Housing inequality and housing poverty in urban China in the late 1990s

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Abstract

This paper discusses housing inequality and housing poverty in urban China in the late 1990s, using original household surveys. Focuses are on the distributive implications of the privatization of public-owned housing and the wave of rural-urban migration. Estimates of the imputed rent function for owned housing purchased at discount prices indicates that meritocracy and political credentialism work differently as determinants of housing inequality. The paper confirms that there has been a large disparity in housing conditions between urban and migrant households, and that a new type of housing poverty has been emerging among migrant households.

JEL classification: D31; P36; R21

Key words: housing inequality; housing poverty; distribution of wealth; ruralurban migration; China

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1 Introduction

The purpose of this paper is to discuss housing inequality and housing poverty in urban China in the late 1990s. Distributive implications of two important issues relating to urban housing -- that is, the privatization of public-owned housing and the wave of rural–urban migration -- are examined. Regarding the former issue, the analytical focus is on the determinants of housing inequality in the early stage of housing privatization. This is important because the initial distribution of housing assets impacts on subsequent economic inequality in urban society. As for the latter issue, a large disparity in housing conditions between urban residents and migrants is described. This is also important because the housing conditions of migrants is a newly emerging and rapidly growing poverty issue in urban China.

The late 1990s provide useful data for examination of these issues. Development of market circulation of housing accelerated in this period. It is also the period when rural migrants who settled in urban areas may be studied. Original microdata on urban housing conditions in 1999 are used throughout the study.

In the planned-economy era, urban housing was basically owned by work units (*danwei*) or housing management departments of local governments. Along with medical care and old-age security, the allocation of low-rent housing was one of the main pillars of "work unit socialism"; that is, the system of income distribution, social security, and governance based on work

units in urban areas during the planned-economy era (Womack, 1991; Lü & Perry, 1997; Liu, 2000). Since egalitarian approaches were employed in wage distribution throughout the planned-economy era, the substantial differences in standards of living were to a considerable degree caused by differences in the quality of housing allocated to a given worker. Rural areas were isolated from this particular system, and the rural population was unaffected by housing problems in urban areas.

This situation changed considerably throughout the 1990s owing to the above-mentioned two events. According to the Ministry of Construction, the proportion of urban households having owned housing exceeded 50 percent in 1998 (Cheng, 1999, p.137). In parallel with the wave of housing privatization, more and more households with rural household registration have begun to settle in cities. The questions that arise as a consequence are as follows. What kinds of factor determine the quality of privatized housing that urban households obtain from their work units? How has the flow of rural-urban migration, combined with housing privatization, changed the picture of housing inequality in urban areas?

Bian and Logan (1997) and Logan, Bian, and Bian (1999) have argued, using the 1993 household survey conducted in Tianjin and Shanghai, that older workers with higher income, those who have party membership, and workers who belong to large work units can access better housing. Using the official urban household surveys of the National Bureau of Statistics (NBS) from 1992 to 1998, Fang, Zhang, and Fan (2002) found that, for the lowincome urban households, the rate of increase in expenditures on housing has outpaced the rate of income growth, making the poor more vulnerable to

sudden shocks. Based on fieldwork in Beijing and Shanghai in the late 1990s, Wang (2000) found that, in addition to the problem of urban residents who live in relatively poor housing conditions, a newly emerging incidence of housing poverty among the poor migrants of rural origin was growing, although not recognized by the government. This paper elaborates Bian and Logan's studies by employing imputed rent (rental value of owned housing) as the comprehensive measure of housing quality, while Bian and Logan used living space and facilities. This paper also develops the arguments of Wang (2000) and Fang et al. (2002) by employing more comprehensive data on urban housing conditions that cover both urban residents and migrants of rural origin.

This paper is organized into five sections. In the latter half of this section, the main data source is introduced. Section 2 gives an outline of urban housing reform in the 1990s and provides a general picture of changes in urban housing conditions between the end of the 1980s and the end of the 1990s. Section 3 analyzes the determinants of housing inequality in 1999 by estimating imputed rent functions. In section 4, new instances of housing poverty are described. Section 5 concludes.

