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**The sense of community in homeowner association neighborhoods in urban China: A study of Wenzhou**

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# **The sense of community in homeowner association neighborhoods in urban China: A study of Wenzhou**

## **Abstract**

Living in homeowner association (HOA) neighborhoods is a new residential experience in China. Associated with housing privatization in the 1990s, HOAs have been established to promote private governance features as their counterparts do in western contexts. However, the role of HOAs and their social implications are still debatable in urban China. Against this background, this study examines the sense of community in HOA neighborhoods, using a large-scale household survey data in Wenzhou, China. The results reveal that neighborly interaction persists in HOA neighborhoods and crucially influences the sense of community. In addition to neighborly interaction, residents' participation in HOAs has become a new source of the sense of community. Residents' usage of the services provided in HOA neighborhoods can also enhance the sense of community.

## **Keywords:**

Neighborhood, Neighborhood governance, homeowner association, sense of community, urban China

## 1. Introduction

Privately governed neighborhoods first emerged as common interest developments (CIDs) in the United States in the 1960s. They are new forms of housing that enable residents to share the ownership of communal space. More importantly, CIDs conduct government-like functions, such as electing the homeowner association (HOA) board and regulating residential behaviors within their jurisdictions. Over the past decade, HOAs have grown rapidly across different regions, as recorded in the early 2000s, when approximately 16 percent of the American population was living in an HOA neighborhood, either large or small (McKenzie, 2006). Scholars have considered HOAs as the private neighborhood governance for threefold features (Blakely and Snyder, 1997; Chen and Webster, 2005; Le Goix, 2005). First, HOAs are established as legal entities for neighborhoods. Specifically, many neighborhoods are required by real estate law, contract law, or land covenants to establish HOAs. Meanwhile, homeowners automatically become members of HOAs and are entitled to elect the board of an HOA. Second, HOAs have the obligation to finance neighborhood governance, including providing services, maintaining communal facilities, and raising/spending money for relevant activities (McCabe, 2011). Third, homeowners are required by HOAs to obey behavioral standards according to the Declaration of Covenants, Conditions and Restrictions (Hyatt, 2000). Consequently, HOAs are seen as substitutes for municipalities because in HOA neighborhoods the HOA makes policies, regulates public affairs, and “taxes” residents through service fee collection (Nelson, 1989).

In China, neighborhoods are the basic unit of urban governance in the top-down hierarchical administration system where the state plays a vital role (He, 2015). HOA neighborhoods are a nascent type of development that only emerged after housing privatization in the 1990s<sup>1</sup>. Since then, HOAs have introduced two salient features to neighborhood governance. First, the private sector has extended into neighborhood jurisdictions for managing collective goods (Hendrikx and Wissink, 2017; Pow, 2009). Second, homeowners have developed a growing awareness of property rights, more than they ever did (Huang, 2006; Tomba, 2014). Two strands of literature have been raised to debate around HOAs in urban China. The first strand

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<sup>1</sup> Housing used to be a welfare rather than a commodity in the pre-reform era in China. Housing privatization began after the market-oriented reform in 1978, following which the Chinese economy entered a period of rapid growth. With the development of the urban housing market, commodity housing has become a dominating housing type in the 21<sup>st</sup> century. Between 2000 and 2017, the average annual turnover of commodity housing in China was 3,900 billion Yuan, with an average yearly growth rate of 25 percent (China Statistic Bureau, 2018).

has paid attention to social segregation stimulated by the marketization of land with the development of HOA neighborhoods (Wu, 2005). The second strand has emphasized the enriched housing preferences associated with the wide development of HOAs (Huang and Clark, 2002). However, the social implications from HOA-featured governance remain relatively unclear.

Traditionally, residents engaged in extensive neighborly interaction, which in turn generated a deep sense of community in urban China. To date, insufficient attention has been paid to the lived experiences in these new HOA neighborhoods. Particularly how HOA-featured governance reshapes the sense of community in urban China warrants further examination, which will facilitate a more comprehensive discussion about the social implications of HOAs. Therefore, this paper intends to explore the relationship between neighborly interaction, participation in HOAs, and a sense of community. The remainder of the paper is organized as follows: the next section provides a review of the literature on the sense of community and the transition to HOAs in China; then after presenting the theoretical framework, the data and survey methods are described. Finally, the analysis section discusses the modeling results, and the conclusion section provides a summary and policy suggestions.

## **2. Literature Review**

### *2.1 Sense of community and neighborhood governance*

Since the 1960s, the sense of community has been widely acknowledged as a key research topic in multiple disciplines, such as urban studies, sociology, environmental psychology, and political science. It is also a fundamental consideration of neighborhood planning practitioners across different regions in North America and Western Europe (Cao et al., 2018). In theory, sense of community represents a complicated recognition of neighborhood mutuality, described as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan and Chavis, 1986: 9). Therefore, many scholars have measured the sense of community using a combination of questions that cover various dimensions, such as membership, influence, fulfillment of needs, and shared emotional connections (Chipuer and Pretty, 1999). Specifically, the membership dimension suggests that residents have investments in their communities and therefore feel a right to belong, while the influence dimension refers to a bidirectional relation whereby residents can

change their communities and vice versa. The fulfillment of needs emphasizes that an attractive community must have shared values, and residents can get their needs met through community cooperation. Lastly, the shared emotional connection underlines the community's spiritual bond stemming from the successes of community living.

Recently, growing research interest has focused on the multifaceted sources of the sense of community. For example, Brown et al. (2003) depict the cognitive-, attractive-, and conative-based drives of the sense of community. Resident's neighborly interaction is most commonly underlined for cultivating a sense of community, which varies from occasional encounters in neighborhood public spaces, such as community centers and churches, to frequent or high-quality communication with neighbors (Filipović, 2008). The necessity of neighborly interaction is presumed to enhance interpersonal familiarity and public familiarity, which enables an inclusive neighborhood with a strong sense of community to be developed (Blokland and Nast, 2014).

Furthermore, scholars deem that neighborhood governance has an influence on the sense of community in different ways (Brown et al., 2003). Firstly, the improvement of neighborhood service provision is contributing to a sense of community (Freeman, 2001; Talen, 1999). From "garden cities" to "New Urbanism", the provision of public spaces and efficient services has been consistently proved to foster a sense of community (Hall and Ward, 1998). May's (1996) research, conducted in England, further suggests that neighborhoods using exclusionary provision systems were likely to have a strictly bounded sense of place, whereas neighborhoods with progressive provisions were more likely to embrace changes in the sense of community (i.e., a global sense of community). Meanwhile, studies on residential experiences indicate that a common interest in housing and neighborhood facilities bond residents together in support of community enhancement (Manzo and Perkins, 2006).

