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## **Housing and urban identity among in-situ urbanized rural residents in China**

### **Running title**

housing and identity

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### **Data availability statement**

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## **Housing and identity expression among in-situ urbanized rural residents in China**

### **Abstract**

Housing is an important source of identity expression, but the influence of different housing attributes remains underexplored. Drawing on the “4Cs theory of housing” (housing cost, housing conditions, housing consistency, and housing context), this study established an analytical framework linking housing to in-situ urbanized rural residents’ identity expression in China. Using data from the 2018 Urbanization and Quality of Life Survey, the results show that different housing dimensions are significantly related to identity expression but in different ways. Specifically, housing conditions are primarily associated with urban identity, whereas housing consistency and housing context are significantly related to local identity. Moreover, the relationship between housing and identity expression varies between newly urbanized areas and potential sites for urbanization. The research contributes to understanding the relationship between housing and identity by further clarifying how various housing attributes affect identity expression in the context of urbanizing China.

### **Keywords:**

Housing; urban identity; local identity; in-situ urbanization; China

## 1 Introduction

Classic urbanization theories usually present urbanization as a process in which rural residents migrate to cities to seek job opportunities in the industrial sector and gradually become urban citizens. The recent urbanization experience in some Asian developing countries challenges this view. Many rural areas have become urbanized through in-situ urbanization (Handayani, 2013; McGee, 1991; Qadeer, 2004; Zhou et al., 2018; Zhu, 2017; Zhu, Wang, Lin, Shen, & Ren, 2021), a new form of urbanization that blurs the rural-urban dichotomy but has not drawn adequate scholarly attention (United Nations Population Fund, 2007).

In-situ urbanization refers to the process of transforming rural areas into urban or quasi-urban areas, within which the local rural residents change to urban or quasi-urban residents without experiencing geographical relocation (Zhu, 2017; Zhu et al., 2021). As a country experiencing the most rapid urbanization, the number of in-situ urbanized rural residents in China was estimated to be over 200 million (Chen, Davis, & Landry, 2017; Friedmann, 2005). Existing scholarship has mostly focused on the livelihoods and well-being of rural-urban migrants in Chinese cities (Du, Li, & Hao, 2018; Huang & Guo, 2017; Liu, Zhang, Liu, Li, & Wu, 2017; Liu, Zhang, Wu, Liu, & Li, 2017; Sheng & Zhao, 2021; Xiao, Miao, & Sarkar, 2021; Yue, Fong, Li, & Feldman, 2020), neglecting the prospects of rural residents who become urban residents due to in-situ urbanization. In-situ urbanized rural residents differ significantly from rural-urban migrants: the latter are proactive and self-determined in their desire for urbanization, while the former are passively urbanized. Chen *et al.* (2015) describe the passive urbanization of in-situ urbanized rural residents, noting that “rather than go to the city, the city came to them.” As their communities are dramatically transformed from rural to urban in a relatively short time, in-situ urbanized rural residents are required to adapt physically and psychologically, a process that affects their relationships, identity, and well-being.

Against this background, this study examines how housing affects the identity expression of in-situ urbanized rural residents in the context of urbanizing China. Identity can be defined as the extent to which people view themselves as members of a specific social group (Tajfel, 1978; Tajfel & Turner, 1986; Turner, 1985). Previous studies have shown that housing, particularly

homeownership, is an important source of identity expression (Cuba & Hummon, 1993; Hauge, 2007, 2009; Hauge & Kolstad, 2007; Hidalgo & Hernández, 2001). However, since housing comprises many attributes, how various housing attributes affect identity expression remains unclear. In addition, as will be explained later, the concept of identity expression in the unique social context of urban China involves different dimensions, and how various housing attributes affect different dimensions of identity expression remains to be explored.

Our study thus contributes to the literature in three ways. First, previous studies have largely emphasized the influence of physical environment on identity (Hauge & Kolstad, 2007; Lewicka, 2011), while the influence of housing context on identity has received less attention. Second, the few studies on housing and identity are largely based on theoretical analysis or qualitative research (Hauge, 2007, 2009; Hauge & Kolstad, 2007), whereas little quantitative research has investigated the relationship between housing and identity. Moreover, previous studies on housing and identity have often regarded housing as a unified entity without clarifying how its various attributes affect identity expression. This study represents a response to these challenges through investigating the relationship between housing and identity expression of in-situ urbanized rural residents based on a nationwide survey conducted in 40 localities undergoing rural-urban transition in China.

## **2. Literature review**

### *2.1 Housing and identity*

Identity refers to how people differentiate themselves from others and categorize themselves as belonging to a specific social group (Abrams & Hogg, 1988; Schwartz, Montgomery, & Briones, 2006; Tajfel, 1978; Tajfel & Turner, 1986; Turner, 1985). According to identity theory, people engage in social categorization. They tend to view those who share similar ideas, beliefs, preferences, and values as an “in” group and those who are different from them as an “out” group (Tajfel, 1978; Tajfel & Turner, 1986; Turner, 1985). Social categorization is not without purpose: it enables people to clarify their relations with others and their position in the social fabric which enable them to take actions that confirm the expectations associated with the identity they have forged.

There are many dimensions of identity, including personal identity, social identity, place identity, and urban identity (Bernardo & Palma-Oliveira, 2016; Brieger, 2019; Oktay, 2002, 2017; Oktay & Bala, 2015; Tajfel, 1978; Tajfel & Turner, 1986; Trąbka, 2019; Turner, 1985; Ziyadeh, 2018), that are strongly inter-related. For instance, some scholars regard place identity as a substructure of the more general social identity or self-identity (Casakin, Hernández, & Ruiz, 2015; Hauge, 2007; Hauge & Kolstad, 2007; Lalli, 1988; Proshansky, Fabian, & Kaminoff, 1983), whereas others suggest a substantial overlap between social identity and place identity (Graumann, 1983; Stets & Burke, 2000). Also, other researchers consider that identity is a dynamic process: depending on the social context, people may choose the most convenient identity for social communications (Bernardo & Palma-Oliveira, 2016; Turner, Onorato, & Onorato, 1999).

Housing is an important source of identity expression, symbolizing social status, power, and wealth that are significant factors of self-identification (Adams, 1984; Hauge & Kolstad, 2007). As a possession, an individual's type of housing provides information about their self (Goffman, 1959), because homeownership and identity are closely related (Blum & Kingston, 1984; Brown, Perkins, & Brown, 2003; Constant, Roberts, & Zimmermann, 2009). Housing facilitates various behaviors, activities, and social relations (Després, 1991; Hauge, 2009), serving to communicate a person's place in the social fabric (Adams, 1984). In all these ways, housing plays an important role in identity expression.

Empirical studies on housing and identity mostly focus on the role of homeownership (Blum & Kingston, 1984; Constant et al., 2009). Indeed, homeowners often show a stronger sense of place attachment (Brown et al., 2003). However, Windsong (2010) cautions that homeownership is not always synonymous with place attachment, suggesting that other housing attributes also play a role in determining people's identity expression. In addition, the relationship between housing and identity might be moderated or mediated by other factors. For instance, family functioning and feelings of control mediate the relationship between privacy regulation in a house and place identity (Harris, Brown, & Werner, 1996). Moreover, the relationship between housing and identity is heterogeneous: some people are very concerned about the presentation of self through housing, some show awareness of it when

asked about it, and others have not thought much about it (Hauge & Kolstad, 2007).

