

Housing and Subjective Wellbeing in Urban China

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Abstract

This study explores the relationship between home ownership and subjective wellbeing in urban China using a nationally representative dataset. Compared with the limited extant literature on this topic for China, we use a more recent dataset, allow for a greater range of ownership forms, consider the source through which ownership was acquired and not only consider whether homeowners have a home loan, but also consider the source of the loan and its effect on subjective wellbeing. We find that not only home ownership, but the property rights one acquires and the source of those property rights matters for subjective wellbeing. Moreover, not only whether one has a home loan, but the type of home loan one has matters for subjective wellbeing. We also identify important differences in the homeownership-subjective wellbeing relationship across genders, generations and between those with a rural and urban household registration.

Keywords: Subjective wellbeing, housing, China

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1. Introduction

In urban China an egalitarianism-oriented housing system was previously used to allocate free houses to urban residents working in the state sector, which was the predominant provider of jobs. In the 1990s housing reform gradually abandoned the old system and established a housing market. Since then housing has become a major topic in urban China. In 2009 the television drama *woju* (Dwelling Narrowness) that depicted the difficulty, and frustration, of buying a home in cities provoked national discussion and debate on housing affordability confronting Chinese households (Liang, 2010).

The current assets of households in China are increasingly flowing into the housing market, while the available share for allocation to other consumption goods has been shrinking (Hui *et al.*, 2013). Contributing to rising prices is the existence of large amounts of unoccupied housing, held by corrupt officials as part of money laundering rackets and as investment properties by property speculators (Buckley, 2013). To address the overheated real estate sector, and pacify public discontentment, since 2010 policymakers have been working to rein in excessive house price rises by imposing higher down-payment requirements and banning multiple mortgages in some cities. In March 2013, it was announced that a 20 per cent capital gains tax will be levied on sales of pre-owned property. Nonetheless, house prices remain high (Fung, 2013). Average house prices in most of China's cities, especially the largest ones, such as Beijing, Shanghai and Shenzhen, are as much as 30 times average annual income (Zhang, 2013).

Rapidly rising house prices and increasing housing inequality have been reshaping the Chinese urban landscape and impacting on the wellbeing of different socioeconomic groups. For example, gated and guarded high-end residential compounds spatially distinguish the new rich from other city dwellers in terms of residential environment (Tomba, 2010). Poor housing conditions and residential segregation contribute adversely to the labour market outcomes of rural-urban migrants (Cheng & Wang, 2013). Young professionals live in shared rooms and urban villages, removed from the city centre, in order to reduce rental costs (Lian, 2009). High housing prices make couples less willing to have a child and reduce resources available for raising children in Chinese cities (Pan & Xu, 2013). This, in turn, has long term implications for China's economic prospects, given that China's population is aging rapidly (Das & N'Diaye, 2013).

There is a growing body of literature on the determinants of subjective wellbeing in China (see eg. Akay *et al.* 2012; Appleton & Song, 2008; Brockman *et al.*, 2009; Chen &

Davey, 2008; Gao & Smyth, 2011; Knight *et al.*, 2009; Knight & Gunatilaka, 2010a, 2010b, 2011, 2012; Mishra *et al.*, 2013; Monk-Turner & Turner, 2012; Smyth *et al.*, 2008, 2010; Smyth & Qian, 2008; Wang *et al.*, 2013).¹ A majority of the studies on subjective wellbeing in China focus on conventional determinants, such as income, gender and age. Many of these studies confirm that the so-called Easterlin paradox applies to China: improvements in income have not resulted in a similar increase in the magnitude of life satisfaction (Easterlin *et al.*, 2012). Therefore, it is timely to move beyond measures solely based on income and consumption in the examination of subjective wellbeing. Recently some studies have examined other factors, such as family relationships and urban citizenship, that have been found to influence subjective wellbeing. However, there is much scope to explore the relevance of other factors as well.

The literature on the relationship between housing and subjective wellbeing in China is scant. A recent national survey found that Chinese households consider home ownership as the third most important factor contributing to happiness (Chinese Academy of Social Sciences, 2013). However, the survey does not analyse the mechanism through which home ownership correlates with happiness. Hu (2013), Li *et al.* (2012) and Lin *et al.* (2012) examine the relationship between home ownership and subjective wellbeing in China. However, each of these studies has limitations. To be specific, first these studies rely primarily on binary measures of housing tenure (homeowners versus renters/non-homeowners) and, as such, do not control for the heterogeneity that exists within homeowners. Second, the studies are based on datasets collected in 2006 and 2009, which do not account for the rapid changes in the housing market over the last few years.² This study seeks to address the limitations in previous studies through examining the relationship between home ownership and subjective wellbeing, drawing on a nationally representative dataset collected in 2011. In addition to analysing more recent data, a feature of the study is that we use a much richer set of variables to denote the gradient of home ownership than has been the case in previous studies for China.

The happiness maximization principle in economics and psychology suggests that pursuit of subjective wellbeing should be the goal of human beings (Duncan, 2010). If the pursuit of subjective wellbeing is central to human endeavour, it follows that there is a need to rethink the factors which governments consider important when formulating public policies (Kittiprapas *et al.*, 2007). Ng and Ho (2006, p. 1) state: “public policy should be about enhancing happiness or the welfare of the people now and in the future”. Similarly, Veenhoven (2004, p.676) states that the pursuit of happiness “deserves a more prominent

¹ For a review of some of this literature, see Davey and Rato (2012).

² The existing Chinese studies, and their limitations, are discussed more fully in Section 3.

place in policy-making”. In the Chinese context, Davey (2012) has suggested that the government should consider the implications for the subjective wellbeing of the Chinese populace when making key policy decisions. This paper takes these calls seriously by providing evidence on how public policies on housing relate to subjective wellbeing.

2. Home ownership and subjective wellbeing

Conceptually the relationship between home ownership and subjective wellbeing is unclear. There are several arguments suggesting a positive relationship should exist between the two variables. First, compared with renters, homeowners might have higher self-esteem or enjoy higher social status and, thus, higher subjective wellbeing. In this sense, home ownership is a sign that “one has made it” (Rohe & Stegman, 1994). Second, relative to renters, homeowners might feel safer or have a greater sense of security and, hence, have higher subjective wellbeing. Third, homeowners might be more involved in local community activities than renters given that home ownership provides stronger ties to the local neighbourhood. A higher level of civic involvement has been found to be positively correlated with subjective wellbeing (Dolan *et al.*, 2008). Fourth, home ownership provides a vehicle to build wealth through price appreciation and decreasing mortgage liabilities. Home ownership might also lead to increased access to credit. Fifth, homeownership has a positive effect on one’s self-efficacy. It provides a sense of independence from landlords and freedom, which renters do not have. As such, home ownership provides individuals with a greater sense of control over their lives, contributing to higher subjective wellbeing (see eg. Hu, 2013; Elsinga & Hoekstra 2005; Parker *et al.*, 2011, Rohe & Stegman 1994; Rohe *et al.* 2002a, 2002b; Ruprah 2010).

