

# Changing Determinants of Household Formation and Homeownership Attainment in China: Growing Disparity between Age Groups and Migrant Status

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**ABSTRACT:** In this paper, using China's Census microdata in 2000 and 2005, we examine the changing determinants of household formation and homeownership attainment in the early 2000s, a period of rapid economic growth, large scales of rural-urban migration, and dramatic changes in the economy and demographics. However, scant research has been conducted at the national level or has tracked changes in housing distribution during the height of housing reform. This study will address these limitations. Results show growing inequality in access to housing. Young adults and rural migrants, who are new entrants to the housing market and vital to China's urban future, have lagged behind other demographic groups. There are even bigger disparities among migrants in cities, depending on their *Hukou* status, residency status, and mobility rates. While the housing market is maturing, housing attainment is greatly affected by demographic and institutional factors, most of which are unique to China. The findings provide more insights into the hybrid nature of housing market in the context of China's economic transition. Policy implication is discussed at the end.

## INTRODUCTION

Over the last three decades, China's economy has grown dramatically and average income has increased by about 10 folds (World Bank 2011). Due in large part to migration from rural areas, over half of China's population or more than 600 million people now live in a city. These newcomers along with other urban residents have to be housed in cities.

As a vital component of economic reform, urban China went through housing reform which started in the early 1980s and plateaued in the late 1990s (Wang and Murie 1996; Tong and Hays 1996). The main thrust of the reform was to abolish welfare-oriented housing system, establish market mechanisms in housing distribution, and accelerate housing production in urban areas through market privatization. Housing in urban areas was dismal before housing reform.

After urban housing became commercialized in the late 1990s, there has been a substantial growth in the housing sector (Liu and Shen 2005; Nie 1999). Housing consumption has increased dramatically and private homeownership has soared (Yu 2006). A growing

number of people own multiple homes (Huang and Yi 2011). As a result of growing housing demand, many cities have experienced a large increase in housing prices (Wu, Gyourko, and Deng 2011).

While urban housing reform has largely succeeded its goal of encouraging production and reducing government subsidy, not everyone has benefited from the housing boom. There is evidence of increasing inequality in housing distribution. Occupation and education have become more important factors in housing allocation (Yu 2006). Housing reform has reinforced inequality existed in the socialist system, giving favors to insiders and urbanites (Logan, Bian, and Bian 1998; Logan, Fang, and Zhang 2010). As China recently hit a demographic landmark, with more than 50 percent of China population living in cities, much of the growth in urban population is due to rural migration. However, rural migrants who are often discriminated against in urban housing and labor markets have had a hard time to adapt to cities (Chan and Zhang 1999; Guo and Iredale 2004; Wu 2004). Moreover, declining housing affordability has forced many young adults to delay household formation, stay with their parents and roommates, and even congregate in crowded "ant tribes" on the urban fringe of major cities (Lian 2009).

Whereas the urban housing sector has changed dramatically, rural housing distribution remains largely unchanged. Most houses in rural areas are self-built and privately owned<sup>1</sup>. Even though per capita housing space has roughly doubled from 1985 to 2005, there are few renters outside major cities (Xie and Zhang 2009). Rural housing market is almost nonexistent (Liu 2006). Because of large rural-urban migration, overall population has declined in rural areas.

Coupled with housing reform and rural-urban migration is changing demographics in recent decades. A strict population policy, which was initiated in the 1970s and formally implemented in 1979, has promoted delayed marriages and allowed only one child per couple in most places and. The policy has delayed marriages, abruptly reduced birth rates, increased gender imbalance, and dramatically slowed population growth within a short period of time (Riley 2004; Banister 1987; Zhao and Chen 2008)<sup>2</sup>. All these demographic events should have had significant effects on housing demand, but we know very little about these effects.

Young people and rural migrants are facing dual challenges in the housing market. One is to form independent households, instead of live with parents or share with non-family members. The second is to achieve homeownership in time of the rapid increase in housing

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<sup>1</sup> In contrast to urban land which is largely owned by the state and leased by urban homeowners, rural land is collectively owned.