Secondly, it is important to associate sense of community with neighborhood participation, which makes it possible "to pull varied interests together and to open up the possibility of a place-based identification that can foster connection" (Talen, 2017: 366). The participatory process can be attributed to the production of collective and individual benefits (Chavis and Wandersman, 1990) and the reinforcement of neighborhood reciprocal relationships (Chavis, 2012). Recent studies have emphasized the important relationship between volunteering in neighborhood governance and the sense of community and have recommended appropriate support schemes for involving residents in neighborhood governance (Talò et al., 2014).

Additionally, both individual features and contextual characteristics can also affect one's sense of community (Talen, 2017). At the individual level, age, gender, education, and marital status are considered important predictors of the sense of community (Filipović, 2008). At the household level, income, housing ownership, and the duration of residence in a neighborhood also serve as crucial catalysts of the sense of community (Guest and Wierzbicki, 1999). Furthermore, urban planners have stressed the importance of environmental quality in building a sense of community in both new town developments and urban renewal projects (Freeman, 2001). Talen (1999: 1375) examined the relationship between the built environment and the sense of community, arguing that “new urbanism does not create sense of community, but rather attracts individuals with a certain predisposition of social interaction and the need for local community attachment.”

## *2.2 Transition to HOA neighborhoods in urban China*

The transition to HOA neighborhoods brings substantial changes to housing development and neighborhood governance in urban China. Under the collectivist regime, work-unit compounds and traditional neighborhoods constituted the urban housing development. A work-unit compound was a form of welfare housing provided by a state agency or a state-owned enterprise to its employees. Essentially, state employers constructed work-unit compounds and held decisive power over employees' rights to housing. Unlike the state allocation of work-unit compounds, traditional neighborhoods consisted of self-built housing mostly inherited from families. Statistics suggest that in the late 1970s work-unit compounds were the dominant housing development in urban China, while traditional housing based on family succession comprised approximately ten percent (Read, 2003). Nevertheless, housing privatization fundamentally changed the structure of housing development (Wu, 2005). After the housing reforms of 1978, a housing market was established in China. It firstly allowed state employees living in work-unit compounds to purchase welfare housing and, secondly, appropriated self-built housing in traditional neighborhoods in local housing authorities. Thirdly, the modern housing system introduced an experiment in developing and selling “commodity housing” in cities with an active market economy, such as Guangzhou, Shenzhen, and Wenzhou. Consequently, HOA neighborhoods are in contrast to the prior housing development because they enable a variation of residential preferences for homeownership (Cui et al., 2021; Huang, 2006).

Additionally, both work-unit compounds and traditional neighborhoods used centralized means of neighborhood governance under state socialism. In work-unit compounds, neighborhood facilities and services were determined, provided, and inspected by state agencies as additional forms of staff welfare (Lu and Perry, 2007). Bray (2006) considers the governance of work-unit compounds an extension of the employment relationship between a work-unit and its staff. Meanwhile, municipal governments established residents' committees in traditional neighborhoods to "help the government and police target unwanted migrants, violators of the strict family planning policy, criminals, dissidents and other deviants" (Read, 2003: 38). Residence committees were directed and financed by municipal governments to organize neighborhood programs, such as supervising neighborhood activities and delivering basic services (Davis, 2006). Wu (2018) argues that the centralized governance of traditional neighborhoods was the state's intention to fill the governance void, specifically by permeating into local neighborhoods and regulating the lifestyle of those who were not directly subject to the work-unit system. Nonetheless, following further housing reforms, the central government decided to incorporate HOAs into neighborhood governance to control public expenses while alleviating neighborhood management pressure on the state (Wu, 2018). The Ministry of Construction promulgated a series of policies for housing development and management, for example, Order NO. 33 of 1994, making HOAs official nationwide (Lo, 2013). Since then, homeowners in newly built neighborhoods have been required to call a convention to formalize a board of an HOA, which is to supervise the private provision of neighborhood services. State agencies such as residents' committees are no longer the provider of neighborhood services in these market-based developments (Hazelzet and Wissink, 2012).

The co-governance of HOA neighborhoods is jointly shaped by residence committees, property management companies, and HOAs. However, within this neighborhood governance structure, HOAs have not—as yet—evolved into a private government in urban China as is the case in western contexts owing to twofold reasons. First, HOAs receive direct guidance from local governments regarding their registration and daily work. Local authorities such as residence committees can effectively intervene in HOAs using their administrative power, turning HOAs into phantom organizations if political needs require it (Huang, 2006). Second, HOAs' tasks are limited to hiring, dismissing, and supervising the neighborhood services provided by property management companies. Moreover, they have limited financial power since the service fees are paid to property management companies

and neighborhood maintenance funds are held by local housing bureaus (Lu et al., 2020). Under these circumstances, HOAs are essentially established to maintain a good supply-consumption relationship between homeowners and the providers of services and facilities.

### *2.3 Sense of community in HOA neighborhoods in urban China*

Since 2003, China has become a highly marketized homeowner society, with 80 percent of households recorded as homeowners in 2010 (Huang et al., 2020). In recent years, three streams of studies have explored the change in lived experiences related to the widespread existence of HOA neighborhoods. The first stream of research focuses on the changes in neighborly interaction (Breitung, 2012; Li and Wu, 2013; Wang et al., 2020). The common finding is that neighborly interaction has largely diminished in privatized housing, compared to what it used to be under the collectivism culture. Specifically, in previous work-unit compounds, residents tended to have strong social ties because they were work colleagues (Bray, 2006; Wu, 2018). In traditional neighborhoods, residents engaged with their neighbors—through sharing a tight space such as the courtyard—over a long period, and even for generations. Active forms of neighborly interaction further fostered a strong sense of community in these neighborhoods. In contrast, research suggests that HOA neighborhoods intentionally reduce social interaction to protect private space and facilitate the pursuit of individualized living (Pow, 2009). Additionally, strangers buy into different HOA neighborhoods based on their economic affordability, underlining the trend of residential sorting (Clark and Morrison, 2012; Modai-Snir and Plaut, 2019). Housing purchase power has become the basis for neighborhood relations, which is completely different from the employment relationship and the kinship that previously characterized work-unit compounds and traditional neighborhoods (Zhang, 2012).