## *2.2 Urban identity vs. local identity*

Urban centers in China are described as “cities with invisible walls” (Chan, 1994). This phenomenon is primarily due to the broad influence of the *hukou* system, which documents the residential status of Chinese people and determines their access to social services. Before China’s reforms in the 1980s, people with urban *hukou* had more favorable entitlement to social services than those with rural *hukou*. Since the 1980s, the registration location of *hukou* has played an important role in determining welfare entitlement because the decentralization policy has led local governments to take charge of social welfare provision (Shi, 2012). Local governments generally provide social welfare only to people with local *hukou* status.

The *hukou* policy has had a substantial influence on Chinese residents’ livelihoods and well-being. Its consequences can be described as both “hard” and “soft.” The hard effects are evident in its influence on individuals’ objective well-being, such as employment, income, and social welfare. The soft effects are evident in its influence on individuals’ subjective well-being. Soft effects are particularly significant for rural-urban migrants and in-situ urbanized rural residents. Often, rural-urban migrants suffer from discrimination and are considered outsiders because they have neither urban nor local *hukou* status (Du et al., 2018). While in-situ urbanized rural residents hold a local *hukou*, or even an urban *hukou*, they may still face discrimination or prejudice because they were formerly rural residents and have become urbanized due to an external process. They are not considered “real” urban residents by original urbanites, who feel that in-situ urbanized rural residents hold on to rural customs and lifestyles that are incompatible with urban standards.

Identity expression in Chinese cities is hence signified by two variables. The first is whether a person views themselves as an urbanite or an agricultural laborer. This determines the extent to which residents see themselves as members of the urban social group. The second is whether a person views themselves as a local or non-local person. This determines the extent to which residents still see themselves as locals as the status of their place of residence transitions to urban. In this article, we use the term “urban identity” to refer to in-situ urbanized rural

residents' self-categorization as urban residents and "local identity" to refer to in-situ urbanized rural residents' self-categorization as local residents.

Notably, the concepts of both "urban identity" and "local identity" used in our study are different from the definitions used in other social contexts, such as Lalli (1988, 1992), Oktay (2002, 2017), Valera and Guàrdia (2002), and Cheshmehzangi (2015). We treat them as additional concepts going beyond the existing research and try to capture the unique social characteristic of urban China. On the one hand, urban identity reflects the big difference between the city and the countryside in China. Population urbanization can thus be viewed as a process enabling rural people to break the "invisible wall", spatially as well as psychologically. On the other hand, local identity mirrors social inclusion/exclusion from a local perspective, that is, local people tend to distinguish themselves from those who are from other areas.

Urban identity and local identity differ from each other. The former measures identity expression based on urban/rural origins, derived from the assumption that the lifestyles of rural people and urban people are different. In fact, this assumption has a strong tradition in urban sociology that the lifestyle of the city is viewed as more rational, independent, and modern, while the countryside way of life is viewed as more neighborly, collectivist, and traditional (Tonnie, 2017). The difference in welfare conditions between rural and urban people in China further affords the concept of urban identity significant social meanings. The latter is a measure of identity expression related to residential region, based on the assumption that people who are from the same region have more in common in dialects, customs, and behaviors. Previous studies have shown that space or administrative units significantly shape people's identity (Gupta & Ferguson, 1992; Hirst & Humphreys, 2020).

### *2.3 In-situ urbanized rural residents' identity expression*

There are many driving forces of in-situ urbanization. One typical way is through the development of township and village enterprises (Zhu, 2000, 2002, 2017; Zhu et al., 2021). Expansion of large cities and promotion of local elites are also important driving factors (Li, Chen, & Liu, 2012). However, in-situ urbanization does not necessarily mean that the relevant areas have completely undergone spatial, social, and economic urbanization. In fact, following

in-situ urbanization, many rural areas have not been well incorporated into the urban social and administrative system in China (Chen et al., 2021). In addition, local governments may have expropriated farmers' land but have neither incorporated them into the urban social welfare system nor provided them with employment support or housing resettlement (He, Liu, Webster, & Wu, 2009; Li, Wang, & Song, 2018; Li, 2007; Yu & Zhang, 2006). This leads to the problem of landless farmers who end up living in urban villages or the urban fringe but without access to the urban welfare systems.

In-situ urbanization significantly affects both urban identity and local identity expression of in-situ urbanized rural residents. For one thing, according to Wirth (1938), who views urbanism as a way of life, as one type of urbanization, in-situ urbanization changes population scale, density, and diversity. Changes in population structure affect social ties of in-situ urbanized rural residents, and changes in social ties and interactions influence the social identification of in-situ urbanized rural residents. For another thing, in-situ urbanization often leads to changes in social relations. The transformation from rural to urban reshapes the previous acquaintance society, often accompanied by identity perplexity among the urbanized rural residents (Ran, 2016). Thus, in-situ urbanized rural residents' sense of local belonging may decline, and their identification with the urban society may evolve during the process. Besides, in-situ urbanization often involves land requisition and residential relocation. When people relocate, their identity changes. Local identity may no longer be so strong, and urban identity needs to go through a shaping process.

A number of studies have investigated the identity expression of in-situ urbanized rural residents, and the capacities for sustainable livelihood and social networks are reported as the key determinants of urban identity. For one thing, employment, compensation for land expropriation, and the social security system are absolutely critical to enable in-situ urbanized rural residents to enjoy a stable and sustainable life in the city (He et al., 2009; Li et al., 2018; Li, 2007; Li & Xu, 2011; Mao, 2009). For another thing, the social contact between in-situ urbanized rural residents and other urban residents, urban locals in particular, is crucial to enable them to form social networks in the city (Li & Xu, 2011; Shen & Li, 2010; Yu & Zhang, 2006; Zhang & Tong, 2006). Trans-group contact is the foundation of shaping their urban

identity. However, several studies have found that in-situ urbanized rural residents' urban identity integration is not very good (Li, 2007; Mao, 2009; Yao, 2011; Yu & Zhang, 2006; Zhang & Tong, 2006). This is mainly due to the low level of compensation for land acquisition, insufficient levels of social security and public services, difficulty in finding jobs, and the lack of social contact in cities (He et al., 2009; Li et al., 2018). Following urbanization, their quality of life has not significantly improved; for some, it has even declined.

The considerable body of research remains insufficient though. First, studies have failed to distinguish the differences between local identity and urban identity, which is a unique trait of identity expression among residents in urbanizing China. Second, the important role of housing in shaping in-situ urbanized rural residents' identity expression has been neglected. In particular, there is no analytical framework on how housing affects identity expression. Third, previous studies on in-situ urbanized rural residents have usually relied on data collected in a single city, and evidence drawn from national representative data remains scarce.

### **3 Linking housing to identity expression among in-situ urbanized rural residents**

Theoretically, differences in housing conditions will generate variations in identity expression. Although many studies have explored how housing affects identity, there is currently no integrated theoretical framework on the relationship between housing and identity. This study draws on "the 4Cs theory of housing" and establishes an analytical framework linking housing to identity expression. The 4Cs theory argues that the impact of housing on people's well-being spans four pillars: cost, conditions, consistency, and context (Swope & Hernández, 2019). Based on this conceptual model, this study endeavors to explain how housing affects identity of in-situ urbanized rural residents in China.

