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Social stratification and housing inequality in transitional urban China

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ABSTRACT

The shift to a market economy in the past few decades has privatised the housing market and transformed housing into a crucial part of social stratification in urban China as in many Western capitalist countries. The *hukou* system which is based on the place of origin has long been a major state institution connected with where people reside and their entitlements in China. However, the existing research has been paid little attention to the multi-dimensions of the *hukou* system and the emerging class structure in the process of market transformation. I conceptualise *hukou* stratification in transitional urban China based on three dimensions and construct a new class typology based on Wright's capitalist class theory. Using the 2010–2013 Chinese General Social Survey, I investigate the effects of *hukou* and class on two housing outcomes: homeownership and housing space. The findings reveal that *hukou* is more important than class in determining homeownership, but class is more important than *hukou* in determining workers' housing space in transitional urban China. This study contributes to the ongoing market transition debate, the results of which deepen insights into the hybrid nature of the stratification outcomes in the context of China's market transition.

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Stratification; housing; homeownership; *hukou*; class; urban China

Introduction

In the past few decades of market transition, urban China has quickly developed from a country dominated by welfare public housing into a society where over half of the homes are occupied by their private owners. The shift to a capitalist economy has privatised the housing market in urban China and increased mobility between urban and rural areas, but the housing system remains a separate dimension of social stratification.

In the pre-reform China, urban housing was largely part of socialist welfare. Most urban workers lived in state-distributed public subsidised rental housing except for some peasants in the suburbs who lived in self-built homesteads. The size of the public housing was determined by workers' status and seniority at the workplace. As China moves toward

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marketisation, although land property still belongs to the state, an explosion of real estate investment has produced increasingly more private housing with larger housing space. Moreover, since the urban housing reform in 1998, former welfare rental housing has been dismantled and become a privatised commodity (Walder & He, 2014). Many state employees were entitled to purchase their former public rental housing at discounted prices. As a result, the homeownership rate among urban households has increased sharply from 35% in 1995 to over 85% in 2010 (Ren & Hu, 2016). The per capita housing space in urban China has also nearly doubled since the housing reform of 1998.

Despite the expanding housing opportunities during the past decades, there have been growing concerns that the improvements in housing in urban China have not been happening at the same pace and shared equally (Fang & Iceland, 2018). A long scholarly tradition has demonstrated that *hukou*, a unique Chinese stratification system based on the place of origin, largely maintains the housing inequality in China. In the pre-reform era, the *hukou* system created spatial boundaries between urban *hukou* holders and rural *hukou* holders. This rural-urban *hukou* dichotomy was predetermined at birth and had a lifetime impact on an individual's life chances (Cheng & Selden, 1994). Similar to the Indian caste system, the Chinese *hukou* system rigidly blocked migration and mobility. Since the 1980s, *hukou* reforms have eased restrictions on mobility in response to market liberalisation towards a capitalist economy. However, the existing studies have demonstrated the *hukou* system still plays a significant role in access to urban housing in the post-reform China (Bian & Lu, 2014; Logan, Fang, & Zhang, 2009). These studies focus on how the *hukou* system maintains privileges of urban residents while preventing rural migrants from access to cities and therefore to urban housing. However, previous research fails to show the overall impact of the post-reform *hukou* system.

Other research extends the market transition debate to analyze the mechanisms of housing inequality in China (Fu & Lin, 2014; Huang & Clark, 2002; Or, 2018). Since urban China has completed the transition into a privatised housing market, some scholars who support the market-centred perspective argue that the market sector accounts for a greater share of housing supply and thus the state has become less important in determining housing outcomes (Song & Xie, 2014). On the opposite side, other state-centred scholars argue that the housing reform privileged state employees by allowing them to purchase the privatised public housing at subsidised prices (Logan et al., 2009; Walder & He, 2014). Prior empirical research has shown mixed results for whether the state or market plays a leading role in determining housing outcomes in urban China. Hence, there is a need for a more careful examination. In this paper, I shed new light on how the enduring *hukou* system and emerging class structure as indicators of state and market forces affect workers' two housing outcomes – homeownership and housing space – in urban China.

Theory and hypotheses

The hukou *stratification and housing in urban China*

The *hukou* system has long been a major state institution connected with where people reside and their entitlements in China (Chan, 2019). Before the *hukou* reforms, the *hukou* system severely limited one's access to social benefits, including housing. Rural

hukou holders were forced to live in their self-built rural homesteads, while urban *hukou* holders enjoyed renting public welfare housing at a heavily subsidised price in cities. The deepening of *hukou* reforms has relaxed restrictions on mobility and migration and the *hukou* system has evolved from distinguishing between rural *hukou* and urban *hukou* to a multi-dimensional stratification. An individual's *hukou* status is split not only by whether they live in urban or rural, but also determined by the locations where they register their *hukou*, whether they are permanent residents with local *hukou* or temporary migrants, whether they were born with local *hukou* or they converted their original *hukou* to the local one.[1]

Consequently, to incorporate the multifaceted *hukou* system, I classify workers in urban China into five categories: (1) urban stayers, those who were born with local urban *hukou* and never moved; (2) urban-urban converters, those who had non-local urban *hukou*, moved and converted to local urban *hukou*; (3) urban-urban migrant, those who have non-local urban *hukou*, moved but have not converted to local urban *hukou*; (4) rural-urban converters, those who had rural *hukou*, moved and converted to local urban *hukou*; and (5) rural-urban migrant, those who have rural *hukou*, moved but have not converted to local urban *hukou.* A detailed operationalisation of *hukou* stratification and the percentage of workers in each *hukou* category will be discussed in the Data and Methods section (Figure 1).

