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Multiple home ownership during market transition in China: longitudinal analysis of institutional factors

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ABSTRACT

Housing reform in China has changed its housing market as the rate of multiple home ownership has increased, causing concerns about housing inequality. Existing studies analysed the influence of institutional and market factors on multiple home ownership, but few examined the changes in institutional factors. The present study aimed to address this research gap and found that households with local hukou, better occupational status or working in units of the party, government or state institutions are more likely to own multiple homes. Furthermore, the study investigated the impacts of institutional factors on multiple home ownership. Changing influences of institutional factors due to progressive reform were noted. Market reform reduced the influence of household registration and work units, whereas the effect of occupational status persists owing to incomplete reform. Progressive reform can lead to asymmetric changes in the role of institutional factors, supporting the coexistence of competing market transition theory and power persistence theory. Policy recommendations and implications are provided finally.

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Multiple home ownership; market transition; institutional factor

Introduction

With profound housing reforms in Chinese cities, urban households have changed from renting public housing within a planned economy period to enjoying a diversified source of housing tenure and property rights. Home ownership has become the dominant tenure in China with 85% of urban households being home owners. Furthermore, the number of households owning multiple homes is increasing. According to the Chinese General Social Survey (CGSS) of Renmin University of China, the proportion of Chinese households with multiple home ownership has been increasing over time. By 2015, the proportion of households with multiple home ownership in urban China reached as high as 15.38% (Table 1). Meanwhile, in some cities with soaring housing prices, there are frequent media reports and studies on

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Table 1. Description of urban households by housing tenure from 2005 to 2015.

Housing tenure (%)	2005	2010	2015
Rent one home	29.32	12.01	9.62
Own one home	59.12	51.33	64.08
Rent and own homes	6.08	23.34	10.92
Own multiple homes	5.49	13.32	15.38
Total	100.00	100.00	100.00

Source: calculation based on CGSS data from 2003 to 2015.
Note. 'Own one home' and 'Own multiple homes' indicates own one and multiple homes in the urban area where the households live, respectively, and 'Rent and own homes' indicates the households rent one home in the city where they live and own another home elsewhere.

'house slaves', 'ant tribe', 'rat clan' and 'snail houses' (Huang & Yi, 2015; Liu & Wong, 2018). Multiple home ownership and its embodied housing inequality imply significant housing inequality in the process of market transition. This dilemma has attracted widespread attention that the Chinese government had to state that 'houses are for living in, not for speculation' (Liu, 2017). In 2010, the Chinese government issued a circular to resolutely curb the excessively rapid rise of housing prices in some cities, which explicitly restricted speculation and speculative housing purchases. According to the report from the 19th Congressional Meeting of the Chinese Communist Party of China, the country has entered a new era where people's ever-growing need for a better life has become the primary goal of development (Communist Party of China, 2017). In this regard, China aims to accelerate the establishment of a housing system that features multiple suppliers and multiple channels of housing security and promotes renting and purchasing. Consistent with the purpose of that circular in 2010, these measures will also discourage multiple home ownership, such that all people gain access to decent housing.

The existing research on multiple home ownership primarily focuses on developed countries, shedding light on the scale, spatial distribution, causes and influencing factors, effects on the place of occurrence, planning and policies (Coppock, 1977; Hall & Muller, 2004). However, the proportion of households with multiple home ownership in urban China is much higher compared with that in many developed countries (e.g. 3–4% in Australia and Northern Ireland; 13% in the US and approximately 10% in Britain; Huang, Yi, et al., 2020). As the largest developing country in the world, multiple home ownership in China and its rapid growth deserve attention. Existing studies have analysed the scale, spatial distribution and influencing factors, planning and public policies (Huang & Yi, 2010, 2011; Huang, Liang, *et al.*, 2020). However, China's research remains in its infancy compared with international studies.

Moreover, few existing studies have analysed whether the effects of institutional factors have changed in the process of market deepening. Answering this question in the Chinese context is especially important because China has adopted a gradual market transition based on incremental reform, rather than the radical 'shock therapy' mostly adopted in western countries (Blanchard, 1997). As the institution plays a fundamental role in determining long-term economic growth (North, 1990), various modes of institutional reform are deemed to result in different effects on economic performance. Therefore, the long-term economic growth rate in post-reform China has attracted scholarly attention in terms of the gradual transition mode as well as the debate on the choice between 'radical' and 'gradual'. In the housing market, the two transition modes also generate varying levels of influence. In 1991, the Russian

housing system transformed from nationalization to marketization and gradually realized a fundamental transformation from public to private housing. That is, the country's housing distribution pattern changed from 'state-dominated' to 'market-led and state-assisted'. However, after nearly 30 years of housing reform, the living conditions in Russia have improved but remain very limited (Zhang, 2019). To date, the housing is dominated by the old houses of the Soviet Union, and very few new houses are built, which affects the housing conditions of the majority of residents in the country. Similar to Russia, the housing reform in China has been carried out for nearly 40 years, and welfare housing provision ended 20 years ago in 1998. However, in contrast to Russia, China achieved an unprecedented high rate of home ownership within a short period of three decades, and various housing policies in China have unintentionally contributed to multiple home ownership (Huang, Li, *et al.*, 2020). Thus, a question arises. In the process of China's gradual market reform, has the influence of institutional factors on multiple home ownership weakened? The study aims to understand this question because the answer is as important as understanding the causes of multiple homes. Furthermore, it can aid in understanding the changes in China's economy and society to provide appropriate housing policy recommendations.

Nevertheless, evidence of the changing role of institutional factors in determining multiple home ownership over the gradual market transition process remains limited. Previous studies only used cross-sectional data, such as 2005 (Huang & Yi, 2010, 2011) and 2008 (Cai & Huang, 2013) CGSS data. Therefore, reflecting on the dynamic change of multiple home ownership in China is impossible and unable to reveal changes in influencing factors. Furthermore, several findings are inconclusive. For example, Zheng (2007) carried out regression analysis of household housing selection using the survey data from Liaoning, Guangdong and Sichuan in 2002. The author found that the household registration factor (hukou) had no significant influence on household selection of commercial housing and welfare housing. However, Huang & Yi (2010, 2011) used CGSS data for 2005 and found that the household registration had significant influences on multiple home ownership including work unit and occupation. Furthermore, Cai & Huang (2013) analysed household data for Beijing, Shanghai and Guangdong in 2008 and found that individual human capital was non-significant. However, the housing welfare benefits from work units and status of power elites were significantly and positively related to second home ownership.

