

**Sense of Community in Mixed-income Housing Project in China**  
**—— Learning from a Case Study in Beijing**

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**by**

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## **ABSTRACT**

This thesis is about sense of community in mixed-income housing project in China and uses a case study in Beijing for analysis. Sense of community in this thesis is defined as a feeling of people who feel they belong to their community, a feeling that they are attached with each other physiologically and would like to contribute to the community with their joint effort. The purpose of this research is to investigate how the sense of community is formed in mixed-income communities in China, to find a better way to strengthen the social cohesion in these types of communities, and to provide policy recommendations for the future mixed-income housing development. This research uses the Yupu community in Beijing as a case study. The research is designed in two parts, one is quantitative research using a survey conducted in the Yupu community, and the other is qualitative research by interviewing the local residents. The survey questionnaire is designed with the Sense of Community Index to measure the sense of community in the case study area.

This research finds that affordable housing residents in the case study value their sense of community at a high level. However, in practice, they experience a relatively low sense of community because of the physical barriers and economic segregation in their neighborhood. The sense of community is formed and continues to grow through community participation during the process of residents' right protection movement. The developer and the government should take the responsibility and better plan for the mixed-income communities in the future.

**Key words:** sense of community, mixed-income housing, segregation, social cohesion

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## **I. INTRODUCTION**

This thesis is about sense of community in mixed-income community in China and uses a case study in Beijing for analysis. For here, mixed-income community refers to the community with both affordable housing and commodity housing in China. Sense of community in this study is defined as a feeling of people who feel they belong to their community, a feeling that they are attached with each other physiologically and would like to contribute to the community with their coordinated effort. The research question of this study is: What is the sense of community of affordable housing residents in the mixed-income community? This study uses the Yupu community in Beijing as a case study and measures the sense of community of affordable housing residents in that urban mixed-income community. Affordable housing residents in this study refer to people who have bought the affordable housing units, and commodity housing residents are people who have bought the commodity housing units. They are the two kinds of people living in the mixed-income community. There are segregation problems existed in this kind of communities. The purpose of this research is to investigate how the sense of community is formed in mixed-income communities in China, to find a better way to strengthen the social cohesion in these types of communities, and to provide policy recommendations for the future mixed-income housing development.

Following this Chapter, Chapter two introduces the background of mixed-income housing policy in China and the conflicts in this kind of housing project. Chapter three reviews the related literature focus on mixed-income housing and sense of community, and gives a summary

of the past research and the difference in China. Chapter four is the methodology of this thesis, which includes quantitative research by using a survey conducted in the Yupu community, and a qualitative research by interviewing the local residents. The research uses Sense of Community Index-2 from Community Science<sup>1</sup> to develop the questionnaire and measure the sense of community in the case study area. Chapter five is the analysis based on both quantitative and qualitative research. Chapter six is the conclusion of this research. The research finds that affordable housing residents in the case study value their sense of community at a high level. However, in practice, they experience a relatively low sense of community because of the physical barriers and economic segregation in their neighborhood. Affordable housing residents have fought for their rights and interest as homeowners, which is seen as a right protection movement. The sense of community is formed and continues to grow through community participation during the process of residents' right protection movement. Chapter seven provides recommendation based on conclusion in terms of encouragement for community engagement, design for social impact, and improvement for policy enforcement. Chapter eight discusses the limitation of this research. Chapter nine talks about the planning implication and provides policy recommendation for the developer and the government. The developer and the government should take the responsibility and better plan for the mixed-income communities in the future.

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<sup>1</sup> SCI-2 is developed by Community Science. Community Science shares the questionnaire of SCI-2 for other organizations and individuals free of charge as long as they complete the request form. Questions cannot be changed when using this questionnaire, but can be translated into other languages based on the specific research.

## II. BACKGROUND

There are two main kinds of housing in China, commodity housing and affordable housing. Commodity housing is similar to market rate housing in the United States that are built for profit by private sector. The planning and construction of affordable housing are primarily led by the government in China in the past. There are primarily four categories of affordable housing in China: Economically Affordable Housing, Low-rent Housing, Public Rental Housing, and Limited Price Housing<sup>2</sup>.

Mixed-income housing has been a popular concept in China for years. The practice of this kind of housing in China began in 2012. There is no single policy for mixed-income housing, but several cities have mentioned it as a new measure in their affordable housing policies to lead future affordable housing development. The government focuses on coordinating the function in different parts of the city by increasing the supply of affordable housing in new towns and in areas close to the subway and public service. It also encourages the mixed-housing development of different types, levels, and people to build a harmonious community. The affordable housing continues to be most constructed by the governments. At the same time, the private developers are welcomed to participate and support the affordable housing construction. For this kind of support and cooperation, the governments set up rules to limit the price of land leasing value<sup>3</sup>.

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<sup>2</sup> The case study in this thesis is mixed-income community with Limited Price Housing. Other three categories are not covered in this thesis. The Economically Affordable Housing was popular in the early 21<sup>st</sup> century, but had faced problems of high-price resale. Low-rent Housing and Public Rental Housing are affordable housing for rent. They have gained more emphasis these years and are provided for lower-income people without local “hukou”, which is a permanent residential certificate of the city. People with Beijing “hukou” represents that people already have household registration in Beijing before they apply for buying this kind of affordable housing.

<sup>3</sup> “Land leasing value” is the money that developers pay for the government. Since all the land in China are state-owned land, developers have to pay to the government for using the land for certain years and then make the construction.

Real estate developers compete for the land by providing certain portion of onsite affordable housing units in the new housing project. This is similar to the Inclusionary Zoning policy in some cities in the United States. The developer who can provide the highest percentage of affordable housing within the limited land leasing value will get awarded the project.

Governments provide lower land leasing value for developers as an exchange of more affordable housing units at better location. Developers could thus enjoy the benefits of less costs. In Beijing, the rules for mixed-income housing also stipulates that the sales price of affordable housing units should be no more than 30% of the commodity housing in the same project. The affordable housing units cannot be listed for transaction within 5 years. After 5 years, once it could be on the housing market for sale again, 30% of the transaction revenues should be turned over to the government treasury. Overall, the mixed-income housing in China is intended to relieve the residential segregation problem among different classes, to control the rising commodity housing value in the housing market to ensure the supply of affordable housing with better location, and to improve the public service and social equity in the urban area.

However, problems surfaced during the development of mixed-income housing project in past years. As affordable housing units had much lower price than commodity housing units, developers had to use the return from commodity housing to subsidize the affordable housing. To do this, they would need a density bonus from the government to be able to build the affordable units. In order to ensure more return and profits, the affordable housing was built separately in another building. In some mixed-income housing projects, the affordable housing were even separated with fence, walls or greenery in real practice.

In 2015, the Construction Committee in Beijing published the rule that forbids any physical barriers between affordable housing and commodity housing. Some communities constructed before that still had the barriers after this rule. In August 2017, the new rule urged that all the existing barriers in this kind of mixed-income housing project should be cleared before September. However, the issue of physical barrier is just the superficial problem of mixed-income housing. Whether clearing the barriers or not could not touch the core of the problem. It is an expression of segregation inside the community. This is an issue that also touches on areas of policy, planning, and society.

### **III. LITERATURE REVIEW**

#### **3.1 Mixed-income Housing**

##### **3.1.1 Definition of mixed-income housing**

There is no specific definition for “mixed-income housing”, as Lawrence J. Vale pointed out (Vale, 2017). According to the definition from U.S. Department of Housing and Urban Development, a mixed-income housing development is “a development that is comprised of housing units with differing levels of affordability” (U.S HUD, 2003)<sup>4</sup>. In practice, it refers to the housing projects that have different type of housing units both at market rate and below market for low-income people in the buildings, which are different with former public housings that serve entirely for the low-income households.