The second strand of literature examines the phenomenon of rising civic engagement in HOA neighborhoods (Tomba, 2005, 2014; Fu and Lin, 2014; Zhu and Fu, 2017). Scholars have seen a parallel between the establishment of HOAs and greater neighborhood democratization (Shi and Cai, 2006). In contrast with centrally governed neighborhoods, HOAs enable residents to enjoy certain independent decision-making rights related to private property interests (Tomba, 2005). With the growing awareness of property rights among Chinese citizens, residents seek to maintain the value of their properties or defend their property rights by participating in collective decision-making, as well as contentious actions (Fu, 2015). However, some research regards HOAs as having a weak civic engagement



impact in neighborhood governance (Fu and Lin, 2014; Huang, 2006). With the increased spread of HOAs, national-level guidance on homeowner conventions and HOAs was issued in 2009 to control the rising civic engagement<sup>2</sup>. Although homeowners can make collective decisions during public assemblies, such collectively made decisions can only become active if over half of all the homeowners voted “yes” under the street office’s supervision. The restricted self-governance and civic engagement within HOA neighborhoods might undermine the sense of community.

The third strand of research concentrates on the emergence of neighborhood service consumption. Existing studies have considered HOA neighborhoods as the norm for accommodating new social groups, especially professionals, managers, and the *nouveaux riches* that emerged during the development of the market-oriented economy (Huang and Li, 2014). Distinct from the socialist logic of welfare housing, newly built neighborhoods were created by the private sector to cater to consumption demands and lifestyle aspirations (Tomba, 2005). Even urban policies emphasize the private delivery of aesthetic landscapes and services at an additional cost to the residents<sup>3</sup> (Pow, 2009). Some scholars suggest that HOA neighborhoods are similar to exclusive clubs in western contexts (Hendrikx and Wissink, 2017; Pow, 2009) where property management companies provide public goods as a form of club goods, turning residents into exclusive users of these goods and services (McKenzie, 2006; Nelson, 1989). Therefore, Xu et al. (2010) suggest that changed services arrangements are a key determinant of residents’ sense of community.

In light of the above, we can see that HOAs in urban China foster new lived experiences. However, the underlining mechanism of the sense of community remains an under-researched topic.

### **3. Study Area and Methods**

#### *3.1 Study area*

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<sup>2</sup> The Ministry of Housing and Urban-Rural Development declared that a homeowner association must apply for its legal status from the local housing bureau or street office. The local housing bureau or street office will authorize the launch of a homeowner association and will administrate its work.

<sup>3</sup> In 2003 the State Council issued the “Regulation on Property Management”, which promoted a variety of services (e.g., ranging from basic services to advanced services), as well as a fee-paying scheme for using services in these neighborhoods (State Council, 2003).

This research is based on a large-scale household survey conducted in the municipal area of Wenzhou between March and May 2013. Although it is a third-tier city, Wenzhou continues to attract considerable attention from both the public and academia due to its rapid economic growth in China, which followed the introduction of the “open-door” policy<sup>4</sup> (Zhang and Peck, 2016). More importantly, the city is acknowledged as the birthplace of private economy and governance in urban China (Liu, 1992; Wei, 2007 et al., 2007). Since 1978, Wenzhou’s industrialization has depended on export-driven light industries run by local private manufacturers, taking advantage of the large influx of migrant workers (Lin and Li, 2019). Nevertheless, the development of private economy encountered major obstacles after the Asian Financial Crisis. Zhang and Peck (2016: 70) explored the multifaceted reasons why the Wenzhou model “faltered into a low-road development path”, including the decline in profits from exports, the lack of training and technological innovation, a dearth of foreign direct investments, and the outflow of local private capital.

Against this backdrop, private capital began to seek profits from local housing investments. This process was accelerated by the 1998 national housing reforms to deepen housing privatization<sup>5</sup>. The annual growth in housing investment in Wenzhou reached an average of 27.1 percent from 1999 to 2017. Since 1999, urban housing development has been largely driven by local private capital, resulting in a proliferation of new neighborhoods, mostly in the form of gated communities (Lin and Li, 2019). Unlike first-tier cities where housing type diversity is based on a host of local historical, political, and ethnic factors, the municipal area of Wenzhou hardly contains preserved traditional neighborhoods or the massive work-unit compounds. Instead, in Wenzhou, urban housing owes its diversity to different approaches to land development, housing financialization, and neighborhood governance.

Furthermore, the local government has actively promoted the development of HOA neighborhoods. In 2000, municipal-level policies were introduced to regulate residential property management, including the “Rules on Wenzhou Residential Property Management”, which required newly-developed neighborhoods *“to have the first homeowner convention established when the housing occupancy rate reaches 60 per cent; in the first convention, all*

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<sup>4</sup> The “open-door” policy of China began in 1978 when the central government announced the reform on economic development strategies and the shift to the market-oriented economy. This policy emphasized the introduction of foreign investments and technology, and ushered in rapid economic growth in China.

<sup>5</sup> The 1988 national housing reform aimed to terminate the state’s welfare housing allocation system and to develop a market of private housing in China.

*homeowners are eligible to elect the board of the homeowner association, to decide neighborhood management, and to create rules for their neighborhood”* (Wenzhou Municipal Government, 2000). From 1999 to 2013, a total of 559 neighborhoods officially registered an HOA at the Wenzhou Municipal Housing Bureau.

Meanwhile, there were other stakeholders involved that also shaped HOA neighborhoods. First, all of these neighborhoods had employed property management companies for the delivery of neighborhood services. Wenzhou Municipal Government recorded that 266 property management companies had registered for the license to operate a business in Wenzhou by 2014. Second, the local government set up 190 residents’ committees to supervise HOAs. Most HOAs were instructed to focus on supervising neighborhood service provision under the control of residents’ committees. Against this backdrop, an Alliance of Homeowner Associations was established as a completely grassroots organization in 2013. Its members included over 300 local HOAs, and its goal was to defend HOAs’ rights. Members of the alliance often exchanged their knowledge of neighborhood governance and local policies, and also provided mutual support for their activities. These kinds of NGOs have also increased in other cities, such as Shanghai and Guangzhou, thus highlighting the needs of HOAs in terms of improving their governance capabilities.

### *3.2 Data sources*

For this survey, the main aim was to closely examine the variation of sense of community across HOA neighborhoods, which have been identified as the newer neighborhood type since the 2000s. Therefore, the sample base designed was for HOA neighborhoods only, whereas non-HOA neighborhoods were not included, such as traditional neighborhoods, urban villages, and former work-unit housing. It should be noted that it is impossible to argue the effect of HOAs on the sense of community without contrasting HOA neighborhoods with those without such associations. There is a clear trend of residential sorting between traditional and new neighborhoods in urban China. The purpose of this study, however, was slightly different as it aimed to provide a nuanced examination of different states of sense of community amid neighborhoods of HOA-featured governance. It is important to incorporate future studies to compare the sense of community in all types of neighborhoods.