To fill these research gaps, the present study will test the impacts of institutional factors on multiple home ownership and changes that occurred during the market transition in China. An empirical analysis using CGSS data for 2005, 2010 and 2015 will be conducted to determine the influence of institutional factors on multiple home ownership during market deepening. Data spanning 10 years was selected to reflect the influence of institutional factors and their changes over time. The results can provide clear policy implications not only for China's housing reform, but also for the housing market reforms in other countries by highlighting the institutional factors that remain important during the market transition process. This notion is consistent with power persistence theory (Bian & Logan, 1996; Rona-Tas, 1994). Additionally, the study aims to identify other institutional factors whose effects are declining over time in line with market transition theory (Nee, 1989; Nee & Matthews, 1996).

The remainder of the article is structured as follows. A literature review and presentation of hypotheses constitute the second section. A descriptive analysis of the influencing factors of Chinese urban households owning multiple homes including sample selection and variables are provided in the third section. The fourth section features regression analysis on the changing trend of influencing factors, especially institutional factors of multiple home ownership and housing tenure choice. The fifth section is a discussion on how different theories hold true in China's housing market. The last part concludes and provides policy implications.

Literature review and hypotheses

Solving the 'historical problems' in China in the process of economic transition is the main purpose of deepening the reform of the market economy system. At the same time, a system that matches the market economy environment should be constantly improved to enable the economic system transition to become gradually compatible with the overall transformation of the Chinese society. The reform of the economic system focuses on the rural economic system (breaking the traditional pattern of the dual structure of the Chinese society), distribution system and medical, education, housing and social security systems that highlight the concept of the 'people's livelihood'. All these measures are taken to ensure that ordinary people can enjoy the fruits of China's rapid economic growth since the reform and opening up. This article only discusses the impact of institutional factors on multiple home ownership during the market transition in China, such as hukou, type of work units (danwei) and occupational status.

In the market economy, resource acquisition is closely related to market factors, such as income and wealth (Cao & Nee, 2000; Nee, 1989; Nee & Matthews, 1996). However, the availability of resources is related to the individual's position in the hierarchy under the planned economy (Bian & Logan, 1996; Zhou, 2000). For countries in transition, such as Eastern Europe and China, how will the institutional factors affect home ownership and how will the effects change during market transition?

Before China's reform and opening up, social stratification in China is mainly based on the identity, work unit and administrative systems (Bian, 1994; Wu, 2002; Wu & Treiman, 2004, 2007; Zhou, 2004). Social resource allocation in the identity system is carried out according to individual status, such as farmer, worker and cadre. The work unit system indicates that the state uses specific organizations (i.e. work units) to organize most people and allocate resources among them. The administrative system refers to the unequal allocation of resources to individuals and work units according to administrative level. Since China's reform and opening up, the market mechanism gradually became the basis for the mechanism of social stratification, which rendered a loss of advantages to social groups that rely on redistribution mechanism. In other words, the most privileged classes forfeited a few privileges, whereas direct producers, who were at the bottom of the state socialist hierarchy, benefitted from the development of the market (Nee, 1989; Szelényi, 1978; Whyte, 1975, 1986). However, the original mechanism of social stratification remains fundamentally unchanged. The privileges of groups with advantages in terms of the identity, work unit and administrative systems have only partially decreased. For example, the

identity system continues to play a role to a certain extent, whereas the work unit remains powerful and meaningful in the post-reform era.

The acquisition of housing resources under the market economy is related to market factors, such as income and wealth (Coppock, 1977; Hall & Muller, 2004), and the market mechanism will play an increasingly important role in China (Huang, 2003; Huang & Clark, 2002). However, the gradualism of housing reform denotes that the existing allocation system and political capital will continue to influence the manner of allocating resources. In this case, institutional factors, such as hukou, type of work units and political status, which represent the legacy of China's pre-reform era, are expected to exert important effects on the allocation of housing resources. Furthermore, the effects of institutional factors may have changed. Understanding the role of such institutional factors is crucial to understanding the effects of the past system and the process of market transition.

Hukou hypothesis

The household registration (hukou) system established in the late 1950s is one of the most important systems used to define an individual's social and economic status and welfare benefits in China (Cheng & Selden, 1994). It divides the Chinese people into different hukou categories (i.e. local and non-local hukou residents) with various rights and entitlements in terms of employment, education, housing and social security. Despite reforms in the hukou system, local registration is required to access local public services and welfare benefits.

In the realm of housing, existing studies demonstrated that residents with local hukou are more likely to access housing subsidies, own a home and obtain better housing conditions than non-local hukou residents in cities (Chan, 1994; Cheng & Selden, 1994; Huang & Jiang, 2009; Huang & Tao, 2015). The first reason is that non-local hukou residents have on-average lower incomes. Another important institutional reason is that non-local hukou residents are not entitled to receive subsidized housing by the government or work units in cities (Huang, 2012; Huang & Tao, 2015). Since 2010, individuals with non-local hukou have even been restricted from purchasing commercial housing in certain cities, such as Beijing. Paying taxes and social security for several years is a prerequisite for qualification for this group. Although China has undergone more than 20 years of housing reform, non-local hukou residents continue to face obstacles in owning housing in cities due to the hukou system. Therefore, the study expects that the hukou system will have a significant effect on multiple home ownership, that is, local hukou residents are more likely to own multiple homes in cities.

Additionally, although non-local hukou residents frequently opt to rent a home in their city of residence, they mostly own another housing in their area of household registration. In particular, the case is true for individuals who migrated from rural to urban areas, that is, owning self-built houses in rural areas and renting another house in the city (Huang & Yi, 2010). Therefore, the study puts forward the following hypothesis on the effect of hukou.

> **Hypothesis 1a:** If the impact of household registration remains, local hukou residents are more likely to own one or multiple homes in urban areas, whereas non-local hukou

residents are more likely to rent one home in the city of residence and own another elsewhere.

The study then investigates changes in the effects of hukou. Although limitations are in place regarding the purchase of home for non-local hukou residents, such limitations are significantly relaxed during the reform. A series of hukou reform policies from 1997 to 2001 fully liberalized the hukou restrictions in small towns, and the hukou restrictions in medium-sized cities were further liberalized after a series of policies from 2008 to 2013. In 2014, The State Council issued the Opinions on Further Promoting the Reform of the Household Registration System, which pointed out that a unified household registration system should be established and the distinction between agricultural and non-agricultural households should be abolished (State Council of the People's Republic of China, 2014). This marks that further reform of the household registration system has entered the stage of full implementation.

Since the early twenty-first century, the labour force has become increasingly mobile between regions with the development of market economy and relaxation in migration control. Moreover, an increasing number of people are working and living in places where they are unregistered and considered non-local hukou residents. To improve social welfare, the Chinese government clearly stipulated that the problem of migrant workers should be solved and the conditions for the settlement of rural residents be comprehensively relaxed. At the same time, the government is committed to solving medical insurance, housing, children's education and other problems for migrant workers. Non-local hukou residents are permitted to purchase homes in cities without restriction on home-purchase. Furthermore, they can be home owners through several means, such as paying taxes and social security for a number of years, marrying a local hukou resident and being an educated talent desired by the city, even in superstar cities with restrictions. The household registration system is gradually decoupling from the social security system. At present, the Chinese government is striving to achieve decisive progress towards the goal of establishing urban hukou for 100 million non-registered urban residents. Nevertheless, the hukou policy should be further relaxed across cities in the country, especially those with a population of five million or more.