An extensive body of literature has found that the *hukou* system is still preventing migrant workers without local *hukou* from having equal access to local housing in urban China (Cui, Geertman, & Hooimeijer, 2016; Logan et al., 2009). Due to the *hukou*-

Locality of *Hukou* Registration \ Current Residence Status		Permanent Residents with Local *Hukou*	Migrants without Local *Hukou*
Urban *Hukou*	Never Converted	**1 Urban stayers**	**3 Urban-Urban migrants**
	Converted	**2 Urban-Urban converters**	
Rural *Hukou*	Never Converted		**5 Rural-Urban migrants**
	Converted	**4 Rural-Urban converters**	

Figure 1. Elaborated *Hukou* stratification in transitional urban China.

based restrictions on purchasing property, migrants have limited access to local housing inasmuch that they cannot purchase a local home if they do not meet for certain criteria, such as no local *hukou*, being single, or work and live locally for fewer than five consecutive years. Among migrants, those with urban *hukou* origins tend to be better off than migrants with rural *hukou* origins (Fang & Zhang, 2016).

On the other hand, urban stayers have home-field advantages with higher chances of being homeowners. First, urban stayers are more likely to inherit housing from their parents. Second, as a majority of urban stayers are either former or current state employees, they are more likely to purchase their rented accommodation previously owned by the state with housing subsidies. Hence, many urban stayers own even more than one dwelling in their home city. In the same manner, disadvantaged migrants without local *hukou* tend to be in a weaker position renting smaller homes while locals who already own homes can replace their old and smaller housing with new and larger ones. Thus, I put forward the following two hypotheses:

Hypothesis 1: Net of other covariates, *hukou* stratification exerts a statistically significant effect on homeownership among workers in transitional urban China.

Hypothesis 2: Net of other covariates, *hukou* stratification exerts a statistically significant effect on housing space among workers in transitional urban China.

Class structure and housing in urban China

In China's socialist era, urban housing was largely controlled by the state. The privatisation of housing has promoted the development of real estate and transformed previously rental public housing into private homes. Therefore, housing outcomes in transitional China depend both on the state and the market, and housing becomes an alternative outcome to earnings to inspect the market transition debate[2] on whether state or market forces are more prominent in transitional China (Deng, Hoekstra, & Elsinga, 2016; Song & Xie, 2014).

Class has become a very important factor interacting with both the state and markets to reshape transitional society in China (So, 2013). Given the dual-track structure in transitional China, I develop a framework of class to capture stratification dynamics in the transitional period. This class scheme includes an emerging market sector that resembles the class structure in other capitalist societies, a previously powerful state sector, and a remaining agricultural sector. Within the market sector, I applied Wright's scheme (2000) on the basis of three dimensions of relations – ownership, organisation assets, and skill assets as illustrated in Figure 2. Wright (2000) blended both Marxist and Weberian traditions and provided an integrated analytical approach to class analysis under capitalism. On the dimension of ownership, he differentiated owners who possess capital and non-owners who sell their labour and earn wages. Within the owners, he further stratified by the employment size of the business they owned: capitalists, small employers, and petty bourgeoisie. Among the non-owners, based on a combination of levels of skills and authority, there are nine positions from expert managers to unskilled workers. For example, unskilled managers are those who have a low level of skills but a high level of authority. Wright's class analysis contributes to a comprehensive paradigm for understanding the class structure in capitalist societies.

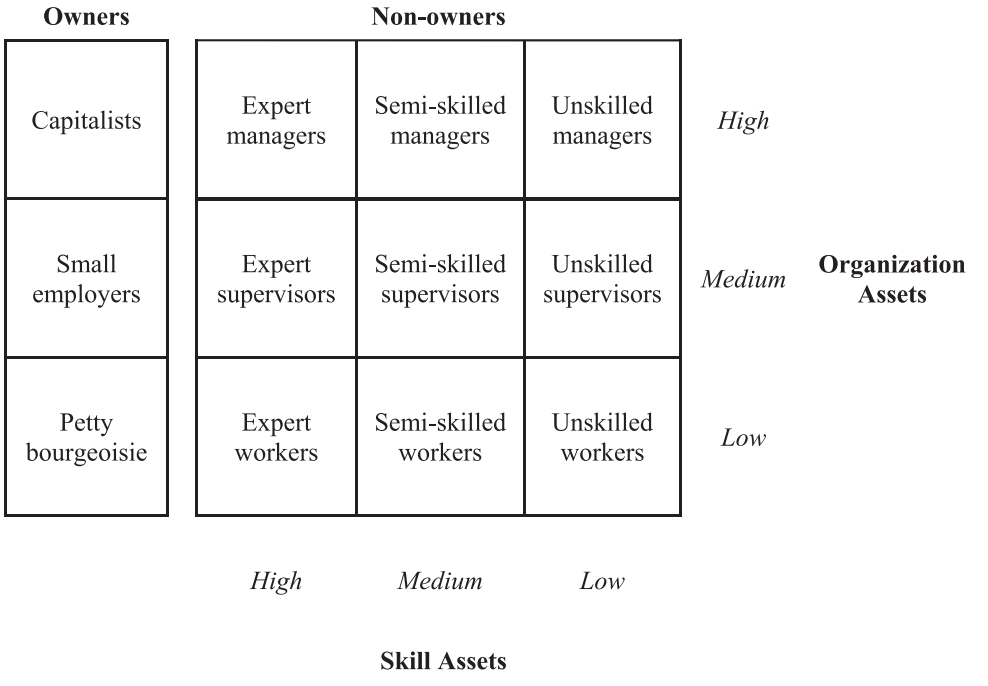

Figure 2. Wright's class scheme in capitalist societies.

