AGE STRUCTURE, RESIDENTIAL DENSITY, AND HOUSING QUALITY: USING CITIZEN HOTLINE DATA TO UNDERSTAND COMMUNITY CONFLICTS IN SHANGHAI

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1. Introduction

Community conflicts make communal life complete. From the perspective of urban governance, mitigating neighbourhood conflicts and creating a harmonious society are key duties for administration at the grass roots. As for residents, community conflicts add chaos to everyday life. And sometime, as Crenson (1983) found, they also create community bonds. All of this means that community conflicts play an important role in shaping community life. So, what factors influence the occurrence frequency and content characteristics of community conflicts, and further to say, how they function? This has been a question of great interest to urban managers, community planners and residents.

Both in terms of social structure and spatial pattern, urban communities are diverse and heterogeneous, which is becoming more so as urban economic growth and population mobility accelerate. Neighbouring communities may have vastly different spatial characteristics and environmental qualities, housing families with a wide range of occupations, educational backgrounds, and income levels, as well as access to wholly distinct property management. In varied urban communities that carry an increasing number of social affairs, it is crucial to critically examine the patterns of community conflict and governance, contradiction and change. However, the problems that arise between neighbours have not received the academic scrutiny they deserve (Cheshire and Fitzgerald, 2015).

To deal with the growing complexity of community governance, the purpose of this research is to explore how community characters affect the intensity and types of neighbourhood conflicts. For instance, what age and social structure of communities tend to have less conflicts? Is there a link between residential density and the frequency of community conflicts? How do community characteristics affect the main types of neighbourhood conflict in different ways? Is the planner's drive to develop a higher-quality, more diversified community space in a high-density setting of social value? Understanding the mechanisms of community conflicts will help us to comprehend cities and move towards *Good Governance*.

Research into the patterns of community conflicts once relied on the analysis of traditional social statistics. For example, basing on self-reported neighbour problems across Brisbane, Australia, Cheshire and Fitzgerald (2015) observed how neighbourhood levels of concentrated disadvantage, residential mobility and population density all increase the chances of residents encountering a combination of nuisance and antisocial or criminal neighbour problems over nuisance problems

only or no problems at all. Through the survey in five megacities in China, Yuan (2017) found that community conflict degree of the different types of urban community is different, the highest severity is the succession transition community, the second is the hybrid integrated community, and the third is the single unit community and the traditional neighbourhood community, while the modern residential community conflict is relatively lower.

Along with the construction of digital cities, 'big data' from administrative sources shows the potential of a broader understanding of communities. Using council data, Liu, Y., Cheshire, L., Wang, S. and Fu, X (2019) explored the incidence of complaints about neighbours across urban neighbourhoods, finding that animal related and health and visual amenity issues are distributed more widely as well as appearing higher density across the city, while building construction and property management issues are contracting towards the inner city areas over time. Economic and labour market restructuring, immigration, housing market logics and processes of gentrification and urban redevelopment have induced a process of spatial sorting across Brisbane. As New York 311 data shows (Minkoff, 2016), the overall socioeconomic status and resources of a space are tied to 311 contacting volume, including that contacting on government goods increases as owner-occupied housing increases, while contacting on graffiti and noise decreases. It is evident that the frequency and content characteristics of neighbourhood conflict are clearly related to the socio-spatial characteristics of the communities, and the administrative citizen hotlines provide researchers with a long, extensive, first-hand record of grassroots issues that can be used as a clue to investigate this relationship.

The official promotion of 12345 Citizen Hotlines in Chinese cities has provided new data and methods. Based on the data of neighbourhood complaint calls in Shanghai in 2019, this paper uses a negative binomial regression model to evaluate how the age structure, residential density, and housing quality of a community affect neighbourhood conflicts, as well as the similarities and differences in the effects on the three main types of conflict: group renting, noise nuisance, and illegal constructions, to contribute to innovation in research methodology, multi-source data exploitation and community research.

2. Community Characters and Conflicts

2.1 Definition

The term 'Community' refers to a social collectivity in a certain territory. From the perspective of urban and community planning, this paper focuses on communities as spatial units with clear boundaries (usually defined by urban arterial roads or natural geographical boundaries), based on neighbourhoods or subdivisions, sharing common public resources and public services, and serving primarily as a residential function.

Both social and spatial aspects characterise communities. Age structure, household structure, occupational composition, income composition, average education level, home ownership composition, community organisation and services are among the socio-economic attributes, while physical-spatial attributes include dimensions like location, size, neighbourhood scale, residential density, building height, environmental quality, and land-use mix.