A further channel positively linking home ownership to subjective wellbeing is that home ownership increases one’s sense of belonging. In Asia, the Hong Kong Government has vigorously promoted homeownership in order to increase people’s sense of belonging and reduce emigration (Grange & Ming, 2001). Since the foundation of socialist China, housing and family life has been tightly connected and embedded in dramatic societal change, in particular during the recent market reforms, in which housing reform was a core component (Forrest & Izuhara, 2012). In Chinese culture, house and home are often interchangeable terms, referring to both the material place and psychic sense of belonging (Yan, 2013). Therefore, Chinese tenants of rental housing usually perceive poor security and social belonging and express a strong desire to own their own property (Zhu, 2013).

There are, however, also arguments suggesting a negative relationship between home ownership and subjective wellbeing. First, homeowners might experience severe financial stress in the form of large mortgages in order to purchase their home, which lowers subjective wellbeing. Second, the real value of homes might depreciate, rather than appreciate, contributing to financial distress and lowering subjective wellbeing. Third, home ownership might reduce one's flexibility and mobility, lowering subjective wellbeing. Low-income households, in particular, might be forced to take out large mortgages to purchase in distressed neighbourhoods on the city fringes or outer suburbs ('the mortgage belt') and be locked into their locale because of negative equity in their home. This will be particularly problematic if there are declining jobs in the area and the individual is forced to travel long distances for work. This was a common phenomenon in many countries in the fallout from the Global Financial Crisis, contributing to lower subjective wellbeing (Grinstein-Weiss *et al.*, 2011). Fourth, home ownership can contribute to lower subjective wellbeing if there are problems with the house or maintenance costs are high and the owner does not have the income to address these issues. There is the potential that low-income individuals, in particular, will be 'trapped' in poorly maintained homes in run-down or otherwise undesirable neighbourhoods, lowering subjective wellbeing (Elsinga & Hoekstra, 2005; Hu, 2013; Ruprah, 2010).

3. Literature review

There is large economics and psychology literatures on the determinants of subjective wellbeing (see Diener *et al.*, 1994; Dolan *et al.* 2008 for reviews). There are, however, relatively few studies on the relationship between home ownership and subjective wellbeing (as opposed to the relationship between home ownership and housing satisfaction, for which there are more studies – see review in Zumbro, 2013).

Most of the extant literature on the relationship between home ownership and subjective wellbeing focuses on developed countries. There are studies for Australia (Stillman & Liang, 2010); Denmark (Bloze & Skak, 2010); Germany (Zumbro, 2013), the United States (Bucchianeri, 2009; Rohe & Stegman, 1994) and the United Kingdom (Powdthavee, 2008). There are few studies for developing countries. Gray and Kramanon (2007) examine the relationship between home ownership and subjective wellbeing in Thailand, while Ruprah (2010) focuses on this relationship for Latin America.

Findings on the relationship between home ownership and subjective wellbeing are mixed. Most studies have found that homeowners have higher subjective wellbeing (see

eg. Gray & Kramanon, 2007; Liang & Stillman, 2010; Powdthavee, 2008; Ruprah, 2010; Zumbro, 2013). However, Rossi and Weber (1996) only found weak support for the hypothesis that there is a positive relationship between home ownership and subjective wellbeing, with many variables insignificant. Meanwhile, other studies have found that once one controls for demographic differences, there is no evidence that homeowners have higher subjective wellbeing than non-homeowners (Bucchianeri, 2009).

Recognizing that homeownership is heterogeneous is important because it usually comes at a price for people with different levels of financial capacity. It is well documented that people with debt problems are at higher risk of mental disorder or reduced mental wellbeing (Fitch *et al.*, 2011). Indeed, stress related to house rent and mortgage debt influences subjective wellbeing through sophisticated effects (Grinstein-Weiss *et al.*, 2011). In Canada, Cairney and Boyle (2004) find a gradient in housing tenure and psychological distress and that individuals in rental housing report the highest levels, and homeowners without mortgages, the lowest levels of distress. In Australia, Cummins *et al.* (2006) find that the wellbeing of people who are paying rent is generally much lower than people who are paying off a mortgage, but the reverse is true in middle income ranges. The subjective wellbeing of particular demographic or socioeconomic groups may be particularly affected by mortgage or rent debt. Cummins *et al.* (2006) find that in Australia middle-aged and sole parent renters have lower subjective wellbeing than other groups. In Britain, Nettleton and Burrows (1998) find that mortgage indebtedness has a particularly deleterious effect on subjective wellbeing for males in declining health and those with an uncertain ability to make mortgage repayments.

The existing research on housing and subjective wellbeing in China is very limited. A few studies use a dummy variable to denote home ownership as part of broader studies examining the determinants of subjective wellbeing (Appleton & Song, 2008; Monk-Turner & Turner, 2012). These studies find a positive relationship between home ownership and subjective wellbeing. Other related studies focus on different aspects of the relationship between housing characteristics, neighbourhood characteristics, housing satisfaction and life satisfaction. These studies, however, are limited in that they either focus on life satisfaction among specific segments of the population, such as the elderly (Li & Chen, 2011) or focus on specific geographic locales such as Beijing (Wu, 2013), Dalian (Chen *et al.*, 2013; Zhang *et al.*, 2012b) or Shanghai (Li & Song 2009).

There are also a few studies specifically focusing on the relationship between home ownership and subjective wellbeing for a broader population base. Based on the 2006

China General Social Survey, the only housing-specific study published in English language finds that home ownership and subjective wellbeing are positively correlated (Hu, 2013). There are three further studies in Chinese language (Li *et al.*, 2012; Lin *et al.*, 2012; Sun & Zheng, 2013). Lin *et al* (2012) also used the 2006 China General Social Survey to examine the effect of home ownership and house price increases on subjective wellbeing. Their findings were that homeowners exhibit higher subjective wellbeing than renters, multi-homeowners have higher subjective wellbeing than single homeowners and that house price rises have a positive effect on subjective wellbeing of homeowners and a negative effect on the subjective wellbeing of renters. Li *et al* (2012) use the 2009 China Urban Economic Conditions and Psychology Survey to compare the subjective wellbeing of those with full ownership, on one hand, and partial and minor ownership on the other. Their main finding is that the subjective wellbeing of those with full ownership is higher than those with either partial ownership or minor ownership as well as non-homeowners. Sun and Zheng (2013) use a four-city sample collected in 2010 to compare the subjective wellbeing of those with, and without, home ownership, owners of commodity property (which were sold in the open housing market) and housing reform property (which were sold to occupants—mostly state employees—at discounted prices in the 1990s). They found that both property types are positively correlated with subjective wellbeing.

Each of these four studies has limitations we seek to address in this study. First, these studies use a dummy variable to denote housing tenure (homeowners versus renters/non-homeowners), but do not control for the heterogeneity that exists within homeowners. Lin *et al* (2012) differentiate between full ownership and partial/minor ownership, but cannot distinguish between partial ownership and minor ownership. We use a richer set of variables to denote the gradient of ownership and consider mortgage status to mitigate the bias caused by home ownership heterogeneity. Second, Lin *et al* (2012) use official statistics on property price increases, which is a macro-level measure of appreciation. We use property value appreciation, based on self-evaluation of one's own property, which is a more accurate indicator because it is specific to the individual. Third, three of these studies focused specifically on housing and subjective wellbeing use general population surveys from 2006 and 2009. These studies do not account for the rapid change in the housing market that has occurred over the last few years. Sun and Zheng (2013) uses data collected in 2010, but that study has the limitation that it focuses only on four megacities.