Moving beyond Wright's original 12-category scheme under the market system, I integrate two remnant sectors from China's socialist past – the state sector and agricultural sector – with Wright's class scheme to depict the class structure in the transitional period in China. Within the state sector, I construct a similar scheme in the market sector but replace Wright's ownership classes with the holdover category from the socialist era – the party-state cadres – the leading bureaucrats. The remaining state employees are allocated into nine class positions kindred to Wright's scheme of non-owners. In the agricultural sector, despite that the majority of peasants live in rural China, a small number of suburban peasants live in their self-built homesteads at the edge of the city.

As a result, the class typology in transitional urban China involves 23 categories: 12 classes derived from Wright's scheme in the market sector, another ten class categories in the state sector, and a remnant class location for suburban peasants in the agricultural sector. Figure 3 explicates the configuration of the class typology and the percentage of workers in each class category. A detailed operationalisation of class structure will be discussed in the Data and Methods section.

Although no prior research has directly explored the link between class and housing in China, previous studies have shown that class plays an important role in housing outcomes in many Western capitalist countries (Kurtz & Blossfeld, 2004). Moreover, some existing research findings lend support to the idea that class structure is associated with housing outcomes (Or, 2018). As the privatised housing market in urban China has started resembling the housing market in other capitalist countries, I expect that the following hypotheses:

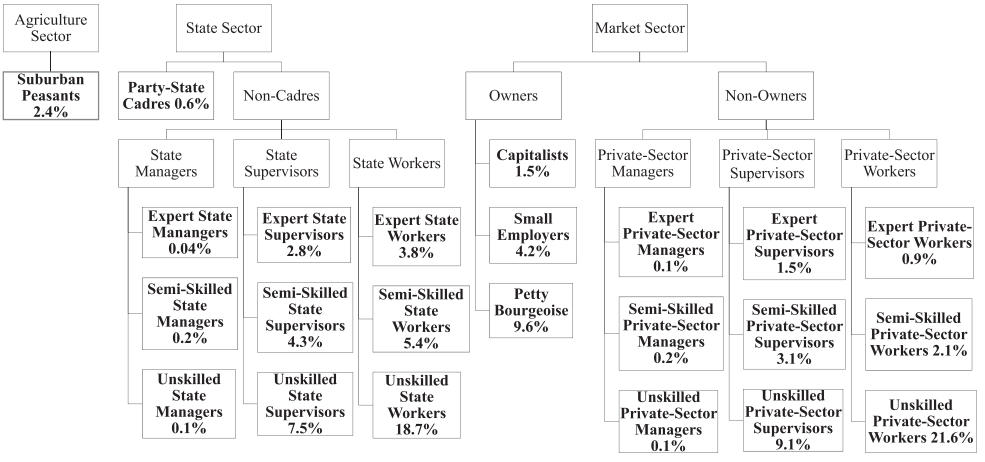

Figure 3. Elaborated class structure in transitional urban china.

Hypothesis 3: Net of other covariates, class structure exerts a statistically significant effect on homeownership among workers in transitional urban China.

Hypothesis 4: Net of other covariates, class structure exerts a statistically significant effect on housing space among workers in transitional urban China.

Data and methods

The data used in this paper were derived from four waves of the Chinese General Social Survey (CGSS). CGSS is an ongoing nationally representative survey of the adult population of mainland China. The CGSS has been conducted biannually or annually since 2003 and is internationally recognised as the authoritative source for measuring social attitudes, public opinion, and quality of life in China. I analysed data from the CGSS surveys from 2010 to 2013 because (1) there is a full ensemble of class and work-based measures that are not available in previous CGSS surveys before 2008; (2) since the 2010s, purchasing a home either from the commercial housing market or public housing previously owned by the state has become accessible to urban workers nationwide.

Due to the missing data issue in the CGSS, I first performed multiple imputations using the MICE (multiple imputation by chained equations) methods of multivariate imputation (Royston & White, 2011; White, Royston, & Wood, 2011). As a result of 20 imputations, I was able to use all cases in the urban subsamples of the 2010–2013 CGSS. Because the two dependent variables have different numbers of missing cases, the sample sizes in the two analyses are different. Consequently, the first analysis on homeownership has a final sample of 9,744 and the second on housing space has a final sample of 9,616.

To analyse the probability of owning a home and determinants of housing space, I conducted binary logistic regressions and ordinary least squares (OLS) regressions with fixed effects for the year of the survey and province to control for two major sources of unobserved heterogeneity. Since workers' homeownership rates and housing space varied across time and regions in China, the use of fixed effects models reduced potential omitted variable bias by accounting for the combined effects of all year-invariant and

province-invariant processes not included in the model. In this way, fixed-effects models helped identify the net effects of *hukou* and class on workers' homeownership after rigorously controlling for other sources of variation by year and province.

In order to provide parsimonious interpretations of statistical models, I used sheaf coefficients, a technique summarising the effects of a set of dummy variables by a single coefficient (Heise, 1972; Whitt, 1986). The key independent variables *hukou* stratification and class structure are two categorical variables represented by numerous dummy variables. The use of sheaf coefficients helped estimate the overall effects of dummy-coded *hukou* and class on the dependent variable by summarising the effects in a single coefficient instead of relying on each dummy variable. Moreover, because sheaf coefficients can be interpreted as standardised coefficients, I reported standardised coefficients for all variables in the table so that the overall effects of the *hukou* and class dummy variables could be directly compared with all other covariates.[3] The – sheafcoef- package in Stata was applied to compute sheaf coefficients for all categorical variables in OLS and logistic analyses (Buis, 2009).