The sampling process for the survey was conducted using the probability proportional to size (PPS) method in two steps. The first step was to sample neighborhoods. We calculated the

cumulative number of households in 559 HOA neighborhoods in the municipal area of Wenzhou and used the linear systematic sampling method to choose 11 HOA neighborhoods. For the selected samples, the minimum **number of households** was 366 and the maximum was 1,589. The second step was to sample households. Because the lists of households were confidential it was difficult to use the systematic sampling method. Instead, we visited all buildings in all HOA neighborhoods and randomly invited 94 households to complete the questionnaire. The heads of the households (or their spouses) were asked to complete the questionnaire onsite. The two-step methods ensured the basic weight of an individual household being sampled was the same. In total, the survey generated 1,034 valid responses. Figure 1 shows the locations of the sampled neighborhoods in the study area.

(insert Figure 1 here)

### *3.3 Model construction*

Figure 2 shows the analytical framework of this study. Based on the previous review in Section 2.3, **we hypothesized that the relationship between neighborly interaction and the sense of community was mediated by the HOA-featured governance in two ways**, namely the experience of participation in the HOA and the experience of using services. Additionally, we hypothesized that the participation in HOA was associated with the use of services because it is the HOA that decides the quality and methods of the delivery of neighborhood services while hiring professional property management companies to maintain these services.

(insert Figure 2 here)

After describing the data, path analyses were employed using structural equation modeling (SEM) methods (McDonald and Ho, 2002; Kline, 2015). SEM is an efficient tool for analyzing complex relationships among multiple variables and meanwhile accounts for measurement error and tests the model fitness. Being a subset of SEM, path analysis estimates causal relationships among the variables being tested. This method has been effectively tested in a similar study of neighborhood sentiments (Li et al., 2012). In this study, we first analyzed how residents' socio-economic capabilities, as well as the features of HOA neighborhoods, related to the sense of community. Second, we tested how the relationship between a resident's neighborly interaction and the sense of community was mediated by the experiences of HOA-featured governance (i.e., their participation in the HOA and their use of services).

### 3.4 Variable measurements

Building on existing literature, this study took one's socioeconomic factors and neighborhood factors as control variables, while considering the frequency of neighborly interaction, the participation in HOAs, the use of services, and the sense of community as main variables for path analyses.

For the control variables, we firstly captured the respondents' age, *hukou* status<sup>6</sup>, income level, and educational level to create their profiles of socio-economic status. We also observed their residential status by consulting the property ownership and duration of residence information. Secondly, we controlled both the economic and physical traits of the sampled neighborhoods. In terms of the economic features, respondents were surveyed for the monthly service fees they paid in the HOA neighborhood and their type of housing projects. The service fee was calculated by the price of the neighborhood service fee per square meter per month multiplied by the floor area of the property. Regarding the type of housing projects, we identified two types of housing projects to have HOAs in the survey, name commodity housing and relocation housing<sup>7</sup>. Homeowners voluntarily purchased their properties in commodity housing, whilst residents were displaced into relocation housing due to state-led residential displacements during urban redevelopment processes. In a sense, relocation housing projects received intense policy intervention from the local government. These economic features are relevant to one's experiences of HOA participation and neighborhood service use. Additionally, it was essential to control the influences from the physical built environment to the sense of community. These physical features are determined by developer and local planners, while managed for residential uses in HOA neighborhoods. Bearing this in mind, we reviewed local planning documents for the floor area ratio and the scale of public leisure space provided, both of which represented the quality of physical environment of these neighborhoods. The public leisure space was

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<sup>6</sup> *Hukou* is the family registration system that determines one's right to different social welfare, e.g., education, in China. *Hukou* is a crucial feature that reflects one's socio-economic capability. In this study, the status of *hukou* is used to identify if a respondent is a migrant, and the category of *hukou* is used to distinguish whether a respondent is associated with the urban welfare.

<sup>7</sup> Relocation housing is developed for accommodating residents who had been relocated as a result of major urban regeneration projects. The local government decides on—or at least intervenes in—the land development and neighborhood governance. It is noted that relocation housing can establish a HOA because relocated residents have become homeowners in the neighborhood. Although some market-buyers can purchase a property in relocation housing following local policies, it hardly change the government's intervention in the governance of relocation housing.

typically seen as gardens, small squares, and sports grounds. Figure 3 shows the quality of public leisure space in the sampled neighborhoods.

(insert Figure 3 here)

Thirdly, the lived experiences in HOA neighborhoods were measured **as the main variables**, including neighborly interaction, experiences with HOA-featured governance, and sense of community. We adopted the design of Wang et al. (2020) to measure the frequency of neighborly interaction in the sampled HOA neighborhoods. Respondents were asked the following question: “How often do you interact with your neighbors?” Answers were provided as four-point scale responses, ranging from never to highly frequent interaction. As to the experiences of HOA-featured governance, we surveyed residents’ use of services and their participation in HOAs, reflecting the critical functions of HOAs in existing studies (see McCabe, 2011; McKenzie, 2006). Firstly, the respondents were asked to state the frequency of their use of the services (e.g., maintenance) in a year, the frequency of their reaching out to the board of HOA per year, and their levels of satisfaction with the aforementioned experiences in HOA neighborhoods. For measuring frequencies, answers were provided on a three-point scale, ranging from “never”, “1–9 times” to “10 times or more”. For measuring satisfaction levels, answers ranged from low, neutral, to high. Secondly, following the method of Cohen and Dawson (1993), the dimensionality reduction methods were adopted. After validity and reliability checks, two components were generated with quartimax rotation. They respectively represented the respondents’ participation in HOAs and the use of their services.

The measurement of the sense of community followed a method used in an earlier study on the neighborhood living experiences in Chinese cities (Li and Wu, 2013). Firstly, we surveyed residents using a sum of 12 standard questions, which were widely applied in many studies (see Chipuer and Pretty, 1999; McMillan and Chavis, 1986). Answers on a five-degree Likert-scale were collected for every question. Secondly, the sum of the 12 questions was estimated to represent the score of the respondent’s sense of community.