Fourth, the extant literature does not examine whether the relationship between home ownership and subjective wellbeing differs between important segments of the population, such as between the older and newer generation. Over the last few years, housing affordability has affected the younger generation (born in 1980 and thereafter) the most

(Zhu, 2013). As a result, the pattern of intergenerational housing support between retired older parents and their children in Chinese cities has become stronger (Li & Shin, 2014). However, the pattern of subjective wellbeing, conditional on home ownership and other housing factors among the older and younger generations is unknown.

4. Data

The data used in this study was collected in 2011 through the China Household Finance Survey (CHFS) administrated by Southwestern University of Finance and Economics in China. The 2011 CHFS employed a stratified three-stage probability proportion to size (PPS) random sample design. The first stage selected 80 counties (including county-level cities and districts) from 2,585 counties (primary sampling units, or PSUs) from all provinces and municipalities in mainland China except Xinjiang, Tibet and Inner Mongolia. The second stage selected four neighbourhood committees/villages from each of the selected PSUs at the first stage. The third stage selected 20-50 households (depending on the level of urbanization and economic development) from each of the neighbourhood committees/villages chosen at the previous stage. Every stage of sampling was carried out with the PPS method and weighted by population size.³

The 2011 CHFS collected information from 8,438 households consisting of 29,463 individuals from rural and urban areas. In this study, we used a sample of 5,229 urban respondents. Subjective wellbeing was measured by responses to the question: Overall, are you satisfied with your life? Responses were measured on a five-point Likert scale ranging from 1 = very dissatisfied to 5 = very satisfied. The survey contained various questions relating to home ownership, source of ownership, mortgage status, type of loan, housing tenure and housing conditions. The CHFS also collected data on the usual control variables that previous studies suggest are correlated with subjective wellbeing, such as human capital and political capital which are likely to have significant effects on the access of urban Chinese to homeownership (Liu & Mao, 2012).

[Tables 1 & 2 here]

Table 1 shows life satisfaction for homeowners and non-homeowners. For the full sample as well as subsamples based on gender, marital status, *hukou* (household registration) status and whether the respondent was born before, or after, 1980, the mean life satisfaction of homeowners is consistently higher than non-homeowners.

³ More details about data collection are available from the CHFS website: <http://www.chfsdata.org>.

Table 2 presents descriptive statistics on all variables used in the study. Just under half the sample were male, 84.93 per cent were married, 29.96 per cent held a rural *hukou*, 19 per cent were members of the Communist Party, 84.36 per cent were born before 1980 and 47.26 per cent lived in the relatively well-developed eastern region. The average years of schooling was 10.34 years and the average monthly income was 1358 RMB.

Overall, 87.74 per cent of the sample owned homes (ie. owned a home outright or with a mortgage). Just over 70 per cent of the sample owned one property, while 16.17 per cent owned more than one property. The average number of properties owned was 1.07. CHFS asked questions distinguishing between full ownership, partial ownership and minor ownership. Full ownership is where the owner has a property deed issued by state authority, which is transferrable in the housing market. Partial ownership is where the owner does not have a state-issued property deed. Partial property rights are usually acquired with housing purchased at prices subsidised by governments or enterprises. A partial property right gives a homeowner the right to use the property or to sell it after a certain period with restrictions on the treatment of capital gains. This is usually levied in the form of a land use fee (Chen, 1996). Minor homeownership refers to housing with limited property rights, built on collectively owned rural land and sold to buyers outside the collective ownership. Theoretically, this form of ownership is illegal in China, although in practice it is a common phenomena in urban villages and suburban areas (Chen, 2010; Deng, 2009). About 70 per cent of the sample had full ownership rights, 16.17 per cent had partial property rights and 7.21 per cent had minor property rights.

The survey contained information on the source of homeownership. The main sources of homeownership were purchasing (52.71 per cent) and self-built (33.73 per cent). About 5 per cent acquired the property through inheritance and 3 per cent were resettled following demolition or redevelopment. The construction of many of the properties in the final category are of poor quality and are removed from the city centre in which many resettled residents used to live. Moreover, it is more difficult to resell them in the market because of their vaguely defined ownership rights. Usually, the property rights in such homes take the form of partial or minor ownership. Ten per cent of the sample had a home loan. Of those with a home loan, 92.67 per cent had a commercial bank loan, 1.87 per cent had a housing provident fund loan and 5.46 per cent had a portfolio loan. Other property-related variables included length of time in the property (mean was 11.8 years); property size (mean was 99.59 square metres); whether the respondent thought the property in which he/she lived had appreciated in value (85.35 per cent considered it had) and whether the respondent expected interest rates and property prices to increase.

5. The model

We estimate the following empirical function:

$$LS_i = F(X_i, H_i, \varepsilon_i)$$

where LS is life satisfaction for the i th respondent; X is a vector of personal and regional characteristics; H is a vector of housing-related characteristics; and ε is the error term.

There are different methods to treat subjective wellbeing indicators. In a methodological paper, Ferrer-i-Carbonell and Frijters (2004) suggest that results are not sensitive to the choice of ordinary least squares (OLS), that treats subjective wellbeing variables as cardinal, or ordered probit/logit methods that treats them as ordinal. On theoretical grounds, Ng (1997, 2008) advocates treating subjective wellbeing as cardinal. In the main results we do so and use OLS; however, in the robust checks, presented later in the paper, we also present results in which we treat subjective wellbeing as being ordinal.

Ferrer-i-Carbonell and Frijters (2004) find that the determinants of subjective wellbeing are sensitive to standardisation for individual fixed effects in datasets, which lack variables controlling for personality. Standardization tends to reduce the size of positive coefficients on income because having a personality, which is conducive to higher subjective wellbeing, is also associated with having a higher income. This finding implies we should instrument for income and control for personality. In the robust checks below, we instrument for income. We control for personality by including variables measuring a range of expectations about the future and attitudes to risk. Previous research suggests that personality traits are correlated with expectations about the future (see eg. Oettingen & Mayer, 2002) and risk-taking behavior (see eg. Zuckerman & Kuhlman, 2000).

6. Results

The main results, estimated using OLS, are presented in Table 3. In Column (1) we examine the relationship between home ownership and subjective wellbeing, controlling for individual characteristics. The main finding is that the coefficient on the dummy variable for home ownership is positive and significant and that the life satisfaction of homeowners is 0.21 points higher than non-homeowners. In Column (2) we examine the relationship between the form of home ownership and subjective wellbeing, controlling for individual characteristics. The life satisfaction of those who have full ownership or partial ownership are 0.19 and 0.26 points higher, respectively, while the life satisfaction of those who have minor ownership is 0.13 points lower. This result highlights the

importance of unpacking home ownership in China. The negative coefficient on minor ownership, likely reflects the lack of security for property rights and inalienability and other restrictions imposed on the usage of the property. Given the insecurity of property rights, developers, as well as homeowners, tend to invest less in construction quality, property management and public facilities associated with the development reducing subjective wellbeing (Deng, 2009). Moreover, given many minor ownership developments occur on rural land in the outer suburbs and on the urban fringes, the negative coefficient on minor ownership might also be a reflection that owners are far removed from the amenities and attractions of living in the city proper (Hsing, 2010).