Dependent variables

I utilised two dependent variables to capture different aspects of housing inequality. The first dependent variable is *homeownership*. This measure was coded as 1 if the respondent owned his/her home solely or jointly with his/her spouse, and 0 if the ownership belonged to others, including his/her parents, children, and other relatives, or the respondent was a renter.

The second dependent variable is *logged square metres per capita of housing space*. Housing space is a crucial aspect of housing quality. People living in insufficient housing space are prone to suffer inadequate living conditions, poor health, and low quality of life. In general, there are two common measures of housing space: (1) living area, which refers to the usable space within an apartment or a house, and (2) floor area, which is the total area including the actual living space of an apartment or a house plus the shared common areas, such as stairs and elevators. I used floor area to measure housing space in China because (1) the housing prices and property taxes were based on the total floor area of housing in China rather than the living space, and (2) the 2010–2013 CGSS surveys collected measures of floor areas for all four years, but only provided measures of living area for two years. Thus, logged square metres per capita of housing space was derived from the natural logarithm of the total floor area of the housing unit divided by the number of people in the household.

Independent variables

The hukou *stratification measures*

The *hukou* system is a unique stratification system in China segregating rural vs. urban populations and locals vs. migrants in urban areas. As presented in Figure 1 in the previous section, the conceptualisation of the *hukou* stratification in urban China involves five categories based on three essential dimensions of the *hukou* system: current residence status (whether the respondent was a permanent resident with local *hukou* or a migrant without local *hukou*), current *hukou* status (whether the respondent held an urban *hukou* or rural *hukou*), and *hukou* conversion (whether the respondent had converted to local *hukou*).

Over half of the urban workers were *urban stayers* who resided in the local urban *hukou* of their birth and never moved out. Approximately 14% of workers were *urban-urban converters* who came from other cities but gained permanent residency by converting to the local urban *hukou*. Roughly 11% of workers were *urban-urban migrants* who migrated from the urban *hukou* of their birth but had not gone through the conversion process to become permanent residents of the local urban *hukou*. About 10% of workers who migrated from the rural *hukou* of their birth and established permanent residency in the local urban *hukou* through the selective conversion process were *rural-urban converters*. The remaining 8% of *rural-urban migrants* worked in urban areas but held rural *hukou* without converting to the local urban *hukou*.

Class structure measures

Since the transition toward capitalism, the prior three Chinese socialist strata (cadres, workers, and peasants) have evolved into a hybrid class structure mixing capitalist features with socialist legacies. Accordingly, my measures of class structure combined the class stratification under the capitalist market system and remnants from the socialist past. My class typology in transitional China covered three sectors in China's labour market: the agricultural sector, the state sector, and the market sector.

Figure 3 explicates the configuration of the class typology in transitional China and displays the distribution of workers among 23 class categories in urban China as derived from the 2010–2013 CGSS. Within the market sector, the typology borrowed heavily from Wright's (2000) class scheme under capitalism. The class structure within the market sector centred around three major dimensions of differentiation in capitalist class systems. First, differentiation by ownership separated owners from non-owners. Three class categories in the owner group were further stratified by size of establishment: *capitalists* (property owners who employed 10 or more workers); *small employers* (property owners employed between 2 and 9 workers) and *petty bourgeoisie* (property owners who had no more than one worker or those who worked in family businesses). The three ownership classes comprised 1.5% to 9.6% of the working population in urban China.

Second, non-owners encompassed various gradations of wage labourers and were allocated based on variations in their possessions of skill and organisation assets (low, medium, and high). Because of data limitations in the CGSS dataset, I adopted some modifications to Wright's original operationalisation of these two concepts, I utilised a combination of the respondent's education and occupation to determine the level of skills and supervision status to determine the level of authority. Those who *both* had college degrees *and* managerial/professional occupations were experts, and those who had *either* college degrees *or* managerial/professional occupations were semi-skilled, and those who had *neither* were unskilled. Based on these criteria, I derived nine additional class categories in the market sector. Unskilled private-sector workers who possess none of the ownership of property, skills, and organisation assets became the largest class category in urban China accounting for 21.6%. The other non-ownership classes ranged in size from *expert private-sector managers* at 0.1% to *semi-skilled private-sector supervisors* at 9.1%. I used *unskilled private-sector workers* as the reference category in the regression analyses.

The class typology in transitional China also makes accommodations for the Chinese situation. The workforce in the state sector in China was defined as employees in government or party agencies, state-owned or collective enterprises, institutions, and social

organisations. Within the state sector, differentiation by political power separated party-state cadres from ordinary state employees. *Party-state cadres* were conceptualised as those who held administrative or managerial positions in the government or party agencies. These political elites accounted for about 0.6% of the working population in urban China. Similar to the conceptualisation of the nine class categories in the market sector, the remaining state employees were further classified into another nine categories based on variations in their possession of skills and authority. The nine classes in the state sector ranged in size from expert state managers at 0.04% to unskilled-skilled state workers at 18.7%. In the agricultural sector, *suburban peasants* were agricultural labourers in suburban areas taking a small portion (2.4%) of the urban population.

Control variables

To fully examine the effects of *hukou* and class on homeownership, I included a set of control variables that were related to homeownership and potentially mediated the effects of the two key independent variables, *hukou* and class. First, since the data span five years, I created year dummies to control for the effects of time in analyzing aggregate trends. *Year* was measured as a set of four dummy variables and the year *2013* was the reference category. Moreover, as the CGSS data covered 31 provinces in mainland China, I also used a set of 30 dummy variables to control for provinces and use *Beijing* as the reference category.