##### **3.1.2 Impacts of mixed-income housing**

Mixed-income housing policies have been started in United States since the late 20<sup>th</sup> century. They have been seen as an effective approach to deconcentrate areas of poverty created by the past affordable housing projects. In general, mixed-income housing can create a more stable environment for low-income people both economically and socially. It can also help to balance the conflicts between affordable housing and market rate housing. Thus, income mixing is not solely an economic issue. It is also related to social, spatial, political, and cultural issues in real life.

There are many research of using different measurement to evaluate the social, economic

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<sup>4</sup> Mixed-Income Housing and the HOME Program. USHUD. 2003. [https://www.hud.gov/sites/documents/19790\\_200315.PDF](https://www.hud.gov/sites/documents/19790_200315.PDF)

and political benefits of mixed-income housing. Vale and Shomon Shamsuddin collected data from all 260 HOPE VI mixed-income housing projects and developed a framework for categorizing key aspects of mixed-income housing. They found four dimensions in their framework: allocation, proximity, tenure, and duration. These dimensions can be used to identify what are the most appropriate projects for the community and therefore better for serving the low-income residents. Another group of studies used an ethnography method to investigate the structuring of urban life in mixed-income communities. Through focus group interviews, participant observation and content analysis, the researchers found that there were hidden regulations inside communities, which led to the different interaction and identity to residents (Graves, 2010, 2011; Tach, 2009.).

The mixing income has different effects in different neighborhoods based on their own demographics. John R.Hipp and other researchers used machine learning techniques to analyze the relationship between average income growth and mixed demographics. They found that income mixing was associated with worsening average household income in neighborhoods with more poverty, unemployment, immigrants, or population density. (Hipp et al.2017). Apart from the average income, they also examined the mixing of race, house age and land use. Before their study, past researches typically looked at the positive impacts of mixed-income housing on lower income people. However, Hipp's work founds that income mixing can have negative effects on low-income neighborhoods in the long term.

After Hipp, there are also other researchers that pointed out the negative social effect of mixed-income housing for low-income people in practice. Popkin, Susan J., et al indicated that

the competition with private market tenants would rather make the low-income families be screened out from the government assistance and be left into the private market, because they had social and economic difficulties to adapt to the new community. They were also hard to maintain the assistance in the long term. (Popkin, Susan J., et al, 2000). Rachel Garshick Kleit examined the HOPE VI mixed-income housing project in Seattle. They compared social interaction between subsidized residents and nonsubsidized residents, which provided a different perspective with past researches, and found that neighborhood interaction and social network composition varies by socioeconomic status among residents (Kleit, 2005). Other researchers found that relocating public housing residents to mixed-income housing has shaken their social identity. In mixed-income community, lower income residents could sense a social prejudice from their high-income neighbors (McCormick et.al, 2012). In the book, *Integrating the inner city: The promise and perils of mixed-income public housing transformation*, the authors pointed out problems of social inclusion in mixed-income projects. They found that spatial integration of renewing public housing neighborhood has led to little interaction between residents, particularly across class, race and tenure lines, and they called this phenomenon “incorporated exclusion” (Chaskin, Robert J., and Mark L. Joseph, 2015).

In addition to the research mentioned here, there is continuing attention to issues of social justice, and social interactions among the residents in mixed-income housing.

## **3.2 Sense of Community**

### **3.2.1 Definition of sense of community**

In 1986, David W. McMillan and David M. Chavis reviewed the initial studies on sense of community. They presented a theoretical framework of the dynamics of sense of community, which was composed of four elements: membership, influence, reinforcement, and shared emotional connection. These four elements worked together to form the sense of community. They defined the sense of community as a feeling that members belong to a group, 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, 1976). This definition, like most of the researches, empathizes the social attachment and psychological feeling of the community.

New urbanism claims that built environment can create a sense of community among its users. Stedman pointed out that physical environment like landscape plays an important role for the sense of place (Stedman, 2003). Other researchers also examined the association between sense of community, walking and neighborhood design characteristics, combining the social interaction with physical urban form (Wood et al, 2010).

### **3.2.2 Measurement of sense of community**

Richard C. Stedman conducted a mail survey of 1,000 property owners, asking their place attachment and satisfaction to get the social psychological dimensions of sense of place. He used meaning-mediated model<sup>5</sup> by adding environmental attributes for analyzing the relationship

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<sup>5</sup> Meaning-mediated model in this research suggests that the meanings of a set environment are based on its environmental attributes, for example the landscape characteristics, and these meanings are highly related to sense of community.

between different landscape and sense of place (Stedman, 2003). Tang F, Chi I, Dong X referenced McMillan's four elements of sense of community as mentioned above, and used the Sense of Community Index<sup>6</sup> to measure the sense of community. They found that social activity engagement and positive social support had beneficial impact on people's sense of community. Their work emphasized the positive effect of human interaction and social activities for improving the sense of community (Tang, Chi, Dong, 2017).

As for the connection between housing issues and sense of community, some researchers examined the neighborhood confidence and place attachment<sup>7</sup> among three groups of residents: new housing subdivision, newcomers, and old-timers in the surrounding neighborhoods. The research team surveyed 84 households in New West subdivision of Salt Lake City to evaluate the neighborhood revitalization project. They did an OLS regression to quantify relationship between the confidence and place attachment using the following independent variables: levels of fear, levels of perceived incivilities, levels of citizen participation, and levels of service satisfaction (Brown, Graham, et al, 2004).

### **3.2.3 Impacts of sense of community**

Recently some studies have been focusing on the impacts of climate changes risks and post-disaster conditions on people's sense of community (Carter, Jennifer, Dyer et al, 2007;

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<sup>6</sup> Sense of Community Index (SCI) is a wide-used index for measuring sense of community developed by Community Science. It is based on McMillan's four elements of sense of community. In 2005, Community Science developed a revised version of the SCI called the SCI-2 to improve the SCI's psychometric properties and to incorporate advances in the study of a sense of community. This study chooses to use SCI-2 to measure the sense of community in the case study area. More explanation and analysis is provided in Chapter three and Chapter five.

<sup>7</sup> Neighborhood confidence in that research refers to the level of residents' confidence about whether they believe their neighborhood will get worse or get better in the future. Place attachment means residents' feelings about their neighborhood, their block, and their private properties.

Wright, Storr, 2009; Wright, 2013). These studies imply that there is a formation of social ties and an increase of interaction among people when they are facing a dramatic change to their built environment. Other studies have looked at how different factors contribute to form and influence the sense of community, including race, age, poverty level, crime rate, multicultural structure, social organizations, and the public space and physical design of the communities (Talen, 1999; Doenges, 2000; Manzo, Perkins, 2006; Marx, 2001; Ebrahim, 2015; Zhang, Yu, Zhou et al, 2017; Tang, Chi, Dong, 2017; Samila, Sorenson, 2017).

There are many studies focus on the impact of sense of community at different levels, including individual, community, and city levels. Anne E. Brodsky, Patricia J. O'Campo, and Robert E. Aronson studied what created a sense of place at both the individual and community levels in three low-income neighborhoods in Baltimore. They found that sense of place was related to the community conditions and should be placed in community level. The research extended sense of place to community level as a measurement of psychological sense of community (Brodsky, 1999). Lynne C. Manzo and Douglas D. Perkins figured out the conflict of environmental psychologists and planners, which was a lack of connection between place attachment from physiological perspective and community development from socioeconomic perspective. They argued that sense of community should be linked to place attachment at both the individual and community, so that the community planning could care both environmental and community psychology perspectives (Manzo, Perkins, 2006). Emily Walton argued that the

sense of community may provide a social psychological basis for collective efficacy,<sup>8</sup> improving the previously disorganized and underserved community through this kind of emotional investment (Walton, 2016).

### **3.3 Research in Chinese cities**

The mixed-income housing in China is called “Hun He Ju Zhu” (“混合居住”). Researchers in China have been paying more attention on mixed-income communities since 21st century. Most of them advocate mixed-income neighborhood by discussing and criticizing the current problems of residential segregation by income at the city scale. They are less concerned about the community environment. After 2007, with the rapid development of affordable housing, research on mixed-income housing turned its focus more to the practical design, implementation, and policy and financing aspects of residential development (Zhang, Ye, 2017).