[Table 3 here]

In Column (3), in addition to individual characteristics and form of home ownership, we consider the number of properties one has, property size and property tenure. The sign and significance on form of home ownership is similar to Column (2). The coefficient on property tenure is negative and significant, while the coefficient on property size is positive and significant, but the magnitude is small. The number of full and minor ownership properties is positively related to life satisfaction. Each additional full ownership property one has, increases life satisfaction 0.08 points, while each additional minor ownership property one has, increases life satisfaction 0.23 points. This reflects that full and minor ownership properties are often more popular than partial ownership properties among investors, thus contributing positively to the life satisfaction of multi-property owners. The reasons are that full ownership properties are usually better protected by law, are built in better locales and appreciate faster than the other two ownership forms, while minor ownership properties are the easiest to rent out because they are the most affordable among these three types to low income tenants.

In Column (4), in addition to the variables considered in Column (3), we consider the source of ownership. With the exception of property tenure, which becomes insignificant, the sign and significance of the housing variables considered in both Columns (3) and (4) are similar. Compared with the reference case, purchased property, those with property acquired through inheritance, self-built or resettlement had lower life satisfaction. This finding is related to the quality and location of the housing. Inherited and self-built properties are usually older and more difficult to maintain. Properties acquired through resettlement are often of low quality and are located away from the city centre.

In Column (5), in addition to the variables considered in Column (4), we consider whether one has a home loan and the source of the home loan. The sign and significance of the other housing variables are similar to earlier specifications. The subjective

wellbeing of those with a home loan is 0.49 points lower than those without a home loan. Of those who do have a home loan, relative to those with a portfolio loan, those with a housing provident fund loan (0.55 points) and those with a commercial bank loan (0.50 points) have higher life satisfaction. This result reflects that applying for a portfolio loan is more complicated and one needs to pay additional fees and loan protection insurance.

The final column is the full specification in which, in addition to the variables in Column (5), we control for the individual's expectations. The findings for form of ownership, number of properties, source of ownership, whether one has a home loan and type of home loan, as well as housing characteristics are largely the same as in the earlier columns. Of the expectation variables, those who perceive better local public safety and those who are optimistic about the future of the economy have higher life satisfaction.

Finally, the results for individual characteristics in Table 3 are largely as expected and mostly consistent with previous studies (see Dolan *et al.*, 2008). The life satisfaction of males is 0.09-0.10 points lower than females. There is a U shape relationship between age and life satisfaction. There is a positive relationship between education and life satisfaction, with each additional year of schooling increasing life satisfaction by 0.01 points. Marriage increases life satisfaction by 0.26-0.32 points, while being a member of the Communist Party increases life satisfaction by 0.07-0.09 points. Each additional social insurance scheme in which one participates increases life satisfaction by 0.04-0.06 points. This is similar to the result in Wang *et al.* (2013). Income is insignificant, except in the final column in which the coefficient is negative and weakly significant. The magnitude of the coefficient, however, is very small. When we instrument for income, below, the coefficient on income in the full specification is positive and significant.

[Table 4 here]

Table 4 presents results for interaction effects between home ownership and number of properties owned and a range of expectations. The results in Column (1) suggest that homeowners who perceive local security is better, expect the economy to get better, expect house prices to increase or expect commodity prices to increase have higher life satisfaction. Meanwhile, those with a home loan who expect interest rates to rise, have lower life satisfaction. The results in Column (2) suggest that each additional property one owns increases life satisfaction by 0.18 points and that if one thinks that one's property has appreciated in value, one's life satisfaction is 0.12 points higher; however, number of properties interacted with thinking one's properties have appreciated in value is insignificant. The results in the third column distinguish between whether one owns one property or more than one property in terms of interaction with thinking that one's

property/properties have appreciated in value. The findings confirm that owning one property and owning more than one property is positively related to life satisfaction. Owning more than one property increases life satisfaction by approximately double (0.36 points) the amount that owning one property does (0.19 points). However, when both variables are interacted with property value appreciated, the coefficients are insignificant.

There are a couple of reasons that may explain why the interaction terms are insignificant. To cash in on property value appreciation, one needs to sell the property in the housing market. For single property owners, this is mostly unrealistic. For multi-property owners, the insignificant interaction terms may reflect the fact that in the past few years the Chinese authorities have been targeting multi-property owners in order to curtail property prices. This has made it difficult to cash in on property price appreciation. For example, the aforementioned 20 per cent capital gains tax introduced in 2013 is levied on sales of the second and subsequent properties of a household. This has resulted in a large number of spurious divorces in order to evade tax by reallocating properties between couples. It is also expected that a further tax, based on excess property area per capita, will be introduced in the near future, again targeting multi-property owners. While the survey was conducted before the introduction of the capital gains tax, since 2010 there have been increasing signals from the government that heavier taxes would be imposed upon multi-property owners, resulting in a strong expectation at the time of survey that new taxes on multi-property owners would be introduced within one or two years.

[Tables 5-8 here]

Tables 5-8 examine whether the effect of home ownership varies for different subgroups. Table 5 presents the results based on gender. Previous studies suggest that males and females have different views about housing. Specifically, it has been suggested that females are more likely to view their own house as a safety net than males and that owning a house will result in higher subjective wellbeing for females than males (Hu, 2013). The results in Table 5 are consistent with this conjecture. The coefficient on home ownership and number of properties owned is positive and significant for both genders, but both contribute more to life satisfaction for females than males.

Table 6 presents results for generation differences in home ownership and life satisfaction. In the first column we interact marital status with home ownership and with whether the individual was born after 1980. The results suggest that singles born after 1980 who are not homeowners have lower life satisfaction. This result is consistent with the observations that this cohort is under pressure in the marriage market to own a home

(Wei *et al.*, 2012; Zhang *et al.*, 2012a), and that owning a house at the early stage of the life cycle is important to Chinese people (Sun & Zheng, 2013).

In the second column we explore this result further by differentiating between single males and females born after 1980. The results suggest that for those born after 1980, not owning a home lowers life satisfaction for single males, but not single females. This result is consistent with the notion that as the male-to-female ratio rises in China, owning a house is becoming increasingly important for males to be competitive in the marriage market (Wei & Zhang, 2011). The final two columns of Table 6 confirm that not owning a home lowers life satisfaction for both people born before, and after, 1980.

Table 7 examines the relationship between home ownership and subjective wellbeing by differentiating respondents based on *hukou* status. The results suggest that not owning a home lowers life satisfaction for those with an urban *hukou*, but not for those with a rural *hukou*. This result is consistent with those with a rural *hukou*, most of whom are rural-urban migrants, as a group having much lower expectations than those with an urban *hukou*. Traditionally, most rural-urban migrants in Chinese cities have faced widespread discrimination in various facets of life. This extends to housing. Rural-urban migrants have been largely excluded from the mainstream housing distribution system. Acquiring either use rights or ownership rights for municipal and work unit housing, directly or through the secondary market has largely been out of the question for those without an urban *hukou* (Wu, 2002). As a result, traditionally most rural-urban migrants have resided in factory dormitories and never aspired to home ownership in the city. Reflecting low aspirations, not owning a home does not adversely effect their life satisfaction.