Disputes are referred to as community conflicts in this paper that occur at the 'community' level, including residents and involving the distribution of communal resources or public interest (Zhang and Xia, 2011; Zhang, 2018), as well as conflicts that arise as a result of neighbourhood interactions. In the everyday spaces of urban life where people coexist alongside

others day in, day out, many authors have agreed in stating that the mere fact of sharing a relatively dense physical space inevitably generates certain kinds of nuisance or irritation, such as unwelcome noise, bad smells, arguments over pet ownership, the proffering of insults, or even frequent quarrels between neighbours (Méndez and Otero, 2018). These ostensibly minor, perhaps unintentional, not necessarily intense, and not even necessarily face-to-face community conflicts reveal the temporal and spatial competition between and within classes and generations over urban and community resources, as well as the collision of values over daily urban life, which relates to larger population movements, spatial shaping, and social change.

2.2 Research Hypotheses

This paper chooses three main community characteristics for in-depth analysis: the community's age structure, social composition, and residential density. They are directly relevant to community planning, easily measurable, and have been preliminarily proven to have a significant impact on neighbourhoods. Urban planners have emphasised the value of inclusive design for preserving heterogeneity in the community (such as recognizing that age composition is a dimension of diversity) and high-density development, which is at odds with popular social preferences. In terms of social psychology, for example, individuals like to live in clusters and prefer homogenous communities; besides, tolerances and preferences for community density and intensity, as well as high-rise vs multi-story or low-density, differ a lot. Using data from Shanghai 12345 Citizen Hotline, this research proposes the following three hypotheses to justify the classical planning principles and social common values.

H1: The age structure of a community affects the intensity of neighbourhood complaints. Communities with a higher proportion of young people and older people tend to have a higher intensity of neighbourhood complaints.

It is generally acknowledged that age variations in people's demands and habits for community space use manifest more clearly as a significant source of conflict (Lv and Li, 2014). With Chinese aging population, intergenerational value conflicts and competing interests have grown more obvious. For example, the common square dance conflicts today are essentially caused by different age groups competing for the use of community public space at specific times(Lu, 2019).

On the other side, there is a correlation between age structure and family structure, which has been found to influence neighbourhood interactions and conflict (Minkoff, 2016; He and Liu, 2016). When the population reaches adulthood, nuclear families become the predominant family structure; single and incomplete families increase during the older age structure stage of the population (Mao and Zhou, 1988). Residents with family links are more inclined to interact with their neighbours and participate in community construction and maintenance. A tract-level analysis of 311 contacting in New York City shows, family life in a space likely reduce the presence of graffiti and noise (Minkoff, 2016). Communities with a high proportion of young and elderly individuals have, first, significant intergenerational differences and, second, related to a low proportion of nuclear families and an increased proportion of single and incomplete households, which is supporting H1.

H2: The residential density of a community affects the intensity of neighbourhood complaints. Communities with a higher residential density tend to have a higher intensity of neighbourhood complaints.

As one of the primary control elements, modern urban planning theory has always emphasised the impact of density on the quality of life, and there are two perspectives: one believes that modern urban diseases are largely related to overcrowding, that high density of settlements will increase neighbourhood friction, reduce privacy, and increase psychological pressure, and that low density settlements are more comfortable and pleasant, as exemplified by the fact that they have fewer people per square metre (E Howard, 1902). The opposing view asserts that high density may contribute urban vitality, create close-knit neighbourhoods, and nurture community culture and amenities, see, for example Jane Jacobs and New Urbanism, Urban Smart Growth, and the Compact City (Hong and Wang, 2021).

The research in Australia indicates that higher levels of neighbourhood residential density also increase the likelihood of residents encountering problems with their neighbours, particularly about noise transmitted by buildings (Cheshire and Fitzgerald, 2015; Liu *et al.*, 2019). On this basis and the prevalent belief that high density may exacerbate neighbourhood nuisance, it is hypothesized that residential density in Shanghai areas is positively correlated with the intensity of neighbourhood complaints.

H3: The housing quality of a community affects the intensity of neighbourhood complaints. Communities with a higher housing quality tend to have a lower intensity of neighbourhood complaints.