Unlike mixed-income housing in the United States, there is no race or ethnics segregation in China, and there is also less concern about crime. In China, the “mix” mainly refers to the mix of different income levels and social class. However, as in the United States, mixed-income housing in China has also led to economic segregation in the mixed neighborhoods. In an empirical study of mixed residential community, researchers found internal differentiation in a Chinese community from the dimensions of socio-economic characteristics, commute methods, the use of infrastructure, community participation, community attachment, life satisfaction.

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<sup>8</sup> Collective efficacy refers to the ability of members of a community to control the behavior of individuals and groups in the community.

Different groups of residents also expressed diverse needs and appeals to public facilities in the community. (Hu, Li, Lin, Wang, 2010).

Researchers, especially New Urbanism researchers in western countries, have been paying attention to the influence of the physical environment on social relationships in a neighborhood, but there are few studies that look at this connection in Chinese cities. Most studies in China look at sense of place in terms of place identity and tourism. In urban areas, sense of community studies typically focus on specific neighborhoods, and are largely measured from the traditional physiological perspective. These studies are similar to some done in the United States. Some researchers found that sense of community was positively associated with life satisfaction in Chinese older adults, as well as the personal and partner resilience<sup>9</sup> (Zhang, Yu, Zhou et al, 2017). However, their work only focused on the connection between life satisfaction and sense of community, and did not address any relationship between the physical environment and sense of community.

### **3.4 Summary**

Housing policy has been changing and improving quickly in China. Currently, there is little research focusing on the social impacts of mixed-income housing and the approach to reach to social integration in the mixed-income housing in China. Thus, this study aims to fill this gap. The study uses the theory and framework of Sense of Community Index to analyze residents'

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<sup>9</sup> Personal resilience here is defined as a psychological asset for helping individuals recover and even grow from adversity. Partner resilience is how much people are reliant on their family members for support.

sense of community in mixed-income housing projects in China. The study concentrates on the sense of community of affordable housing residents in the mixed-income community. This study looks at ways to improve social integration in mixed-income communities.

#### IV. METHODOLOGY

The research question of this study is: What is the sense of community of affordable housing residents in the mixed-income community? To answer research question, this study uses convergent parallel mixed methods design<sup>10</sup>, including both the quantitative method and qualitative methods.

At first, the study intended to investigate whether there is difference in the sense of community between affordable housing residents and commodity housing residents. The previous proposal developed a methodology that mainly focused on quantitative research by conducting 80 surveys in total, which would be 40 for each resident group<sup>11</sup>. The different sense of community may be compared with the different scores calculated from survey questions. T test and Chi-square test would be used to test whether there is statistically significant difference in sense of community between two groups of residents. Ten respondents who have finished the survey would be selected to do the interviews. However, the research failed to reach to the commodity housing residents. That part of the community had tight security at the entrance, and only people living there could get inside. Due to the weather condition and limited time, the research changed to focus on the affordable housing residents in the community and used the qualitative data from their interview to answer the research question<sup>12</sup>.

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<sup>10</sup> Convergent parallel mixed methods design is a method that collect both quantitative and qualitative data, merge the data, and use both results to understand the research problem.

<sup>11</sup> With a confidence level of 95% and a confidence interval of 10, the appropriate sample size for a community with 1,000 residents would be around 88. This calculation is based on Sample Size Calculator accessed from <https://www.surveysystem.com/sscalc.html>.

<sup>12</sup> 30 survey samples are not enough for doing quantitative analysis and answer the previous research question. Although t-test could be used for small sample, the confidence interval increased to over 17 with the current sample size of 30 in this research. It would not be accurate for the statistical analysis.

#### **4.1 Data Collection**

Quantitative data was collected from surveys given to 30 residents<sup>13</sup>. Qualitative data was collected through semi-structured in-depth interviews to better understand residents' feelings and reasoning. These interviews were designed to help to analyze and explain the findings from quantitative surveys results. Ten people who had done the survey were asked for about 30-minutes face-to-face interview. In this way, the population for both quantitative and qualitative research was the same, meaning it easier to coordinate the qualitative data with the outcomes from the surveys.

#### **4.2 Sampling method**

The study uses a mixed-income community in Beijing as a case study. As for finding a specific case study area, the criteria of choosing the community includes the date of construction, the number of residents, the current segregation between different income groups. The final site for case study is the Yupu community located next to the Third Ring Road in Fengtai District, at the southwestern part of Beijing. The site map is shown as in Figure 1.

The sampling method in quantitative part is convenient sampling<sup>14</sup>, which is more practical in Chinese cities. Taking the statistical validity, the background of communities in China, and the possible challenges into account, the study has finally finished 30 surveys in total among the

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<sup>13</sup> Personal and household data at neighborhood level in China are hard to get by the public. Survey is an efficient way to gather data especially for this study that aims to measure the sense of community of residents.

<sup>14</sup> Convenient sampling is a basic type of non-probability sampling method. The samples in the research are selected form a group of people who are easy to contact or to reach.

affordable housing residents in the community. Each participant was paid 10RMB (about \$1.5) as the compensation for filling out the questionnaires so that the degree of involvement could be ensured as much as possible.

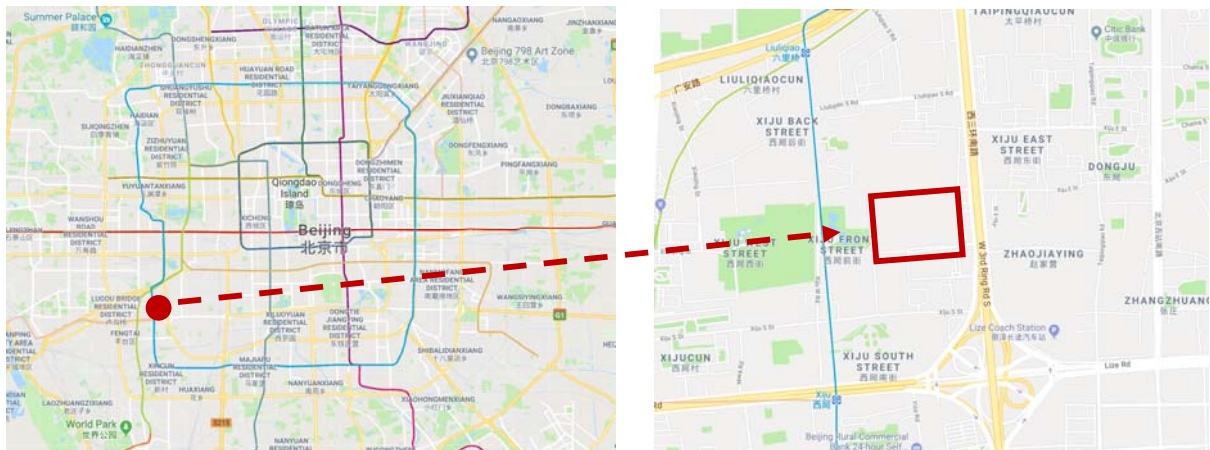


Figure 1 Site location of the Yupu community in the case study. Made at the base of Google Map by Mengyao Li.

### 4.3 Survey design

The survey covered basic information of the respondents and a scale to measure their sense of community. The measurement of sense of community referred to McMillan's Sense of Community Index II (SCI-2) as it had been already used by lots of research in social science researches in global context. The Community Science gave this study the permission to use their SCI-2 for research use. Using this traditional and well-used index can increase the reliability of the survey. The questions in this research were based on the original English version questionnaire of SCI-2 questions. The questionnaire was translated into Chinese as all the participants spoke Chinese in the community.