Furthermore, the economic conditions of migrant workers are improving with economic growth. An increasing number of migrants can afford to buy additional homes in urban areas. Thus, the study expects that the relaxed restrictions on home purchases and increased housing affordability because of the local registration reform will reduce the effect of hukou on the multiple home ownership of non-local residents. This notion is in line with market transition theory, which argues that the reform aims to change the manner of resource allocation, that is, from the original state redistribution system to the market-oriented economic system. Thus, the effectiveness of institutional factors will decline, whereas returns to market factors will increase (i.e. human capital and entrepreneurial capacity) (Cao & Nee, 2000; Nee, 1989; Nee & Matthews, 1996).

Hypothesis 1b: A significant decrease in the influence of the hukou factor on multiple home ownership will be noted over time.

Type of work units (danwei) hypothesis

During the period of a planned economy, urban housing provision was mainly decided by the government and state-owned enterprises (SOEs), and housing is rented to government officials and SOE employees for free or a low rent. Differences in the types and administrative levels of work units contribute to the largely pronounced socioeconomic differences between employees (Bian, 1994; Zhou, 2004). In other words, significant disparities exist between work units at various administrative levels in terms of obtaining housing resources and providing wages and benefits to employees (Zhou, 2004).

Following the housing reform completed in 1998, the work unit based housing system of construction and allocation officially ended, and housing fund was used as the employees' housing subsidy for employees to enable the purchase of a home from the market. However, the administrative power and financial resources of various work units led to diversity in employee subsidy and housing support (e.g. group-buying). After the housing reform, government agencies and SOEs with useful resources offered employees with housing subsidies, whereas the opposite is true for many other companies. Some powerful work units, especially those with their own land parcels on which to build their housing and distribute them to workers, continue to offer temporary homes or affordable housing for workers.

In summary, in the planned economy period, the government allocates urban housing to employees with low rent, which is based on industry category, attributes of the work unit, rank in the work unit, and size of the work unit, and so forth. In other words, the housing access of residents is dependent on the ability of the work unit to increase the housing fund and the position of the residents in the hierarchical allocation system of the work unit. In the market economy period, residents buy or rent homes from the market, which is mainly influenced by market factors, such as individual income and wealth. However, work units with a strong ability to issue housing subsidies, realize administrative power and acquire financial resources can continue to provide high wages and more subsidies (e.g. group purchase) to increase the ability of their employees to purchase housing from the market. Thus, the study presents the second hypothesis on the basis of the effect of type of work units on multiple home ownership:

> **Hypothesis 2a:** Individuals working for the party, government or state institutions are more likely to own multiple homes.

Although the study forecasts a significant effect of the type of work units on multiple home ownership, it further hypothesizes that this effect will fade with the reform process. The reason behind this notion is that the benefits for individuals working for the party, government or public institutions have been greatly reduced by the market-oriented reform. Because of the reform of the administrative system, the privileges for providing employees with housing entities or considerable housing subsidies have been heavily restricted, and the incomes of public sector workers have even been decreased. However, these scenarios are worse for employees of SOEs. The most fundamental institutional change in the mixed ownership reform of SOEs was implemented in the late 1990s. In 1995, the Central Government issued the Proposal for

formulating the Ninth Five-year Plan and the Long-term Goals for 2010, implementing the reform strategy of 'holding on to the big ones and letting go of the small ones' for SOEs (Central People's Government of the People's Republic of China, 1995). 'Holding on to the big ones' means to focus on cultivating large and competitive enterprises and enterprise groups, while 'letting go of the small ones' means to loosen and privatize small and medium-sized SOEs. The social influence of these SOEs has diminished as a result of reform and contraction, and some of them had to transfer their ownership rights to the private sector. Thus, fully stripping SOEs of social responsibility has led to the gradual socialization and marketization of unit security and welfare, and the exclusive right of employees to benefit from the unit has been reduced (Chan *et al.*, 2008; Saich, 2008).

In other words, the types of work units remain important, but at a lesser degree. As implied by market transition theory, the mixed ownership reform can be viewed as a process of a gradual shift in redistribution power to the market including goods, capital and labour (Nee, 1989; Szelényi & Kostello, 1996). Thus, the state is no longer responsible for job assignments and has abolished welfare housing in the housing reform process (Naughton, 1996, 2006). Therefore, the study presents the hypothesis for the weakened effect of work units as follows:

Hypothesis 2b: A significant decrease in the influence of the type of work units on multiple home ownership will be observed over time.

Occupation hypothesis

Despite decades of market reform and open-door policy, China is still a government-led market economy. That is, the government significantly affects the fair distribution of resources and improvement of social welfare through frequent and strong interventions. At the individual level, the question is whether or not people with high occupational status, for example, heads of government agencies and SOEs, can abuse their power for personal gains from direct resource allocation and secondary distribution. The answer is yes because people with more power in the government or SOEs will take the lead in gaining other benefits, such as larger and better housing, better education resources and health care, and more job opportunities than those with a lower status. The elites obtain more resources by virtue of their advantageous positions. Simultaneously, together they can shape the pattern of resource allocation, which can result in a continuous flow of resources aimed specifically for them. Therefore, they constantly exploit limited resources from vulnerable groups and gradually gain resources, which leads to the increasingly distorted distribution structure of resources.

The housing reform in China further extended the resource distribution distortion to the housing market and led to unequal home ownership between households of higher and lower occupational status. In contrast to radical reform in socialist countries in Eastern Europe, the Chinese housing reform adopts gradualism between the 'new housing new method and old housing old method'. By definition, new housing new method indicates that new housing is distributed through the market mechanism, whereas old housing old method denotes that the existing housing stock is sold at a discount to the family originally living in the house through non-

market allocation. At the higher administrative level, political loyalty and seniority are the primary standards for initial housing allocation (Zhou & Logan, 1996). Thus, individuals with a high occupational status in the government or SOEs are those who originally lived in the old housing and enjoyed the housing price discount. This reform will certainly lead to the deviation in housing distribution from market rules as it creates more opportunities and benefits to individuals who are in a high position in the original socialist system. Therefore, the differentiation of urban housing property rights is neither the result of the long-term development of the housing market nor the high income and living standard of families, but primarily attributed to the housing reform. Families that benefit from the welfare-oriented housing system will be in the 'inside track' after the housing reform and will tend to 'disproportionately gain more' (Davis, 2003). In the process of the housing reform, people with high occupational status benefit from the original system of socialism and the new extension of the private sector (housing market) at the same time. Such individuals were allocated excellent public housing, which can be cashed out by selling on the market, after which they can buy better private housing in the private sector. In other words, the high occupational status in the original socialist system enabled them to obtain better public housing at a price extremely lower than the market price and to gain substantial benefits through conversion in the private sector (housing market) (Kosareva & Struyk, 1993; Pickvance, 1994). Several studies indicate that the actual beneficiaries of housing privatization are individuals who have benefitted from the socialist housing system before the marketization in China (Huang & Jiang, 2009; Huang & Yi, 2011; Logan et al., 2010).