From a planning and design standpoint, the rational organisation and design of space is a crucial means of facilitating communication amongst community members. The enhancement of the physical environment can strengthen people' ties to the community and reduce feelings of isolation (Cai and He, 2014). Due to the complexity of evaluating the quality of the physical environment, this research provisionally uses high property fees and year of construction as indicators. In Shanghai neighbourhoods, higher property fees typically indicate higher housing quality and higher maintenance costs; and the timing of a neighbourhood's construction is also closely, but probably not linearly, related to the neighbourhood's newness and quality of its physical environment, as longer build times tend to indicate greater resident diversity (more resale and move-in and move-out).

3. Data and Method

3.1 Community selection and spatial unit division

Minhang District, a periphery area of the megacity Shanghai, has been developed firstly as a satellite town in the late 1950s, then a fast growing new town and industrial park in the 1990s, now is accommodating more than 2.65 million native and new Shanghainese, including 1.24 million foreign permanent residents[1], with the collage of urban residential superblocks, industrial districts, and villages. With a total area of 372.56 square kilometres, it governs 9 towns, 4 streets and 1 industrial zone.

In order to make statistics on Citizen Hotline data and population, it is necessary to divide appropriate statistical analysis units. According to the distribution of residential land, urban arterial roads, complaints distribution and the size of community in Minhang District, the continuous residential area not separated by main roads at the suitable scale is taken

[1] Data source: the Seventh Population Census in 2020.

as a *community*. As indicated in Figure 1, the spatial units of analysis consist of 65 plots measuring between 0.67 and 3.11 square kilometres.

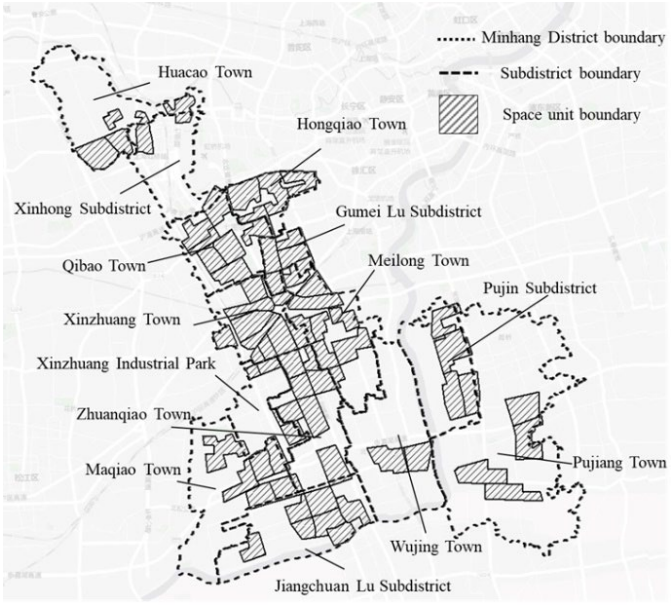

Figure 12 Division of spatial units in Minhang District

3.2 Complaints of Community Conflict

This study obtained the data of residents' demands over the years since the launch of 12345 citizen hotline in Minhang District, Shanghai. Each record includes the larger categories, categories and sub categories of the case, the detailed description of the case and the location of the case. According to the definition of community conflict, the cases are reclassified, and the conflicts that occur within the community and are related to community public resources or community relations, such as community environmental damage and neighbourhood noise, are selected to screen the cases related to community conflict. In order to ensure the efficacy of the community conflict analysis, the community conflicts from 2018 and 2019 are selected for analysis, totalling 16778. This is due to the small number of users at the beginning of Shanghai Citizen Hotline's launch, and the soaring number of complaints about the outbreak of COVID-19 since 2020. The 2019 nighttime population numbers are adopted as the local resident population data.

Considering the sub categories of community conflicts, as shown in Figure 2, the three with the highest proportion are group renting, noise nuisance, and illegal constructions. Therefore, the three types of complaints are further analysed.

