529) and publicly funded rental housing (396,000 yuan or US\$58,236). The price differences may well reflect the variations in housing characteristics such as building age, floor size, quality, and other attributes, as well as neighborhood characteristics (e.g., whether a community is gated and what services are available) and market demand (see figure 1.1).

## Housing Affordability Among Chinese Cities

In the past few years, most Chinese cities have experienced a rise of housing prices to various degrees, which raises the problem of housing affordability as a major policy concern. Based on the Large-Sample Urban Household Survey in 2010, we employed the indicators of the housing price-to-income ratio (PIR) and the Housing Affordability Index (HAI) to evaluate housing affordability in 265 prefecture-level cities.

### Housing Price-to-Income Ratio

The housing price-to-income ratio is the basic affordability measure for housing in a given area. It is generally the ratio of the median house price to the median family income. In the Global Urban Observatory Databases of UN-HABITAT (Flood 2001), PIR is one of the urban indicators. UN-HABITAT regards ratios of 3 to 5 as normal or satisfactory.

Demographia (2009) conducts an annual housing affordability survey that covers more than 200 markets in Australia, Canada, Ireland, New Zealand, the United Kingdom, and the United States. PIR is an important indicator that is commonly used to evaluate housing affordability across cities or countries. Housing affordability is rated in four categories based on the value of PIR: If PIR is equal to or greater than 5.1, the rating is “Severely Unaffordable”; if PIR ranges from 4.1 to 5.0, the rating is “Seriously Unaffordable”; if PIR ranges from 3.1 to 4.0, the rating is “Moderately Unaffordable”; and if PIR is equal to or below 3.0, the rating is “Affordable.”

Table 1.6 shows Demographia’s survey results for the third quarter of 2008. Among 265 cities surveyed, the highest value of PIR is 9.6, while the lowest is 1.8. Housing was rated as Severely Unaffordable in 64 cities. The PIR for the United States, from a sample of 175 cities surveyed, is 3.2, falling in the category of Affordable; only 22 percent of the surveyed cities are rated Seriously Unaffordable or Severely Unaffordable.

Based on the 2010 Large-Sample Urban Household Survey, we calculated PIR for China as a whole and for each of 265 prefecture-level cities in China. The results indicate that the median price-to-income ratio (PIR) nationwide in 2010 was 7.07, and the mean PIR for all the cities in China was 8.79. Both figures go beyond the normal or satisfactory level defined by UN-HABITAT. They fall in the category of Severely Unaffordable.

By studying the price-to-income ratio for 265 prefecture cities, we find that in 2007 the median PIR is 5.21, and the average PIR for the sample cities is 5.54. Among 265 prefecture-level cities, only 10 percent are affordable, with PIR below 3.0. Nearly 52 percent of all the prefecture-level cities in China are suffering from a Severely Unaffordable problem, and about 21 percent are Seriously Unaffordable. As table 1.6 shows, the situation in 2010 worsened. The number of cities that have

**TABLE 1.6**

## Price-to-Income Ratio for Selected Countries and China

Nation	Affordable (<3.0)	Moderately Unaffordable (3.1–4.0)	Seriously Unaffordable (4.1–5.0)	Severely Unaffordable (>5.1)	Total Cities	Median PIR
Australia	0	0	3	24	27	6.0
Canada	10	15	5	4	34	3.5
Ireland	0	0	2	3	5	5.4
New Zealand	0	0	1	7	8	5.7
United Kingdom	0	0	6	10	16	5.2
United States	77	59	23	16	175	3.2
China (2010)	3 (1.1%)	31 (11.7%)	47 (17.7%)	184 (69.4%)	265 (100%)	6.25

SOURCES: Demographia, 2009, for all countries except China; the data for China were calculated by the author based on National Bureau of Statistics of China data sets.

the Severely Unaffordable problem increased to 184, 69.4 percent among all the 265 prefecture-level cities. In comparison, according to Demographia (2009), only 9 percent of 175 American cities had the rating of Severely Unaffordable; 13 percent of surveyed cities were Seriously Unaffordable, and about 44 percent were Affordable.

### Housing Affordability Index

The Housing Affordability Index (HAI) has been published monthly by the National Association of Realtors of America (NAR) since 1981. The HAI assumes that borrowers make a 20 percent down payment and that the maximum mortgage payment is 25 percent of gross monthly income for the household. The HAI has a value of 100 when the median-income family has sufficient income to purchase a median-priced existing home. A higher index number indicates that more households can afford to purchase a home.