The questionnaire for this study is shown in Appendix 1. In the questionnaire, Question 1

defines the different groups of residents. Question 2 to 4 describe the demographics and background of respondents. Question 5 is about the overall living satisfaction of this community. Question 6 asks for the living desire in the future. Question 7 gives the overall sense of community which could be helpful to interpret the results. Based on McMillan's framework of sense of community, question 8 has a list of questions to quantify the Sense of Community Index in the study area from four subscales, including reinforcement of needs (sub-questions 1-6), membership (sub-questions 7-12), influence (sub-questions 13-18), and shared emotional connection (sub-questions 19-24). To score the scale, "not at all" represents 0, "somewhat" represents 1, "mostly" represents 2, and "completely" represents 3. The overall sense of community index is summed up from the four scales in Question 10. The higher the value, the higher the sense of community.

#### **4.4 Data analysis**

The study uses explanatory sequential mixed methods design<sup>15</sup> to interpret the data, by summarizing the quantitative data first, describing the demographics and overall sense of community of respondents, and then further explaining the outcomes with qualitative data. Qualitative data are dictated based on the interview record and notes. The interviews were conducted and be recorded in Chinese, and then translated into English. More attention was paid to repeated words and emphasized facts that residents mentioned during the interview. These

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<sup>15</sup> The exploratory sequential mixed methods design starts from an initial qualitative phase of data collection and analysis, followed by a phase of quantitative data collection and analysis, and with a final phase of integration of data from the two separate strands of data.

responses were especially noted in the analysis. Figure 2 shows the research framework, including variables and subscales developed from Sense of Community Index.

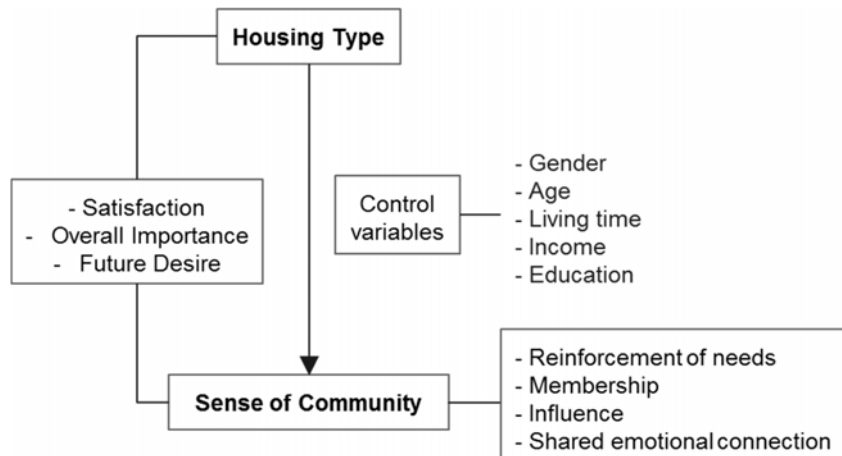


Figure 2 Research framework. Made by Mengyao Li.

## V. ANALYSIS

### 5.1 Survey Analysis

#### 5.1.1 Descriptive analysis

For this study 30 surveys were completed by affordable housing residents in the community using convenience sampling method. The respondents include sixteen males and fourteen females. As for the age distribution in the sample data, fourteen of the respondents are between 25 to 35 years old. Five respondents are between 35 to 45 years old. There are six people between the age of 45 to 55 years old, and five people between 55 to 65 years.

Yupu is a new community that built in 2017, hence most of the respondents moved there in 2017, and only one of the respondents just moved there in 2018. Displayed in Figure 3, five of the respondents have high school or equal education level, 18 have college or university education level, and seven have a masters or higher degree. As for the income level in Figure 4, twelve of them have monthly incomes between ¥6,000 and ¥9,000, and 14 of them have monthly incomes higher than ¥9,000. The affordable housing in the Yupu community are targeted to middle-income people and the respondents' income level from the survey corresponded with it. The survey thus concludes that the residents in this community have high education levels and relatively higher income levels when comparing with many other affordable housing applicants.

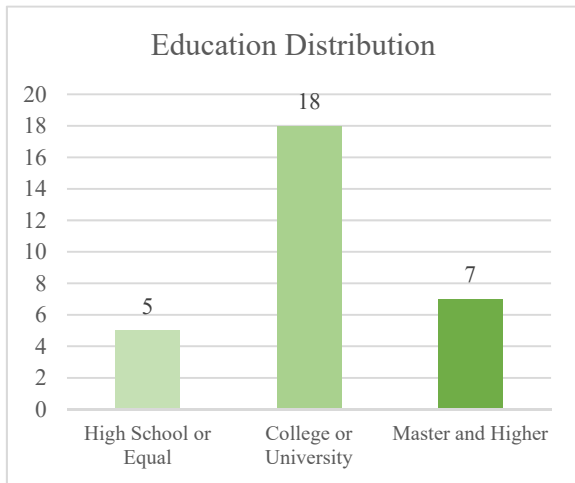


Figure 3 Education level of respondents

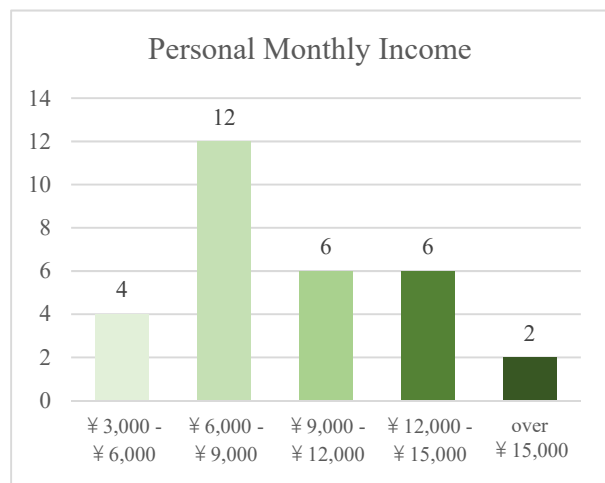


Figure 4 Monthly income of respondents

The survey data indicates a rather high level of living satisfaction as shown in Figure 5 on next page shows. Five respondents are somewhat satisfied and one is not very satisfied with the community. Most of them are willing to continue to live in this community in the future, and only one would not like to live here. Even though no respondent answer that they “prefer not to be a part of this community”, some respondents reflect that they do not quite understand the definition of “sense of community” when asked about the overall importance of the sense of community,

As can be seen in Figure 6, ten respondents think sense of community is somewhat important to them. Twelve respondents think it is important to them, and four respondents choose “very important”, which accounts for over 15% of the total respondents. The importance level of the sense of community for the residents is higher than average. This can indicate a general sense of community among affordable housing residents in the Yupu community.

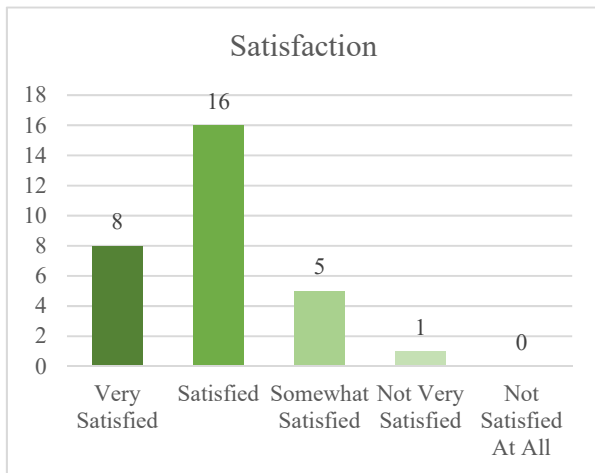


Figure 5 Satisfaction level of respondents

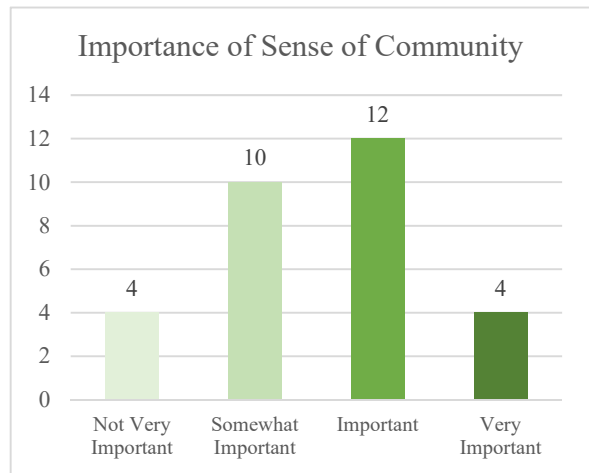


Figure 6 Importance of sense of community

### 5.1.2 Sense of community in the Yupu community

SCI-2 of affordable housing residents in the Yupu community is summarized by Question 8 in the questionnaire (See Appendix 1). The sub-questions in Question 8 covers four subscales including reinforcement of needs, membership, influence, and shared emotional connection. The total points for each subscale is 18, and the maximum total points for the overall SCI-2 is 72. According to the survey data shown in Table 1 on next page, the average SCI points for each scale in the Yupu is not very high. The average overall sense of community index is 30.6, which does not reach to half of the total points. Living time has a positive impact on the sense of community based on past research, but here the low sense of community reflected from the survey may be because this target case study represents a relatively new community.