The main data source of this paper is a household survey conducted by the Institute of Economics, Chinese Academy of Social Sciences (CASS), in collaboration with foreign researchers including the author. This survey has covered 13 cities in six provincial-level administrative units. The reference year is 1999 (hereafter referred to as the 1999 CASS survey). For comparison of housing conditions between the late 1980s and the late 1990s, the earlier nationwide household survey by CASS that collected data on 1988 (hereafter

referred to as the 1988 CASS survey) is also used (for the sampling frame of the 1988 CASS survey, see Griffin and Zhao, 1993).

The 1999 CASS survey includes 3,977 households with urban household registration (feinongye/chengzhen hukou) and 790 migrant households of rural origin; that is, households with rural household registration (nongye/nongcun hukou). (Hereafter, the former category is referred to as an urban household and the latter as a migrant household). Urban households were subsamples of the sampling frame of the annual national household surveys conducted by the NBS. Migrant households were subsamples of the NBS's large sample survey conducted in 1999 to establish the new sampling frame for the annual national household survey from 2000 onwards. It should be noted that migrant households are those who had stable home addresses in urban areas, and that those who lived in communal housing (such as dormitory and construction sites) were not included. Therefore, the migrant households covered by this paper should be seen as "settled" migrants of rural origin. The surveyed cities are listed in Table 1. In addition to Beijing, cities located in the five provinces of Liaoning (Northeast region), Jiangsu (Eastern coastal region), Henan (Central inland region), Sichuan (Southeast region), and Gansu (Northwest region) were surveyed. Shenyang, Nanjing, Zhengzhou, Chengdu, and Lanzhou are provincial capitals; Jinzhou, Xuzhou, Kaifeng, Pingdingshan, Zigong, and Nanchong are subprovincial (*diqu*)-level cities. Pingliang, the smallest among 13 cities, is a county (*xian*)-level city.

[Table 1. Basic information for the 13 cities surveyed]

2 Housing reform and changes in housing conditions in the 1990s Table 2 compares the housing conditions of urban households in 1988 and 1999 in nine cities that were covered in both the 1988 and 1999 CASS surveys. It is obvious that the housing conditions of urban households improved significantly. The living space per household member increased from 8 to almost 16 square meters.¹ The proportion of households living in housing with their own toilets and bathrooms increased from 4 percent to 33 percent.

[Table 2. Changes in housing conditions of urban households, 1988–1999]

Housing reform to break the vicious cycle of low-wage, low-rent, and lowquality housing lies behind these changes.² There are two basic policies regarding housing reform. One is rent reform (*zujin gaige*); that is, to raise the rent of public-owned housing while adding housing allowance to salaries simultaneously so that construction and maintenance of public-owned housing can be performed smoothly. The other policy is the privatization of public-owned housing (*chushou gongyou zhufang*); that is, disposal of publicowned housing by sale.

After carrying out some experiments of selling public-owned housing throughout the 1980s, the State Council issued an agenda for housing reform in 1988 that stressed rent reform. During the high inflation of the late 1980s, however, it was very difficult to implement rent reform (Cheng, 1999, pp.125-131).

In July 1994, the State Council issued a directive that provided the basic framework for housing reform in the 1990s (Guowuyuan, 1994). As the key reform principle, the directive advocated the "commercialization (*shangpinhua*)

and socialization (*shehuihua*) of housing"; that is, to abolish the work unitbased, welfare-oriented housing system gradually through housing privatization reform as well as rent reform. Regarding pricing policy for housing privatization, the directive adopted differential pricing policy according to income level, "market price (*shichangjia*)" for higher-income households, and discount prices; that is, "cost price (*chengbenjia*)" or "standard price (*biaozhunjia*)" for middle- and lower-income households. Terms of conditions of property rights given to purchasers were to be set according to the price. In the case of selling at "cost price", which was the most common sales method, the property rights basically belonged to the purchaser, but renting or reselling the housing was prohibited until after a fixed period had elapsed from the acquisition. In the case of purchasing at "standard price", the new owner only acquired partial property rights, and renting or reselling to third parties was restricted.

The next stage of housing reform came in the late 1990s. In July 1998, the State Council announced the termination of in-kind distribution of publicowned housing (Guowuyuan, 1998). From the second half of 1998, housing privatization had become the main stream of housing policy. Work units were to grant housing allowances to employees and to let employees purchase owned housing.