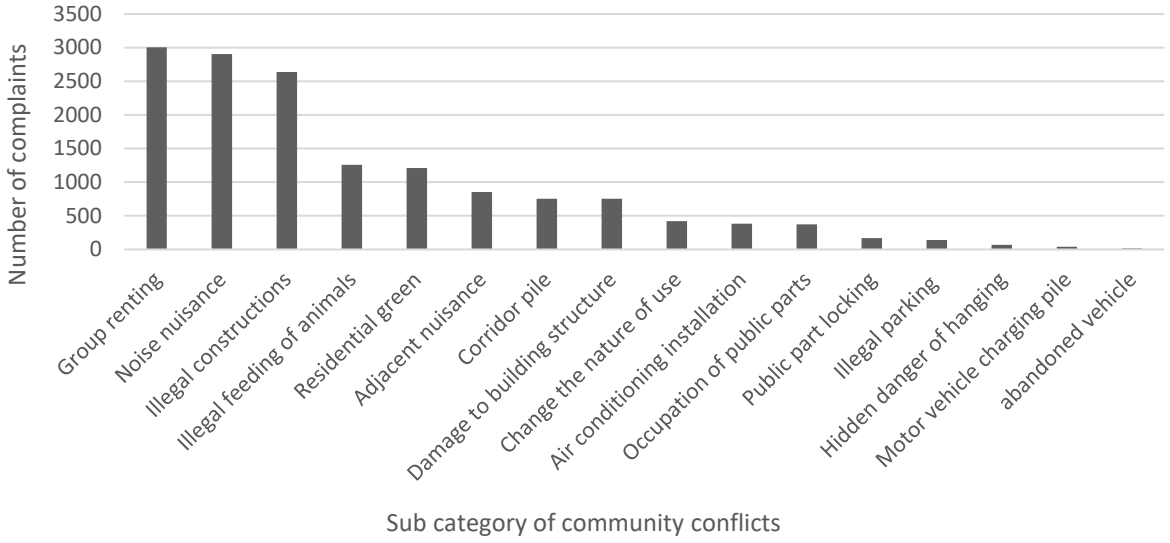

Figure 13 Sub category of community conflicts and corresponding number

Following the incorporation of community disputes into the aforementioned statistical spatial unit, a total of 15,000 data are used effectively for subsequent analysis. The ratio of the total number of complaints in each community divided by the population (i.e. the number of complaints per capita) is defined as the community conflicts complaint intensity of the community, so as to obtain the distribution of the total number of conflict complaints and the conflict complaint intensity of each community in Minhang District, as shown in Figure 3.

In terms of the total amount, the overall number of community complaints in the more centre urban region is relatively high, compared to Maqiao Town and Jiangchuan Lu Subdistrict in the southwest. Per capita, the complaint intensity of the central area is not large, whereas the complaint intensity of some communities in Hongqiao Town, Pujiang Town and Jiangchuan Lu Subdistrict is the highest, indicating that the high total number of community complaints in the central area is primarily attributable to its high population density. The three subdistricts and towns with higher complaint intensity contain more immigrants, relocated residents and inhabitants in former industrial regions. The subsequent will be assessed alongside certain community characteristics.

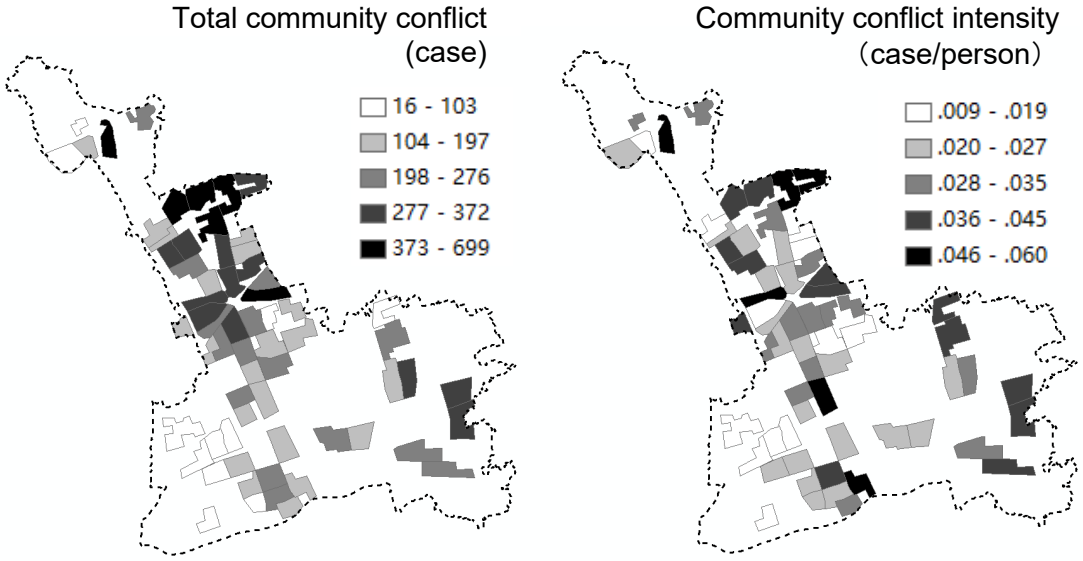

Figure 14 Distribution map of total number and intensity of community conflict complaints

3.3 Community index selection and data processing

On the basis of the three hypotheses and the availability of data, the following indicators have been chosen to characterise urban communities: age structure, residential density and property fee. At the same time, the average construction year of each community is included in the model.