The results for those with a rural *hukou* in Table 7, however, mask over potential differences between rural-urban migrants born before 1980 and those born after 1980. Compared to rural-urban migrants born before 1980, rural-urban migrants born after 1980 are better educated, more socially connected, and have stronger awareness of their legal and socioeconomic rights. Different from their predecessors for whom return migration was the norm, many migrants born after 1980 aspire to settle in the cities, own a home and to be recognized as urban residents with the same rights as urban locals (Wang *et al.*, 2013). In Table 8 we interact *hukou* status with whether one was born before or after 1980, marital status and home ownership. Singles with an urban *hukou* who are not homeowners have lower life satisfaction, irrespective of whether they were born before, or after, 1980. For singles with a rural *hukou*, born before 1980, not being a homeowner has no effect on life satisfaction. However, for singles with a rural *hukou*, born after 1980,

not being a homeowner lowers life satisfaction. This finding reflects the fact that the reference group for the new generation of rural-urban migrants is increasingly those with an urban *hukou* and that they have similar aspirations, including home ownership.

7. Robust Checks

Knight and Gunatilaka (2010a) note that unobserved characteristics, such as personal energy, might increase income and subjective wellbeing or higher subjective wellbeing might rise income through higher productivity. Hence, income is endogenous. To address this point, following Gao and Smyth (2011) and Kingdon and Knight (2007), we instrumented for income using monthly household consumption expenditure. As Kingdon and Knight (2007, p.86) put it: “Expenditure seems to be a reasonable instrument for income since it is unlikely that measurement error in per capita income will be correlated with measurement error in per capita expenditure”. The results of the two-stage least squares regression for the full specification with consumption as an instrument are presented in Table 9. The result of a Durbin-Wu-Hausman chi-square endogeneity test rejects the null hypothesis that income is exogenous. The result of an underidentification test rejects the null hypothesis that consumption is not correlated with income. The result of a weak identification test did not reject the null hypothesis that consumption is strongly correlated with income. In sum, consumption is found to be a valid instrumental variable. In contrast to the OLS estimates in Column (6) of Table 3, the coefficient on income is positive and significant. This result is consistent with downward bias in the income variable in the OLS results, due to measurement error (Knight *et al.*, 1999). The key results for home ownership remain intact in that those who have full and partial ownership continue to have higher life satisfaction and those who inherited ownership continue to have lower life satisfaction, relative to those who purchased properties. However, whether one has a home loan, the type of home loan one has and the number of properties one has of various ownership forms become insignificant.

[Table 9 here]

Diaz-Serrano (2009) suggests that duration of residence might also be endogenous. This might be the case if people are more likely to move because they are not satisfied with their housing arrangements. Diaz-Serrano (2009) addresses this issue by re-estimating the specification excluding duration of residence. We do likewise for the full specification. The results are reported in Table 9. The findings are almost identical to those reported in Column (6) of Table 3. The only exception is that income is insignificant.

The results to this point treat subjective wellbeing as cardinal. The final two columns of Table 9 treat subjective wellbeing as ordinal. The ordered logit results in Table 9 do not

instrument for income so they are the ordinal equivalent of Column (6) in Table 3. The sign and significance of the variables in the ordered logit are almost the same as the OLS results in Column (6) of Table 3. The exception, again, is that income is insignificant. The final column of Table 9 presents the ordered logit results in which we instrument for income using consumption. These results are the ordinal equivalent of the two-stage least squares results presented in the first column of Table 9. There are more significant variables than in the two-stage least squares regression and the sign and significance for the housing variables are similar to the full specification in Table 3. To be specific, full and partial ownership is positively related to life satisfaction, while minor ownership is negatively related to life satisfaction. Duration of residence and property size are significant, but the coefficients are very small. Number of full and minor home ownership properties is positively correlated with life satisfaction. Home ownership acquired through inheritance and resettlement has a negative effect on life satisfaction, relative to purchasing in the market. Those with a home loan have lower life satisfaction. Of those with a home loan, those with a housing provident fund loan or commercial bank loan have higher life satisfaction than those with a portfolio loan. As with the two-stage least squares results, the coefficient on income is positive and significant.

8. Conclusion

There is now a large literature exploring the determinants of subjective wellbeing in China. There are, however, only a few studies that have focused on the relationship between home ownership and subjective wellbeing in China and each of these is limited in the sense that they do not fully capture the gradient of ownership types or explore differences across important subgroups. This is a surprising omission in the literature, given the increasing attention given to housing in Chinese public discourse. This study has contributed to further understanding the relationship between home ownership and subjective wellbeing in China. Features of the study are that we use a more recent dataset than previous studies, allow for a greater range of ownership forms, consider the source through which ownership was acquired and not only consider whether homeowners have a home loan, but also consider the source of the loan. In addition to the full sample, we explore the relationship between home ownership and subjective wellbeing based on gender, *hukou* status and generational differences and the interaction of these subgroups.

The main finding is that home ownership is positively correlated with life satisfaction. Breaking this down further, full ownership and partial ownership is positively related with life satisfaction, while minor ownership has a negative effect on life satisfaction. Having a home loan has a negative effect on life satisfaction, while for those with a home loan, having a housing provident fund loan or commercial bank loan results in higher life

satisfaction than having a portfolio loan. The source of home ownership also matters. Relative to those who purchased their homes, those who inherited their homes, built their homes or received them as part of a resettlement compensation package generally have lower life satisfaction. The coefficients on length of residence and property size were mostly very small in magnitude or insignificant. Among subgroups, owning a home was found to be more important for life satisfaction for females than males and for those with an urban *hukou* than rural *hukou*. We also found significant differences in the home ownership-life satisfaction nexus when *hukou* status was interacted with generational differences between migrants born before 1980 and those born after 1980.

The results have important public policy implications. At a base level, the results suggest that subjective wellbeing can be increased by promoting home ownership. However, this only tells part of the story. At a deeper level, the results suggest that not all home ownership forms are alike. Policies to promote full and partial ownership should be favoured over promoting minor ownership. The results for the source of ownership also speak to this point. Compared with purchasing in the market, acquiring property through resettlement schemes lower subjective wellbeing. The problem is that such schemes typically only provide very limited property rights in relatively poor quality housing, usually far removed from the city and with limited public amenities. The public policy implications is that the government can improve subjective wellbeing by laying the ground rules for stronger property rights in housing developments for resettlements and encouraging construction in locales closer to the city centre and in areas equipped with better infrastructure. The results also reveal that full and minor ownership properties are popular in the (informal) housing market, making multi-property owners of these two types happier. In fact, it has been a dilemma for the authorities to deal with the increasing volume of minor ownership properties which are essentially illegal but provide affordable housing for lower socio-economic status groups such as migrants (Song *et al.*, 2008). Our results support the suggestion to level up minor ownership with partial ownership by granting the former legal status. Nonetheless, this relates to the land use policy in China, and, thus, needs to be addressed in a broader legal and institutional framework.