Variable	Obs	Mean	Std. Dev.	Min	Max
sum_needs	30	8.1	3.133248	2	14
sum_mem	30	4.3	2.437494	1	10
sum_influ	30	8.3	3.05298	2	15
sum_conn	30	10	3.403852	4	17
overall	30	30.6	10.20007	15	52

Table 1 Summary points of SCI-2 in the Yupu community<sup>16</sup>

To figure out the relationship between sense of community and other independent variables, this study also tests the correlation among different variables. Table 2 is the Stata output that calculate the correlation between two variables, including age, education level, income level, and satisfaction with the community, desire to live in this community in the future, the importance of a sense of community, the four subscales of sense of community and the sense of community index. The correlation index of importance and SCI is 0.787 as highlighted in Table 2 on next page, indicating that the importance of sense of community and the actual sense of community have a strong positive relationship. The importance variable also has rather strong positive relationship with each of the four subscales. Besides, satisfaction with the community has positive relationship with sense of community to some extent, indicating that residents with higher living satisfaction would also have higher sense of community.

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<sup>16</sup> The five columns display the number of observations (total respondents), mean of total points, standard deviation of total points, minimum and maximum points among all the respondents. First four rows are the four subscales of sense of community, and the last row is the overall SCI-2 summarized by the four subscales.

```
. corr age education income satisfaction desire importance sum_needs sum_mem sum_influ sum_conn overall
(obs=30)
```

	age	educat-n	income	satisf-n	desire	import-e	sum_ne-s	sum_mem	sum_influ	sum_conn	overall
age	1.0000										
education	-0.6030	1.0000									
income	-0.4124	0.6380	1.0000								
satisfaction	0.1257	-0.4276	-0.3774	1.0000							
desire	0.3209	-0.3180	-0.0979	0.3103	1.0000						
importance	0.2650	-0.2437	-0.0885	0.3742	0.0754	1.0000					
sum_needs	0.1341	-0.2099	-0.1716	0.4014	0.1190	0.7634	1.0000				
sum_mem	0.2984	-0.2787	-0.2205	0.5123	0.1808	0.6479	0.7003	1.0000			
sum_influ	0.2196	-0.1518	-0.0489	0.3057	0.0333	0.6931	0.6781	0.7104	1.0000		
sum_conn	0.3423	-0.1584	-0.2018	0.2119	-0.1328	0.5856	0.5981	0.5735	0.6006	1.0000	
overall	0.2853	-0.2125	-0.1815	0.4084	0.0421	0.7870	0.8580	0.8593	0.8721	0.8283	1.0000

Table 2 Correlation table based on the case study in the Yupu community

## 5.2 Interview Analysis

The study conducted interviews with nine affordable housing residents who had finished the questionnaire and one commodity housing resident. The structured interview covers questions about residents' satisfaction of living in this neighborhood, and their perception of segregation and what they think of the difference in public services for different income groups. During the interview, the residents were also willing to share their stories and their hopes of living in this community, which provided a complete story of this community as well as further explanation for the survey findings.

### 5.2.1 Background

According to the affordable housing application rules in Beijing, all the applicants have to wait for a long time and only some of them would get the chance to buy or rent affordable housing through lottery. Affordable housing in the Yupu community refers to the housing with limited price and habitable area. In 2014, when the affordable housing project in the Yupu community was opened for lottery, the sales price was ¥ 22,000/sqm (about \$3,400/sqm). Even

though the housing belongs to affordable housing, it was the highest price when compared with other affordable housing at that time because of its better location, its larger number of housing units, and its tough competition among applicants.

As reported in an article from a resident, some applicants who won the lottery had already known each other through several meetings with the developer. They called each other “neighbors” and communicated about the housing decoration although they had not moved in.

### **5.2.2 Segregation inside the community**

The basic construction of the Yupu community was finished at the end of 2016. After New Year Day in 2017, the community was open to the residents. The future affordable housing residents came to check and see their home, but found that the apartments were not what they expected. During the interview, when asked about any inconvenience and disadvantage of this living in this community, all of the interviewees mentioned the separating wall inside the community, which separated the community into two parts. Safety, landscape, public service, and transportation access were the bigger concerns of the affordable housing residents.

*“We haven’t seen our apartments before. When the construction was finished, we finally had the chance to walk in the community but found bad house type and open public corridor without windows. Some neighbors also reflected that they cannot use heat and gas at the moment because of the design disability. However, our most complaint is that our building was illegally separated with the commodity housing by a wall.”*



Figure 7 Separating wall in the Yupu community. Source: FTChinese.<sup>17</sup>

When more and more residents came to live in this new community, some problems were solved by the property management company under the continued effort of residents. However, the physical segregation still created more inconvenience and complaints. People even called it “the Berlin Wall” in the community. The wall separated the community into north and south parts. The main entrance was at the south side and served only for the commodity housing. Affordable housing residents had no access to it and had to detour around the whole block to enter at the small entrance on the north side:

*“At first, there was only a small gate for us at the north side. Although the community was right next to the Third Ring Road, we had to walk around the whole block for more than 15 minutes to walk to the main road. The street at the north side was pretty narrow, and had no light at nights. Both driving and walking are very inconvenient and unsafe.”*

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<sup>17</sup> FTChinese. <http://www.ftchinese.com/story/001073906?full=y>. Accessed on March 15, 2018.



Figure 8 Small entrance at north side.  
Source: Photos provided by interviewee



Figure 9 Narrow street at the north side.  
Source: Photo provided by interviewee

The landscape on different side of the wall was also different. Seven commodity housings were surrounded by better landscape and larger public spaces. The Two affordable housing buildings with more residents only have a little public space and less parking space on the other side. Electricity utilities network were also at that side. Besides, the wall would also be a threat for firefighting and emergency evacuation. One resident reflected that the wall could be opened directly on the commodity housing side by the staff in the related management company, but cannot be opened on the other side.

The Yupu Community				Affordable Housing	Commodity housing	
<b>Building Density</b>	/	30%	<b>Units</b>	<i>units number</i>	923	279
<b>Population Density</b>	<i>residents per acre</i>	885	<b>Units Composition</b>	<i>percentage</i>	76.79%	23.21%
<b>FAR<sup>18</sup></b>	/	2.8	<b>Residents</b>	<i>2.8 residents per unit</i>	2585	782
<b>Ratio of Open Space<sup>19</sup></b>	/	30.01%	<b>Parking Space</b>	<i>per unit</i>	0.3	1

Table 3 Planning information of the Yupu community. Source: Longhu Developer. Remade by Mengyao Li.

As shown in Table 3, the FAR and the percentage of green space in the community plan is very high and satisfied. However, with the wall separating the community after construction (yellow lines in Figure 10), the green space for affordable housing declined obviously. Based on the observation during field research, there is only a little green space near the main parking area at the north entrance of the community. Figure 11, provided by one of the interviewee, represents the view from his affordable housing apartment. The building heights difference is obvious in this photo.