According to the above-mentioned policy framework, after the mid 1990s, different types of housing privatization progressed simultaneously. The first was nonmarket transactions between work units and employees. The second was market circulation of subsidized owned housing for lower-income households who could not obtain housing from work units. This category

includes "economical and comfortable housing (*jingji shiyong fang*)" and various low-price housing projects such as the "comfortable housing project (*anju gongcheng*)". The third type was market circulation of "commercialized housing (*shanping fang*)" at market prices.

A strong systemic inertia of "work unit socialism" was found in the housing reform up to the late 1990s. First, in this early stage of housing privatization, nonmarket transactions between work units and employees at heavily discounted prices were in the majority. In this sense, privatization was still within the scope of the old welfare system. For example, in Beijing, although the city government raised the level of "cost price" each year from 1994, many work units did not follow the policy. It was not until the end of 2000 that inkind allocation of housing terminated in Beijing (Ren & Kang, 2002, p.48).

Second, as Bian and Logan (1997) and Logan, Bian and Bian (1999) emphasized, work units were still the main agent in housing construction. The quality of housing purchased by urban households through housing reform was closely related to the administrative hierarchy as well as to economic performance of the work units. Pricing and property rights attached to privatized housing also varied considerably by work units (Cheng 1999, Ren & Kang, 2002, p. 45). As reported in Table 3, those who belong to work units of higher administrative status not only enjoy better housing conditions but also purchase their own housing at lower prices.

Third, although part of the housing privatization policy was to promote differential pricing policy and to accelerate construction of low-price housing for poor households, the impact of such policy arrangements was limited. Although it is not reported in a specific table or graph, regarding all the

samples having owned housing in the 1999 CASS survey, there has been found no significant association between household income and pricing method. (When a cross-tabulation of household income quantile and pricing method is examined, there is no tendency for poor households to be more likely to purchase housing at discount price or for wealthy households to purchase housing at market prices.) Also, no correlation has been found between household income and purchase price per square meter of owned housing.

Fourth, systemic inertia brought about macroeconomic imbalances; that is, the large gap between high prices of marketable housing, and low rents of public-owned housing (the so-called *zu mai bi* or price/rent ratio) obstructed the progress of housing reform (Lee, 2000; Yuan, 1998; Gao & Chu, 1996). As Yuan (1998) pointed out, housing marketization until the late 1990s was a dual-track marketization in which there were two segmented markets: an "internal" market that had developed within the welfare system, and an "open" market that was still premature.

[Table 3. Administrative status of work units and housing conditions]

To confirm the above discussion, Table 4 reports the progress of housing privatization and ownership structure to 1999 by cities. Although the proportion of households who owned housing varies city by city, the majority (65 percent in an average of 13 cities) had become owners of their own housing in 1999. If nine cities that were covered in both the 1988 and 1999 CASS surveys are compared, the proportion owning housing was 13 percent in 1988 and 68 percent in 1999. In general, housing privatization accelerated after the mid 1990s. Of all sample households owning their housing, around 80 percent

purchased their houses after 1995. The majority of households purchased owned housing at heavily discounted prices. To take the example of Shenyang, per square meter prices actually paid by households in 1997-1999 were as follows: 386 yuan for purchase at the standard price, 393 yuan for purchase at cost price, and 910 yuan for purchase at market prices. This table also shows large regional disparity in the value of privatized housing assets. Selfestimated imputed rent per square meter varies from 60 to 80 yuan in inland mid-sized cities to around 370 yuan in Beijing.

[Table 4. Ownership structure of urban housing, 1999]

3 Determinants of housing inequality

As discussed in the previous section, the process of housing privatization in the 1990s was rather complicated in terms of pricing and property rights arrangements. It is assumed that not only economic conditions of households but also various factors relating to the sociopolitical hierarchy inherited from the planned-economy era affected the initial inequality of housing assets.

This section examines factors affecting the process of housing privatization by estimating the imputed rent function of owned housing. The focus is on the effects of sociopolitical factors, and the following framework of analysis is used in the estimation. The dependent variable is the rental value of privatized housing assets in 1999. The log of annual imputed rent of owned housing calculated based on self-estimated monthly imputed rent is used. Owned housing here means housing purchased at discount prices in 1996-1999. Since the opportunity for urban households to purchase owned housing from their work units at discount prices was restricted to just once (the State

Council, 1994), market circulation of second hand houses is not included in the estimation. Annual imputed rent (R) is defined as:

R = (r * 12) - (d * 0.05)

where *r* denotes self-estimated monthly rental value of owned housing (yuan) and *d* denotes housing debt (yuan). Five percent annual interest for *d* is subtracted from the rental value. Values of *r* are collected by asking household heads the question, "How much rent do you think you could get if you were to rent out the housing you are currently living to another person?" Some criticisms can be brought to bear against estimating imputed rents by subjective evaluations under conditions where the real estate market has not developed fully. Since no systematic data on rental value of housing are available, this paper nonetheless uses this subjective variable as the secondbest solution. This would be justified by the fact that, as discussed below, renting or subletting of housing has become popular among urban households.