## **4. Analysis and discussion**

### *4.1 Data description*

Table 1 reports the descriptive statistics of the variables. As shown in the upper rows, residents are generally married locals who own their housing property, as the affirmative attributes of *hukou* status, marital status, and housing status account for 94.9 percent, 87.7 percent, and 94.4 percent of all respondents, respectively. This reflects that well-established families constitute a larger proportion of members than the remaining social groups in HOA neighborhoods. In terms of the residential status, the duration of residence ranges from one year to 14 years, with an average duration of five and a half years. The relatively long residence duration illustrates sufficient experiences with HOA governance. Furthermore, comparing the statistics of HOA neighborhoods with that of the city average, the former group exhibits stronger socio-economic capabilities than that of the city average level. In HOA neighborhoods, 84.4 percent of respondents report more than 5,000 Yuan as household monthly income. It is noted that the corresponding figure for the average household monthly income is 3,154 Yuan in the city census (Wenzhou Statistic Bureau, 2014). Therefore, the majority of residents in HOA neighborhoods have much higher earnings than the average level of the city. The proportion of university graduates (37.2 percent) in HOA neighborhoods is 8.6 times larger than the proportion of university graduates (4.3 percent) in the entire city, revealing a sharp contrast in the education profiles of the residents (Wenzhou Statistic Bureau, 2014). Therefore, the trend of residential sorting is overtly seen, as HOA neighborhoods are distinguished from the disadvantaged residential profiles of urban villages and traditional neighborhoods found by existing studies (He, 2015).

(insert Table 1 here)

Moreover, the physical and economic features relating to HOA neighborhoods are adopted as important control variables in this study. First, the neighborhood floor area ratio alluded to a relatively high level of density in these HOA neighborhoods. Meanwhile, the highest density level is 2.6 times greater than that in a low-density neighborhood. This is because many neighborhoods have high-rise apartment buildings while others have single houses. Secondly, public leisure space occupies 38.2 percent of these neighborhoods on average, and such a feature ranges from a minimum of 20.1 percent to as high as 50.0 percent. This suggests the quality of the built environment varies in these HOA neighborhoods. Besides, HOAs charge residents for managing the communal space and providing relevant services. This study finds a clear disparity of service fees among these HOAs as the highest service fee level reported is 11.4 times higher than the lowest. Third, a small proportion of HOA neighborhoods (36.4

percent) is identified as relocation housing as this type of housing projects had been developed to partly or fully host residents from urban redevelopment projects led by the local government.

The latter rows present neighborly interaction, experiences with HOA-featured governance, and sense of community. Residents on average report positive frequency of interacting with neighbors in HOA neighborhoods. Their frequencies of using services are higher than frequencies of contacting the HOA board. Similarly, residents' satisfaction is slightly higher with services provided than with the work of HOA. In general, residents achieve a high sense of community, with an average score of 41.7 out of 60. As aforementioned, dimensionality reduction was applied to the questions regarding HOA-featured governance. Two principal components were generated, representing one's participation in HOAs and the use of services.

#### *4.2 Sense of community*

Apart from the summed score of the sense of community, its details are presented in Table 2. The results show that the respondents are most likely to hold an expectation of living in the HOA neighborhood for a long period and to develop an attachment to this neighborhood, as these two questions scored the highest means, respectively, at 4.0 and 3.9 out of 5. These two questions have been identified as key elements to represent the membership dimension within the sense of community (McMillan and Chavis, 1986). A possible reason is that HOAs can facilitate the place-based membership and the right to belong for residents because the purchasing of property and the payment of "membership fees" contribute to one's feeling of owning a place.

(insert Table 2 here)

In contrast, respondents are least positive about the shared emotional connection between neighbors and themselves as their lowest evaluations concentrated on "most of the neighbors know me" and "I can recognize most of the people who live in my neighborhood". McMillan and Chavis (1986) suggest the extensiveness of local network amount be a crucial factor of the sense of community. However, the results show that residents of HOA neighborhoods are not likely to have an extensive amount of local network. Their sense of community is not necessarily rooted in the place-based experiences, such as having a long duration of residence or an extensive amount of local network, but rather in the perception and needs of the



residents themselves. As Pretty et al. (1996: 366) suggest, “one may sense the support of a new environment, such as a new neighborhood, before having the opportunity to establish interpersonal contact. Similarly, one may continue to perceive a setting as supportive even when familiar individuals have left.”

#### 4.3 Full model analysis

SEM was performed to reveal possible correlations between key variables, with results shown in Table 3. **Specifically, the direct effect is the amount of dependent variable changes that can be attributed to a direct path from one unit change in the independent variable, whilst the indirect effect is the amount of dependent variable changes that can be attributed to mediator variables. The indirect effects revealed the role of mediator variables.** The path coefficient represents the standardized direct effect between the two variables, while the path significance level is reported if it is **lower** than 0.05. The chi-squared test of model fit and the goodness-of-fit indices are presented below ( $p < 0.001$ , RMSEA=0.040, CFI=0.986, TLI=0.892), indicating that the model is statistically significant in explaining these correlations.

(insert Table 3 here)

The model clearly demonstrates the crucial relationship between neighborly interaction and the sense of community, as well as the mediation roles played by the experience of HOA-featured governance, with respondents’ socio-economic attributes and neighborhood contextual attributes controlled. Primarily, the model confirms that the residents’ neighborly interaction largely enhances their sense of community, thus confirming the hypothesis that neighborly interaction acts as a key determinant of the sense of community in HOA neighborhoods. Specifically, an increase of one level in a resident’s frequency of neighborly interaction increases their sense of community score by 2.226 when other variables remain unaltered. This means that people who often interact with neighbors achieve approximately a 4 percent higher score for the sense of community than those with a lower level frequency of neighborly interaction. It appears that neighborly interaction’s contribution to the sense of community still exists rather than being diminished following the transition from centrally governed neighborhoods to HOA neighborhoods. Furthermore, the degree of the individual’s neighborly interaction was found to have a positive influence on the level of their participation in HOAs, while its path to the use of services was not significant. The results

suggest that more interaction among neighbors may increase the level of neighborhood governance participation, as per the existing literature (Zhu and Fu, 2017).