Second, I took into account individual sociodemographic characteristics, including gender, age, education, marital status, and political party affiliation. Gender was measured as a dummy variable with *female* = 1. *Age* was computed by subtracting the respondent's birth year from the survey year. Marital status was measured as a dummy variable coded as *married* = 1. Education was captured with a series of dummy variables with *high school* being used as the reference category. *Communist party member* was a dummy variable identifying those who belonged to the Chinese Communist Party = 1.

Third, I also examined a series of workplace and work-based affiliation variables. I captured two key features of *danwei*, or the Chinese work unit or workplaces: type of work unit and ownership of work unit. Type of work unit was measured with dummy variables with *government/party agency* as the reference category. Ownership of work unit was measured as dummy variables with *state-owned* as the reference category. *Union member* was a dummy variable identifying those who belonged to labour unions = 1. The *logged size of employees* was the natural logarithm of the number of employees in the workplace to capture the establishment size.

Moreover, I considered various forms of non-standard employment, a small but growing segment of the Chinese labour force. I created a dummy classification as follows: *contractors*, *casual labourers*, *freelancers* and *standard employment* which was included as the reference category. Lastly, I included *annual earnings* as a control variable to capture the respondent's ability to buy and own a home. *Household size* was a specific covariate on individual homeownership to capture the number of persons in the household.

Results

Table 1 presents summary statistics for all variables used in the analysis of homeownership and housing space for the urban sample. The results showed that nearly half (49.6%) of the

Table 1. Summary statistics for variables in the analyses of homeownership and housing space in urban China, 2010–2013.

	Urban homeownership		Urban housing space	
Variable	Mean	S.D.	Mean	S.D.
Homeownership	.496	.500	–	–
Logged square metres per capita of housing space	–	–	3.461	.668
Hukou stratification measures				
Urban stayer^	.568	.495	.563	.496
Urban-urban converter	.144	.351	.142	.349
Urban-urban migrant	.105	.307	.111	.314
Rural-urban converter	.100	.300	.102	.303
Rural-urban migrant	.084	.277	.083	.275
Class structure variables				
Capitalist	.015	.124	.016	.124
Small employer	.042	.201	.043	.202
Petty bourgeois	.096	.294	.096	.295
Expert private-sector manager	.001	.023	.001	.023
Semi-skilled private-sector manager	.002	.040	.002	.044
Unskilled private-sector manager	.002	.049	.002	.048
Expert private-sector supervisor	.015	.122	.016	.125
Semi-skilled private-sector supervisor	.031	.173	.030	.170
Unskilled private-sector supervisor	.091	.288	.092	.289
Expert private-sector worker	.009	.095	.010	.099
Semi-skilled private-sector worker	.021	.144	.021	.145
Unskilled private-sector worker^	.216	.411	.215	.411
Party-state cadre	.006	.079	.006	.078
Suburban peasant	.024	.152	.023	.150
Expert state manager	.0004	.019	.0004	.019
Semi-skilled state manager	.002	.043	.002	.043
Unskilled state manager	.001	.032	.001	.033
Expert state supervisor	.028	.165	.028	.166
Semi-skilled state supervisor	.043	.203	.042	.201
Unskilled state supervisor	.075	.263	.074	.261
Expert state worker	.038	.191	.038	.190
Semi-skilled state worker	.054	.226	.054	.226
Unskilled state worker^	.187	.390	.188	.391
Demographic variables				
Female	.402	.490	.400	.490
Age	41.192	11.744	41.147	11.698
Age Squared	–	–	1829.950	1022.450
Married	.767	.423	.763	.425
Education				
Elementary school and below	.090	.285	.088	.283
Middle school	.212	.409	.215	.411
High school^	.291	.454	.289	.453
Junior college	.197	.398	.198	.398
College and above	.210	.407	.211	.408
Communist party member	.191	.393	.191	.393
Workplace and affiliation variables				
Type of work unit				
Government/party agency^	.060	.237	.060	.237
Enterprise	.463	.499	.463	.499
Institution	.174	.380	.174	.379
Social organisation	.017	.127	.016	.126
No work unit or other	.286	.452	.285	.451
Ownership of work unit				
State-owned^	.366	.482	.364	.481
Collective	.075	.264	.075	.263
Private	.370	.483	.372	.483
Foreign	.036	.187	.037	.189
Other ownership	.152	.359	.152	.359
Logged size of employees	4.351	2.315	4.353	2.318
Union member	.277	.447	.275	.447

(*Continued*)

Table 1. Continued.

Variable	Urban homeownership		Urban housing space	
	Mean	S.D.	Mean	S.D.
Non-standard employment				
Standard employment^	.901	.298	.901	.298
Contractor	.021	.142	.021	.142
Casual labourer	.059	.235	.059	.235
Freelancer	.019	.137	.019	.137
Household size	2.906	1.353	2.897	1.350
Individual annual earnings	36977.530	83453.150	36965.430	83972.400
Homeowner	–	–	.498	.500
N	9744		9616	

^ Reference categories.

urban workers in China were homeowners in 2010–2013. This homeownership rate at the individual level was much lower compared to the official urban homeownership rate which was over 80% at the household level. The average per capita housing space had substantially increased from 7.18 square metres at the beginning of the economic reform in 1980 to 31.85 square metres during 2010–2013 in urban China. Despite the difference of sample sizes in the two analyses, the descriptive statistics of independent variables are essentially identical.