Although households with high occupational status may be constrained to release a previously public housing on the market due to partial property rights, heavy subsidies also enable them to own multiple homes. That is, they may possess the capacity to purchase two or more homes on the market (Huang & Yi, 2011). Existing rules that protect the interests of seniority and redistributors remain operative, that is, people of high professional status can enjoy increased housing benefits as well as high wages. In the market transformation process, cadres of the party and government, employees of SOEs and individuals with long working years are more likely to obtain housing with property rights (Li & Yi, 2007). This privilege enables them to enjoy priority and price discounts in owning the first public house, earn more housing wealth from conversion in the private sector (housing market) and gain additional subsidies and income to afford multiple homes. In other words, people of higher occupational status, such as cadres of the party and government, employees of SOEs and those with long working years, are more likely to obtain housing with property rights in China.

Additionally, not only the individual's occupational status but also the occupations of other family members play a role in a household's home ownership. For example, when parents are in a privileged position and can easily obtain housing subsidies, they typically gain more advantages in providing support to secure home ownership for their children compared with others (Shen, 2017). Many existing studies have found that the occupational status of parents (i.e. party members) will affect the income of their children (Yang et al., 2010), which in turn can influence the home

ownership of the children. Therefore, the study puts forward the following hypothesis:

Hypothesis 3a: Occupational factors, specifically, a high occupational status, will influence the multiple home ownership of a household.

Contrary to the effects of the hukou and work units as factors, the study assumes the effects of occupational status will persist in the post-reform era. The reason behind this assumption is that the individual level power structure before the reform will remain recognized after the reform. The cadre ranks still exist, despite the government issued the Opinions on Deepening Reform of The Personnel, Labor and Distribution Systems in State-Owned Enterprises in 2010, which called for the abolition of administrative ranks in SOEs (Central People's Government of the People's Republic of China, 2010). The transformation of government officials and cadres of SOEs is relatively common (Hu *et al.*, 2019). For government officials and cadres, benefits and exclusive rights are also determined according to the gradual legalization of the political election method and reduced risk of arbitrary changes in appointment and promotion (Zhou, 2004). Moreover, the original middle- and high-level cadres of SOEs continue to occupy powerful positions and became bosses and managers of the mixed ownership and private enterprises after the SOEs reform. Not only the heads of SOEs and the government but also the managers and professionals in private enterprises enjoy undiminished authority and benefits after the reform (Lee, 1995, 1998). This view is consistent with power persistence theory that postulates that power is maintained in the development of the market, such that people with high occupational status can benefit from the market system (Bian & Logan, 1996; Fu *et al.*, 2000; Gerber & Hout, 1998; Parish & Michelson, 1996). Thus, the following hypothesis is proposed:

Hypothesis 3b: No significant reduction in the influence of occupational factors will be observed over time.

Data

Data used were derived from the CGSS project, which started in 2003 and is the earliest academic survey project with national, comprehensive and continuous characteristics. It is implemented by the China Survey and Data Centre of Renmin University of China. CGSS collects information at the individual, family, community and society levels. Since 2003, the CGSS has used three sampling schemes, namely, the 2003–2006 sampling scheme, the 2008 experimental sampling scheme and the 2010 sampling scheme. In principle, the three sets of sampling schemes adopt multi-stage stratified probability proportional to size random sampling, but they differ in terms of sampling frame, stratified variables and sampling stage, to effectively represent all aspects of the Chinese society.

In 2004, the Ministry of Land and Resources issued the Notice on Continuing the Bidding, Auction and Listing of Commercial Land Use Rights, requiring that the land market would no longer transfer the right to the use of commercial land by agreement, and that all commercial land should be sold through public bidding (Ministry

of Land and Resources, 2004). Since then, the new land policy has been formally implemented and new changes have taken place in China's housing market. Therefore, we chose 2005 as the starting year, and there has been a significant change in China's housing prices since then. In 2015, the government introduced policies to reduce the down payment ratio of housing loans, and comprehensively implemented cross-regional Housing Accumulation Fund Loan. Since then, the housing market has experienced new changes, so we choose 2015 as the end of this decade to study multiple home ownership. Although data for other years are available, we chose 2010 as the year in between because it takes a certain amount of time for policies to take effects and year-to-year comparisons are of little significance. The study employed the CGSS data for 2005, 2010 and 2015 using 10,372, 11,783 and 10,968 valid samples, respectively, to explore the impact of institutional factors on multiple home ownership during market transition.

In 2005, the CGSS questionnaire posed the following questions: 'Is the house where you live now rented or owned?' 'Do you have a house somewhere else?', 'How many houses do you have in total at other places?' In 2010 and 2015, another question was added: 'How many houses do you have in total'. We define multiple home owners as those who own their current home and at least one more house with partial or full ownership regardless of location (CGSS does not specify the locations of the houses). For this study, only urban household samples were used, and the effective samples were 6071, 5927 and 5570 for the years 2005, 2010 and 2015, respectively.

Table 1 indicates that the proportion of households renting one home decreased from 29.32% to 9.62% between 2005 and 2015, while the proportion of households owning one home and those renting one home and owning other homes (renting and owning homes) increased from 59.12% to 64.08% and 6.08% to 10.92%, respectively. Furthermore, the proportions of households owning multiple homes increased from 5.49% to 13.32% and 15.38%. The majority of households in urban China are home owners, and the rate of multiple home ownership has increased rapidly over time, even tripled during 2005–2015. Several reasons can be attributed for the rapid rise in the proportion of multiple home ownership in China. On the one hand, the purchase of multiple homes is typically considered a form of investment owing to the lack of investment options in China and the high risk and volatility of the stock market. On the other hand, the lack of property tax reduces the cost of maintaining multiple homes. Moreover, inflating housing prices and rapid development of urbanization render housing investment as the main method of investment for many households.

We can find out the characteristics of respondents who are multiple home owners from Table 2. The average age of multiple home owners was below 50 years and approximately 50% of them are male. Although the majority is married, the proportion of married respondents decreased over time, which indicated that an increased number of respondents with a single status owned multiple homes. At the same time, household size became increasingly small, yet median household income increased in 2010 and 2015 compared with 2005. The majority of multiple home owners are local hukou residents; yet the proportion has been declining from 97.3% in 2005 to 83.25% in 2015. These results partially support Hypothesis 1a and support Hypothesis 1b. Meanwhile, the rates of urban migrants and rural migrants owning multiple homes

Table 2. The characteristics of respondents who are multiple home owners.