It should be noted that, as mentioned above, two different types of housing privatization are mixed in the cases of purchasing at discount prices. One is nonmarket transactions between work units and employees, which formed the majority up to the late 1990s. The other is market circulation of subsidized owned housing for lower-income households. Unfortunately, the data set does not allow the author to discriminate accurately between the latter and the former. In spite of this shortcoming, the author believes that the estimation results reflect the distributive impact of the inertia of the old welfare system. This is because, regarding the samples used for imputed rent function, there is no correlation between household income and purchasing price per square

meter in the samples used for the imputed rent function, suggesting that the latter type is in the minority.

The following factors are hypothesized to influence the initial distribution of housing assets. The first factor is seniority. Since work units generally put seniority into the formula for determining price and quality of housing to be privatized (Gao & Chu, 1996), it is assumed that seniority positively and significantly correlates with the level of imputed rent after privatization. Purchasers' years of employment at the time of purchasing owned housing from their work units is used as the measurement of seniority.

The second factor is meritocracy. Marketization, in principle, will strengthen the correlation between ability/skill and economic status. Even within the scope of the welfare-oriented housing system, it is assumed that work units had begun to consider employees' ability/skill more seriously in the process of housing privatization since housing was an important means of providing incentives to employees. The level of ability/skill is measured by years of education. It is hypothesized that this factor has a positive effect on the imputed rent of privatized housing.

The third factor is political credentialism. In contrast to meritocracy, political credentialism can be understood as a factor inherited from "work unit socialism". Controlling for seniority, educational level, and other variables, a positive and significant correlation between political status and imputed rent can be understood as the net premium for political credentialism. Political status is simply measured by a dummy variable for party membership.

The fourth factor is work units' administrative hierarchy. As discussed above, the administrative status of work units affects the terms of housing

privatization. It is likely that the imputed rents of the housing offered by work units having higher administrative status are relatively high because they had been beneficiaries of state investments in housing during the plannedeconomy era, and because they tend to have location advantages. The administrative status of work units is classified into the following four categories: central/provincial-level state-owned work units, local level (subprovincial or city level) state-owned work units, urban collective-owned work units, and 'other' work units. Other work units, or nonpublic work units, include mixed-ownership work units, private enterprises, and foreign-owned enterprises. The administrative status of work units is another factor inherited from the planned-economy era and hypothesized to have a positive correlation with imputed rent.

To examine the impact of the above-mentioned factors on housing inequality, the following variables should be controlled. The first controlling variable is the purchasing price. Each work unit is assumed to decide housing prices based on the quantity and quality of housing to be sold. To control for quantity and quality of housing at the time of privatization, the log of purchase prices reported by household members who purchased housing is employed in the estimation. Purchase prices are deflated to 1999 prices using the consumer price index for urban households (*chengshi jumin xiaofei jiage zhishu*) (Guojia Tongjiju 2000a). The second controlling variable is household income. Although pure market transactions of housing are not included here, household income still should be considered, since households with higher income could purchase larger or better housing from their work units. To control for household income before the time of purchasing housing, average

household income in 1995 and 1996 (deflated to 1999 prices) is employed in the estimation. In addition to these two controlling variables, dummy variables for industrial sector and city are also employed to control disparity in economic performance by industry, regional differences in price level, and other region-specific factors.