Table 2 shows the results of a logistic regression analysis where homeownership is the dichotomous dependent variable. For more straightforward interpretations, I presented estimated coefficients in exponentiated form or odds ratios. Moreover, I reported only sheaf coefficients for the categorical variables, unstandardised coefficients, and fully standardised coefficients for continuous variables.

Table 2. Logistic regression determinants of workers' homeownership in urban China, 2010–2013[a,b,c].

	Urban Homeownership ($N = 9{,}744$)							
	1		2		3		4	
Variable	*b*	Beta	*b*	Beta	*b*	Beta	*b*	Beta
Hukou stratification		***.236*****				***.225*****		***.186*****
Class structure				***.186*****		***.170*****		***.090****
Female							.546	−.199***
Age							1.048	.373***
Married							2.127	.214***
Education								***.058*****
Communist party member							1.261	.061**
Type of work unit								***.047****
Ownership of work unit								***.085***
Logged size of employees							1.029	.044
Union member							1.368	.094***
Non-standard employment								***.021***
Household size							.887	−.109***
Individual annual earnings							1.000	.039
Constant	.877		.498		.616		.079	
Pseudo R-squared	.054		.044		.071		.157	

* – $p < .05$; ** – $p < .01$; *** – $p < .001$ (two-tailed tests).

a – *b* = unstandardised coefficients in exponentiated form, or odds ratios; Beta = fully standardised coefficients/sheaf coefficients.

b – Sheaf coefficients are underscored, italicised, and bold-faced.

c – Fixed effects for years and provinces are not shown.

Reference categories: *hukou* stratification – urban stayer; class structure– unskilled private-sector worker; education – high school; type of work unit – government/party agency; ownership of work unit – state-owned; non-standard employment – standard employment.

Model 1 shows the overall effect of *hukou* stratification on urban homeownership. The sheaf coefficient indicates that *hukou* stratification has a standardised effect of .236 controlling for fixed effects for provinces and years. Model 2 reveals the overall effect of class structure on urban homeownership. The sheaf coefficient indicates that class structure has a standardised effect of .186 controlling for fixed effects for provinces and years. Model 3 includes *hukou* stratification measures and class structure variables together in the same model. The inclusion of class structure reduces the standardised effect of *hukou* stratification by only 4% from .236 in Model 1 to .225 in Model 3. Adding *hukou* stratification also reduces the standardised effect of class structure by just 8% from .186 in Model 2 to .170 in Model 3. The result suggests that the effects of *hukou* and class on urban homeownership are relatively independent of each other. The result also reveals that *hukou* stratification is more influential than class structure affecting the odds of owning a home in urban China.

Model 4 is the full model adding all the controls to further test the extent to which *hukou* stratification and class structure along with other covariates account for homeownership in urban China. When all the covariates are included, the standardised effect of *hukou* stratification further decreases by 17.3% from .225 in Model 3 to .186 in Model 4. Compared to Model 1, the net effect of *hukou* stratification shrinks by 21.2% by Model 4. Despite this reduction, *hukou* stratification maintains its significant, robust, and strong effect on homeownership as Hypothesis 1 predicted. The effect of class structure also remains significant which confirms Hypothesis 3. However, the effect of class is further weakened by 47.1% from .170 in Model 3 to .090 in Model 4 after adding all the covariates. Compared to Model 2, the net effect of class structure shrinks by 94% in Model 4, which is much greater than the shrinkage rate of *hukou* stratification. In other words, *hukou* cuts into the effect of class much more than class diminishes the effect of *hukou*. As shown in Model 4, the impact of *hukou* stratification on homeownership is approximately 2.07 times stronger than that of class structure. Overall, these results indicate that both *hukou* and class are relevant to explaining workers' homeownership, but *hukou* is much more fundamental to this process in urban China.

Among other covariates, education is the third most prominent effect on homeownership with a standardised effect of .058, which is less than that of *hukou* and class. Gender also has an important impact on homeownership, as women are 45.4% as likely to own homes than men. Their households may own homes, but their husbands are more likely to hold the only title to their homes.

Table 3 shows the results of four OLS regression models where logged square metres per capita housing space in urban areas is the continuous dependent variable. Again, Table 3 presents only sheaf coefficients for the categorical variables and standardised coefficients for continuous variables. Table 3 also follows the same stepwise procedure with four models as Table 2.

Model 1 of Table 3 reveals that *hukou* stratification, combined with fixed effects of province and year explains 13.9% of the variance in logged square metres per capita housing space in urban areas. The sheaf coefficient of *hukou* stratification indicates a standardised effect of .081 controlling for fixed effects for provinces and years. Model 2 of Table 3 shows that 14.8% of the variance in logged square metres per capita housing space in urban areas is explained by class structure along with province and year. The sheaf coefficient indicates that class structure has a standardised effect of .137 on workers' housing space.

Table 3. OLS regression determinants of logged square metres per capita of housing space in urban China, 2010–2013[a,b,c].

	Urban housing space ($N = 9{,}616$)							
	1		2		3		4	
Variable	*b*	Beta	*b*	Beta	*b*	Beta	*b*	Beta
Hukou stratification		***.081******				***.076******		***.042******
Class structure				***.137******		***.135******		***.133******
Female							.028	.021*
Age							−.005	−.085
Age squared							.0001	.124*
Married							−.094	−.060***
Education								***.126******
Communist party member							.030	.018
Type of work unit								***.036*****
Ownership of work unit								***.077***
Logged size of employees							−.001	−.003
Union member							−.023	−.015
Non-standard employment								***.041******
Household size							−.236	−.476***
Individual annual earnings							.000	.031***
Homeowner							.137	.102***
Constant	3.072		2.994		2.994		4.017	
Adj. R-squared	.139		.148		.152		.372	

* – $p < .05$; ** – $p < .01$; *** – $p < .001$ (two-tailed tests).
a – *b* = unstandardised regression coefficients; Beta = standardised regression coefficients/sheaf coefficients.
b – Sheaf coefficients are underscored, italicised, and bold-faced.
c – Fixed effects for years and provinces are not shown.
Reference categories: *hukou* stratification – urban stayer; class structure– unskilled private-sector worker; education – high school; type of work unit – government/party agency; ownership of work unit – state-owned; non-standard employment – standard employment.