Variables	2005	2010	2015
Socio-economic indicator			
Mean age	46.24	48.18	46.24
Gender is Male (%)	48.35	50.64	50.89
Marital status is Married (%)	86.49	81.25	77.49
Household size (Persons)	3.75	3.04	3.03
Median annual income(yuan)	30000.00	70796.46	60606.06
Hukou status (%)			
Local hukou residents	97.30	89.67	83.25
Urban migrants	2.40	8.93	10.68
Rural migrants	0.30	1.40	6.07
Type of work units (danwei, %)			
Party/government/state institutions	6.91	8.16	4.50
State-owned enterprises	47.15	38.39	30.26
Collective-owned enterprises	15.92	8.16	6.60
Private/group enterprises	18.92	25.77	40.10
Joint ventures/foreign company	1.80	3.44	1.78
Others	9.31	16.07	16.75
Occupation status (%)			
Head	10.81	9.44	12.77
Professional and technical personnel	19.52	24.23	24.19
Clerk	12.01	18.11	9.32
Commercial service	15.92	11.99	16.23
Workers	30.03	23.34	26.91
Other professional or unemployed	11.71	12.88	10.58
Spouse's occupation status (%)			
Spouse is head	10.21	11.73	5.65
Spouse is not head	89.79	88.27	94.35
Parents' occupation status (%)			
Parent is head	10.81	12.37	11.31
Parent is not head	89.19	87.63	88.69
Region (%)			
East	61.86	65.69	59.69
Central	23.12	16.20	21.88
West	15.02	18.11	18.43

Note: 'Urban migrants' indicates non-local hukou residents migrating from other urban areas, and 'Rural migrants' indicates non-local hukou residents migrating from rural areas.

are increasing at 10.68% and 6.07%, respectively, in 2015. In terms of work units, the proportion of individuals working in party/government/state institutions, SOEs and collective-owned enterprises declined, whereas that of households with multiple homes in private/group enterprises (18.92% and 40.10% in 2005 and 2015, respectively) and other work units (9.31% and 16.75% in 2005 and 2015, respectively) increased significantly. These results support Hypothesis 2b. The proportions of multiple home owners with high occupational status (e.g. heads and professionals and technical personnel) slightly increased over time to 12.77% and 24.19%, respectively, in 2015, which supports Hypothesis 3a and Hypothesis 3b. In contrast, the proportion of multiple home owners with low occupational status (e.g. clerks and workers) declined over time. Meanwhile, the proportion of spouse being head had declined from 10.21% in 2005 to 5.65% in 2015, whereas the proportion of parent being head slightly increased. The proportion of multiple home owners living in the east (61.86% and 59.69% in 2005 and 2015, respectively) and central (23.12% and 21.88% in 2005 and 2015, respectively) regions has declined, whereas that for individuals living in the west increased to 18.43% in 2015.

Table 3. Descriptive statistics of variables in models.

	2005			2010			2015		
Variables	Mean	St. dev.	(%)	Mean	St. dev.	(%)	Mean	St. dev.	(%)
Socio-economic indicators									
Age	44.68	15.43		50.27	16.09		49.34	17.36	
Gender is male			46.47			47.93			46.96
Marital status is married			80.53			79.18			76.49
Household size (Persons)	3.46	1.61		2.80	1.27		2.79	1.34	
Median income (yuan)	20000.00			37168.14			37878.79		
Education groups									
Less than high school			50.77			45.70			51.08
High school			32.63			28.30			24.33
Some college			10.64			13.52			10.73
College+			5.96			12.48			13.87
Hukou status									
Local hukou residents			95.06			88.89			85.74
Urban migrants			2.73			8.32			7.64
Rural migrants			2.22			2.79			6.62
Type of work units (danwei)									
Party/government/state institutions			3.66			5.49			3.75
State-owned enterprises			44.70			35.74			29.98
Collective-owned enterprises			10.92			8.73			6.16
Private/group enterprises			24.86			35.14			38.96
Joint ventures/foreign company			2.05			1.89			1.57
Other			13.81			13.01			19.58
Occupation status									
Head			7.95			6.07			8.51
Professional and technical personnel			13.51			18.71			18.13
Clerk			9.46			15.74			8.35
Commercial service			17.87			16.80			16.81
Workers			35.65			32.91			36.80
Other professional or unemployed			15.57			9.77			11.39
Spouse is head			6.77			6.48			2.68
Parents are head			6.08			7.40			6.07
Region									
East			49.66			56.02			53.67
Central			27.57			25.33			27.66
West			22.78			18.65			18.67

Empirical results

Multinomial logit and binary logit regression models were conducted using Stata14.0. For multinomial logit regression, the dependent variable denotes four types of housing tenure, namely, rent one home (rent a home in the local city and have no other homes), own one home (own a home in the local city and have no other homes), rent and own homes (rent the current home and have at least one more home locally or elsewhere) and own multiple homes (own the current home and have at least one more home locally or elsewhere). For logit regression, the dependent variable is owning multiple homes *versus* not.

The key independent variables to test the three hypotheses are migrant status (i.e. local hukou residents, urban migrants and rural migrants), occupation (i.e. respondent's occupation, a spouse is head or not, parents are head or not) and work unit type. Moreover, the study controls for socioeconomic variables, such as age, quadric age, gender, marital status, household size, income (log form) and educational attainment (i.e. <high school, high school, some college and college+). Additionally, a regional variable (i.e. east, central and west) is used to control for the

Table 4. Multinomial logit regression on housing tenure in urban China (reference: renting one home).