*Cost* denotes housing affordability, that is, whether residents can afford the cost of the housing in relation to their current income. Generally, people with higher incomes are more likely to reside in areas with better housing conditions. In contrast, low-income people tend to live in housing with poor conditions located on the urban fringe. Such income-based population agglomeration tangibly and invisibly shapes people's identity expression. Previous studies have shown that housing represents residents' social status and wealth that are

significant factors of self-identification (Adams, 1984; Hauge & Kolstad, 2007). In-situ urbanized rural residents may reside in different areas based on their housing affordability, which will significantly affect their identity expression.

*Conditions* include the physical and environmental conditions of the building. According to Nasar (1989), housing affects identity through formal aesthetics that mainly refer to housing conditions such as shape, scale, space, and quality. Housing conditions shape identity because these attributes facilitate various behaviors, activities, and social relations (Després, 1991; Hauge, 2009), determining the individual's place in the social fabric (Adams, 1984). In-situ urbanized rural residents live in various types of housing with distinct conditions. We would, therefore, expect that housing conditions will be significantly associated with their identity expression.

*Consistency* represents residential stability, in other words, whether residents are able to live in their homes if they wish to do so. Residential instability is often associated with involuntary moves such as resettlement and the inability to afford rising rents or mortgage payments (Burgard, Seefeldt, & Zelner, 2012; Swope & Hernández, 2019; Vijayaraghavan et al., 2013). Frequent relocation may undermine a person's sense of belonging to a place because, on the one hand, moving due to economic pressure may force the individual to move into the fringe of the city; on the other hand, every move means the fracture and re-establishment of social relations. People who enjoy housing consistency are more likely to form a stable sense of identity with a place. In-situ urbanized rural residents may experience land requisition and residential relocation that will inevitably affect their housing consistency.

*Context* describes the neighborhood conditions of the housing. Housing creates associations, representing the meaning through which individuals associate with the physical and social environment (Cold, 2001; Hauge, 2009; Nasar, 1989). From this perspective, housing does not simply exist; rather, it is made (Hauge, 2009). That is, housing can also be viewed as relationships with family and friends around it (Després, 1991), and it is a process of creating and understanding forms of belonging and attachment (Blunt & Dowling, 2006). In-situ urbanization is usually accompanied by housing relocation or resettlement, which results in a

change in neighborhood relations. Thus, we may expect housing context to be a significant determinant of identity expression.

Noticeably, the impact of different housing dimensions on in-situ urbanized rural residents' identity expression may show variations. Whether in-situ urbanized residents view themselves as members of the urban social group is more likely to be based on housing's external and internal functions. This is because, first, factors such as housing price, type, and size indicate people's social status and wealth as well as their position in urban society, which is an important factor of self-identification (Adams, 1984; Hauge & Kolstad, 2007). Second, housing conditions determine whether their needs as urban residents are met. Previous studies have shown that good housing conditions can improve life satisfaction (Fernández-Portero, Alarcón, & Barrios Padura, 2017; Oswald, Wahl, Mollenkopf, & Schilling, 2003; F. Zhang, Zhang, & Hudson, 2018), whereas being ill-housed can mean deprivation of capabilities (Foley, 1980). Before urbanization, in-situ urbanized rural residents lived in housing suitable for a rural lifestyle which helped shape their identity as members of the rural social group. Following urbanization, the functions of housing adapt to the urban lifestyle. The adjustment will shape and reinforce in-situ urbanized rural residents' urban identity. Based on these speculations, we propose the first two hypotheses:

***Hypothesis 1:*** Housing cost is significantly related to in-situ urbanized rural residents' urban identity.

***Hypothesis 2:*** Housing condition is significantly related to in-situ urbanized rural residents' urban identity.

Nonetheless, we do not have a certain expectation on the relationship between housing cost and housing conditions and in-situ urbanized rural residents' local identity. This is because it is not clear to what extent these factors may contribute to differentiating them from other local people's dialects, customs, and values, and thus shaping their local identity. Therefore, we do not propose any hypothesis about the links between housing cost and housing conditions and in-situ urbanized rural residents' local identity.

Whether in-situ urbanized residents view themselves as local people is more likely to be

influenced by housing's social functions such as housing consistency and housing context. On the one hand, a stable residence facilitates people to establish relations with a place, which gradually shapes people's identification with the place (Cold, 2001; Hauge, 2007, 2009), whereas frequent mobility undermines their attachment (Relph, 1976; Tuan, 1977). On the other hand, neighborhood relationships enrich people's social ties around their place of residence, making them feel it is reliable and trustworthy. Previous studies have reported that neighborhood ties and sense of belonging to a place are significantly related to each other (Lewicka, 2005, 2011; Mesch & Manor, 1998). Accordingly, we propose the following two hypotheses:

**Hypothesis 3:** Housing consistency is significantly related to in-situ urbanized rural residents' local identity.

**Hypothesis 4:** Housing context is significantly related to in-situ urbanized rural residents' local identity.

However, how housing consistency and housing context might affect in-situ urbanized rural residents' urban identity is not clear based on existing literature. We thus do not propose any hypothesis about the links between these factors and in-situ urbanized rural residents' urban identity.

## **4 Research design**

### **4.1 Data**

We used data from the 2018 Urbanization and Quality of Life Survey—a geographical information system (GIS) assisted household survey conducted nationwide in China. The primary sampling units (PSUs) were 40 township-level administrative units, comprising 32 urban districts (*jiedaos*) and towns (*zhens*) in newly-urbanized areas, and eight towns (*zhens*) that were considered potential sites for urbanization. Half of the PSUs were drawn from the list of townships in the 2014 National New Urbanization Comprehensive Pilot Program (National Development and Reform Commission of China, 2014), among which 16 were townships that underwent rural-urban reclassification (i.e., that were classified as rural before

2000 and were incorporated into urban districts under prefectural-level or centrally administered municipalities or urban centers of counties after 2000; at the neighborhood level, although in-situ urbanization may have taken place on the ground, majority of the actual selected localities have not been reclassified as “urban”). Four with the shortest distance to a prefectural center were chosen as potential sites for urbanization. The other half consisted of 20 localities (16 undergoing rural-urban reclassification and four as potential sites for urbanization) that were selected from non-pilot areas using the Coarsened Exact Matching (CEM) technique (Iacus, King, & Porro, 2012). The map in Figure 1 shows the 40 townships selected for the survey distributed over 17 provinces, 37 prefectures, and 40 counties.

—Figure 1 around here—

Once the 40 PSUs were selected, we organized a detailed GIS within each PSU to aggregate information at the arc-minute level and create spatial sampling frames of physical areas. Within each PSU we then randomly selected four secondary sampling units (SSUs), which were half square minutes of latitude and longitude—approximately 0.8 square kilometers. Because spatial sampling units are unnatural blocks (squares defined by precise coordinates), the samplers used geographical positioning system (GPS) receivers to identify unit boundaries. All households residing within these small “spatial blocks” were enumerated. Within each household, one participant residing in the township for more than six months was selected using the Kish grid—a pre-assigned table of random numbers commonly used in survey research to determine which person in a household to interview (Landry & Shen, 2005).