<sup>2</sup> Total fertility rate for China decreased from 6 children per woman in 1970 to slightly more than 2 children per woman in 1980 (Poston 2000; Banister 1987). As a result of the one child policy, a typical women also married and gave birth to her first child later.

prices. The housing literature in the West has examined why housing consumptions vary by age groups and proposed the life-cycle theory of saving and consumption (Artle and Varaiya 1978; Modigliani 1988). However, the theory may not satisfactorily explain the differences in housing outcomes in China because housing reform has rapidly changed the housing distribution system and household expenditure on housing has grown tremendously in urban China. During the reform period, it was difficult for residents to foresee the future cost of housing and adjust saving and consumption behaviors accordingly. So institutional factors such as *Hukou* and the legacy of socialist housing subsidy should have played a more prominent role before housing reform (Logan, Fang, and Zhang 2009; Li and Li 2006). In 2005, market should play a more active role in housing distribution.

While there is a growing body of research on China's emerging housing market (e.g., Logan, Fang, and Zhang 2010; Huang and Yi 2011; Lee 2000; Wu 2006; Yu 2006; Li and Li 2006), almost none of the studies have examined the housing sector across China or have tracked changes over the height of China's housing reform. Moreover, recent research has shown the importance of treating household formation and homeownership attainment jointly (Yu and Haan Forthcoming; Yu and Myers 2010). The lack of such studies is in large part due to data limitation. Few publicly available dataset on housing is national in scope and covering all population in China. The availability of China's Census data makes such studies possible. Therefore, this paper attempts to addresses these limitations in the literature.

In this paper we study homeownership attainment and household formation, two outcomes of housing attainment of all individuals aged between 18 and 54 across China in 2000 and 2005, a vital period of housing reform. We then examine the changing determinants of housing outcomes between migrants and non-migrants. In addition, we separately identify urban migrants, local urban movers, and rural migrants based on their places of birth, *Hukou* status, residency status, and recent migration status. We finally test our hypotheses in a multivariate framework, controlling for human capital and other socioeconomic factors.

## **RESEARCH QUESTIONS**

Building on the discussion above, we are going to address the following four sets of research questions in this study:

1. What are the overall housing attainment patterns of migrants and non-migrants between 2000 and 2005? Which age groups have seen the largest improvement in household formation and homeownership attainment?

2. After controlling for human capital and other factors (particularly income, socioeconomic status, demographic factors and metropolitan contextual variables), to what extent do these gaps change?
3. What proportion of the differences in homeownership attainment between groups can be attributed to household formation? To what extent have the gaps in housing outcomes changed over the five-year period relatively to the reference group of urban residents?
4. To what extent are migrant groups different from each other on housing attainment? Why?

## **DATA AND METHODS**

### **The Sample**

This analysis will primarily rely on Chinese 2000 Decennial Census and the recently available Chinese 2005 One-Percent Population Survey microdata<sup>3</sup>. The datasets, both of which are collected by the National Bureau of Statistics of China, are arguably the most comprehensive and up-to-date data source in China, by which household formation and homeownership attainment can be closely investigated across the nation. The data not only has the broadest coverage of China's population, but also provides many details about the population and housing consumption.

### **Study Areas**

This study will include all individuals who are between 18 and 54 years old from all 345 cities (or prefectures)<sup>4</sup> in China. The unit of analysis in this study will be individuals. 2000 data and 2005 data will carefully recalibrated to ensure compatibility.

### **The Definition of Migrants**

There are a number of ways to define migrants, such as using *Hukou* status, place of residence five years ago, and the duration of stay in the current location. We therefore follow the literature of migration in China and define someone as a migrant if s/he meets all of the following three criteria: 1. the person is aged 18 or older; 2. the person on the date of Census enumeration ( November 1, 2000 or November 1, 2005) resided in a city that is different from where s/he lived five years ago (November 1, 1995 or November 1, 2000 respectively); 3. the

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<sup>3</sup> The population survey relies on a two-stage sampling approach and covers the whole nation. Enumeration was taken between November 1 and 15, 2005. According to an official report, there is a 1.72% net undercount of total population (Feng 2006).

<sup>4</sup> These cities and prefectures include both urban and rural areas, covering all residents in mainland China. In the following sections, city refers to both city and prefecture.

person has lived in the place of enumeration for more than six months or has left the place of his or her *Hukou* registration for more than six months (Fan 2008).