The estimation results appear in Table 5. Estimates were obtained for three cases: all households, households in the business sector, and households in the nonbusiness sector (government departments and other administrative agencies, institutions providing education/research, medical/welfare, and other public services). The following points can be made from the estimates. First, years of employment have significant positive effects on imputed rent in all cases, which suggests that the seniority principle affects the conditions of purchasing housing. It is interesting that the marginal effects of seniority are almost the same in all three cases (approximately one percent premium per year). Second, the impacts of educational level and party membership vary according to the different cases. Years of education have been proved to be positive and significant in all three cases, and its marginal effect is larger in the business sector (approximately 12 percent per year) than in the nonbusiness sector (approximately 8 percent per year). Contrary to educational level, the effect of party membership turned out to be insignificant in the case of the business sector, whereas an approximately 11 percent premium for party membership was found in the nonbusiness sector. Third, concerning the administrative status of work units, the dummy for central/provincial-level work units proved to be positive and significant in the case of all samples and the nonbusiness sector, whereas it is not significant in

the case of the business sector. This outcome is consistent with the political credentialism case.

The differences in the impacts of meritocracy and political credentialism by business/nonbusiness sectors seem to reflect the characteristic of the Chinese-style systemic transition, in which marketization is progressing under the single-party system. In the business sector, marketization seems to raise the distributive impact of education on one hand, and the premium for political status has diminished on the other. However, in the nonbusiness sector, political status still matters. The old distributive issue in the plannedeconomy era -- that is, political credentialism in the distribution of fringe benefits behind the egalitarianism in wage distribution -- seems to take a new form in the initial distribution of housing assets.

[Table 5. Determinants of imputed rent of owned housing]

4 Migration and newly emerging housing poverty

Although more and more migrant households have been settling in urban areas, they are still alienated from housing reform policy. They do not benefit from the urban work units' housing allowance scheme and housing privatization programs. It is very difficult for migrant households to purchase owned housing not only because their incomes are too low but also because they cannot access subsidized low-price owned housing and housing loan schemes. They are also excluded from the local government's low-rent public housing (*lianzufang*) programs. To settle in cities, most of the migrant households have to rent or sublet housing owned by urban households.

From Table 6, it is confirmed that the majority (about 67 percent) of migrant households are living in rented housing. There is a landlord-tenant

relationship between urban households and migrant households, implying that privatized urban housing has become an asset that produces income. The average of annual rent paid by migrant households is 2,281 yuan for 13 cities surveyed, and it reaches 2,958 yuan for provincial-level cities.

As is reported in Table 6, in spite of the high rent, migrant households are living in very poor housing conditions. Comparing Table 6 with Table 2, it is obvious that there is a large gap in housing conditions between urban and migrant households. For example, the proportion of households living in housing with its own toilet and bathroom is 33 percent for urban households, whereas it is only about 6 percent for migrant households. The condition, as is easily understood, is worse in provincial capital cities than in subprovincialand county-level cities, whereas the rent paid is much higher in the former.

To highlight the gap between urban and migrant households, Table 7 compares the expenditure structure of migrant and urban households living in rented housing in Beijing. It is shown that the share of housing expenditure (rent, utilities, and other relating expenditures) is much higher in migrant households than in urban households. In particular, there is a large gap in the proportion of rent to total expenditure (18 percent in migrant households and only 2 percent in urban households).

Table 7 also reveals that the Engel coefficient for migrant households in Beijing is even lower than in urban households owing to the heavy burden of housing expenditure. This finding strongly indicates the impact of newly emerging housing poverty in urban areas. It is not easy to set a relevant measurement of housing poverty applicable to urban China. If the proportion of rent actually paid in total household expenditure is used as a simple

measurement of housing poverty, and the poverty line is set at the 30 percent level, then 28 percent of migrant households in Beijing are below the poverty line. No urban household in Beijing, by contrast, is under this poverty line. When the same housing poverty line is employed for 13 cities, 21 percent of the migrant households are in the situation of housing poverty, whereas no urban household living in rented housing is below the poverty line.

[Table 6. Housing conditions of migrant households, 1999]

[Table 7. Expenditure structure of migrant/urban households living rented housing in Beijing, 1999]

5 Conclusion

This paper has examined distributive implications of two important issues for urban housing in the late 1990s; that is, the privatization of public-owned housing and the wave of rural-urban migration. The main points of the investigation are summarized as follows.

The housing conditions of urban households improved significantly in the 1990s, and the majority of urban households that used to rent housing became owners of their own housing through disposal of public-owned housing at discounted prices. However, a strong systemic inertia of "work unit socialism" had remained in force during this early stage of housing privatization. In this stage, nonmarket transactions between work units and urban households at heavily discounted prices were in the majority. In this sense, housing privatization was still within the scope of the old welfare system. This initial structure of housing inequality formed by the late 1990s matters not only because the initial asset distribution affects subsequent

economic inequality, including intergenerational inheritance of inequality in general but also because the rapid development of the housing market after the late 1990s is likely to reinforce the inequality.