The survey was completed between April and June 2018, through face-to-face interviews using the computer-assisted personal interviewing (CAPI) system. The target population was residents in the 40 townships aged between 18 and 75 years, regardless of their *hukou* status. The authors’ employing institutes provided ethical approval for the study. All participants provided informed consent before participation. We sampled 4,949 valid household addresses and completed 3,229 interviews, a response rate of 65.2%. The completed interviews were sufficient to achieve a confidence level of 95% and an absolute sampling error no greater than 5%. Post-stratification weights were generated to adjust the data on the

individuals in the sample to that of the 2010 China Township Population Census Data on key variables such as gender and migration status.

We included the potential sites for urbanization in data analysis because in-situ urbanization was also happening in these locations although they have not been reclassified as “urban” administratively. They can be viewed as a control group and mirrors how housing affects identity expression of in-situ urbanized rural residents in various scenarios/stages of urbanization. We conducted heterogeneity analysis by dividing the data into two groups (newly urbanized areas versus potential sites for urbanization) for comparison. Participants who were cross-town migrants and observations with extreme values (e.g., average housing size over 500 square meters per person) were dropped from the analysis, leaving 2,791 observations for the analysis.

#### **4.2 Measures**

The dependent variable was the identity (including urban identity and local identity) of in-situ urbanized rural residents. Previous researchers have measured urban residents’ identity in various ways (e.g., Lalli, 1992; Belanche et al., 2017; Casakin et al., 2015). In the context of urbanizing China, urban residents’ identity expression is often operationalized as a dichotomous variable that cannot reflect the transitioning stage (Wang & Fan, 2012; Yue et al., 2013). In our study, urban identity was measured by responses to the question, “To what extent would you consider yourself as an urbanite (*cheng li ren* in Chinese)?” Responses ranged from 1 (“very little”) to 7 (“very much”). Local identity was measured by responses to the question, “To what extent would you consider yourself a local person (*ben di ren* in Chinese)?” Again, responses ranged from 1 (“very little”) to 7 (“very much”). We treated both urban Identity and local identity as continuous variables.

The key independent variables were various housing attributes, including housing cost, conditions, consistency, and context. Housing cost was assessed by in-situ urbanized rural residents’ housing affordability calculated as the ratio of housing expenditure to income. Housing expenditure was calculated as the total housing expenditure during the previous month, and income was calculated as the average household income per month. Housing

conditions included housing type, housing size, and housing quality. We divided housing type into five categories: self-built housing, commercial housing, public housing, resettlement housing, and temporary housing (shelters or shacks). Housing quality was measured by a housing quality scale comprising eight items based on previous studies (Logan, Bian, & Bian, 1999; Pan, 2004; W. Wu, 2004; Xie, 2019) (see supplementary material Table S1). We added the scores of the eight items and used the total score to represent housing quality. Housing size was measured by the housing area per capita within a household. Housing consistency was measured by home ownership and intention to move. Home ownership was categorized as either self-owned housing or rental/other housing. Intention to move was measured by responses to the question: “Do you intend to move to a new house in the next three years?” Responses were coded dichotomously: 0 (“No intention to move”) and 1 (“Move”). Housing context was measured by neighborhood relationship according answers to the question: “How friendly do you think your neighbors are?” Responses ranged from 1 (“very unfriendly”) to 5 (“very friendly”).

Our analysis also included individual-level variables: gender, age, marital status, years of education, employment status, household wealth, household size, urban social welfare participation, farmland ownership, birthplace, and *hukou* type. Employment status was categorized according to the participant’s current occupation, distinguished as: professional/managerial, non-manual general, manual general, farmer, and currently not working. Household wealth was calculated by an index based on ownership of a number of consumer items, such as an LCD TV and a car. The index ranged from 0 (poor) to 7 (rich). We used the household wealth index instead of household income because previous studies have demonstrated that this can more precisely reflect a family’s socio-economic status than direct inquiry about income in a survey from which significant data are missing (Abrams & Hogg, 1988; Chen *et al.*, 2015; Landry *et al.*, 2010). Household size was represented by the total number of people living together within the sampled household. Urban social welfare participation was measured by the total number of urban social insurances in which in-situ urbanized rural residents participated, including pension, medical insurance, unemployment insurance, work injury insurance, maternity insurance, and housing provident fund. These six

programs comprise the most critical social welfare package in urban China (Xie, Chen, Ritakallio, & Leng, 2021). Farmland ownership was measured by whether or not the family owned farmland. *Hukou* type was identified as urban or rural *hukou*.

The analysis also took into account four county-level factors: population size, population density, population heterogeneity, and GDP per capita. Wirth (1938) maintains that the population traits of a city—population size, density, and heterogeneity—significantly influence urban residents' identity. Therefore, we controlled these three factors in the analysis. Population size was measured by the total population of the city at the prefecture-level, which is a key indicator of city size in the Chinese urban administrative system. Population density was measured by the number of people per square kilometer at the county level. Population heterogeneity was measured by the proportion of the migrant population within the county. In addition, we included county GDP per capita to control variations in economic development.

### 4.3 Analysis

Since the data involved a hierarchical structure, identity expression of in-situ urbanized rural residents from the same administrative unit was likely to be clustered. In addition, the purpose of this study was to explain the effect of housing on identity expression by taking account of information at both the individual and macro levels. Therefore, we employed multilevel modeling to estimate how housing affected in-situ urbanized rural residents' identity. We used the random intercept model to analyze the direct effect of population size, population density, population scale, and GDP per capita at the county level on identity expression. The first level is given by the equation (1):

$$y_{ij} = \gamma_{0j} + B_{ij}X_{ij} + \epsilon_{ij} \quad (1)$$

$y_{ij}$  represents the identity of individual  $i$  in  $j$  county.  $\gamma_{0j}$  denotes the random intercept.  $X_{ij}$  denotes individual level factors that are assumed to be associated with the identity of in-situ urbanized rural residents.  $\epsilon_{ij}$  is the first level disturbance.

The second level equation for random intercept  $\gamma_{0j}$  is given by:

$$\gamma_{0j} = \beta_{00} + \beta_{01}Size + \beta_{02}Density + \beta_{03}Diversity + \beta_{04}GDP + u_{0j} \quad (2)$$

Equation (2) means that the random intercept is modeled by population size, population density, population heterogeneity, and GDP per capita.  $\beta_{00}$  is the mean intercept and  $u_{0j}$  is the second level disturbance. After inserting equation (2) into equation (1), the random intercept model is:

$$y_{ij} = \beta_{00} + \beta_{01}GDP + \beta_{02}Size + \beta_{03}Density + \beta_{04}Diversity + B_{ij}X_{ij} + u_j + \epsilon_{ij} \quad (3)$$

We utilized the imputation method in Stata 14.0 to input missing values for housing type, household size, housing size, neighborhood relationship, and housing cost. Post-stratification weights were applied throughout the analysis.