According to the literature, there are two major types of migration in China, which are permanent migration and temporary migration. Permanent migration (*qianyi*) refers to the formal changes of household registration (*Hukou*). Migrants who have changed their *Hukou* to the place of enumeration are considered permanent migrants. In contrast, temporary migration is often associated with the so called “floating population” or *liudongrenkou* (Wu 2006). Those who have not changed their *Hukou* to the place of enumeration are considered temporary migrants (Fan 2008). Permanent migration normally involves with family reunion and the formation of independent households in destination cities, while temporary migration is largely related to employment.

Then, temporary migrants are categorized into two groups: 1. migrants who moved in the last five years from the city in which they live in as intracity migrants, and 2. migrants who moved in the last five years from outside of the city in which they currently live in as intercity migrants.

It is very difficult to change *Hukou* status from agricultural to non-agricultural (or urban *Hukou*). It is even harder to move the registration of *Hukou* from countryside to cities. It is the hardest to obtain *Hukou* in major cities such as Beijing and Shanghai, because of the severe restriction on permanent migration from the outside. Moreover, there are large variations among urban *Hukou* (or non-agricultural *Hukou*). The non-agricultural *Hukou* in major cities are much more valuable than those registered in smaller cities (Chan and Zhang 1999; Wu 2004; Wu and Treiman 2004).

## **Analytical Models**

We will first present summary statistics and report homeownership rates and headship rates by migrant status, by age group, and by geographic locations. We will then compare them over the study period. However, the variations may be the results of other variables such as education, income, and marital status.

In the second stage of the study, we will employ multinomial logistic regression models used in previous studies, such as Clark and Mulder (2000) and Leppel (1986), to estimate the probability of an individual being a non-head (coded as 0), a renter head (1), a head in a self-building housing unit (2), or an owner head (3). This method has been recently used in Yu and Myers (2010) and treats household formation and ownership as a joint decision manifested in

multiple unranked categories. We examine the coefficients on key variables that influence people's decisions to rent or own, relative to being a non-householder.

Multinomial logit regression yields relative risk ratios, which are the exponentiated values of multinomial regression coefficients. The interpretation of relative risk ratios is similar to odds ratios in a logistic regression. Although it is appropriate to use multinomial logit regression here, the method also has its disadvantages. First, multinomial logit regression produces multiple comparisons and a large number of parameters, which encumbers interpretation. Second, relative risk ratios are not easily compared and understood. As a partial remedy to these problems, we graph relative risk ratios.

Given our belief that household formation is a major factor behind homeownership propensities and people make a joint decision on household formation and housing tenure, it is necessary to change the outcome variable from a dichotomous owner-renter variable estimated on households to a multi-choctomous variable estimated on individuals. We will first will estimate the regression model among the whole population in 2000 and 2005 separately. We will then focus on migrants only and compare the results between 2000 and 2005.

Expressed more formally, the model is as follows:

$$HS = \text{Age} + \text{Sex} + \text{Marital Status} + \text{Educ} + \text{Region} + \text{Tier Cities} + \text{Hukou} + \text{Detachment} + \text{Income} + \text{Migstat} + \text{House Price} + \text{Employment Rates}$$

Where:

*HS* = Householder status (3=head, owned dwelling; 2= head, self-built housing; 1= head, rented dwelling; 0=non-head).

### **Demographics**

*Age* = Age group, coded as 18-24, 25-34, 35-44 (ref.), and 45-54.

*Sex* = Sex of respondent (1=Male, 0=Female).

*Marital Status* = Marital status of respondent (Currently married = Ref).

*Educ* = Indicators to control for educational attainment (<Middle school=Ref).

### **Geography**

*Region* = Dummy variables to control for Region-specific homeownership propensities (East=Reference Group).

*Tier Cities*= Dummy variables to control for Tire-city-specific homeownership

propensities (Tire 1 cities=Reference Group).

### **Institution**

*Hukou* = Hukou Status of respondent (Local urban Hukou, urban Hukou from other cities, rural Hukou (ref.)).

*Detachment* = Whether away from place of Hukou registration (Away = Ref).

### **Economics**

*Income* = Personal income

*Migstat* = Migrant status of respondent (Rural migrants, urban migrants, local movers, non-movers (ref.) ).