From the estimation of an imputed rent function for owned housing purchased at discount prices in 1996-1999, it has been found that meritocracy and political credentialism had different effects. Meritocracy has had a significant positive impact on imputed rent in both business and nonbusiness sectors. Political credentialism has proved to be positive and significant in the nonbusiness sector, whereas it has turned out to be insignificant in the business sector. Administrative status of work units has also been found to have positive and significant influence on imputed rent in the nonbusiness sector, whereas it was insignificant in the business sector.

Changes in the impacts of educational attainment and political credentials in distributional outcomes have been an interdisciplinary focus of researches on postreform urban China. The common ground of discussions at the present stage can be summarized as the coexistence of increasing return for educational attainment, which indicates penetration of market mechanisms, and the persistence of a premium for political credentials, which represents systemic inertia of the planned-economy (e.g., Walder 2003; Nee 1996). Estimation results using the imputed rent function have confirmed the coexistence of different distributive mechanisms for assets, which in the previous literature are investigated less than the distribution mechanism for income.

A criticism can be made that the magnitude of such systemic inertia in housing privatization should not be overemphasized, because it should be a

transitional phenomenon and because the relative share of the nonbusiness sector in the entire urban society will be declining. However, it should be noted that, in the context of China where marketization is progressing under the single-party system, inequality in the distribution of wealth caused by political credentialism and administrative hierarchy will appeal strongly to people's sense of unfairness and make no small sociopolitical impacts.

In parallel with housing privatization, waves of migrant households arrived and a landlord-tenant relationship between urban households and migrant households was formed. It is confirmed that there has been a large disparity in housing conditions between urban households and migrant households, and that a new type of housing poverty has been emerging among migrant households. When a simple measurement of housing poverty (proportion of rent to total household expenditure) is used, it is suggested that 21 percent of migrant households experience housing poverty. This newly emerging urban housing poverty will be another issue of considerable sociopolitical magnitude.

Therefore, it is essential for local governments not only to accelerate lowprice housing projects for low-income urban households but also to introduce more comprehensive housing policy that includes settled rural migrants. In the long run, improvements to the wealth and inheritance tax system will also be required.

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Footnotes

¹ The living space is defined as *shiyong mianji*, which includes sanitary and cooking facilities, not as *juzhu mianji*, which excludes such space, or as *jianzhu mianji*, which includes unusable space such as plumbing and pillars. ² Another significance of housing reform is to create labor market mobility. Regarding the linkage between housing-market reform and labor market reform, see Fleisher, Yin, and Hills (1997).

Tables

Table 1. Basic information for the 13 cities surveyed

City	Province	Urban population at year-end 1999 (million)	GDP per capita of urban population in 1999 (yuan)	Proportion of employment of secondary industry (%)
Beijing		7.00	25,376	37
Shenyang	Liaoning	3.90	21,303	40
Jinzhou	Liaoning	0.67	10,049	53
Nanjing	Jiangsu	2.47	27,051	49
Xuzhou	Jiangsu	1.06	23,506	60
Zhengzhou	Henan	1.52	18,589	49
Kaifeng	Henan	0.57	8,900	56
Pingdingshan	Henan	0.64	13,474	71
Chengdu	Sichuan	2.21	27,280	50
Zigong	Sichuan	0.47	15,845	55
Nanchong	Sichuan	0.41	11,826	36
Lanzhou	Gansu	1.45	14,549	56
Pingliang	Gansu	0.13	11,262	_

Sources: Guojia Tongjiju Chengshi Shehui Jingji Diaocha Zongdui (2001), Guojia Tongjiju (2000b).

Notes: *Urban population* is defined as population with urban household registration status. Populations of suburban areas are not included. GDP per capita is calculated using GDP of secondary and tertiary industries.