Secondly, looking at the multiple indirect effects of the dual experiences of neighborly interaction and the sense of community, three sets of indirect paths can be identified: the participation in HOA, the use of services, and the dual threads. The first set of paths relates to the indirect effect of interaction on the sense of community through neighborhood service consumption, such as the frequency of using services and the level of satisfaction with service quality provided under the supervision of HOAs. The second and third sets show possible indirect effects that include experiences related to the engagement with HOA boards, with or without experiences of using services. The model output demonstrates that the degree of neighborly interaction has a larger indirect effect on the sense of community through the path of participation in one's HOA, while it has a smaller indirect effect through the path of using services provided in the neighborhood and via the dual experiences. Sobel tests were used to reveal the mediating effects. The proportion of the total effect that mediated between social interaction and the sense of community is 30.8 percent, through the experience of HOA-featured governance, with 22.3 percent of the total effect being mediated by the experience of participation in HOA, and the rest (8.5 percent) being mediated by the experience of using services. **In other words, the participation in HOA and the use of services partially mediates the direct effects between the neighborly interaction and the sense of community, becoming new sources of the sense of community.**

Thirdly, the analysis outcome shows that when neighborly interaction is maintained, residents who have better experiences with HOA-featured governance tend to have a higher sense of community score. If a person hopes to enhance their sense of community by one unit without changing the frequency of neighborly interaction, then they have to improve their participation level in the HOA; alternatively, they have to increase their level of using neighborhood services. These two features of HOA governance contributed to a consolidation of the residents' sense of community, as Xu et al. (2010) suggest. This reveals that HOAs can work as a suitable strategy for neighborhood governance when neighborly interaction is not a preferable choice (e.g., social distancing during epidemics).

Fourthly, the model confirms one of the hypotheses, namely that the correlation between HOA engagement and service consumption is not one of significant reciprocal causation. Essentially, residents are more likely to be motivated to consume services based on their

established connection with their HOAs rather than in the opposite way. That is, if a resident has already known the HOA, they tend to use the services provided and contracted by the HOA.

In terms of the control variables, the features of the respondents' socio-economic status and the features related to HOA neighborhoods demonstrate very different outcomes. The model shows that seniors, low-income residents, and those without university degrees are more active in socializing in HOA neighborhoods. In terms of the residential status, a one-year increase in the duration of residence contributes to the frequency level of neighborly interaction by 0.031, regardless of being a homeowner or not. This suggests that people of relative low mobility tend to rely on local networks and people spending a long time in the neighborhood tend to have consolidated local networks. Conversely, economic features of HOA neighborhoods have very little influence on the neighborly interaction level.

Furthermore, the mechanism of participation in HOAs is quite different from that of the social interaction in neighborhoods. Neither property age, property ownership, *hukou* status, nor income level correlate to one's experiences of HOAs. This is perhaps because the management capabilities of HOAs play a much more important role than one's socio-economic abilities in shaping such kinds of neighborhood experiences. For instance, respondents who pay higher neighborhood service fees are more likely to have a positive experience of using services in HOA neighborhoods. HOAs that charge more are likely to provide higher-quality services, resulting in better residential experiences. Additionally, the housing approach of relocation significantly decreases residents' participation in the HOA and use of services. Although most HOA neighborhoods adopt the market mechanism in the provision of services, the local government can largely intervene in the HOA governance when it manages state-led relocation housing. Thus, it has become a difficult topic and an extra expenditure for the involuntarily relocated to undertake participation in these HOAs and use the services.

The variegation of the sense of community is manifested in three aspects. First, renters and migrants are more likely to suffer from a low sense of community than their counterparts in HOA neighborhoods. Specifically, holding non-local *hukou* is expected to decrease one's sense of community by 1.853 unit. In a sense, a migrant's sense of community is 1.853 lower than a local *hukou* owner, while other factors hold the same. Nevertheless, there is no clear signal that renters and migrants are discriminated in the participating in HOAs and using

neighborhood services in HOA neighborhoods. This is different from the general understanding that migrants are excluded from local networks and public affairs in urban neighborhoods. This is probably because the migrants in HOA neighborhoods are relatively well established. For example, this study shows that 56.6 percent of the migrants surveyed are property owners, and suggests that property ownership raises one's sense of community score by the amount of 1.832. The entitled membership right in HOA neighborhoods may improve the neighborhood participation experiences of migrants in host cities. This is different from the low-skilled migrant workers who live in informal urban residences without access to property rights. For example, rural migrants in urban villages are often found to lack the opportunity to influence the neighborhood and to obtain public welfare equal to that experienced by the locals.

Second, the highly educated residents report negatively on the sense of community. They mark significantly low scores for the dimension of the shared emotional connection, including "most of the neighbors know me" and "I can recognize most of the people who live in my neighborhood". The finding is similar to the existing discussion around the emerging new middle class, who intentionally maintain weak neighborly relations and pursue privacy in privileged neighborhoods in urban China (Pow, 2007; Wu, 2010). This is different from the result for the NIMBY middle-class group, who are found to engage frequently in governing their neighborhoods to maintain property values (Low, 2003). The general low valuation exists not only for the sense of community but also for the participation in the HOA. This finding adds to the important debate around the autonomy of HOAs in neighborhood governance. The fact that highly educated residents are unlikely to participate in HOAs or develop a sense of community can be attributed to the contentious role of HOAs in neighborhood governance in urban China, as per the literature (Fu and Lin, 2015). Firstly, residents have little control over an HOA's power, considering the lack of self-governance power and autonomy in the current governance structure. Among them, the highly educated are more likely to perceive a lower efficacy of or form a weaker trust for HOAs. Secondly, the young and highly educated residents are less likely to participate in neighborhood governance with state intervention. They are closer to pro-market or individualism mechanisms than the collectivist regime because market-oriented reforms and governance decentralization have profoundly shaped their path-dependencies. This finding is very different from the general understanding in the United States, precisely that highly educated

people in HOAs are proactive when it comes to neighborhood democracy (Blakely and Snyder, 1997).

Third, environmental features in HOA neighborhoods has different influences on the sense of community. The results demonstrate that in order to increase the score of sense of community, neighborhoods can put controls on the neighborhood floor area ratio. Residents may develop a strong feeling of control in a low-density neighborhood, where they can influence the surroundings and their needs are likely to be fulfilled by both the social and physical environment. Conversely, the quality of public leisure space hardly relates to the sense of community. Therefore, to strengthen the sense of community, an HOA may improve the quality of neighborhood services rather than packaging the built environment with more leisure spaces.

## **5. Conclusion**

Living with an HOA is an important experience of private government and self-governance which may enhance the sense of community in many advanced economies (McCabe, 2011; Nelson, 1989). In China, HOA neighborhoods have been established as a result of housing privatization in the 1990s. However, HOAs in neighborhood governance is different from a private government, because they receive direct intervene from local authorities in their registration, daily work, and finance. The HOA-featured governance has engendered new experiences of neighborhood living in various aspects. Against this backdrop, the present study examined HOAs from the aspect of the sense of community, using a large-scale household survey in the city of Wenzhou. This study suggests that while neighborly interaction is indispensable for the sense of community, the HOA-featured governance has become an additional source of the sense of community.