Based on the 2010 Large-Sample Urban Household Survey, we calculated HAI in 265 prefecture-level cities in China. The parameters used in the formula of HAI are as follows: The down payment is 30 percent, the maximum mortgage payment is 25 percent of gross monthly income for the household, the lending rate is 6.84 percent, and the length of maturity is 30 years. The HAI for 265 prefecture-level cities in 2010 was 70.7, much lower than 100, indicating severe unaffordability for the households living in those cities on average. From HAI calculation based on the 2007 Large-Sample Urban Household Survey, we found only 94 cities of the 256 had HAI values of more than 100. About 63.3 percent of the cities had a HAI below 100, indicating that the households in those cities with median income did not have sufficient income to purchase a median-price house in the city of their residence.

### Major Findings

Prior to 1978, China nationalized the housing sector and eliminated property rights and housing markets in urban areas. Urban residents mostly rented housing

from their work units as part of their benefits; housing shortages, poor quality, overcrowding, and underinvestment in the housing sector were among the main characteristics of the socialist urban housing system. After the economic reform started in 1978, China's urban housing policy shifted toward a market-oriented system, promoting property rights, home ownership, privatization of work-unit housing, and private investment in housing production and distribution. Since 1998, when the socialist housing distribution system was terminated, the housing market in China has grown rapidly, and housing-related sectors, including construction and steel industries, have become major contributors to the economic growth in China.

Analyses of the trends and patterns of housing markets during the period from 1999 to 2010 reveals that the housing boom in China was fueled by the significant increase in land supply and the growing land markets in China. The quantity of land transferred for urban uses experienced more than a 20 percent annual growth rate on average during this period, as did investment in land development in urban areas. The increased supply of land and rapid expansion of urban areas led to an increase in investment in residential housing development, at an annual growth rate of 20 percent on average. All of this led to a boom in housing construction, housing supply, and housing consumption.

Due to the urbanization and the rapid increase in disposable income, the floor area of new constructions grew by over 300 percent during the period from 1999 to 2010. But housing prices also increased considerably, especially after 2004. The price of housing per square meter nearly doubled between 1999 and 2010, which demonstrates a steady and strong demand for housing and the rapid development of a real estate market in China.

Based on the 2007 and the 2010 Large-Sample Household Surveys' data, we found that the home ownership rate in China, on average, increased from 82.3 percent in 2007 to 84.3 percent in 2010, exceeding the rate in many developed and developing countries in the world. Despite considerable variation in the home ownership rate across the 256 prefecture-level cities in our sample, a majority of the sample cities (about 69.1 percent) had an owner-occupied home ownership rate exceeding the national level. Almost all income groups have benefited from the privatization of housing sectors in China, albeit to different extents. Even the lowest 10th percentile of income groups enjoys nearly an 80 percent home ownership rate in 2010, suggesting the effectiveness and success of government policy in encouraging home ownership in urban China. The housing reform has also increased the floor area of housing construction and eased the chronic problem of overcrowding and poor living conditions of many urban residents.

The rapid development of China's housing market and drastically increased housing supply have not kept up with the housing demands, real or speculative, in urban areas, particularly in big cities and east coast regions. The housing price grew faster than the urban residents' disposable income in the past ten years. The median price-to-income ratio for China as a nation has put urban China in a category of "Severely Unaffordable" according to international standard. In only three out of 265 cities in this study is housing affordable to local residents. Nearly 70 percent of all the prefecture-level cities examined in our sample are "Severely Unaffordable." This finding is also supported by our calculation of the Housing Affordability

Index, indicating that urban households in many cities with median income do not have sufficient income to purchase a median-price existing house in the city of their residence. These results demonstrate that housing affordability has become a big problem for many Chinese homebuyers in urban areas, even though it is calculated using the housing stock data. If the newly constructed housing data is used, the housing affordability problem is more severe.

In conclusion, by analyzing quantitative data, this study produced a number of results and findings with respect to the current state of housing markets and affordability issues in the urban areas of China. It demonstrates that China's housing reform has resulted in a large increase in land supply, housing supply and consumption, home ownership rate, and the rapid development of housing markets. The successes of the housing reform have been accompanied, however, by the problems of inequality among income groups and regions in housing consumption, wealth, and affordability. Housing has become severely unaffordable in China, posing risks and challenges that may threaten the sustainability of economic growth and the stability of the society. This situation is contrary to China's goal of becoming a harmonious society and will be a focus of the Chinese government in its search for a sound housing policy.

## This Volume

In 2007, a joint initiative created The Peking University–Lincoln Institute Center for Urban Development and Land Policy to give Lincoln Institute of Land Policy's China program a presence in China's political capital. This volume collects the proceedings and papers from the 2009 conference entitled "Housing Policy and Housing Markets in China" as well as some scholarly research funded by the joint center.