## 5 Results

### 5.1 Sample characteristics

Descriptive statistics of the sample are reported in Table 1. Males and females represented 49% and 51% of the sample, respectively. The mean age of participants was around 53 years. Approximately 81% were married or cohabiting, 7% were single, and 12% were divorced or widowed. Nearly three-quarters were locally born. Their average length of education was seven years. On the household wealth index, the sample average was around 2.28. Less than half of participants were currently working. The average household size was around three. Nearly 85% of participants still held rural *hukou*, indicating that following in-situ urbanization, most in-situ urbanized rural residents had not obtained urban *hukou*. In other words, “population urbanization” lagged behind “land urbanization”.

—Table 1 around here—

Table 2 presents the housing conditions of in-situ urbanized rural residents. Housing expenditure accounted for about 20% of family income. Eighty-three percent lived in self-built housing, 8% in commercial housing, 3% in public housing, 4% in resettlement housing, and 3% in temporary housing. These figures indicate that in-situ urbanization did not necessarily result in a move into newly-built housing provided by real estate developers or local governments. Most in-situ urbanized rural residents still lived in original self-built housing located on the edge of the city, but their residences were likely to become more integrated

into the fabric of the city as time went on. Most participants (96%) owned their house, and 4% lived in rental or other housing. The average score of the housing quality index was 10, and the average size was 55 square meters per person.

As noted, the study also identified differences in the housing conditions of people in newly urbanized areas and those residing in potential sites for urbanization. Table 2 shows the significant differences in housing cost ( $T=-4.00$ ,  $p<0.001$ ), housing type ( $\chi^2=156.48$ ,  $p<0.001$ ), housing quality ( $T=11.78$ ,  $p<0.001$ ), homeownership ( $\chi^2=16.60$ ,  $p<0.001$ ), housing stability ( $\chi^2=18.84$ ,  $p<0.001$ ), and neighborhood relationships ( $T=5.24$ ,  $p<0.001$ ). The results suggest that in-situ urbanization resulted in a substantial change in housing conditions.

—Table 2 around here—

We calculated the average scores for in-situ urbanized rural residents' local identity and urban identity (Table 1). The mean value of urban identity was only 2.13, indicating that most participants did not view themselves as urbanites. Even though they had experienced in-situ urbanization, their experience had not ensured that they considered themselves members of urban society. In contrast, the average local identity score was 6.72, suggesting that most participants regarded themselves as locals. This is not surprising. In-situ urbanized rural residents were locally born and bred, so they were likely to have a strong sense of place attachment. We also examined if urban identity and local identity were statistically correlated. Pearson coefficient showed a non-significant correlation between the two variables ( $r=-0.036$ ,  $p=0.056$ ), suggesting that urban identity and local identity are two distinct dimensions of identity expression. Therefore, it is reasonable to consider them separately when estimating their relationship with housing.

Figure 2 presents the differences in identity expression between residents in newly urbanized areas and in sites for potential urbanization. It shows that residents in newly urbanized areas tended to have stronger urban identity than residents in potential in-situ urbanization areas ( $T=10.75$ ,  $p<0.001$ ). Still, residents in newly urbanized areas tended to have weaker local identity than residents in potential in-situ urbanization areas ( $T=-3.48$ ,  $p<0.001$ ). Differences in identity expression between residents in newly urbanized areas and areas for potential

urbanization suggest that in-situ urbanization is an important catalyst of change in identity expression.

—Figure 2 around here—

## ***5.2 Regression results of multilevel modeling***

Table 3 illustrates the multilevel modeling results of in-situ urbanized rural residents' urban identity. Model 1 includes the measure for housing cost. The results show that housing cost was not significantly related to in-situ urbanized rural residents' urban identity. Model 2 includes measures for housing conditions. The results suggest that housing type and housing quality played a significant role in determining in-situ urbanized rural residents' urban identity. To be more specific, in-situ urbanized rural residents living in self-built housing possessed a weaker sense of urban identity than those living in commercial housing, public housing, resettlement housing, and temporary housing. A one-unit increase in housing quality increased in-situ urbanized rural residents' urban identity tends by approximately 0.04 units. In contrast, housing size was not significantly associated with in-situ urbanized rural residents' urban identity. Model 3 includes variables of housing consistency. The results show that home ownership and length of residence in the present housing were not significantly related to in-situ urbanized rural residents' urban identity. Model 4 includes the measure for housing context. The results suggest that neighborhood relationships were not significantly associated with in-situ urbanized rural residents' urban identity. The measures for housing cost, conditions, consistency, and context were all added to Model 5 to provide a check of robustness. The results show that housing type and housing quality were significantly associated with in-situ urbanized rural residents' urban identity, while other variables displayed no significant relationship with their urban identity.

—Table 3 around here—

Table 4 reports the regression results on in-situ urbanized rural residents' local identity. Model 6 includes the measure for housing cost. The results show that housing cost was not significantly related to in-situ urbanized rural residents' local identity. Model 7 includes measures for housing conditions. The results show that in general, housing conditions were

not significant determinants of in-situ urbanized rural residents' local identity. Variables of housing consistency were added to Model 8. The results show that housing ownership was significantly associated with in-situ urbanized rural residents' local identity. Those who owned their residence tended to express a higher level of local identity than those who did not. Housing stability, on the other hand, showed no significant association with local identity. Model 9 includes the variable of housing context. The results show that neighborhood relationship was positively related to in-situ urbanized rural residents' local identity. A one-unit increase in neighborhood relationship enhanced in-situ urbanized rural residents' local identity by about 0.08 units. To check robustness, Model 10 shows that, after adding the measures for housing cost, conditions, consistency, and context to the regression model, housing ownership and neighborhood relationships remained positively related to in-situ urbanized rural residents' local identity. On other hand, housing cost and housing conditions showed no significant associations.

—Table 4 around here—

Table 5 presents the differences between newly urbanized areas and areas with the potential for urbanization in the relationship between housing and identity. The results demonstrate that housing affected residents' identity expression primarily in newly urbanized areas. For instance, housing type was significantly associated with residents' urban identity in newly urbanized areas, although only commercial housing showed a negative and significant coefficient in areas of potential urbanization. Homeownership and neighborhood relationship were significantly associated with in-situ urbanized rural residents' local identity in newly urbanized areas but not in areas of potential urbanization. These findings underscore the importance of housing in shaping in-situ urbanized rural residents' urban identity during the process of urbanization.

—Table 5 around here—

## **6 Discussion and conclusion**

Existing research has underexplored how various attributes of housing affect identity expression. Using data from the 2018 Urbanization and Quality of Life Survey, this study

investigated how housing affects in-situ urbanized rural residents' identity expression in urbanizing China. The study differed from previous research in that it distinguished local identity and urban identity to better reflect residents' identity in urbanizing China. In addition, adopting Swope and Hernández's (2019) "4Cs theory of housing", the analysis estimated the association between housing and in-situ urbanized rural residents' identity expression, taking into account housing cost, conditions, consistency, and context in the social context of China's ongoing urbanization. The results indicate that housing conditions were primarily associated with urban identity, whereas housing consistency and housing context were significantly related to local identity. The findings suggest that housing affects identity expression not only through its functions but also through its social meanings, depending on the dimension of identity.