Specifically, HOAs contribute to residents' sense of community in three ways. First, residents have developed a growing awareness that HOAs represent them in the task of dealing with neighborhood affairs. This awareness intrigues them to contact, negotiate, and influence their HOAs. This form of **participation** enhances residents' feeling of membership, which is an important component of the sense of community. Second, residents have become more conscious of their property **interests and rights**. Homeowners are more willing to make collective decisions or take collective action to maintain their property **interests and rights**, which is an aspect of influence in the sense of community. Thirdly, residents are gradually

relying on the services provided by HOAs. The withdrawal of the local government from neighborhood service provision has turned residents toward using services from market providers. All of these experiences built upon the participation in HOAs or utilizing their services serve to help those new associations function, respectively, as membership communities, grassroots organizations, and service providers to meet residents' needs, thus contributing to the sense of community.

The findings of this research provide important policy implications. Firstly, migrants and renters are suffering from a lower level of sense of community than the rest, largely due to their constrained *hukou* status and renting status. Local governments should provide more equal opportunities for them to engage in neighborhoods, such as the provision of public welfare, from which to improve their sense of community. Secondly, there is a trend for the highly educated group to deviate from HOA participation. To solve this problem, it is essential that neighborhood governance agencies improve their efficacy and trust at the grassroots level. Neighborhood policies should encourage neighborly interaction and civic engagement, from which to respond to the varied demands of different social groups. Thirdly, neighborhood contextual factors exhibit different relations to the sense of community. The results are instructive for urban policies to avoid high-density development and costly construction of leisure space. Instead, neighborhoods should emphasize the improvement of service qualities to boost neighborhood cohesion.

This research has several limitations. First, the sampled data is limited to HOA neighborhoods. To argue the causal effect of HOAs on the sense of community it is necessary to consider the residential sorting issue and to enlarge the sample base. In this study, we have only investigated how the sense of community varied across HOA neighborhoods. Nonetheless, we strictly followed the PPS method to ensure the representativeness of HOA neighborhoods. Using this method, variegated neighborhood contexts, including housing project types, were covered. More importantly, the probability of an individual household being sampled was the same. Second, it is essential to acknowledge that the sense of community is influenced by the co-governance in HOA neighborhoods, rather than the HOA alone. To better understand the mechanism of how the HOA affects the sense of community, future research may contrast HOA neighborhoods with non-HOA neighborhoods and may examine a variety of stakeholders with more structural factors considered.

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**Table 1. Descriptive statistics of variables**

	Description	Total (n=1,034)	Mean (S.D.)	Range
<b><i>Features of respondents</i></b>				
Marital status (percent)	<i>Married</i>	87.7		
	<i>Not in marriage</i>	12.3		
Household monthly income level (percent)	<i>&lt;5,000 Yuan</i>	15.6		
	<i>5000 – 10,000 Yuan</i>	37.3		
	<i>10,001 – 20,000 Yuan</i>	25.8		
	<i>&gt;20,000 Yuan</i>	21.3		
Educational attainment (percent)	<i>University or above</i>	37.2		
	<i>Below university</i>	62.8		
<i>Hukou</i> status (percent)	<i>Migrant</i>	5.1		
	<i>Local</i>	94.9		
Property ownership (percent)	<i>Owner</i>	93.3		
	<i>Renter</i>	6.7		
Age			39.9 (12.0)	18–85
Duration of residence (year)			5.5 (3.2)	1–14
<b><i>Features of HOA neighborhoods</i></b>				
Floor area ratio of neighborhood			2.0 (0.6)	1.2–3.1
Percentage of public leisure space provided in neighborhood			38.2 (9.7)	21.5–50.2
Monthly neighborhood service fee paid (Yuan)			197.0	84.0–960.0
Type of housing project (percent)	<i>Relocation housing</i>	36.4		
	<i>Non-relocation housing</i>	63.6		
<b><i>Features of neighborhood living experiences</i></b>				
Frequency of neighborly interaction			2.6 (0.8)	1–4
Frequency of using services provided in neighborhood			2.1(0.5)	1–3
Satisfaction with services provided in neighborhood			2.4 (0.6)	1–3
Frequency of contacting HOA board			1.5 (0.6)	1–3
Satisfaction with HOA			1.9 (0.7)	1–3
Sense of community			41.7 (6.9)	22–60

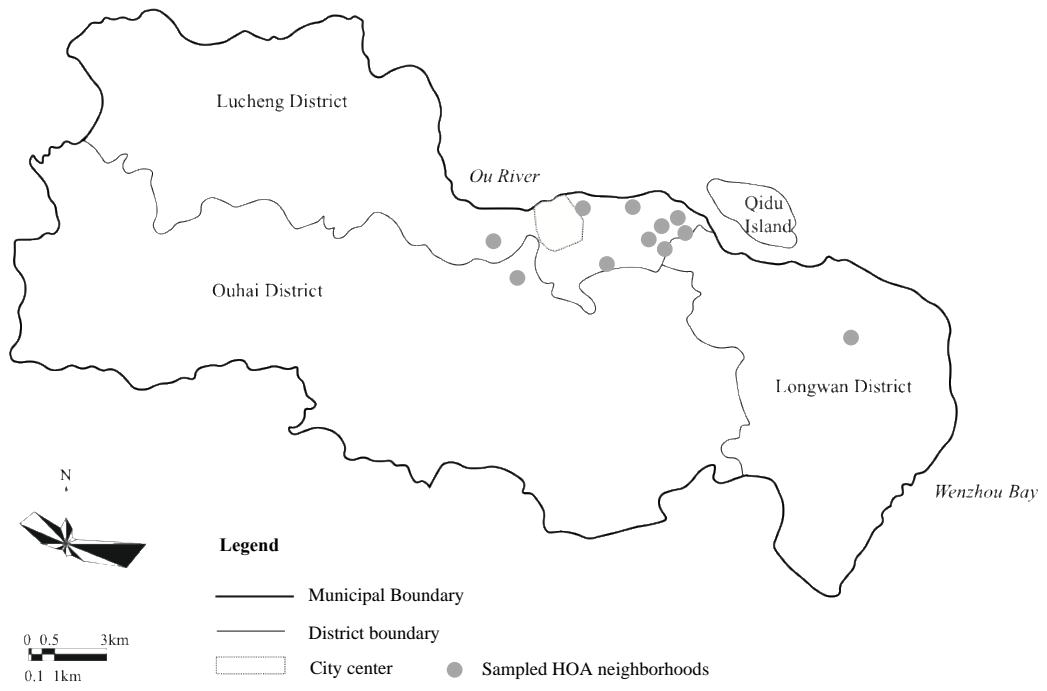
**Table 2. Description of the sense of community**