3.3.1 Population age structure

The population data source for this study is the nightly population grid data of the Minhang District in 2019, which is a 250m grid unit and includes the population of various age groups. The proportion of minors is not included as the target of study because the majority of community conflicts involve adults and the conflicts produced by children can be summarised by their parents. Adults are divided into four categories: former youth (19-29 years old), later youth (30-39 years old), middle age (40-59 years old) and old age (60 years old and above), and the proportion of each age group in each community is calculated respectively, K-means Clustering is used to divide the community into four categories according to the age structure. The average proportion of each age group in each category is shown in Table 1. For example, the elderly group represents that the proportion of the elderly in this type of community is the highest compared with other communities, while the proportion of other age groups is relatively low.

Table 1 Grouping characteristics of each age structure

Grouping	Average proportion of former Youth	Average proportion of later Youth	Average proportion of middle-aged	Average proportion of the elderly
Elderly group（19 communities）	0.074	0.267	0.375	0.284
Middle aged group（25 communities）	0.077	0.273	0.423	0.227
later youth group（12 communities）	0.078	0.322	0.368	0.232
former youth group（9 communities）	0.119	0.311	0.369	0.201

The spatial distribution of communities in Minhang District grouped by age structure is shown in Figure 4. It can be found that the middle-aged and the elderly account for a relatively high proportion in the communities in central locations such as Xinzhuang Town, while the communities with a relatively high proportion of young people are mostly distributed around the central area.

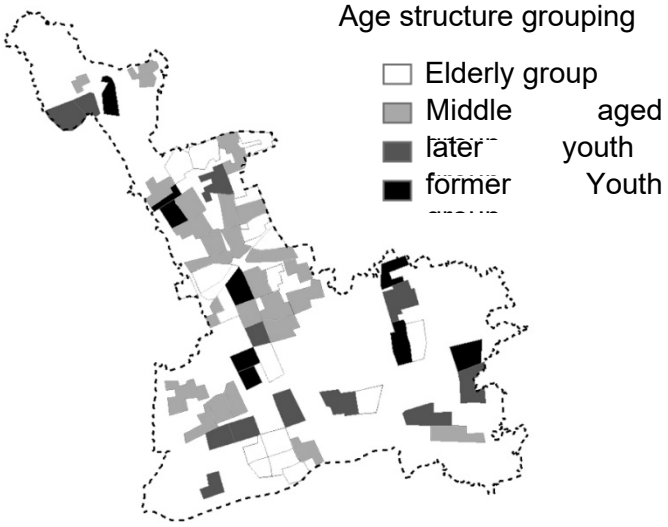

Figure 1 Age structure grouping of communities in Minhang District

3.3.2 Population density

Residential population density is defined as the ratio of the total adult population in the community to the residential land area in the community, in person / square kilometre.

The nighttime population grid data of Minhang District in 2019 is used as the population data source. Integrate this data with the above spatial units and allocate the population to the spatial units according to the area, so as to obtain the population information of the spatial units. The formula is as follows:

$$\boldsymbol{Q_i = \sum_j \frac{s_{ij}}{S_j} \cdot q_j} \qquad \textbf{(1)}$$

Where, Q_i is the population of the ith space unit, q_j is the population of the jth grid, S_j is the area of the jth grid, $s_{ij}$is the area where the jth grid coincides with the ith spatial unit.

The distribution of residential population density of communities in Minhang District is shown in Figure 5. The population density of Xinzhuang Town, Qibao Town, Gumei Lu Subdistrict in the central area of Minhang District and Jiangchuan Lu Subdistrict in the south is higher, while the population density of Maqiao Town in the West and Pujin Subdistrict in the East are less.