According to the results, in-situ urbanized rural residents had strong local identity but rather weak urban identity. The robust sense of local identity suggests that in-situ urbanization is very different from urbanization characterized by rural-urban migration. Rural-urban migrants usually have very weak place attachment in their host society (Du et al., 2018; Wu, 2012). On the other hand, the low level of urban identity suggests that in-situ urbanization falls far short of complete urbanization. Even when the physical space of an area undergoing in-situ urbanization has already been classified as urban, the urbanization of the population lags behind. Many in-situ urbanized areas have not been well incorporated into the urban administrative system (Chen et al., 2021), and the social governance of in-situ urbanized areas possesses a "not rural not urban" status (Tang, 2015). Due to a lack of institutional and social support, many in-situ urbanized rural residents have insufficient capacity for secure city living. They face many challenges in the course of integration into urban life in terms of income, occupation, social insurance, and housing that lead to a low level of urban identity.

We found no evidence to support Hypothesis 1. The empirical results suggest that housing cost was neither significantly related to urban identity or local identity. The reason could be that housing cost, measured by housing affordability, cannot precisely reflect in-situ urbanized rural residents' social status and wealth, and thus cannot mirror their position in urban society. There are great differences in the degree of development among different regions in China,

and in housing costs. In-situ urbanized rural residents in more developed areas may spend more on housing, especially when compensation for land acquisition takes the form of monetary subsidy instead of subsidies in kind such as housing. As a result, in-situ urban rural residents may have higher housing costs, but this does not necessarily mean that they have a higher level of urban identity.

The significant influence of housing conditions on urban identity but not local identity provides evidence for Hypothesis 2. This result suggests that the functions of housing shape in-situ urbanized rural residents' identity expression. Previous studies have suggested that housing studies in urban China should not be restricted to homeownership but should consider other housing attributes, such as location, quality, space, and neighborhood physical environment (Lin, Wu, & Li, 2021; Xie, 2019; Xie & Chen, 2018). The effect of housing conditions on in-situ urbanized rural residents' urban identity is consistent with these studies. This finding suggests that when housing makes urban life convenient, people are more likely to classify themselves as members of urban society.

The significant effects of housing consistency and housing context on local identity but not urban identity support Hypotheses 3 and 4. This finding is consistent with previous studies that the meaning attached to buildings shapes residents' identity expression (Hauge & Kolstad, 2007; Oktay & Bala, 2015). To some degree, housing consistency and housing context represent the social meaning of housing. For instance, Chen *et al.* (2019) found a positive relationship between homeownership and perceived social status in urban China. Homeownership not only conveys a person's social position but also facilitates social participation because it decreases residential mobility, leading to investment in neighborhood relationships and social capital (Cox, 1982; Dipasquale & Glaeser 1999). Therefore, the close association between housing consistency and housing context and local identity can be regarded as a consequence of the social interactions facilitated by housing.

The results further identified variations in the relationship between housing and urban identity in newly urbanized areas and potential locations for urbanization. This finding is consistent with the argument that identity is a dynamic process and context-dependent

(Bernardo & Palma-Oliveira, 2016; Turner et al., 1999). It also resonates with two other conclusions of this study. First, in-situ urbanization led to a change of identity because people in newly urbanized areas showed stronger urban identity but weaker local identity than people in areas of potential urbanization. Second, in-situ urbanization resulted in changes in housing conditions. Analysis of the data in this study identified significant variations in people's housing conditions in newly urbanized areas, which was not the case in areas of potential urbanization. Consequently, there were variations in the relationship between housing and identity expression.

Traditionally there has been a gap between research on housing and identity. This study helps explain why housing means so much for people as it shows the importance of housing for expressing people's position in the complex social fabric; in other words, where and how people live influence how they view themselves (Hauge, 2007). In addition, this study confirms that the influence of housing on identity expression is felt through various attributes, including its cost, conditions, consistency, and context, and the various attributes of housing influence identity expression in different ways. Thus, the research contributes to understanding the relationship between housing and identity by further clarifying how various housing attributes affect identity expression in the social context of urbanizing China.

As we conclude, some limitations of the study should be noted. First, we used a different measurement of identity from that commonly used in previous studies. We operationalized identity expression by considering the unique social and institutional characteristics of urban China. Thus, identity expression in this study can be viewed as an additional concept not considered in previous studies. Second, how in-situ urbanized rural residents' rural identity (*nong cun ren* in Chinese) changes is also a very important dimension to investigate. Unfortunately, the limitations of our dataset prevented analysis on this dimension. Third, housing attributes contain many other dimensions, such as location and community facilities. This study only considered attributes of housing with available data. Fourth, longitudinal data are needed to make inferences on the causal relationship between housing and identity. Since this study was based on cross-sectional data only, future studies should try to collect time-series data to obtain a more robust conclusion of inference. Moreover, nuanced work should

also be conducted to help develop insightful understanding to supplement the findings of quantitative research.

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## **Figure captions**

Figure 1. Townships selected for the 2018 Urbanization and Quality of Life Survey

Figure 2. Residents' urban identity and local identity in newly urbanized areas vs. potential urbanization areas

- Pilot townships 试点乡镇街道
- ⊗ Non-pilot townships 非试点乡镇街道
- Pilot townships 试点乡镇
- ⊗ Non-pilot townships 非试点乡镇