<sup>18</sup> FAR is the Floor Area Ratio. It is the relationship between the total amount of usable floor area of buildings and the total area of the lot where the buildings stand on.

<sup>19</sup> According to the *Code of Urban Residential Areas Planning & Design GB 50180-93 (2016)* published by Ministry of Housing and Urban-Rural Development of the People's Republic of China, the Ratio of Open Space represents the total areas of all kinds of open space divided by the total areas of residential land in communities. Open space includes community parks and recreation facilities, rooftop green space on underground construction, landscaping next to residential areas, or greenery along the road. Ratio of Open Space should be no less than 30%. Among the open space, the percentage of greenery coverage should be no less than 70%. (*Code of Urban Residential Areas Planning & Design GB 50180-93 (2016)*). Ministry of Housing and Urban-Rural Development of the People's Republic of China. <http://www.zzguifan.com/webarbs/book/1095/2935927.shtml>. Accessed on April 26, 2018.)



Figure 10 Site planning map of the Yupu community  
Source: Map from the internet.<sup>20</sup>



Figure 11 The view from affordable housing  
Source: Photo provided by interviewee.

*“After the negotiation over and over again in summer, the developer agreed to open a new small gate for us at the northeast of the community that we can directly walk to the bus station and the main Ring Road, but cars still have to detour.”*

Below are some maps and photos showing the current access to the community. Figure 8 shows the close distance from the Yupu community to the Third Ring Road, which is emphasized by the residents as one of the reasons why they chose to apply for affordable housing in this community and would like to live there in the future.

<sup>20</sup> [http://xichenyuanzhu.fang.com/photo/list\\_904\\_1010788763.html](http://xichenyuanzhu.fang.com/photo/list_904_1010788763.html). Accessed on March 16, 2018.



Figure 12 Different transportation access to the main road in the Yupu community

Source: Map made based on Google Map by Mengyao Li.



Figure 13 New exit to the main road.

Source: Photo provided by the interviewee.



Figure 14 Main parking area at the north side.

Source: Photo taken by Mengyao Li.

### 5.2.3 Homeowners' rights in the Yupu community

Residents moved in the Yupu community since 2017 were homeowners in this community.

They had the same rights and interests of enjoying the public spaces and public services as stated in their house purchase contract. The movement of homeowners' right protection in the Yupu community was very rational and determined. Before the completion of housing, about 50

affordable housing residents jointly went to find the real estate developer for negotiation. Over 100 residents even wrote petition letters to distinct local government agencies, including planning bureau, housing construction bureau and even the fire department. When the housing was built, the affordable housing residents refused to accept the separating wall. In this early process, the residents in the community formed as a group actively and reached to a consensus to fight for their rights. Through this process they formed a strong sense of community.



Figure 15 Banners on affordable housing. Source: Photo provided by interviewee.

The Beijing Municipal Commission of Urban Planning in Fengtai District responded that the wall did not receive the construction permit and was therefore an illegal construction. The Urban Management Bureau later accepted this claim and gave the same response. Although the developer was required to dismantle the wall by June 17<sup>th</sup>, 2017, but the wall still existed at that time. In the summer of 2017, affordable housing residents continued to work on their rights protection and called for the mayor's hotlines. At the same time, the media played an important role to expand the influence of this event.

*“The government had admitted that the wall was illegal. News and comments on TV and internet also spoke for us. Although the deadline of removing the wall has passed, we still believed that the wall will be pulled down and we can succeed in the end.”*

Residents were confident and full of hope, even though they knew that they had to wait for a long time. The government had published several announcements urging the demolition of the wall by the end of 2017, but no action was taken until 2018.

The conflict and dilemma of homeowners' right protection was mainly between the affordable housing residents and the real estate developer. The developer provided vague and misleading information and used different project names for affordable housing and commodity housing in their marketing process. They did not make it clear to the commodity housing buyers that this is a mixed-income community. One of the female residents blamed the separating wall and the conflict on the developer:

*“We know that the residents at the other side (commodity housing) have spent a lot to live in a luxury apartment. They were misled when they bought the apartment, because the developer use different names for propagandizing their project. All of the problem are due to the developer. They even didn't take action after the consistent urge from the residents and the government. ”*

The only commodity housing resident in this study mentioned that she would not like to share her community with affordable housing residents. The sales price for commodity housing was about ¥ 100,000/sqm (about \$15,850/sqm), and the management fee was also three times higher than the affordable housing units.

*“It is actually the problem of government.” A 28-year-old male resident said,*

*“The policy and regulation was not very clear at first. Government also didn’t take enough supervision during the project.”*

According to the interviews with residents, the conflict in the Yupu community has empathized the different appeals of residents and the developer. At the same time, it reflects the defects of supervision from the governments during the housing construction process, and the shuffle between different departments of the governments when dealing with the homeowners’ right protection problems.

#### **5.2.4 The Yupu community as a typical case**

When asked about why this community has taken such big actions and received some success in just one year, one male resident said,

*“Because this community is a very new community, unlike other old communities nearby this area. We bought the apartments with high price, at this great location, and we really want to enjoy the corresponding as well as equal services. The problem arose before people moved in, and did not get solved during the whole year. Thus, it received more complaint from the residents. Another main reason is that the wall itself is illegal, and we would definitely win the lawsuit on court.”*

Although the housing belongs to affordable housing, the sales price was rather high in 2014. Accordingly, the management fee was also high. People had waited for years to move into this neighborhood after they won the lottery and were looking forward to the good quality of this expensive community. When they moved in, they found they had the same needs and complaints of their new community. Their shared emotional connection in this community was strengthened through crisis. Residents had taken different actions to fight for their right, including banners, petition letters to the government, and requested for help from the public media. All these efforts

were effective and rational approaches that made the issue in this community receive more attention. As a results, new rules and policies from the government were put in place to inhibit any physical segregation in the mixed-income housing projects. Since the construction of wall was not legally permitted in the first place, the developer was at a disadvantage in this crisis.

There are many other mixed-income communities in Beijing and other cities in China that have the same segregation problem. Many public rental housings in Beijing are separated by fence and gate with the commodity housing within the same housing project, looking like they are two different communities. The new community right next to the Yupu community is still in construction as Figure 16 reflects. It is facing the same problem with the same developer as the Yupu. The actions of the Yupu has added pressure to the developer.

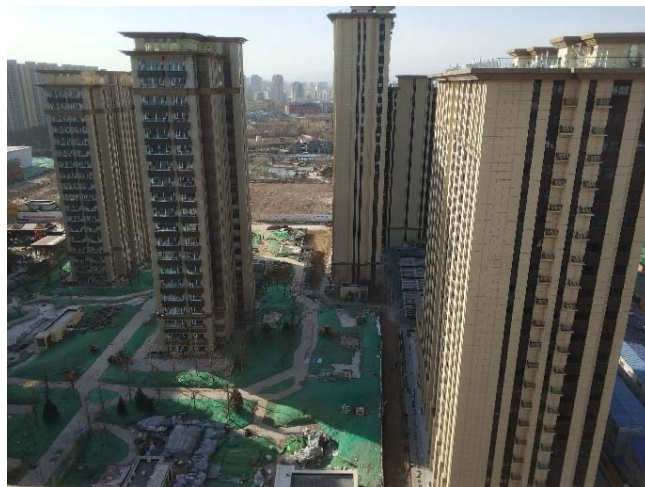


Figure 16 New Community next to The Yupu Community. Source: Photo provided by interviewee.

Taking the Yupu community as a typical case, this research finds how affordable housing residents in a mixed-income neighborhood unite together to fight for their rights as homeowners. Although the residents were not quite clear about the meaning of “sense of community” when

they conducted the surveys and interviews, they had expressed a common awareness that they were the members of the same community. Members were responsible for themselves to strengthen their power and improve their lives in this community.