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Table 1: Life Satisfaction by Home Ownership for Full Sample and Sub-samples

	Mean	Std. Dev.	Very dissatisfied (%)	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Very satisfied (%)
Full sample							
Homeownership (N=4558)	3.75	0.80	0.72	4.21	30.08	49.06	15.93
No homeownership (N=640)	3.50	0.89	2.34	8.44	38.13	39.06	12.03
Male							
Homeownership (N=2281)	3.75	0.79	0.70	4.16	30.69	48.62	15.83
No homeownership (N=273)	3.49	0.90	2.56	8.42	38.10	38.83	12.09
Female							
Homeownership (N=2278)	3.76	0.80	0.75	4.26	29.41	49.52	16.07
No homeownership (N=361)	3.51	0.88	1.94	8.29	38.23	39.34	11.91
Married							
Homeownership (N=3920)	3.78	0.77	0.46	3.55	29.57	50.23	16.20
No homeownership (N=446)	3.57	0.89	2.02	7.40	36.10	40.58	13.90
Unmarried							
Homeownership (N=595)	3.57	0.92	2.52	8.40	33.11	41.51	14.45
No homeownership (N=179)	3.32	0.86	2.79	11.17	43.58	36.31	6.15
Rural hukou							
Homeownership (N=1373)	3.71	0.79	0.73	4.37	32.12	48.36	14.42
No homeownership (N=179)	3.55	0.84	1.12	6.70	40.78	39.11	12.29
Urban hukou							
Homeownership (N=3174)	3.77	0.80	0.72	4.16	29.17	49.37	16.57
No homeownership (N=453)	3.48	0.91	2.65	9.27	37.31	39.07	11.70
Pre-1980 generation							
Homeownership (N=3950)	3.75	0.79	0.68	4.08	30.43	49.11	15.70
No homeownership (N=460)	3.48	0.91	2.39	10.00	36.74	38.91	11.96
Post-1980 generation							
Homeownership (N=638)	3.77	0.83	0.94	5.02	27.90	48.75	17.40
No homeownership (N=180)	3.55	0.85	2.22	4.44	41.67	39.44	12.22

Table 2: Descriptive Statistics

Variable	Mean or proportion
Life satisfaction level (very unsatisfied=1, unsatisfied=2, neutral=3, satisfied=4, very satisfied=5)	3.72
Male (%)	49.18
Age (years)	48.15
Schooling (years)	10.34
Married (%)	84.93
Household size	3.23
Rural <i>hukou</i> (%)	29.96
Chinese Communist Party (CCP) member (%)	19.04
Number of social insurance schemes participated	1.61
Monthly income (RMB/month in 2011)	1358.67
Monthly consumption (RMB/monthly in 2010)	606.49
Homeownership (%)	87.74
Own one property (%)	71.57
Own more than one property (%)	16.17
Own full homeownership property (%)	70.44
Own partial homeownership property (%)	15.37
Own minor homeownership property (%)	7.21
Number of properties owned	1.07
Number of full homeownership properties	0.85
Number of partial homeownership properties	0.11
Number of minor homeownership properties	0.08
Source of homeownership (%)	
Purchased	52.71
Inherited/transferred	4.54
Self-built	33.73
Resettled/compensated due to redevelopment/demolition	6.30
Others	2.73
Property tenure (years)	11.80
Property size (m ²)	99.59
Property value appreciated (%)	85.35
Has home loan (%)	10.08
Type of home loan (%)	
Housing provident fund loan	1.87
Commercial bank loan	92.67
Portfolio loan (combination of housing provident fund and commercial bank loans)	5.46
Local public safety ¹ (very poor=1, very good=5)	3.44
Risk aversion ² (highest=1, lowest=5)	2.24
Economy expectation ³ (very poor=1, very good=5)	3.78
Property price expectation ⁴ (decreases a lot=1, increases a lot=5)	3.79
Commodity price expectation ⁵ (decreases a lot=1, increases a lot=5)	4.14
Interest rate expectation ⁶ (decreases a lot=1, increases a lot=5)	3.75
Generation (%)	
Pre-1980 generation	84.36
Post-1980 generation	15.64
Region	
West	13.50
Central	39.24
East	47.26

Notes:

1. What is your perception of public safety in the locality?
2. Risk aversion: Which type of project would you invest in if you have the money? (1=unwilling to take any risk; 2=below-average risk and below-average return; 3= average risk and average return; 4= above-average risk and above-average return; 5=high risk and high return)
3. What is your expectation of China's economic prospects in the next three to five years?
4. What is your expectation of property prices in the coming year?
5. What is your expectation of commodity prices in the coming year?
6. What is your expectation of interest rates in the coming year?

Table 3: Determinants of Life Satisfaction (OLS Results)

	1		2		3		4		5		6	
Male (ref: female)	-0.0877***	(-3.34)	-0.0866***	(-3.29)	-0.0934***	(-3.22)	-0.0899***	(-3.10)	-0.0931***	(-3.18)	-0.0965***	(-3.41)
Age	-0.0535***	(-10.41)	-0.0529***	(-10.30)	-0.0553***	(-9.66)	-0.0546***	(-9.53)	-0.0545***	(-9.40)	-0.0478***	(-8.52)
Age ²	0.000563***	(11.40)	0.000560***	(11.31)	0.000574***	(10.50)	0.000565***	(10.33)	0.000562***	(10.19)	0.000498***	(9.35)
Schooling	0.0108**	(2.46)	0.0109**	(2.47)	0.0103**	(2.09)	0.00838*	(1.70)	0.00768	(1.54)	0.0112**	(2.32)
Married (ref: no)	0.320***	(8.59)	0.317***	(8.50)	0.295***	(6.94)	0.291***	(6.86)	0.282***	(6.59)	0.254***	(6.16)
Household size	-0.00485	(-0.47)	-0.00340	(-0.33)	-0.0197*	(-1.67)	-0.0181	(-1.54)	-0.0186	(-1.56)	-0.0118	(-1.03)
Rural <i>hukou</i> (ref: urban)	0.0246	(0.71)	0.0309	(0.88)	0.0229	(0.57)	0.0325	(0.79)	0.0292	(0.71)	0.0365	(0.92)
CCP member (ref: no)	0.0935***	(2.76)	0.0928***	(2.74)	0.0869**	(2.37)	0.0858**	(2.34)	0.0932**	(2.51)	0.0687*	(1.92)
No. of social insurance	0.0408***	(3.10)	0.0399***	(3.03)	0.0462***	(3.18)	0.0452***	(3.11)	0.0481***	(3.27)	0.0587***	(4.15)
LnIncome	-0.00266	(-0.53)	-0.00254	(-0.50)	-0.00301	(-0.53)	-0.00343	(-0.61)	-0.00476	(-0.83)	-0.00942*	(-1.72)
Homeownership (ref: no)	0.214***	(5.70)										
Own partial homeownership property (ref: no)			0.260***	(4.72)	0.379***	(3.55)	0.397***	(3.72)	0.389***	(3.61)	0.376***	(3.63)
Own full homeownership property (ref: no)			0.188***	(5.28)	0.248***	(2.86)	0.262***	(3.03)	0.235***	(2.65)	0.248***	(2.90)
Own minor homeownership property (ref: no)			-0.130*	(-1.85)	-0.177**	(-2.34)	-0.167**	(-2.19)	-0.160**	(-2.08)	-0.149**	(-2.02)
Property tenure					-0.00402**	(-2.33)	-0.00298	(-1.63)	-0.00320*	(-1.73)	-0.00408**	(-2.29)
Property size					0.000731***	(3.07)	0.000819***	(3.24)	0.000885***	(3.38)	0.000784***	(3.12)
No. of partial homeownership properties					0.0435	(0.98)	0.0497	(1.12)	0.0535	(1.19)	0.0569	(1.32)
No. of full homeownership properties					0.0819***	(2.68)	0.0812***	(2.66)	0.108***	(3.19)	0.0939***	(2.90)
No. of minor homeownership properties					0.231**	(2.50)	0.268***	(2.86)	0.266***	(2.83)	0.274***	(3.05)
Source of homeownership (ref: purchased)												
Inherited/transferred							-0.189***	(-2.61)	-0.189***	(-2.60)	-0.172**	(-2.46)
Self-built							-0.0699*	(-1.75)	-0.0695*	(-1.70)	-0.0448	(-1.14)
Resettled/compensated							-0.141***	(-2.58)	-0.139**	(-2.52)	-0.106**	(-1.99)
Others							-0.0346	(-0.42)	-0.0226	(-0.27)	0.00427	(0.05)
Home loan (ref: no)									-0.491***	(-3.24)	-0.489***	(-3.37)
Type of home loan (ref: portfolio loan)												
Housing provident fund loan									0.548***	(3.14)	0.546***	(3.26)
Commercial bank loan									0.495***	(3.08)	0.521***	(3.38)
Perceive better local public safety											0.155***	(10.14)
Express lower risk aversion											0.0145	(1.20)
Expect better economy											0.183***	(11.26)
Expect higher house price											-0.0235	(-1.47)
Expect higher commodity price											0.00312	(0.17)
Expect higher interest rate											0.0263	(1.30)
Region	Controlled		Controlled		Controlled		Controlled		Controlled		Controlled	
Constant	4.264***	(28.63)	4.257***	(28.54)	4.221***	(24.36)	4.217***	(24.33)	4.247***	(24.21)	2.765***	(12.70)
<i>N</i>	4127		4128		3318		3318		3231		3231	
adj. <i>R</i> ²	0.064		0.064		0.065		0.068		0.072		0.146	
<i>F</i>	22.71		19.71		12.52		11.01		10.23		17.71	
df_m	13		15		20		24		27		33	
df_r	4113		4112		3297		3293		3203		3197	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Determinants of Life Satisfaction (OLS Results with Interaction Effects)