Identity

8  
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Urban identity

Local identity

■ Newly urbanized areas

■ Potential urbanization areas

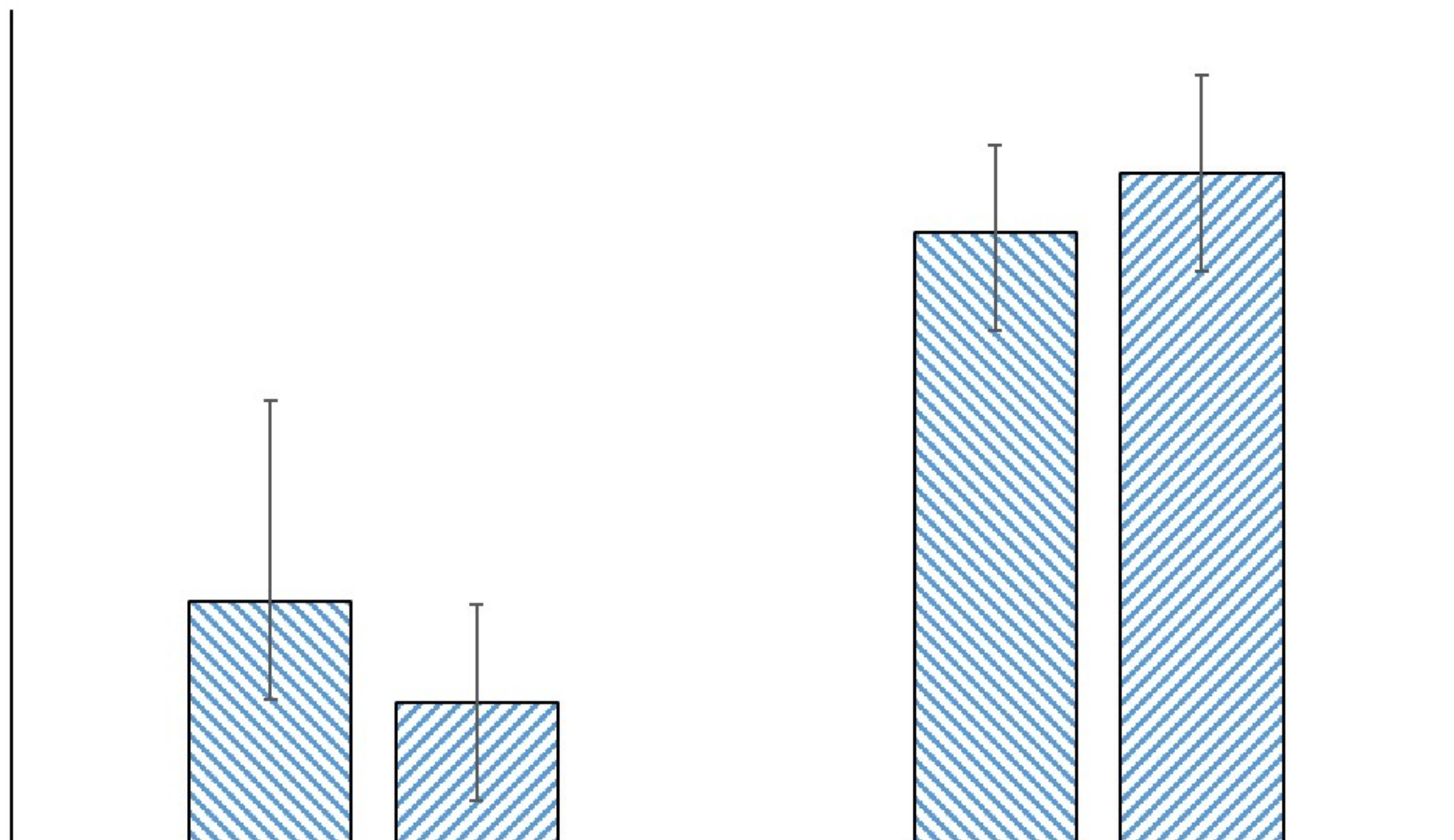


Table 1. Descriptive statistics

Variables	Full sample	Newly urbanized areas	Potential sites of urbanization
Individual-level variables (N=2,791)			
Gender (%)			
Male	48.95	48.12	48.33
Female	51.05	51.88	51.67
Age	53.12 (14.91)	52.05 (15.46)	56.63 (12.35)
Marital status (%)			
Single	7.29	8.50	3.34
Married or cohabiting	80.58	79.77	83.23
Divorced or widowed	12.13	11.73	13.44
Years of schooling	6.60 (4.34)	6.81 (4.46)	5.93 (3.87)
Employment status (%)			
Currently not working	64.19	67.21	53.65
Professional/managerial occupation	3.68	4.18	1.90
Non-manual general occupation	15.59	17.24	9.84
Manual general occupation	7.03	7.05	6.98
Farmer	9.51	4.32	27.62
Household wealth	2.28 (1.64)	2.42 (1.66)	1.82 (1.50)
Household size	3.26 (1.70)	3.38 (1.78)	2.88 (1.31)
Urban social insurance	0.15 (0.65)	0.19 (0.72)	0.03 (0.32)
Farmland ownership (%)	64.79	59.16	84.44
Birthplace (%)			
Locally born	85.73	84.93	88.32
Not locally born	14.27	15.07	11.68
Hukou status (%)			
Urban hukou	14.59	18.19	2.87
Rural hukou	85.41	81.81	97.13
Length of residence	50.73 (16.73)	49.54 (17.16)	54.59 (14.62)
Local identity	6.72 (1.07)	6.69 (1.14)	6.83 (0.78)
Urban identity	2.13 (2.04)	2.35 (2.19)	1.43 (1.19)
City-/county-level variables (N=40)			
GDP per capita (SD) (in yuan)	34523.67 (19716.20)	36049.58 (20092.74)	29186.58 (17325.46)
Population scale (SD) (in millions)	3.80 (3.03)	4.02 (3.36)	3.06 (1.12)
Population density (SD) (persons per square kilometer)	1333.99 (3026.80)	1613.45 (3379.79)	356.56 (164.57)
Population diversity (SD) (percentage of migrants)	7.35 (13.11)	8.75 (14.15)	2.48 (6.49)

Notes: Data are weighted. Standard errors in parentheses.

Table 2. Housing conditions of in-situ urbanized rural residents

Variables	Full sample	Newly urbanized areas	Potential sites of urbanization	$\chi^2/ T$ value
Housing cost (expenditure to income ratio)	0.23(0.50)	0.20(0.51)	0.30(0.52)	-4.00***
Housing type (%)				156.48***
Self-built	82.82	76.08	98.25	
Commercial housing	8.04	10.05	0.48	
Public housing	2.66	3.77	0.32	
Resettlement housing	3.70	6.46	0.63	
Temporary housing	2.78	3.64	0.32	
Housing size (square meters per capita)	54.54 (44.82)	51.10 (44.13)	56.28 (37.50)	-1.75
Housing quality	9.79 (0.04)	10.14 (2.47)	8.86 (2.16)	11.78***
Ownership of housing (%)				16.60***
Self-owned housing	95.94	94.82	98.57	
Rental or other housing	4.06	5.18	1.43	
Housing stability				
Move	94.39	93.67	98.09	18.84***
No intention to move	5.61	6.33	1.91	
Neighborhood relationship	3.89 (0.91)	3.95 (0.94)	3.73 (0.79)	5.24***

Notes: N=2,791. Data are weighted. Standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05

Table 3. Regression results on urban identity of in-situ urbanized rural residents

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Individual-level factors					
Housing cost	-.002 (.081)				-.054 (.083)
Housing type (ref. self-built housing)					
Commercial housing		.904*** (.202)			.927*** (.204)
Public housing		.664** (.246)			.817** (.267)
Resettlement housing		.745*** (.227)			.787*** (.229)
Temporary housing		.525* (.238)			.554* (.242)
Housing size		.001 (.001)			.001 (.001)
Housing quality		.044* (.020)			.043* (.020)
Home ownership			.187 (.183)		.283 (.199)
Housing stability			.083 (.150)		.076 (.150)
Neighborhood relationship				-.005 (.042)	-.003 (.042)
Male	.170* (.072)	.166* (.072)	.169* (.072)	.170* (.072)	.162* (.072)
Age	-.005 (.003)	-.003 (.003)	-.005 (.003)	-.005 (.003)	-.003 (.003)
Marital status (ref. single)					
Married or cohabiting	.011 (.147)	-.046 (.147)	.016 (.147)	.012 (.147)	-.044 (.148)
Divorced or widowed	.227 (.180)	.173 (.180)	.234 (.180)	.228 (.180)	.186 (.181)
Years of schooling	.018 (.010)	.017 (.010)	.017 (.010)	.018 (.010)	.016 (.010)
Employment status (ref. currently not working)					
Professional/managerial occupation	.130 (.184)	.156 (.183)	.123 (.184)	.130 (.184)	.153 (.184)
Non-manual general occupation	-.108 (.100)	-.105 (.100)	-.109 (.100)	-.108 (.100)	-.102 (.100)
Manual general occupation	-.240 (.147)	-.148 (.121)	-.235 (.147)	-.239 (.147)	-.249 (.147)
Farmer	-.149 (.122)	-.254 (.147)	-.144 (.122)	-.148 (.122)	-.139 (.121)