The thirteen chapters in this volume address four dimensions of housing policy and housing markets in urban China. Part 1 focuses on China's housing policy reform and outcomes in the past 30 years. Two chapters in this part review the transition of housing provision from a socialist welfare distribution system to a market-based system. The current state of housing markets and housing affordability is discussed in detail. The research shows that housing reform in China has had a positive impact in many respects but has resulted in some social and economic problems, as well. The interactions of land use, fiscal policy, and housing markets are discussed in part 2. The five empirical chapters link the housing market in China with the country's land use practices and its fiscal policy. The authors explore the effect of factors such as income, local taxes and expenditure, and employment and social security on the prices of and demand for housing, as well as the determinants of second home ownership in Chinese cities. Part 3 focuses exclusively on China's low-income housing policy, which is designed to provide assistance and support to middle- and low-income groups after housing prices experienced a rapid increase following the housing reform started in 1980. The outcomes of reform and the current challenges facing middle- and low-income groups and Chinese governments are evaluated in three chapters written from different perspectives. Each of the three chapters in part 4 takes a comparative approach to housing policy in China. The practice of low-income housing provision has prece-

dents in many other countries, including developed countries like Britain and the United States, and developing countries. The authors draw implications from international experiences to determine what China can learn from the successes and mistakes of other countries, and what principles are appropriate to guide future housing reform and policy making in China.

This chapter provides a brief overview of the evolution of the housing reform in urban China and an analysis of the trends and patterns of China's land and housing markets during the housing reform. Affordability and equity issues are evaluated. This study finds that there have been significant increases in land supply, investment in real estate development, housing provision and consumption, and a high home ownership rate, indicating positive outcomes of the housing reform. The housing market in China has witnessed an increase in total square meters sold and a skyrocketing of housing prices, reflecting strong demand for housing. However, affordability has become an economic and social issue. Of the total housing stock, affordable housing only accounts for a very small portion, implying inadequate government support for low-income households. Further, based upon the calculation of Housing Affordability Index and the median price-to-income ratio, this suggests that China's housing falls into the category of being "severely or seriously unaffordable." China's housing reform has resulted in many positive changes, but it has also caused inequality among income groups and across regions. Government policy should correct the distortion of the original reform purposes.

In chapter 2, Ya Ping Wang looks at the distribution of benefits and losses, as well as the spatial stratification, as a result of the reform. He observes that the housing reform in China has resulted in a differentiation of residency based on socioeconomic status, with the poorer people concentrating in peripheral areas and government employees and economically advantaged people in the more expensive neighborhoods. This spatial pattern is a result of the privatization of previously government-provided housing. Professionals, managers, and civil servants have benefited the most from the housing reform, which is critical to maintaining the stability of the communist rule. Housing for the urban poor and low-income people in general has been neglected, and only recently has become a top priority on the policy agenda.

In chapter 3, Chow and Niu apply the standard theory of consumption to analyze the demand for and supply of China's urban housing. They find that the income elasticity of demand for urban housing in China is about 1.0, the price elasticity of demand 0.5–0.6, and the price elasticity of supply about 0.74. According to this calculation, the increases in housing prices are the result not of speculation, but rather of increased income based on the annual data from 1987 to 2006. The authors conclude that there was no housing bubble in the country during their sample period up to 2006.

Chapter 4, by Fu and Zheng, looks at the demand side of the housing market in China. They used data from a national large-scale urban household survey to estimate the income elasticity of housing demand for different population groups. The authors find that when housing prices increase with quality of life in a neighborhood, the income elasticity of spending on housing also increases. The study indicates that the low level of education and lack of social security of most migrants diminishes their demand for quality of life in the host cities. The authors recommend

that in order to enhance the willingness of migrant workers to pay for urban housing and contribute more to domestic demand, policies are needed to improve employment and social security.

Logan, Fang, and Zhang investigate the distributive consequences of China's housing reform in chapter 5. They compare the dual tracks of the privatization of public housing and the development of the private housing sector. Rents and prices of public housing in China are of considerable variability and have been well below market prices. Using 2000 census data, their study estimates the housing subsidy received by renters and purchasers of public housing. It shows that the biggest winners in the housing reform are those who were favored in the previous system; based on such factors as residence status, education, and occupation, they are paying less for better housing by virtue of state subsidies.

Chapter 6, contributed by Huang and Yi, studies the patterns of second home ownership in Chinese cities. The authors argue that second home ownership in Chinese cities both shares similarities with and bears major differences from the experience in the West, due to the coexistence of increasingly mature housing markets and unique institutions from the socialist legacy. Using China's 2005 General Social Survey, the authors reveal that, as in the West, large and higher income households are more likely to own a second home. The *hukou* system is proved again to be important to second home ownership. Political status and work units are also important, as people with a high job rank and party membership are more likely to own a second home. Residents in municipalities and provincial capitals are less likely to own second homes, probably due to higher housing prices in large cities. The authors' findings provide important policy implications for future government decision making and housing reform in promoting efficiency and equality of resource allocation and housing provision.