	(1)		(2)		(3)	
Male (ref: female)	-0.0919***	(-3.26)	-0.0883***	(-3.36)	-0.0865***	(-3.29)
Age	-0.0529***	(-9.50)	-0.0531***	(-10.36)	-0.0541***	(-10.53)
Age ²	0.000543***	(10.26)	0.000562***	(11.38)	0.000570***	(11.52)
Schooling	0.0108**	(2.24)	0.00982**	(2.22)	0.00969**	(2.19)
Married (ref: no)	0.252***	(6.13)	0.331***	(8.91)	0.326***	(8.74)
Household size	-0.0120	(-1.05)	-0.00858	(-0.83)	-0.0107	(-1.04)
Rural <i>hukou</i> (ref: urban <i>hukou</i>)	0.0445	(1.13)	0.0252	(0.73)	0.0222	(0.64)
CCP member (ref: no)	0.0630*	(1.77)	0.0894***	(2.64)	0.0879***	(2.60)
No. of social insurance	0.0543***	(3.86)	0.0417***	(3.17)	0.0397***	(3.01)
LnIncome	-0.00588	(-1.08)	-0.00340	(-0.67)	-0.00349	(-0.69)
Homeownership (ref: no)	-0.0359	(-1.11)				
Home loan (ref: no)	0.220	(0.98)	-0.00857	(-0.20)	-0.00857	(-0.20)
Perceive better local public safety	0.110***	(2.89)				
Express lower risk aversion	0.00658	(0.25)				
Expect better economy	0.151***	(3.90)				
Expect higher house price	-0.0349	(-0.91)				
Expect higher commodity price	-0.000812	(-0.02)				
Expect higher interest rate	-0.0302	(-0.63)				
Homeownership × Perceive better local security	0.0333***	(3.82)				
Homeownership × Express lower risk aversion	0.0241	(0.85)				
Homeownership × Expect better economy	0.139***	(9.16)				
Homeownership × Expect higher house price	0.0119**	(4.29)				
Homeownership × Expect higher commodity price	0.00885*	(3.19)				
Homeownership × Expect higher interest rate	0.0704	(1.35)				
Home loan × Expect higher interest rate	-0.0587*	(-2.02)				
No. of properties owned			0.183**	(2.31)		
Property value appreciated (ref: no)			0.117**	(2.47)		
No. of properties owned × Property value appreciated			-0.102	(-1.23)		
Own one property (ref: no)					0.188**	(1.91)
Own more than one property (ref: no)					0.362**	(1.43)
Own one property × Property value appreciated					0.00209	(0.02)
Own more than one property × Property value appreciated					-0.0191	(-0.08)
Region	Controlled				Controlled	
Constant	3.490***	(10.03)			4.310***	(28.88)
<i>N</i>	4124		4124		4125	
adj. <i>R</i> ²	0.129		0.066		0.067	
<i>F</i>	22.48		20.38		18.45	
<i>df</i> _m	27		15		17	
<i>df</i> _r	4906		4108		4107	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Gender Differences in Home Ownership and Life Satisfaction

(1) Full sample		(2) Full sample		(3) Female sample		(4) Female sample		(5) Male sample		(6) Male sample	
Female × Homeownership	0.224*** (4.50)	Female × No. of properties owned	0.162*** (5.50)	Homeownership	0.245*** (4.83)	No. of properties owned	0.173*** (5.77)	Homeownership	0.138** (2.40)	No. of properties owned	0.0671** (2.59)
Male × Homeownership	0.157*** (2.75)	Male × No. of properties owned	0.0715*** (2.78)								
Other variables	Included		Included		Included		Included		Included		Included
<i>N</i>	4127		4124		2178		2176		1949		1948

Other variables include gender (in columns 1 and 2), age, age², education, marital status, household size, *hukou* status, CCP membership, social insurance, income, homeownership (except columns 4 and 6), number of properties owned (except columns 3 and 5) and region. The signs and levels of statistical significance of their coefficients are similar to Table 3. Full results are available from the authors.

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Generation Differences in Home Ownership and Life Satisfaction

(1) Full sample		(2) Full sample		(3) Pre-1980 generation sample		(4) Post-1980 generation sample	
Post-1980 generation × Single × No homeownership	-0.167*** (-1.49)	Post-1980 generation × Single female × No homeownership	-0.088 (-0.60)	No homeownership	-0.203*** (-4.69)	No homeownership	-0.167** (-2.05)
		Post-1980 generation × Single male × No homeownership	-0.250*** (-1.66)				
Other variables	Included		Included		Included		Included
<i>N</i>	4127		4127		3499		628

Other variables include age, education, marital status, household size, *hukou* status, CCP membership, social insurance, income, homeownership, generation (except columns 3 and 4), and region. The signs and levels of statistical significance of their coefficients are similar to Table 3, except that household size is a significantly positive variable at the 10 per cent level for the pre-1980 generation and that CCP membership and social insurance are insignificant variables for the post-1980 generation. Full results are available from the authors.