*House Price* = Median value of self-built houses.

*Employment Rates* = percent of respondent who are aged 25 and over are currently employment by city.

## **CONTRIBUTIONS TO EXISTING RESEARCH**

This study is innovative for three major reasons. First, previous research on homeownership disparities between groups may be due in part to the limitation of the conventional measure of homeownership, which is measured at the household level and ignores household formation (Yu and Haan Forthcoming; Yu and Myers 2010). Temporary migrants are the least likely to form independent households, and the most likely to reside in multiple family dwellings and group quarters. Moreover, migrant groups have variable rates of household formation over time, reflective of their differences in socioeconomic status and institutional restrictions. Consequently, homeownership disparities between migrant groups and between urban and rural residents may not be as pronounced once household formation is controlled in the analysis of homeownership attainment.

Second, most existing studies rely on cross-sectional analysis to study housing outcomes at one point of time. This is problematic because housing outcomes have changed greatly during the reform period and there are substantial variations migrant groups. Evidently, more recent migrants are much more numerous and have lower socioeconomic status than earlier migrants and permanent migrants (Fan 2008). The size of each waves of migrants have also changed significantly over time. Therefore, it is necessary to track housing outcomes over time.

Third, most existing studies have focused on specific regions and relied on small scale surveys. Few have examined housing outcomes across the country. We have little knowledge about the housing outcomes of rural population. Many elderly and children are left behind because of rural-urban migration.

## EXPECTED FINDINGS

We expect to find that there has been a sharp increase in homeownership rates across the country from 2000 to 2005, particularly in cities where private homeownership was largely non-existent before housing reform. While every demographic group has seen a large growth in homeownership rates, young adults have seen relatively small improvement. This is in contrast to the rapid increase in homeownership rates among young adults in the U.S. and in contrast to what the life-cycle theory would predict. Clearly, economic reform has affected the way people predict future housing cost. Middle-aged urban residents who had access to housing in cities have seen the largest increase in homeownership rates. Self-built housing remains the predominant form of housing in rural areas. Controlling for covariates does not significantly change the results.

We also expect to find a steady increase in overall headship rates across the country. In other words, people are more likely to form independent households in 2005 than in 2000. However, there has been a major decline in headship rates among young adults, which is in stark contrast to the rapid increase in personal income in China and to the large increase in headship rates among young adults in the West during the post WWII period. Controlling for migrant status shows that the decline is in part due to rural-urban migration. Temporary migrants, many of whom stay in group quarters, have much lower rates of headship than permanent migrants and local residents.

In light of economic reform, there has been a large increase in the number of migrants in general and temporary migrants in particular. Temporary migrants from rural areas are over represented in major cities such as Shanghai and Beijing and in coastal cities where employment opportunities are more available. However, Many rural migrants live in substandard housing. Most of these migrants will eventually stay in cities. How to integrate rural migrants into cities is a critical question.

Homeownership rates and headship rates are surprisingly high among permanent migrants, reflecting the facts that highly educated rural migrants and wealth migrants are able to achieve non-agricultural *Hukou* and residency status in major cities through education, employment, and investment.

In urban areas, there has been a large increase in residential mobility. A larger share of residents have moved to new places of residence. In contrast to migrants in the West who are largely renters, urban movers in China are mostly homeowners who are improving their housing outcomes over time.

Local residents in rural areas are mostly living in self-built housing which tends to have lower quality than urban housing. Despite relatively low cost of housing in the countryside, rural residents has the lowest headship rates. The taste/preference hypothesis provides a better explanation for this phenomenon than the economics hypothesis.



Because of the growing weight of housing in household budgets, access to housing has become an important indicator of upward mobility and socioeconomic integration, especially in cities. This study has shown that there are growing disparities in access to housing. Young adults and rural migrants, both are new entrants to the housing market and key to China's urban future, have lagged behind other the middle-aged and urban residents in housing outcomes. There are even bigger disparities among migrants in cities, depending on their *Hukou* status, residency status, and mobility rates. While the housing market is maturing, demographic and institutional factors, most of which are unique to China, are still important determinants of housing outcomes. The findings provide additional insights into the hybrid nature of housing market in the context of China's economic transition. Future research should use the quality of housing as an indicator and track the housing process of young cohorts over the study period.

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