With the precedent of the Yupu community, the issue of a separating wall in a mixed-income project has gained more attention and new government rules have been put forward as a result. It seems that the segregation problem can be solved by the coordinated efforts of residents. However, another resident shared a video with me. The video showed that on January 13<sup>th</sup> affordable housing residents in the Tianpu community, which had the same segregation problem, pulled their segregating iron fence by themselves. It led to a conflict between affordable housing residents and commercial residential residents. This mass disturbance broke out because residents in the Tianpu community had not seen any substantial progress in their right protection process in the Yupu. Therefore, the residents in the Tianpu were anxious and decided to take intense action themselves to get rid of the wall.



Figure 17 Conflict in the Tianpu Community. Source: Screenshots from video provided by interviewee.

### **5.3 Discussion between Survey and Interview data**

This research selects the Yupu community as a case study to better understand the sense of

community in mixed-income housing development because its residents have shown great effort to protect their rights as homeowners in action and they have received much attention before this research. However, the actual sense of community index reflected from the survey results is not very high even though this community is so active.

One possible reason is the definition of “this community” in the survey and interview. The respondents of the survey are all affordable housing residents, and for them “this community” represents the whole community including both affordable housing and commodity housing. The construction problems at early stage and the unsolved physical segregation inside the community affect residents’ satisfaction to the community. Therefore, their attachment and feeling of belonging in this community would also be affected. Respondents have reflected higher importance of the sense of community, but the actual sense of community do not reach to the equivalent level at that point. As this study does not have access to enough commodity housing residents in the Yupu community, the sense of community for those residents may have different expression.

Another reason for the discrepancy between survey and interview results mentioned above perhaps reflects a problem with the design of survey question. Residents’ action and participation in the Yupu community is very high and rational, even though their responses of the SCI-2 in the survey are low. The questions in the traditional and widely-used SCI-2 questionnaire may not be totally suitable for researching sense of community in communities in China. Especially under the membership subscale, the questionnaire asks questions like the familiarity of most of the neighbors in the community, the signals of the community. In urban communities in China with

high-rise buildings and large numbers of residents, it is impossible for people to know everyone in the community. The “uniformed signals” in question 10 of the original SCI-2 questionnaire<sup>21</sup> usually do not exist in Chinese communities.

Putting these reasons aside, the affordable housing residents’ sense of community is clearly demonstrated by their coordinate efforts to fight for their right as homeowners. Residents have similar needs of equal public services in the community. They are aware of what they want and what they have to do when their legal needs cannot not be satisfied. Their needs are even reinforced especially when they are faced with the problem of segregating wall. The membership in the community is not reflected through “uniformed signals”, but is reflected through the effort of hundreds of residents when they collaborated with each other and organized to take action to fight for their rights. This study is not able to reach to the community leader of the Yupu’ right protection movement. Nevertheless, the information provided by interviewees is enough to indicate that the residents are strongly identified with their activism. The residents have influence on each other and can find out the solution for community problems together. Their shared emotional connection is also strengthened, starting from the early communications before they moved in when they appealed for the removal of the illegal wall. The primary reason of residents choosing this community is the good location among other affordable housing projects they could apply for when the housing application first opened. Furthermore, as residents paid a high price to buy their apartments and now live in this newly constructed community, they expect to

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<sup>21</sup> In the questionnaire of this research, this question refers to question 10-(10). See Appendix 1.

live in this community in the long term. The feeling of living in this community would continue to be important for them. Thus, sense of community would also continue to influence them if they still live there in the future.

## **VI. CONCLUSION**

### **6.1 Formation of Sense of Community**

Using the Yupu community as a typical mixed-income housing project, this study finds that the sense of community among affordable housing residents is gradually formed and strengthened, especially when community members are faced with a crisis related to their rights of homeowners and their lives in the community. As Popkin et al pointed before, one of the advantages for mixed-income community is that it could build an environment where residents are able to work together to solve their common problems (Popkin, Susan J., et al, 2000). Under the crisis of separating wall in the Yupu community, affordable housing residents' most urgent demands are equal access to the public spaces and services in the community. The importance of how they value the sense of community have shown a strong correlation with their SCI-2 scores reflected from the survey results. This relationship is the same as what the past research concluded. However, in the Yupu community, the affordable housing residents' actual sense of community has not reach to the equal level as the importance of sense of community they valued. This gap indicates that residents are looking forward to a higher level of sense of community, but there are still barriers for them to completely identify with the whole mixed-income community.

## **6.2 Unreached “Mix” in Mixed-income Community**

The segregated housings in communities has prevented mixed-income developments from achieving their original purpose of mixed-income housing. Residents in the same community cannot interact with each other when they are physically separated by a wall or fence. They have different lives that do not overlap with each other. In this way, the “mix” only benefits the developers as an approach to gain density bonus and enjoy the land leasing privilege, and does not help the residents with different income levels to mix together. The separating wall has become an unspoken rule enabling developers to save on costs when they build luxury commodity housing projects. The wall also represents the inequality and social segregation inside the mixed-income housing. It prevents the original intent of mixed-income housing to provide better social cohesion inside the community.

## **6.3 Social Cohesion in the Mixed-income Community**

In some HOPE VI projects in the United States, former public housing residents were relocated into the new community and shared the same community with other people with different income levels. However, the residents with different income levels usually did not have neighborhood relationships and their social worlds also did not overlap (Kleit, 2005). The same happens in mixed-income housing projects in China. In many mixed-income housing communities with separating walls like the Yupu community, the public spaces were split by the developers into different areas. The so-called public space becomes open to specific members in their specific living areas. This differentiation indirectly becomes a division emphasizing

different social classes. In mixed-income housing neighborhood, the diversity is an opportunity as well as a barrier to connections (Graves, 2010). Furthermore, residents' sense of community would also become stronger if social cohesion between different kinds of residents is improved.

#### **6.4 Lack of Effective Mixed-income Housing Policy**

In the case of the Yupu community, affordable housing residents reached to different public agencies to reflect their appeals. They received same answers that the separating wall was illegal and should be pulled down by the developer. However, there was not a specific public agency that took the responsibility to supervise the action. The developer continued to maintain the current separation inside the Yupu community. To some extent, the lack of government supervision compounded the problems in communities like Yupu. Affordable housing policies need to be changed and be better enforced. After the conflict in the Yupu community, the Beijing government put forward new rules of prohibiting any physical separation between affordable housing and commodity housing. This policy has become a premise for ensuring equal rights and treatment of all residents in the community.

There is no single policy for mixed-income housing in China, but only rules mentioned in affordable housing policy. Apart from that, no policy has mentioned to mix the affordable housing units and commodity housing in the same building. There is also no such practice in real mixed-income housing project. It is probably because that this kind of housing in China is an outcome of cooperation between governments and real estate developers. The developers' practice of adding affordable units in their commodity housing project can support the affordable

housing development by relieving the pressure of affordable housing supply for the governments.

However, to ensure their own benefits, the developers prefer to separate the two kinds of housing. It could be easier for management and also ensure a better environment for the commodity housing, which could be useful for their marketing.

## **VII. RECOMMENDATION**

### **7.1 Encourage Residents Engagement in the Community**

The procedures of residents fighting for their homeowners' right in the Yupu are rational. That series of actions perhaps are not the best way to unify people of different income levels into a community, but the case of the Yupu community and its comparison with other communities that have similar segregation problems provides insights and motivation for other residents to solve community problems and strive for their own rights. If people have a strong sense of community, they will feel more engaged with the community issues and be more likely to devote themselves to the community. This, in turn, will contribute to a stronger sense of community.

### **7.2 Focus on Social Impact of Mixed-income Housing**

Past research about mixed-income housing communities in China have not looked much about the issues of social cohesion inside the communities. Hence, the question comes back to what is the original intent of mixed-income housing, why do we want to integrate people with different income levels, and how can we provide a better built environment to support this integration. Residents' sense of community could not be simply improved by pulling the separating wall in mixed-income community. Their equal access to the public service inside the community should also be ensured. To achieve a better state of social interaction, cohesion, and integration in a mixed-income community, we should find strategies that could bring people of different income levels in the community together. They should have shared places, shared moments to do the same activities.