Model 3 of Table 3 includes both *hukou* and class variables. The inclusion of class variables increases the adjusted R-squared by only 9.4% from .139 in Model 1 to .152 in Model 3. The inclusion of class structure reduces the standardised effect of *hukou* stratification by 6.2% from .081 in Model 1 to .076 in Model 3. Meanwhile, adding *hukou* stratification increases adjusted R-squared by 7.4% from .148 in Model 2 to .159 in Model 3, and it only reduces the standardised effect of class structure by 1.5% from .137 in Model 2 to .135 in Model 3. The results indicate that while both *hukou* and class are significant determinants of workers' housing space, and the overall effect of *hukou* stratification is much greater than that of class structure.

Model 4 of Table 3 shows the full model after adding all the other covariates. The adjusted R-squared increased by more than two times from .152 in Model 3 to .372 in Model 4. On the one hand, the inclusion of the covariates greatly reduces the standardised effect of *hukou* stratification by 44.7% from .076 in Model 3 to .042 in Model 4. Compared to Model 1, the net effect of *hukou* stratification shrinks by 48.1% by Model 4. Nevertheless, *hukou* remains a significant determinant of workers' housing space in urban China as predicted in Hypothesis 2. On the other hand, the inclusion of the covariates slightly reduces the standardised effect of class structure by 1.5% from .135 in Model 3 to .133 in Model 4, and class maintains its significance. It verifies Hypothesis 4 that class is a significant determinant of urban workers' housing space. Compared to Model 2, the net effect of class structure shrinks by only 3% by Model 4, which is much smaller than the shrinkage of *hukou* stratification. As shown in Model 4, the impact of class structure on earnings is approximately 3.17 times stronger than that of *hukou* stratification. Beyond Hypotheses

2 and 4, the results further indicate that class structure has a stronger impact on workers' housing space in urban China than *hukou* stratification. Interestingly, *hukou* is far more important than class in whether one owns a local home in urban China, but class is far more significant than *hukou* in determining how much housing space workers have. Among other covariates, education has a substantial and significant effect on workers' housing space with a sheaf coefficient of .126. The effect of education on housing space is greater than that of *hukou* but less than that of class.

Discussion and conclusions

The rapid expansion of homeownership and increasing housing space have been two of the most striking changes in China over the past decades. The intensive marketisation and urbanisation have led to a rise in the private housing market. Moreover, the housing reform of 1998 has shifted urban housing from public welfare to private property. Thus, today, Chinese workers are more likely than ever to own homes. However, not all workers share equal housing opportunity to own and live in large dwellings where they live and work. Better housing indicates a better quality of life and well-being. Since housing prices in Chinese cities have soared in recent decades, homeownership offers the opportunity to build up wealth and becomes a barometer of rising social inequality in China (Deng et al., 2016). Moreover, housing space is associated with health outcomes as overcrowding exposes people to infectious disease and stress (World Health Organization, 2018).

In this paper, using data from the 2010–2013 CGSS, I examine how the *hukou* system and class structure affect workers' homeownership and housing space in urban China. Given the complexity of the evolving *hukou* system in transitional urban China, I developed a framework of *hukou* stratification with five categories based on three dimensions. As China's integration into the global economy has generated a growing proportion of the labour force into capitalist employment relations, Wright's class scheme under the capitalist mode of production provides a solid starting point to understand China's class dynamics in the market sector. However, Wright's class theory doesn't take characteristics embedded in China's historical social structure into account. Consequently, I constructed a new 23-category class scheme combining Wright's class typology with the remnant sectors of the state and agriculture from China's socialist past.

In essence, the findings reveal an enduring effect of *hukou* and the emerging impact of class on both homeownership and housing space in urban China, but the effects of *hukou* and class on homeownership and housing space are divergent. The findings also contribute to the ongoing market transition debate by deepening insights into the roles of the state and market in shaping the Chinese urban housing market in the transitional period. On the one hand, *hukou* as a state institution plays a far more crucial role than class in determining workers' homeownership, attesting to the continuing influence of the state and supporting the state-centred perspective. On the other hand, consistent with the market-centred perspective, class as an indicator of the rising market forces play a greater role than *hukou* in determining how much housing space urban workers have.

Similar to Western capitalist countries, class status plays a pervasive role in housing conditions, and then expects to affect people's health outcomes and well-being. Therefore, it calls for future work to apply the new class framework to further examine how class affects

other aspects of quality of life in transitional China. Moreover, unlike other Western capitalist countries, under China's state capitalism or referred to as 'socialism with Chinese characteristics', the state yields some power to markets for rapid economic development but takes active action to guide market forces. The state-led *hukou* restrictions on housing hindered migrants' pathways to local homeownership. As China recently started to ease *hukou* restrictions in small and mid-size cities while further tighten the housing purchase restrictions in large cities, I recommend future research to investigate how the effect of *hukou* varies across different cities for additional policy implications.