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7 Household Registration Status, Home Ownership and Life Satisfaction

	(1) Full sample	(2) Rural <i>hukou</i> sample	(3) Urban <i>hukou</i> sample
Rural <i>hukou</i> × No homeownership	-0.0749 (-1.00)	No homeownership -0.0840 (-1.10)	No homeownership -0.232*** (-5.29)
Urban <i>hukou</i> × No homeownership	-0.235*** (-5.41)		
Other variables	Included	Included	Included
<i>N</i>	4127	933	3194

Other variables include age, education, marital status, household size, *hukou* status (in column 1), CCP membership, social insurance, income, homeownership, and region. The signs and statistical significance of their coefficients similar to Table 3, except that rural *hukou* is significantly positive at 10 per cent level in column 1. Full results are available from the authors.

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Household Registration, Generation Differences, Home Ownership and Life Satisfaction

	Full sample
Rural <i>hukou</i> × Post-1980 generation × Single × No homeownership	-0.399** (-2.42)
Rural <i>hukou</i> × Pre-1980 generation × Single × No homeownership	0.0622 (0.25)
Urban <i>hukou</i> × Post-1980 generation × Single × No homeownership	-0.320** (2.34)
Urban <i>hukou</i> × Pre-1980 generation × Single × No homeownership	-0.319*** (-3.11)
Other variables	Included
<i>N</i>	4127

Other variables include gender, age, education, household size, *hukou* status, CCP membership, social insurance, income, generation, homeownership and region. The signs and levels of statistical significance of their coefficients are similar to Table 3. Full results are available from the authors.

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Robust Checks

	(1) OLS regression without property tenure		(2) TSLS regression with consumption as IV		(3) Ordered logit regression		(4) Ordered logit regression with consumption as IV	
Male (ref: female)	-0.0965***	(-3.44)	-0.753**	(-2.19)	-0.251***	(-3.44)	-0.112***	(-2.94)
Age	-0.0481***	(-8.69)	-0.0771***	(-3.91)	-0.129***	(-8.62)	-0.0656***	(-8.23)
Age ²	0.000495***	(9.41)	0.00150***	(2.85)	0.00134***	(9.41)	0.000689***	(8.99)
Schooling	0.0118**	(2.47)	0.0385**	(2.12)	0.0224*	(1.78)	0.00729	(1.10)
Married (ref: no)	0.263***	(6.45)	0.344***	(3.29)	0.626***	(5.80)	0.318***	(5.63)
Household size	-0.0121	(-1.07)	0.0327	(0.92)	-0.0349	(-1.19)	-0.00461	(-0.30)
Rural <i>hukou</i> (ref: urban)	0.0343	(0.87)	-0.824*	(-1.83)	0.0664	(0.65)	0.0470	(0.89)
Party member (ref: no)	0.0709**	(2.01)	0.0489	(0.59)	0.175*	(1.92)	0.0784	(1.63)
Social insurance	0.0567***	(4.04)	-0.962*	(-1.83)	0.143***	(3.89)	0.0691***	(3.59)
LnIncome	-0.00875	(-1.61)	0.639*	(1.91)	-0.0225	(-1.59)	0.103***	(5.21)
Own partial homeownership property (ref: no)	0.328***	(3.24)	0.605**	(2.25)	0.995***	(3.54)	0.473***	(3.41)
Own full homeownership property (ref: no)	0.198**	(2.40)	0.573**	(2.22)	0.630***	(2.83)	0.314***	(2.76)
Own minor homeownership property (ref: no)	-0.146**	(-2.00)	-0.163	(-0.95)	-0.366*	(-1.90)	-0.204**	(-2.07)
Property tenure	—		0.00313	(0.58)	-0.00902**	(-1.96)	-0.00525**	(-2.19)
Property size	0.000914***	(3.72)	-0.000332	(-0.41)	0.00220***	(3.32)	0.000915***	(2.70)
No. of partial homeownership properties	0.0566	(1.32)	0.0254	(0.25)	0.147	(1.13)	0.00677	(1.20)
No. of full homeownership properties	0.0953***	(2.97)	-0.0607	(-0.56)	0.267***	(3.13)	0.105**	(2.38)
No. of minor homeownership properties	0.242***	(2.73)	0.293	(1.40)	0.732***	(3.02)	0.334***	(2.79)
Source of homeownership (ref: purchased)								
Inherited/transferred	-0.190***	(-2.79)	-0.357*	(-1.83)	-0.394**	(-2.15)	-0.170*	(-1.81)
Self-built	-0.0767**	(-2.06)	-0.149	(-1.41)	-0.125	(-1.24)	-0.0471	(-0.90)
Resettled/compensated	-0.101*	(-1.92)	0.175	(0.90)	-0.259*	(-1.88)	-0.143**	(2.79)
Others	-0.00499	(-0.06)	0.182	(0.88)	0.0551	(0.27)	-0.000877	(-0.01)
Home loan (ref: no)	-0.469***	(-3.25)	-0.160	(-0.43)	-1.145***	(-2.93)	-0.606***	(-3.14)
Type of home loan (ref: portfolio loan)								
Housing provident fund loan	0.537***	(3.23)	0.121	(0.27)	1.304***	(2.94)	0.701***	(3.14)
Commercial bank loan	0.515***	(3.36)	-0.0269	(-0.06)	1.238***	(3.00)	0.657***	(3.21)
Perceive better local public safety	0.153***	(10.09)	0.0550	(0.91)	0.424***	(10.46)	0.202***	(9.17)
Express lower risk aversion	0.0143	(1.20)	-0.00178	(-0.06)	0.0382	(1.24)	0.0108	(0.67)
Expect better economy	0.181***	(11.28)	0.143***	(3.44)	0.490***	(11.28)	0.246***	(10.59)
Expect higher house price	-0.0234	(-1.48)	-0.0750*	(-1.68)	-0.0676	(-1.62)	-0.0299	(-1.39)
Expect higher commodity price	0.000338	(0.02)	-0.00665	(-0.16)	0.00951	(0.21)	-0.00148	(-0.06)
Expect higher interest rate	0.0241	(1.21)	0.0377	(0.80)	0.0727	(1.36)	0.0260	(0.97)
Region	Controlled		Controlled		Controlled		Controlled	
Constant	2.800***	(13.00)	1.548*	(1.85)				
Constant-cut1					-2.608***	(-4.39)	-0.913***	(-2.97)
Constant-cut2					-0.737	(-1.29)	-0.147	(-0.49)
Constant-cut3					1.790***	(3.15)	1.116***	(3.82)
Constant-cut4					4.329***	(7.55)	2.480***	(8.40)
<i>N</i>	3214		3186		3231		4147	
IV relevance and validity tests								
Endogeneity test: Durbin-Wu-Hausman F test (p-value)			0.00001					
Underidentification test: Anderson canon. corr. LM statistic (p-value)			0.0316					
Weak identification test: Cragg-Donald Wald F statistic (10% critical value)			4.578	(16.38)				

t statistics in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$