Items measured for the sense of community	Description	Total (n=1,034)	Range
I think this neighborhood is a nice place for me to live.	<i>Mean (S.D.)</i>	3.9 (0.8)	1–5
People on this neighborhood share the same values.	<i>Mean (S.D.)</i>	3.1 (1.0)	1–5
I can get help from my neighbors.	<i>Mean (S.D.)</i>	3.6 (0.8)	1–5
I can recognize most of the people who live in my neighborhood.	<i>Mean (S.D.)</i>	2.9 (0.9)	1–5
Most of the neighbors know me.	<i>Mean (S.D.)</i>	2.7 (1.0)	1–5
I feel attached to this neighborhood.	<i>Mean (S.D.)</i>	3.9 (0.9)	1–5
I care about what my neighbors think of my actions.	<i>Mean (S.D.)</i>	3.2 (0.9)	1–5
I have influence over what this neighborhood is like.	<i>Mean (S.D.)</i>	3.3 (1.0)	1–5
If there is a problem on this neighborhood, people who live here can get it solved.	<i>Mean (S.D.)</i>	3.6 (0.9)	1–5
It is very important to me to live in this neighborhood.	<i>Mean (S.D.)</i>	3.7 (0.9)	1–5
People in this neighborhood generally get along with one another.	<i>Mean (S.D.)</i>	3.6 (0.9)	1–5
I expect to live in this neighborhood for a long time.	<i>Mean (S.D.)</i>	4.0 (0.9)	1–5

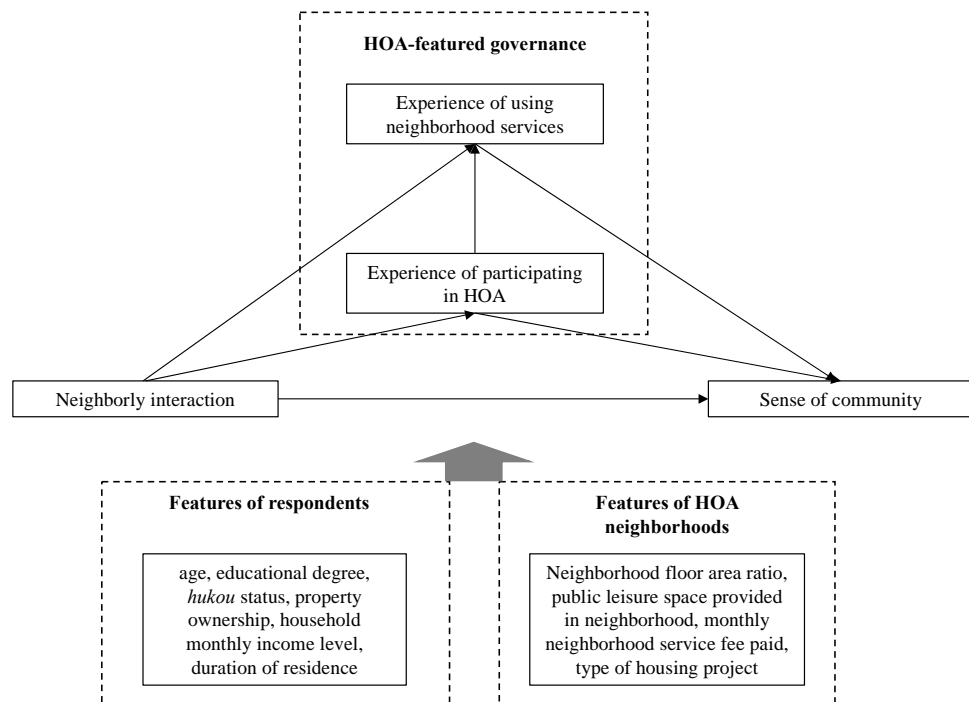
**Table 3. Structural equation modelling results of the full model**

		Neighorly interaction	Participating in HOAs	Using neighborhood services	Sense of community
Neighorly interaction	Direct		.387***	.068	2.226***
	Indirect		–	.107***	.683***
	Total		.387***	.175***	2.909***
Participating in HOAs	Direct			.277***	1.255***
	Indirect			–	.313***
	Total			.277***	1.568***
Using neighborhood services	Direct				1.130***
	Indirect				–
	Total				1.130***
Age	Direct	.008***	.004	.002	.016
	Indirect	–	.003**	.003*	.033**
	Total	.008***	.007*	.005	.049*
Household monthly income	Direct	-.055*	-.055	.032	-.363+
	Indirect	–	-.021*	-.025*	-.208*
	Total	-.055*	-.076 <sup>+</sup>	.007	-.571**
Education attainment (university degree or above=1)	Direct	-.139*	-.251**	-.016	-.927*
	Indirect	–	-.054*	-.094***	-.815***
	Total	-.139*	-.305***	-0.110	-1.742***
<i>Hukou</i> status (migrant=1)	Direct	.078	.023	.070	-1.853*
	Indirect	–	.030	.020	.341
	Total	.078	.053	.090	-1.512
Property ownership (owner=1)	Direct	.173	-.098	.129	1.832*
	Indirect	–	.067	.003	.497
	Total	.173	-.031	.132	2.329*
Duration of residence	Direct	.031***	-.002	-.026*	.017
	Indirect	–	.012**	.005	.058+
	Total	.031***	.010	-.021 <sup>+</sup>	.075
Type of housing project (relocation housing=1)	Direct	-.041	-.264**	-.466***	0.300
	Indirect	–	-.016	-.080**	-1.061***
	Total	-.041	-.280***	-.546***	-0.761
Monthly neighborhood service fee paid	Direct	-2.24x10 <sup>-4</sup>	.001	.003***	.006+
	Indirect	–	-8.65x10 <sup>-5</sup>	2.00 x10 <sup>-4</sup>	.004*
	Total	-2.24x10 <sup>-4</sup>	.001	0.003***	.010**
Neighborhood floor area ratio	Direct				-.888**
	Indirect				–
	Total				-.888*
Ratio of public leisure space provided	Direct				0.016
	Indirect				–
	Total				.016

Note: \*\*\*p<0.001, \*\*p<0.01, \*p<0.05, +p<0.1. RMSEA=0.040, CFI=0.986, TLI=0.892, p<0.001.



**Figure 1. Location of sampled HOA neighborhoods**



**Figure 2. Analytical framework**





**Figure 3. Public leisure spaces within sampled HOA neighborhoods** (upper: the waterfront leisure area; lower: the central communal park)