Notes

1. General speaking, there are two major paths for *hukou* conversion: the first is through self-effort that only migrants with high levels of educational attainment, skills, and financial ability are eligible for *hukou* conversion; and the second is through policy changes that rural residents' hometowns are incorporated into urban areas (Zhang & Treiman, 2013).
2. The relative and intertwined roles of state and market have been paid much attention over the recent three decades, known as 'the market transition debate'. One perspective pioneered by Nee (1989) argued that the transformation toward a free market economy is expected to increase the power of private entrepreneurs and erode the economic advantages of state cadres from the state socialist era. On the opposite side, scholars who supported the state-centred or 'persistence of power' thesis contended that the significant role of the state did not decline but remained persistent during the market transformation (Bian & Logan, 1996; Parish & Michelson, 1996; Walder, 1996).
3. All other covariates (education, type of work unit, ownership of work unit, non-standard employment, year, province), which were measured as multiple dummy variables, also benefit from using sheaf coefficients.

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No potential conflict of interest was reported by the author(s).

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References

Bian, Y., & Logan, J. R. (1996). Market transition and the persistence of power: The changing stratification system in urban China. *American Sociological Review*, *61*, 739–758.

Bian, Y., & Lu, C. (2014). Urban-rural housing inequality in transitional China. In I. Attané & B. Gu (Eds.), *Analysing China's population: Social change in a new demographic era* (pp. 179–201). Dordrecht: Springer Science & Business Media.

Buis, M. L. (2009). *Sheafcoef: Stata module to compute sheaf coefficients*. Statistical Software Components. Boston College Department of Economics. Retrieved from https://econpapers.repec.org/software/bocbocode/s456995.htm

Chan, K. W. (2019). China's *hukou* at 60: Continuity and reform. In R. Yep, J. Wang, & T. Johnson (Eds.), *Handbook on urban development in China* (pp. 59–79). Cheltenham: Edward Elgar.

Cheng, T., & Selden, M. (1994). The origins and social consequences of China's *hukou* system. *The China Quarterly*, *139*, 644–668.
Cui, C., Geertman, S., & Hooimeijer, P. (2016). Access to homeownership in urban China: A comparison between skilled migrants and skilled locals in Nanjing. *Cities*, *50*, 188–196.
Deng, W. J., Hoekstra, J. S. C. M., & Elsinga, M. G. (2016). The changing determinants of homeownership amongst young people in urban China. *International Journal of Housing Policy*, *16*(2), 201–222.
Fang, C., & Iceland, J. (2018). Housing inequality in urban China: The heritage of socialist in institutional arrangements. *The Journal of Chinese Sociology*, *5*, 1–19.
Fang, Y., & Zhang, Z. (2016). Migrant households homeownership outcomes in large Chinese cities–– the sustained impact of *hukou*. *Eurasian Geography and Economics*, *57*, 203–227.
Fu, Q., & Lin, N. (2014). Local state marketism: An institutional analysis of China's urban housing market. *Chinese Sociological Review*, *46*, 3–24.
Heise, D. R. (1972). Employing nominal variables, induced variables, and block variables in path analyses. *Sociological Methods and Research*, *1*, 147–173.
Huang, Y., & Clark, W. A. V. (2002). Housing tenure choice in transitional urban China: A multilevel analysis. *Urban Studies*, *39*, 7–32.
Kurtz, K., & Blossfeld, H. P. (2004). *Home ownership and social inequality in comparative perspective*. Stanford: Stanford University Press.
Logan, J. R., Fang, Y., & Zhang, Z. (2009). Access to housing in urban China. *International Journal of Urban and Regional Research*, *33*, 914–935.
Nee, V. (1989). A theory of market transition: From redistribution to markets in state socialism. *American Sociological Review*, *54*, 663–681.
Or, T. (2018). Pathways to homeownership among young professionals in urban China: The role of family resources. *Urban Studies*, *55*, 2391–2407.
Parish, W. L., & Michelson, E. (1996). Politics and markets: Dual transformations. *American Journal of Sociology*, *101*, 1042–1059.
Ren, Q., & Hu, R. (2016). Housing inequality in urban China. *Chinese Journal of Sociology*, *2*, 144–167.
Royston, P., & White, I. R. (2011). Multiple imputation by chained equations (MICE): Implementation in stata. *Journal of Statistical Software*, *45*, 1–20.
So, A. Y. (2013). *Class and class conflict in post-socialist China*. Singapore: World Scientific.
Song, X., & Xie, Y. (2014). Market transition theory revisited: Changing regimes of housing inequality in China, 1988–2002. *Sociological Science*, *1*, 277–291.
Walder, A. G. (1996). Markets and inequalities in transitional economies: Toward testable theories. *American Journal of Sociology*, *101*, 1060–1073.
Walder, A. G., & He, X. (2014). Public housing into private assets: Wealth creation in urban China. *Social Science Research*, *46*, 85–99.
White, I. R., Royston, P., & Wood, A. M. (2011). Multiple imputation using chained equations: Issues and guidance for practice. *Statistics in Medicine*, *30*, 377–399.
Whitt, HP. (1986). The Sheaf Coefficient: A simplified and expanded approach. *Social Science Research*, *15*, 174–189.
Wright, E. O. (2000). Class Counts: Comparative Studies in Class Analysis. Cambridge: Cambridge University Press.
World Health Organization. (2018). *WHO housing and health guidelines*. Geneva: World Health Organization. License: CC BY-NC-SA 3.0 IGO.
Zhang, Z., & Treiman, D. J. (2013). Social origins, *hukou* conversion, and the wellbeing of urban residents in contemporary China. *Social Science Research*, *42*, 71–89.