	2005			2010			2015		
Variables	Own one home	Rent and own homes	Own multiple homes	Own one home	Rent and own homes	Own multiple homes	Own one home	Rent and own homes	Own multiple homes
Migration status (reference = Rural migrants)									
Local hukou residents	1.46***	−1.63***	1.86*	1.77***	0.46**	1.69***	1.95***	−0.12	1.22***
Urban migrants	−0.47	−0.62**	0.46	0.92***	0.41*	1.00**	0.89***	−0.16	0.45*
Work units (reference = Private/group enterprises)									
Party/government/state institutions	1.17***	−0.05	1.30***	0.99***	0.04	1.33***	0.49	−0.40	0.31
State-owned enterprises	1.36***	−0.35*	1.26***	0.20	−0.03	0.52***	0.30**	0.05	0.16
Collective-owned enterprises	1.20***	−0.64*	1.41***	0.21	0.05	0.43*	0.43*	0.30	0.58**
Joint ventures/ foreign company	−0.37	−0.14	−0.26	−0.11	−0.04	0.52	−0.12	0.33	−0.37
Other	−0.32	−0.70**	−0.09	0.05	−0.11	0.38	0.30	0.57**	0.21
Occupation status (reference = Workers)									
Head	0.27*	0.13	0.77***	0.46*	0.50**	0.97***	−0.02	0.13	0.40
Professional and technical Personnel	0.15	−0.44	0.51**	0.25	0.13	0.35*	0.04	0.11	0.28
Clerk	0.14	−0.37	0.47*	0.29*	0.18	0.40**	0.17	−0.06	0.23
Commercial service	−0.21**	−0.17	0.07	−0.01	0.10	−0.03	0.20	0.39**	0.30*
Other professional or unemployed	0.11	0.42	0.50	0.21	0.42	0.79**	0.36	−0.20	0.50*
Spouse is head (reference = No)	0.69***	0.93***	0.90***	0.45**	−0.19	0.96***	0.27	0.23	0.63
Parents are head (reference = No)	0.08	0.28	0.61**	−0.02	−0.01	0.40**	−0.03	−0.02	0.54**
Age	0.09***	−0.01	0.06*	0.11***	−0.07***	0.07***	0.06***	0.03	0.07***
Age∘2	−0.00***	0.00	−0.00	−0.00***	0.00***	−0.00***	−0.00*	−0.00*	−0.00***
Gender (reference = Female)	−0.11	0.05	−0.02	0.09	0.07	0.25**	−0.04	0.01	0.17
Marital status (reference = Others)	0.89***	0.20	0.80***	0.60***	−0.31**	0.27*	−0.08	−0.22	−0.22
Household size (Persons)	0.01	0.12***	0.12***	0.07	0.27***	0.27***	0.32***	0.08	0.40***
Ln (Income)	0.27***	0.38***	0.85***	0.13***	0.17***	0.23***	0.35***	0.38***	0.98***
Education groups (reference = Less than high school)									
High school	−0.05	−0.30*	−0.26	0.12	0.28**	0.44***	0.17	−0.25	−0.03
Some college	0.14	0.01	−0.01	0.05	0.06	0.49**	0.54**	−0.19	0.78***
College+	−0.02	0.01	−0.28	−0.15	−0.24	0.48**	0.15	−0.53**	0.19
Region (reference = East)									
Central	0.80***	0.31*	0.42**	0.07	0.04	−0.45***	0.55***	0.34**	0.48***
West	0.57***	0.70***	−0.03	0.04	0.00	−0.08	−0.07	0.18	0.12
Constant	−7.65***	−4.23***	−15.70***	−5.91***	−0.42	−7.65***	−6.58***	−4.39***	−14.63***
N		5640			5799			5536	
R^2		0.18			0.10			0.10	

Note.
*$p < 0.1$, **$p < 0.05$, $p < 0.01$.

macroeconomic and housing contexts. We used the consumer price index to adjust the total net household income for 2010 and 2015 to match that for 2005. Table 3 provides the descriptive statistics of all variables.

To statistically test the hypotheses, the multinomial logit model was conducted on the four types of housing tenure. Table 4 lists the results. First, local hukou residents were more likely to own one or multiple homes than renting one home, which partially supports Hypothesis 1a. Second, the effect of work units is significant for 2005 and 2010. Individuals working in party/government/state institutions were more likely to own multiple homes than renting one home, thus partially supporting Hypothesis 2a. Third, individuals or their spouse or parents in leading occupational positions were more likely to own multiple homes than renting one home in 2005 and 2010, whereas

Table 5. Logit regressions on whether households have multiple home ownership in urban China (reference = No).

Variables	2005	2010	2015	2010 vs. 2005	2015 vs. 2010	2015 vs. 2005
Migration status (reference = Rural migrants)						
Local hukou residents	1.92*	0.83**	0.17	−1.09	−0.66*	−1.75*
Urban migrants	1.20	0.56	0.17	−0.64	−0.39	−1.03
Work units (reference = Private/group enterprises)						
Party/government/state institutions	0.56*	0.65***	−0.08	0.09	−0.73***	−0.64*
State-owned enterprises	0.37*	0.43***	−0.07	0.06	−0.50***	−0.44**
Collective-owned enterprises	0.67***	0.31*	0.22	−0.36	−0.09	−0.45
Joint ventures/foreign company	−0.17	0.53**	−0.35	0.71	−0.89**	−0.18
Other	0.09	0.40*	−0.10	0.31	−0.50*	−0.19
Occupation status (reference = Workers)						
Head	0.59**	0.56***	0.38**	−0.02	−0.18	−0.20
Professional and technical Personnel	0.40**	0.19	0.23*	−0.21	0.03	−0.18
Clerk	0.37*	0.19	0.09	−0.18	−0.10	−0.27
Commercial service	0.21	−0.05	0.09	−0.26	0.14	−0.12
Other professional or unemployed	0.38	0.45*	0.29	0.07	−0.16	−0.09
Spouse is head (reference = No)	0.37*	0.73***	0.41**	0.36	−0.32	0.04
Parents are head (reference = No)	0.51**	0.39***	0.57***	−0.12	0.18	0.07
Age	0.01	0.05***	0.03*	0.03	−0.02	0.01
Age∘2	−0.00	−0.00***	−0.00**	−0.00	0.00	−0.00
Gender (reference = Female)	0.03	0.15*	0.21***	0.12	0.05	0.18
Marital status (reference = Others)	0.34	0.15	−0.11	−0.20	−0.26	−0.45
Household size (Persons)	0.11***	0.15***	0.14***	0.05	−0.01	0.04
Ln (Income)	0.64***	0.09***	0.66***	−0.55***	0.57***	0.02
Education groups (reference = Less than high school)						
High school	−0.22	0.26**	−0.11	0.48***	−0.38**	0.10
Some college	−0.08	0.41***	0.39***	0.49*	−0.02	0.47*
College+	−0.22	0.64***	0.15	0.86***	−0.49**	0.37
Region (reference = East)						
Central	−0.15	−0.49***	−0.01	−0.34*	0.48***	0.14
West	−0.44**	−0.08	0.15	0.36*	0.23	0.59***
Constant	−12.59***	−6.06***	−10.22***	−12.59***	−6.06***	−12.59***
N	5640	5897	5574	11537	11471	11214
R^2	0.07	0.06	0.09	0.09	0.08	0.12

Note.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

people whose or spouse's head position was not significant in 2015. These results only partially support Hypothesis 3a. In general, older, married, larger and better-off households were more likely to have multiple home ownership. Surprisingly, education was non-significant for 2005 and 2015, whereas people with high levels of education were more likely to own multiple homes only in 2010. Furthermore, households in central China were more likely to own multiple homes in 2005 and 2015, but less likely to own multiple homes than those in eastern China in 2010.