From the design perspective, creating shared spaces with diverse functional uses, not separated public spaces, could be a first step to bring people with diverse background together. Parents with little children could share the experience of babysitting. People who walk dogs could also talk with other one who have pets. Elderly people could also seat together or exercise in the same community garden. These are the regular daily activities that people with different income levels could all do together and communicate with each other in the public spaces regardless of whether they are affordable housing residents or commodity housing residents. The residential committees, which are the local organizations in the community, could also hold diverse recreational activities for residents. In these ways, people can have the chance to make connections with each other through conversations and activities. Both affordable housing residents and commodity housing residents could enjoy the benefits of living in the same community. They could feel more attached with their neighbors without a decreased sense of community after the wall or other physical separation in the mixed-income community is removed.

Furthermore, most communities in China are gated communities with several residential buildings and related service buildings. The sense of community and social impact could also be expanded to several nearby communities. If there is less gate along the communities Communication and interaction between people from different communities would improve, and resources could be shared and flowed among more communities.

### **7.3 Improve the Policy Enforcement**

The government supervision during the construction of housing projects need to be further strengthened in order to support the rules for mixed-income housing. The mixed-income housing project should care more about the difference in income levels between affordable housing and commodity housing. The governments could also try to put the strategy of mixing both kinds of housing units in one building as an approach to prevent segregation inside the mixed-income community.

## VIII. LIMITATION

The first limitation is the convenience sampling method for survey, although it is the most accessible method when taking the local context into consideration. In order to lower the risk of refusals as much as possible and get more accurate facts, residents of different ages were observed and then selected. Respondents were also provided compensation for being involved in the study. The study only conducted 30 completed questionnaires, and the quantitative data may be not quite accurate for a community with over 2,000 affordable housing residents. However, the interviews and materials provided by the interviewees were rich and helpful for analyzing and explaining the sense of community among affordable housing residents.

The second limitation would be that the case study focuses on one specific mixed-income community and only reach to affordable housing residents. The Yupu community is just one case in Beijing. Although the case is typical and its experience can be learned by other communities, it still cannot represent all of other mixed-income housing projects in China. The affordable housing in this community is Limited Price Housing, a kind of housing that targets to middle-income people with “hukou” in Beijing. The strict restriction and expensive housing price for the affordable housing in the Yupu community indicate that affordable housing residents in this community have a higher income level. Residents may be more willing to come together and protect their rights patiently and rationally. While in other mixed-income housing projects with Public Rental Housing for lower income people without “hukou” in Beijing, there is larger difference in income levels between the affordable housing and commodity housing residents. Since research in the past have found that income level and social has effect to sense of

community, the Yupu community may also reflect a higher sense of community if compared with other mixed-income communities with larger income level difference. Furthermore, with more mixed-income communities and larger survey samples, the sense of community may have different expression under different income levels. Without other cases, this study also cannot conclude whether the social mix and cohesion would be more difficult to establish in communities with larger income differences.

## **IX. PLANNING IMPLICATION**

By quantifying and analyzing the sense of community inside the mixed-income neighborhood, this study stresses the importance of sense of community for affordable housing residents in Chinese neighborhood. This is a subject that has been neglected in the development of housing projects in the past. In China mixed-income communities are not physically “mixed” in practice. Instead, they are assemblies of different groups of buildings based on income levels of the residents. The Developers enjoy the benefits of mixed-income communities because they lower the construction costs, were as the residents do enjoy the actual benefits of living in this kind of communities. As a result, affordable housing and commodity housing residents lack a sense of community and cohesion although they live together in the same mixed-income community.

To improve the sense of community in future development, it is not enough to prohibit or pull down the physical walls inside the mixed-income communities. This kind of communities will need to respond to the appeals of all residents groups and provide equal services for all residents. The sense of community of affordable housing residents in mixed-income housing projects would be further strengthened if residents felt heard in response to their efforts to protect their rights. Regardless of this, there may still remain obvious identity differences between different income groups.

There is more that developers and governments can do to improve the mixed-income housing and to support social cohesion inside communities. Developers, for their part, should be more transparent and clear when promoting new housing projects about how exactly different

income groups will be accommodated. Governments can also do a better job to support community cohesion by providing better supervision and quicker response to residents' needs. In addition, if governments established more specific work divisions among different departments to address issues of mixed-income housing, they would improve the efficiency at solving many of the problems that arose in this kind of communities.

## APPENDIX 1

### Questionnaire: (English Version)

#### Sense of Community in Mixed-income housing in Beijing, China

*Thank you for taking time to finish this survey.*

*I am a graduate student from Columbia University. The survey is for my thesis research that focuses on the sense of community. The questionnaire is anonymous and It will take about 6 minutes to complete it. Please check the appropriate answer, and fill in the blank with lines.*

*Thanks again for your participation!*

1. What kind of housing do you live in in this community?

- a. Affordable housing    b. Commodity housing

2. Gender:

- a. Male    b. Female

3. What is your year of birth? \_\_\_\_\_

4. When do you start to live in this community? \_\_\_\_\_

5. What is your highest education degree?

- a. lower than high school    b. high school    c. bachelor    d. master and higher

6. What is your monthly income level?

- a. lower than ¥3000    b. ¥3000-¥6000    c. ¥6000-¥9000  
d. ¥9000-¥12000    e. ¥12000-¥15000    f. higher than ¥15000

7. What is your overall satisfaction of this community?

- a. Very satisfied    b. Satisfied    c. Somewhat satisfied    d. Not very satisfied    e. Very unsatisfied

8. Would you like to continue to live in this community in the future?

- a. Yes    b. No

9. How important is it to you to feel a sense of community with other community members?

1	2	3	4	5	6
Prefer Not to be Part of This Community	Not Important at All	Not Very Important	Somewhat Important	Important	Very Important

10. How well do each of the following statements represent how you feel about this community?

		Not at all	Somewhat	Mostly	Completely
1)	I get important needs of mine met because I am part of this community				
2)	Community members and I value the same things				
3)	This community has been successful in getting the needs of its members met				
4)	Being a member of this community makes me feel good				
5)	When I have a problem, I can talk about it with members of this community.				
6)	People in this community have similar needs, priorities, and goals				
7)	I can trust people in this community.				
8)	I can recognize most of the members of this community.				
9)	Most community members know me				
10)	This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.				
11)	I put a lot of time and effort into being part of this community				
12)	Being a member of this community is a part of my identity				
13)	Fitting into this community is important to me.				
14)	This community can influence other communities.				
15)	I care about what other community members think of me				
16)	I have influence over what this community is like.				
17)	If there is a problem in this community, members can get it solved.				
18)	This community has good leaders.				
19)	It is very important to me to be a part of				

	this community.				
20)	I am with other community members a lot and enjoy being with them				
21)	I expect to be a part of this community for a long time.				
22)	Members of this community have shared important events together, such as holidays, celebrations, or disasters.				
23)	I feel hopeful about the future of this community.				
24)	Members of this community care about each other.				

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*This is the end of the survey. Thanks for your contribution of time! Best wishes.*

## **APPENDIX 2**

### **Interview Scripts and Questions:**

*Hi! I am a graduate student from Columbia University. I am doing my thesis research that focuses on the sense of community. Would you like to spend some time to do an interview and talk about your feeling of living in this community? Do you mind if I record the conversation? It would be just for the purpose of academic research and not be revealed to other people in the community.*

1. What do you feel with living in this mixed-income community?
2. What does this community mean to you? (For example, a place to live, a space for communication, etc.)
3. Are there any benefits/disadvantages for you to live in a mixed-income housing community?
4. Have you ever noticed any physical barrier in the community?
5. How is the management in the community for affordable housing and commercial housing units?
6. Do you have different public service in the community? If yes, what are the differences?
7. Have you felt you are treated different with residents living in other kind of housing units? If yes, how?
8. Should the affordable housing be separated with commodity housing in the community? Why?
9. Would you like to continue to live in this community in the future? Why?

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