Household wealth	.006 (.029)	-.018 (.027)	.004 (.026)	.006 (.026)	-.028 (.030)
Household size	-.001 (.023)	.012 (.029)	-.001 (.023)	-.001 (.023)	.011 (.029)
Urban social insurance	.146** (.054)	.148** (.054)	.146** (.054)	.146** (.054)	.146** (.054)
Farmland ownership	-.358*** (.088)	-.327*** (.087)	-.360*** (.087)	-.358*** (.087)	-.334*** (.088)
Locally born	-.124 (.100)	-.122 (.100)	-.126 (.100)	-.124 (.100)	-.120 (.100)
Rural <i>hukou</i>	-1.195*** (.130)	-1.191*** (.129)	-1.180*** (.131)	-1.195*** (.130)	-1.173*** (.130)
City-/county-level factors					
Log (GDP per capita)	.234 (.276)	.132 (.205)	.238 (.280)	.235 (.276)	.133 (.208)
Log (population scale)	.018 (.199)	.002 (.147)	.015 (.202)	.018 (.199)	.005 (.149)
Log (population density)	.228 (.157)	.174 (.115)	.229 (.159)	.228 (.157)	.173 (.117)
Population diversity	-1.530 (1.225)	-1.179 (.918)	-1.522 (1.244)	-1.532 (1.224)	-1.164 (.929)
Constant	-.384 (3.466)	.497 (2.572)	-.565 (3.524)	-.378 (3.465)	.243 (2.616)
Random-effects Parameters					
Variance (Cons)	.001 (.000)	.001 (.000)	.001 (.000)	.001 (.000)	.001 (.000)
Variance (Residual)	2.743 (.076)	2.738 (.076)	2.741 (.076)	2.743 (.076)	2.734 (.076)
Log likelihood	-5056.063	-5041.434	-5055.435	-5056.055	-5039.993
Wald chi2	182.89	265.33	182.61	182.92	265.26
Prob > chi2	0.000	0.000	0.000	0.000	0.000

Notes: N=2,791. Data are weighted. Standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05

Table 4. Regression results on local identity of in-situ urbanized rural residents

Variables	Model 6	Model 7	Model 8	Model 9	Model 10
Individual-level factors					
Housing cost	-.030 (.049)				.010 (.051)
Housing type (ref. self-built housing)					
Commercial housing		-.001 (.110)			.040 (.109)
Public housing		-.195 (.144)			.027 (.157)
Resettlement housing		-.167 (.130)			-.128 (.130)
Temporary housing		-.241 (.145)			-.214 (.147)
Housing size		.001 (.001)			-.001 (.001)
Housing quality		-.004 (.012)			-.007 (.012)
Home ownership			.411*** (.110)		.418*** (.122)
Housing stability			.042 (.092)		.047 (.091)
Neighborhood relationship				.077** (.025)	.075** (.025)
Male	.013 (.044)	.011 (.044)	.011 (.044)	.016 (.044)	.011 (.044)
Age	.003 (.002)	.003 (.002)	.003 (.002)	.003 (.002)	.002 (.002)
Marital status (ref. single)					
Married or cohabiting	.222* (.090)	.223* (.090)	.210* (.090)	.211* (.090)	.208* (.090)
Divorced or widowed	.193 (.111)	.190 (.111)	.186 (.110)	.177 (.110)	.180 (.111)
Years of schooling	.002 (.006)	.002 (.006)	.001 (.006)	.002 (.006)	.002 (.006)
Employment status (ref. currently not working)					
Professional/managerial occupation	.067 (.113)	.061 (.113)	.049 (.113)	.068 (.113)	.050 (.113)
Non-manual general occupation	-.095 (.061)	-.096 (.061)	-.091 (.061)	-.097 (.061)	-.095 (.061)
Manual general occupation	.011 (.011)	.019 (.090)	.021 (.090)	.021 (.090)	.021 (.090)
Farmer	.020 (.073)	.018 (.073)	.025 (.073)	.014 (.073)	.021 (.073)

Household wealth	.012 (.017)	.019 (.016)	.014 (.015)	.013 (.015)	.015 (.018)
Household size	.006 (.014)	.006 (.018)	.005 (.014)	.007 (.014)	.004 (.018)
Urban social insurance	-.110*** (.033)	-.109*** (.033)	-.112*** (.033)	-.109*** (.033)	-.111*** (.033)
Farmland ownership	.072 (.052)	.060 (.052)	.064 (.051)	.071 (.051)	.054 (.053)
Locally born	.349*** (.061)	.341*** (.061)	.340*** (.061)	.347*** (.061)	.339*** (.061)
Rural <i>hukou</i>	-.047 (.074)	-.061 (.076)	-.046 (.074)	-.048 (.074)	-.047 (.076)
City-/county-level factors					
Log (GDP per capita)	.045 (.077)	.044 (.076)	.054 (.074)	.037 (.076)	.043 (.074)
Log (population scale)	-.027 (.055)	-.024 (.053)	-.033 (.053)	-.027 (.054)	-.022 (.052)
Log (population density)	-.051 (.043)	-.049 (.041)	-.050 (.041)	-.055 (.042)	-.054 (.040)
Population diversity	-.023 (.348)	-.006 (.344)	-.024 (.338)	-.014 (.345)	.014 (.335)
Constant	6.246*** (.959)	6.267*** (.942)	5.888*** (.930)	6.075*** (.949)	5.677*** (.928)
Random-effects Parameters					
Variance (Cons)	.001 (.001)	.001 (.001)	.001 (.001)	.001 (.001)	.001 (.001)
Variance (Residual)	1.046 (.029)	1.045 (.029)	1.042 (.029)	1.043 (.029)	1.037 (.029)
Log likelihood	-3770.948	-3768.149	-3764.227	-3766.496	-3757.836
Wald chi2	67.78	73.88	81.96	77.00	95.60
Prob > chi2	0.000	0.000	0.000	0.000	0.000

Notes: N=2,791. Data are weighted. Standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05.

Table 5. Multilevel modeling on local identity and urban identity in newly urbanized areas and areas of potential urbanization

Variables	Urban identity		Local identity	
	Urbanized areas	Potential areas	Urbanized areas	Potential areas
Housing cost	-.043 (.103)	-.097 (.131)	.013 (.063)	-.021 (.075)
Housing type (ref. Self-built housing)				
Commercial housing	.924*** (.226)	.744 (.684)	.090 (.122)	-1.632*** (.395)
Public housing	.787** (.295)	.948 (1.274)	.074 (.174)	-.467 (.735)
Resettlement housing	.807** (.257)	-.191 (.625)	-.130 (.146)	.357 (.361)
Temporary housing	.553* (.264)	-.435 (1.182)	-.200 (.161)	.108 (.682)
Housing size	.001 (.001)	.001 (.001)	-.001 (.001)	-.001 (.001)
Housing quality	.044 (.026)	.036 (.025)	-.009 (.015)	-.007 (.014)
Home ownership	.026 (.230)	.253 (.397)	.499*** (.140)	-.122 (.229)
Housing stability	.058 (.171)	.007 (.326)	.013 (.063)	-.021 (.075)
Neighborhood relationships	-.006 (.050)	.027 (.082)	.089** (.030)	.019 (.044)
Observations	2,163	628	2,163	628

Notes: Data are weighted. Coefficient estimates of control variables are not reported. Standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05