To further directly test the effects of institutional factors on multiple home ownership, a logit model was conducted on whether households have multiple home ownership or not (yes *versus* no). Table 5 displays the results from logit regressions. First, local hukou residents were more likely to own multiple homes than rural migrants for 2005 and 2010, yet the hukou advantage no longer held for 2015. This finding partially supports Hypothesis 1a. Second, people whose work units belong to party/government/state institutions were more likely to own multiple homes in 2005 and 2010, which supports Hypothesis 2a, whereas work units were non-significant for 2015. Third, these results show that head positions of household head, spouse or parents contribute to multiple home ownership probably due to the high status and

priority access to housing resources, which strongly support Hypothesis 3a. Furthermore, large households and households with high incomes were more likely to own multiple homes due to increased need and affordability. Surprisingly, individuals with high education levels were more likely to own multiple homes in 2010, but this factor was non-significant for 2005 and 2015. Moreover, households in eastern China were more likely to have multiple home ownership in 2005 and 2010 as wealthy households who can afford multiple homes were concentrated in that area. However, regional factors were no longer substantial in 2015.

To reflect the change in the influence of institutional factors on multiple home ownership over time, the study refers to the methods of Hauser & Xie (2005). Data across years were matched and the coefficients of 2010 *versus* 2005, 2015 *versus* 2010 and 2015 *versus* 2005 are considered the changes of different factors. Table 5 provides the results.

From 2005 to 2015, the possibility of local hukou residents owning multiple homes was significantly decreased, as obstruction of the household registration system has diminished during this decade. This finding supports Hypothesis 1b in terms of hukou status. The advantage of multiple home ownership for people working in party/government/state institutions has decreased over time and disappeared in 2015, which supports Hypothesis 2b. Furthermore, no significant change in the influence of occupation was observed. That is, the head position continues to play an essential role in multiple home ownership, which supports Hypothesis 3b. Moreover, changes in socioeconomic indicators were not observed, but the advantage of certain levels of college education in terms of multiple home ownership increased significantly from 2005 to 2015. However, multiple home ownership increased in western China, which reflects economic growth across the entire country.

Despite attempts to control for observable factors, the estimates reported in Table 5 may still be influenced by other unobservable factors. To assess the likelihood that the estimates are biased by unobservables, the study refers to the methods of Altonji *et al.* (2005) and Nunn & Wantchekon (2011). The authors proposed an approach for measuring the strength of possible bias caused by unobservables, that is, comparing the selection of unobservables with the selection of observables to explain the full estimated effect. According to this method, the present study considered two sets of restricted covariates, namely, one with a sparse set of individual controls that include only age, age squared, gender and marital status and another without controls. The two restricted set of covariates constitute two combinations with the unrestricted sets of covariates in Table 5. Furthermore, the study considers two types of regression, namely, one with restricted control variables and one with a full set of controls. Denote coefficients α and β of the two types of regression, respectively, where the ratio $\beta/(\alpha-\beta)$ can measure the strength of possible bias. The smaller the difference between α and β, the less the estimate is affected by the selection of observables and a stronger selection of unobservables is required. Otherwise, the stronger selection of unobservables is not needed. Table 6 provides the results of the calculation of the ratio of restricted and unrestricted controls. The ratios reported in the table range from 0.29 to positive infinity with a median ratio of 3.08. Therefore,

Table 6. Using selection on observables to assess the bias from unobservables.

	Controls in the restricted set: Age, age squared, gender, marital status			Controls in the restricted set: None		
Variables	2005	2010	2015	2005	2010	2015
Migration status (reference = Rural migrants)						
Local hukou residents	16.00	13.83	8.50	17.45	41.50	1.55
Urban migrants	2.22	3.29	1.00	2.40	4.31	1.89
Work units (reference = Private/group enterprises)						
Party/government/state institutions	2.07	6.50	2.67	1.70	32.50	0.80
State-owned enterprises	9.25	4.78	0.78	5.29	10.75	0.78
Collective-owned enterprises	5.15	5.17	3.67	4.19	4.43	1.29
Joint ventures/ foreign company	0.37	1.71	1.09	0.44	1.71	1.06
Other	0.75	6.67	2.00	0.50	10.00	0.67
Occupation status (reference = Workers)						
Head	19.67	2.15	0.93	11.80	2.15	0.95
Professional and technical Personnel	3.08	0.68	0.68	3.33	0.59	0.58
Clerk	7.40	1.06	0.31	7.40	1.00	0.29
Commercial service	10.50	1.67	1.13	4.20	1.67	1.00
Other professional or unemployed	4.75	9.00	3.22	4.75	9.00	9.67
Spouse is head (reference = No)	3.08	$+\infty$	1.08	2.64	6.64	0.95
Parents are head (reference = No)	3.64	3.90	5.70	3.92	3.00	4.07

the estimates in Table 5 are reliable because the selection of unobservables should be approximately three times greater than the selection of observables.

To further verify the results, the logit model was also applied to three subsets, namely, eastern, central and western China. Table 7 illustrates the results. From 2005 to 2015, the influence of work unit on multiple home ownership has significantly decreased in the eastern region, where changes in the effects of institutional factors were unobserved in other regions. Only the regression result of eastern China is shown because it is relatively consistent with all households in the sample. Meanwhile, approximately half of the households in the sample live in the east, where approximately 60% of households with multiple homes live there. In the eastern part of China, the possibility of local hukou residents owning multiple homes was decreased. However, this result is non-significant, and occupation continues to play an important role. Furthermore, the positive influence of work unit for multiple home ownership decreased significantly, which is highly consistent with previous results in Table 5. The advantages of party/government/state institutions are no longer obvious, and this change is especially obvious in the east.

Discussion

This article's findings confirm the significant effects of institutional factors on multiple home ownership in urban China. Additionally, these effects have changed during the market transmission process in different means that support different theories.

The changing effects of the hukou status and work units support market transition theory (Cao & Nee, 2000; Nee, 1989; Nee & Matthews, 1996), which argues that the

Table 7. Logit regressions on whether households have multiple home ownership in urban eastern China (reference = No).