In chapter 7, Man and Zheng analyze the effect of local taxes and public expenditure on residential property values, using data from over 200 Chinese cities. This study tests the Tiebout model in a country where local tax and expenditure structures are quite different from those in the United States. Their findings are nevertheless consistent with the prediction of the model: Local public services and tax liability affect the choice of residence by households in China. Controlling for other conditions, the value of residential properties has a significant positive relationship with local public expenditure and a negative correlation with taxes on land, property, and personal income in Chinese cities.

Chapter 8, by Deng and Fei, analyzes the development and performance of the nascent housing finance system in China. They point out that there is a dual-channel housing finance system in China: a policy-driven mechanism of the Housing Provident Fund, as well as commercial mortgage lending. All mortgage loans issued in China are adjustable rate mortgages without a cap. The number of default cases in China is quite small, and mortgage foreclosure is difficult to enforce. The authors conclude that stock market fluctuations and Chinese borrowers being "uncertainty averse," as well as the swift changes in related housing and finance policies and regulations all have an impact on mortgage borrowers' prepayment and default decisions.

Chapter 9 explores the intricate interactions between urban expansion, land conversion, and delivery of affordable housing in Chinese cities. Angel, Valdivia,

and Lutzy selected Zhengzhou, a middle-sized city, as a case study. They found that although housing is adequate and different types of housing satisfy basic needs, housing built on land transacted at current market prices is not affordable for the majority of urban households in Zhengzhou. While urban villages provide a pragmatic solution to affordable housing for poor families, the current land conversion policy destroys this option. They present a radical recommendation that the conversion of cultivated land to urban land should not be restricted and villagers should be able to sell land directly to developers.

In chapter 10 Song asks how the presence of urban villages affects the local housing market. Using the city of Shenzhen as a case, this empirical study shows that most urbanizing villages are seen as disamenities by home owners nearby, but perceived positively by renters as a special type of affordable housing. Some urban villages have a higher level of establishment and are marketed toward “white-collar” workers. Such villages are more assimilated with the urban environment. The author believes that in the short run, the urban villages are an effective solution in providing affordable housing to rural migrants. In the long run, however, concentration of rural migrants, particularly those with lower income, in these villages may be the prelude to a new form of residential segregation in urban China. The author recommends a comprehensive approach that incorporates community development and economic development strategies.

Reingold and Xu review the policy and management of low-income housing in China in chapter 11. The authors compare it with similar programs in the United States along three dimensions: intergovernmental relations, rural-urban migration, and ethnic-regional conflict. The two countries have distinct political frameworks and social structures, and the housing programs work through different mechanisms. Nevertheless, drawing from the U.S. experience, the authors conclude that in order to minimize social disruption in low-income housing programs in China, a professional nonprofit sector is needed to represent the interests of the poor.

Chapter 12, by Jing, begins with the assumption that social policies and practices have been converging in the age of globalization. Therefore, analyzing the similarities and differences between the long-developed British social housing programs and China’s recent social housing provision could shed light on the prospects for China’s program. The author first reviews the history of the programs in Britain and China, then moves on to compare the physical features of social housing and the social profiles of tenants in both countries. She points out that some mistakes, such as placing priority on quantity rather than quality in low-income housing provision, seen before in Britain, are being repeated in China. Learning from the British experience, she cautions China against developing extremely large-scale peripheral social housing projects. Jing argues that voluntary groups, local communities, and private developers should be involved in such initiatives, rather than the government alone.

In chapter 13, Renaud examines the largest constraints and policy risks that can negatively affect the long-term development of China’s housing and urban system. Dr. Renaud evaluates seven core areas of the development of Chinese housing markets: property rights and tenure, housing financing, taxation and subsidies, the supply of serviced urban land and infrastructure, land use, the organization of real

estate, and the performance of central and local government. He cites experiences from other transitional economies, Latin American countries, and the United States to caution China against a myopic housing policy. He recommends that short-term actions to stimulate the economy should not distract from the long-term housing policy, and that an integrated safety net, including support in the areas of employment, education, health, and old-age security, is much more important than housing provision alone for low-income groups.

This book is a collection of studies done by international scholars and domestic researchers who specialize in the areas of urban and housing economics and policy, with interests in promoting the understanding of China's housing policy and markets. The information in this book is of interest to government officials and practitioners, academic researchers, students, and members of the general public who are concerned with government housing policy, market conditions related to the housing sector, and the strategic directions for building a harmonious and sustainable society beneficial to all residents in China. University instructors will find this book useful as a supplemental textbook for urban and real estate economics, policy analysis, and economic development courses.

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