	Living sj household (square	Living space per household member (square meter)		Proportion of households having their own toilets and bathrooms (%)		Proportion of households having their own kitchens (%)		Proportion of households using coal as fuel (%)	
	1988	1999	1988	1999	1988	1999	1988	1999	
Beijing	8.4	13.9	4	22	57	74	11	2	
Shenyang	5.5	16.1	2	20	71	93	20	2	
Jinzhou	6.5	12.9	1	10	90	98	20	1	
Nanjing	8.8	16.2	11	45	67	93	31	0	
Xuzhou	8.8	14.5	3	41	85	93	69	5	
Zhengzhou	9.2	19.0	1	53	91	91	40	7	
Kaifeng	8.8	16.3	11	52	83	95	93	59	
Pingdingshan	8.8	19.3	2	83	88	84	34	3	
Lanzhou	8.5	15.5	2	10	86	94	17	4	
Average	8.0	15.8	4	33	75	89	29	7	
Number of sample households	(2,184)	(2,966)	(2,191)	(2,962)	(2,194)	(2,966)	(2,192)	(2,965)	

Table 2. Changes in housing conditions of urban households, 1988–1999

Sources: The 1999 and 1988 CASS surveys.

	Number of sample households	Living space per household member (square meter)	Proportion of households having their own toilets and bathrooms (%)	Proportion of households living in owned housing (%)	Proportion of households that purchased owned housing at discount prices (%)
Central/provincial- level state-owned work units	(1,317)	18.2	40	74	89
Local-level state- owned work units	(1,332)	16.8	39	67	87
Urban collective work units	(283)	13.8	32	52	79
Other (nonpublic) work units	(169)	16.8	43	69	85
Total	(3,101)	17.1	39	69	87

Table 3. Administrative status of work units and housing conditions, 1999

Source: The 1999 CASS survey.

		Ownersh	ip status (%) Time of purchase of privately owned housing (%)			tely owned	Pricing method for privately owned housing (%)			Self-estimated imputed rent of		
	Owned by work units	Owned by local govern- ment	Privately owned	Other	before 1994	1995- 1996	1997- 1998	1999	Market prices	Discount prices	Other	privately owned housing (yuan/square meter)
Beijing (591)	37	20	40	3	31	12	41	17	1	98	1	372
Shenyang (446)	21	27	51	2	8	9	72	12	9	86	5	127
Jinzhou (198)	19	17	63	1	3	16	57	24	14	83	3	104
Nanjing (444)	20	17	63	0	0	17	60	23	2	96	6	174
Xuzhou (198)	12	8	79	2	19	29	44	8	2	92	6	111
Zhengzhou (295)	23	4	71	2	12	34	47	7	2	93	4	80
Kaifeng (198)	14	7	76	3	51	32	17	0	8	74	18	68
Pingdingshan (199)	12	0	69	19	34	37	25	4	3	74	23	62
Chengdu (401)	22	5	72	2	23	16	45	15	4	91	5	109
Zigong (183)	14	5	78	3	22	13	56	9	8	50	42	59
Nanchong (201)	5	9	84	2	60	19	16	5	3	96	1	56
Lanzhou (397)	16	7	76	1	8	29	32	31	4	81	5	118
Pingliang (198)	10	8	80	2	19	19	37	25	7	78	16	56
Average	20 (789)	12(476)	65 (2,569)	3 (106)	20 (471)	21 (501)	44 (1,033)	15 (361)	5 (110)	85 (2,022)	10 (239)	139 (2,482)
				Pr = 0.000				Pr = 0.000			Pr = 0.000	

Table 4. Ownership structure of urban housing, 1999

Source: The 1999 CASS survey.

Notes: Numbers in parentheses are numbers of sample households. Pr in the bottom row indicates the level of significance for the chi square test of independence between cities and housing conditions (ownership status, time of purchase, and pricing method).

	All households	Households in the business sector	Households in the nonbusiness sector
Years of employment	0.008	0.008	0.008
	(5.15)***	(4.33)***	(2.84)***
Years of education	0.011	0.012	0.008
	(2.41)**	(2.14)**	(0.93)
Party membership	0.056	0.034	0.108
	(2.00)**	(1.01)	(2.10)**
Central/provincial-level state-owned work units	0.064	0.057	0.102
	(2.22)**	(1.64)	(1.90)*
Urban collective work	0.034	0.010	0.215
unts	(0.60)	(0.17)	(1.17)
Other (nonpublic) work units	-0.053	-0.064	-0.003
	(0.77)	(0.83)	(0.02)
Log of household income, 1995–1996	0.106	0.100	0.133
	(3.71)***	(2.98)***	(2.30)**
Log of purchasing price	0.118	0.122	0.109
	(7.19)***	(5.88)***	(3.87)***
Manufacturing	-0.103	-0.109	-
	(2.85)***	(2.93)***	
Construction	-0.243	-0.242	_
	(4.54)***	(4.42)***	
Other secondary industry	0.019	-0.024	-
	(0.30)	(0.36)	
Government, public services	0.030	-	-