Variables	2005	2010	2015	2010 vs. 2005	2015 vs. 2010	2015 vs. 2005
Migration status (reference = Rural migrants)						
Local hukou residents	1.94*	0.80**	0.31	−1.14	−0.49	−1.63
Urban migrants	1.11	0.59	0.11	−0.52	−0.48	−0.99
Work units (reference = Private/group enterprises)						
Party/government/state institutions	1.12***	0.90***	−0.07	−0.23	−0.96***	−1.19***
State-owned enterprises	0.55**	0.48***	−0.11	−0.08	−0.59***	−0.66**
Collective-owned enterprises	0.94***	0.04	0.38*	−0.90**	0.35	−0.55
Joint ventures and foreign-capital enterprises	0.02	0.63**	−0.53	0.61	−1.16***	−0.55
Other	0.86	0.68**	−0.70**	−0.18	−1.38***	−1.56**
Occupation status (reference = Workers)						
Head	0.90***	0.62***	0.24	−0.28	−0.38	−0.65
Professional and technical Personnel	0.53**	0.18	0.25	−0.35	0.07	−0.28
Clerk	0.71***	0.14	0.26	−0.57*	0.12	−0.45
Commercial service	0.44*	−0.02	0.28*	−0.45	0.30	−0.16
Other professional or unemployed	−0.14	0.41	0.92***	0.55	0.52	1.07*
Spouse is head (reference = No)	0.29	0.85***	0.49**	0.55*	−0.35	0.20
Parents are head (reference = No)	0.43	0.27*	0.48***	−0.17	0.22	0.05
Age	−0.01	0.09***	0.02	0.10**	−0.06**	0.03
Age∘2	0.00	−0.00***	−0.00	−0.00**	0.00**	−0.00
Gender (reference = Female)	−0.09	0.34***	0.38***	0.42**	0.04	0.46**
Marital status (reference = Others)	0.59**	0.08	−0.07	−0.51	−0.14	−0.65**
Household size (Persons)	0.14**	0.17***	0.15***	0.04	−0.03	0.01
Ln (Income)	0.56***	0.09***	0.59***	−0.47***	0.49***	0.03
Education groups (reference = Less than high school)						
High school	−0.39**	0.03	−0.09	0.42*	−0.12	0.30
Some college	−0.61**	0.23	0.32*	0.84**	0.09	0.94***
College+	−0.23	0.51***	0.07	0.74**	−0.44*	0.30
Constant	−11.66***	−7.00***	−9.53***	−11.66***	−7.00***	−11.66***
N	2835	3383	2995	6218	6378	5830
R^2	0.07	0.07	0.09	0.10	0.08	0.11

Note.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

reform aims to change the manner of allocating resources, that is, from the original state redistribution system to the market-oriented economic system. Thus, previously privileged 'redistributors' will lose, whereas 'direct producers' will be increasingly rewarded during the transition. In other words, with the disintegration of the redistribution system and prevalence of market rules, the effectiveness of these institutional factors will decline, whereas returns to market factors will increase.

However, the changing effects of occupational status are in line with power persistence theory (Bian & Logan, 1996; Rona-Tas, 1994). The reason for this notion is that the gradual reform of the Chinese economic system leads to the coexistence of redistribution and market mechanisms. In the meantime, the party's leadership and work unit system in urban China under market reform are maintained, which ensures that political power can continue to control and allocate resources. However, political power is still reflected in the redistribution and market systems, which results in the

power elites retaining their advantages in resource allocation. The market develops gradually under the constraint of the power structure, such that power is maintained in the market. Thus, people with political power can obtain the benefits of the market system and maintain the returns of political capital at the same time (Bian & Logan, 1996; Fu *et al.*, 2000; Gerber & Hout, 1998; Parish & Michelson, 1996). Former party officials and managers of SOEs can quickly convert political privileges to economic advantages. That is, in the process of privatization, institutional factors will be eventually transformed into private property as political elites redistribute power into social network resources (Rona-Tas, 1994).

This view reveals that changes in the roles of institutional factors are asymmetric owing to the gradual reform process, where different institutional factors are reformed at varying degrees and speeds. Therefore, the study sees the coexistence of the competing market transition theory and power persistence theory in the context of the Chinese gradual reform.

Conclusion

China is becoming a nation of home owners with an increasing rate of home ownership and an unprecedented high rate of multiple home ownership. According to CGSS data, the proportion of multiple home ownership in urban China has dramatically increased from 5.49% in 2005 to 15.38% in 2015. Arguably, multiple home ownership in China is not only a result of the maturing housing market, but also a consequence of housing reform and institutional factors acting together. To understand the confusing tenure structure, which was further complicated by the emerging multiple home ownership, this study aimed to determine the influence of and changes in institutional factors during the market transition. Hypotheses on the effect of migration status, occupation and work units were tested through empirical analysis.

During the market transition, market factors play an increasingly important role, whereas the influence of institutional factors is deeply rooted. This study conducted multinomial logit regression to analyse the effect of institutional factors on households' housing tenure choice among four options, namely, rent one home, own one home, rent and own homes and own multiple homes. Results show that institutional factors remain crucial to multiple home ownership.

Importantly, changes in the influence of institutional factors on multiple home ownership are inconsistent between 2005 and 2015. During this decade, the change of the impact of occupation as one of the institutional factors is non-significant, which supported power persistence theory. On the contrary, the influence of migration status and work units changed significantly. The possibility of individuals who are local hukou residents or whose work units are party/government/state institutions with multiple home ownership decreased significantly, which supports market transition theory.

The conclusion implies that the housing market is influenced by the mixed system in China. First, the existing hukou system prevents migrants from accessing subsidized housing in cities where they work but enables them to own housing where their household registration is located. Hence, migrants are more likely to rent and own homes, whereas local urban residents are more likely to own multiple homes. Second,

some powerful work units continue providing subsidized housing to their workers, even if they have purchased private housing from the market. Third, in the process of housing privatization, people in leading positions gained easy access to public rental housing, whereas partial property rights make selling these housing difficult but easy to afford an additional one. Thus, they are more likely to own multiple homes because of constraints from freely disposing of subsidized housing. The advantage of the two institutional factors, namely, household registration system and work units, is declining, but no significant changes in the influence of occupation were observed. These conclusions reflect the inconsistency of various institutional factors during the market transition. Thus, fully elucidating the influence of housing reform on multiple home ownership through either market transition theory or power persistence theory is impossible. Simultaneously, these results reflect the particularity of institutional factors rooted in China.

The rapid increase in the proportion of multiple home ownership in China is a natural phenomenon because the country is becoming an increasingly affluent and market-oriented society. Based on the desire for lower economic and social inequality, we put forward corresponding policy recommendations. As we know, multiple home ownership in China is an unintended consequence of the housing policies and institutions as the low-income families' lack of housing resources contrasts with the huge demand for multiple homes by the rich. Therefore, households who assume lead positions or powerful work units and can afford private housing should return their subsidized housing to the government or work units to enable those in need to access it. Towards this end, detailed and credible housing and household information is required to monitor the consumption of subsidized housing and the economic situation of households receiving these housing. Simultaneously, the government can transfer housing ownership from the place where the migrant's household registration is located to the housing subsidy of the current residence. In this manner, the economic pressure of migrants in the city can be alleviated. Moreover, further reforming the household registration system is necessary, thus integrating migrants with residence permits into the housing security system. For migrants who want to purchase property, the period for paying taxes or social security can be shortened or the limitations can be lifted. Moreover, besides higher initial payment and mortgage interest rate, the government should provide other investment options (as well as real estate investment trusts) to control the inflation in housing price or impose property tax to discourage multiple home ownership. Importantly, to change the high vacancy rate and realize the healthy development of China's housing market, the government should strengthen credit risk monitoring and credit policy supervision.

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