Table 5. Determinants of imputed rent of owned housing

	(0.83)		
Other industrial sectors	-0.058	-0.056	_
	(0.84)	(0.80)	
Shenvang	0.418	0.442	0.333
	(7.62)***	(6.87)***	(3.05)***
Jinzhou	-0.046	-0.035	-0.096
	(0.68)	(0.46)	(0.66)
Xuzhou	-0.122	-0.142	-0.043
	(1.87)*	(1.87)*	(0.33)
Nanjing	0.555	0.582	0.490
	(10.12)***	(8.84)***	(4.83)***
Beijing	1.230	1.231	1.213
	(19.13)***	(15.50)***	(10.68)***
Kaifeng	-0.337	-0.307	-0.367
	(2.39)**	(1.54)	(1.79)*
Pingdingshan	-0.186	-0.162	-0.283
	(2.07)**	(1.61)	(1.29)
Chengdu	0.313	0.313	0.314
	(5.59)***	(4.68)***	(3.00)***
Zigong	-0.352	-0.407	-0.191
	(4.34)***	(4.25)***	(1.22)
Nanchong	-0.328	0.280	-0.419
	(3.96)***	(2.59)***	(3.12)***
Lanzhou	0.191	0.197	0.153
	(3.47)***	(3.05)***	(1.41)
Pingliang	-0.533	-0.554	-0.536
	(7.80)***	(5.95)***	(4.88)***
Constant	5.934	5.948	5.833
	(21.25)***	(18.09)***	(10.38)***

Number of observations	1,300	927	373
Adjusted R-squared	0.557	0.523	0.579
Mean of annual imputed rent (yuan)	6,397	6,018	7,340

Dependent variables are log of annual imputed rent of owned housing that were purchased in 1996–1999. Omitted variables are local-level state-owned work units, commerce, and other services, and Zhengzhou.

Source: The 1999 CASS survey.

Note: Absolute value of t statistics in parentheses. *** denotes statistically significant at the 1 % level, ** at the 5 % level, and * at the 10% level.

	Subprovincial- level and county-level cities	Provincial- level cities	Total
Household size (%)			
Single	19	32	26
Two members	33	31	32
Three or more members	48	37	42
			Pr = 0.000
Housing conditions			
Living space per household member (square meter)	11.0	10.4	10.7
Proportion of households having their own toilets and bathrooms (%)	7	5	6 Pr = 0.216
Proportion of households having kitchens (%)	39	25	31 Pr = 0.000
Proportion of households using coal as fuel (%)	52	38	45 Pr = 0.000
Type of housing (%)			
Rented housing (owned by work unit or local government)	9	14	12
Rented housing (privately owned housing)	65	61	62
Shared rented housing with other migrant households (privately owned housing)	3	6	5
Owned housing	5	2	3
Other	18	18	18
			Pr = 0.008
Number of sample households	(350)	(400)	(750)
Average of annual rent (yuan)	1,553	2,958	2,281

Table 6. Housing conditions of migrant households, 1999

Source: The 1999 CASS survey.

Notes: Migrant households living in dormitories of work units are not included. Pr indicates the level of significance for the chi square test of independence between city size and household size, housing conditions, and type of housing.

Table 7. Expenditure structure of migrant/urban households living in rented

housing in Beijing, 1999

	Migrant households	Urban households
Household size (person)	2.2	3.1
Living space per person (square meter)	9.6	12.4
Number of sample households	(89)	(355)
Annual rent paid (yuan/square meter)	345	12
Proportion of housing expenditures to total household expenditures (%)	26	7
Proportion of rent to total household expenditures (%)	18	2
Engel coefficient (%)	35	41
Average of annual household expenditure (yuan)	16,804	23,826
Housing poverty ratio (%)	28	0
Number of sample households	(82)	(355)

Source: The 1999 CASS survey.

Notes: Households living in owned housing are not included for both migrant households and urban households. Migrant households are those that lived in Beijing throughout 1999. Housing expenditure includes rent, utilities, and other housing-

related expenditures.