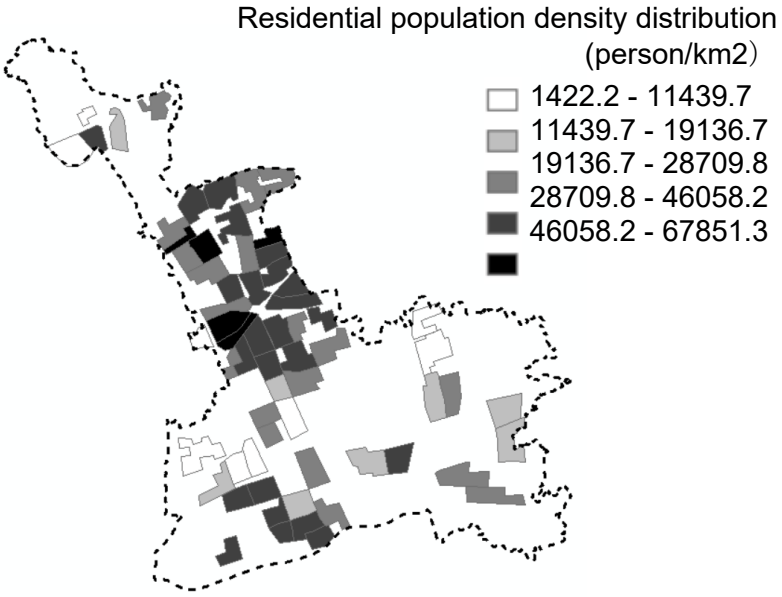

Figure 2 Distribution map of residential population density

of communities in Minhang District

3.3.3 Property fee

The community contains multiple neighbourhoods. The average property fee of each community is selected as the average property fee of the neighbourhoods, which is used as an indicator to measure the housing quality of the community. The unit is yuan / m^2 / month.

Using the information of pre-owned dwellings from the Anjuke website in 2019which includes communal property fees, as the data source, a total of 1394 data were collected. After combined with the above-mentioned space units, a total of 1312 data are valid. The formula for calculating the average community property fees is as follows:

$$\boldsymbol{m_i = \frac{\sum_j v_{ij}}{N_i}} \qquad \textbf{(2)}$$

Where, m_i is the average value of the ith community property fee, N_i is the total number of cells contained in the ith community, and v_{ij} is the property fee of the j community in the i community.

The average property fee distribution of communities in Minhang District is shown in Figure 6. The average property fee in central areas such as Xinzhuang Town and Qibao Town in Minhang District is relatively medium and low, while the average property fee in Huacao Town in the North and Pujin Subdistrict in the East is relatively high.

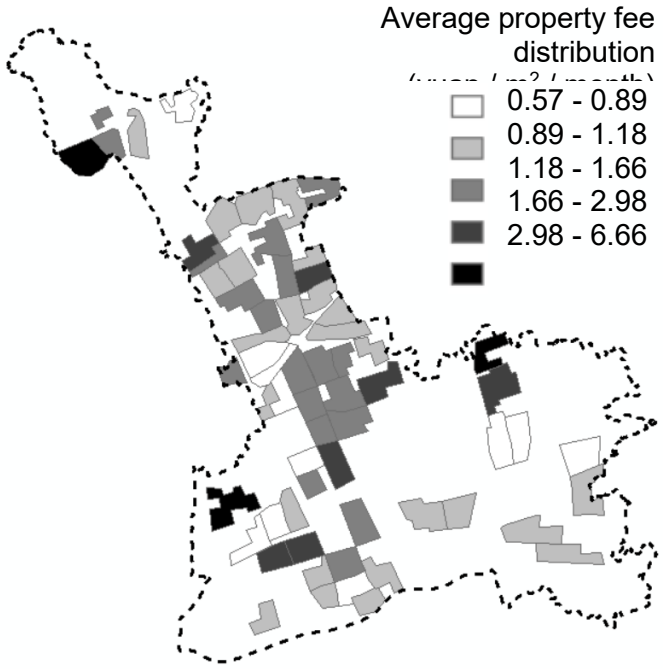

Figure 3 Distribution map of average property fees of communities in Minhang District

3.3.4 Year of construction

The building year is included in the regression model because of the influence of community construction age on residential environment quality and resident diversity. Choose the average construction year of each community and use the 2019 pre-owned dwelling data from the Anjuke website as the data source. To determine the average construction year of each community, the processing is identical to 3.3.2.

Figure 7 depicts the distribution of average construction years in several regions of the Minhang District. The villages in Xinzhuang Town, Qibao Town, and other locations in the centre of Minhang District were built significantly earlier than Huacao Town, Zhuanqiao Town, Pujin Subdistrict, and Pujiang Town towards the east.

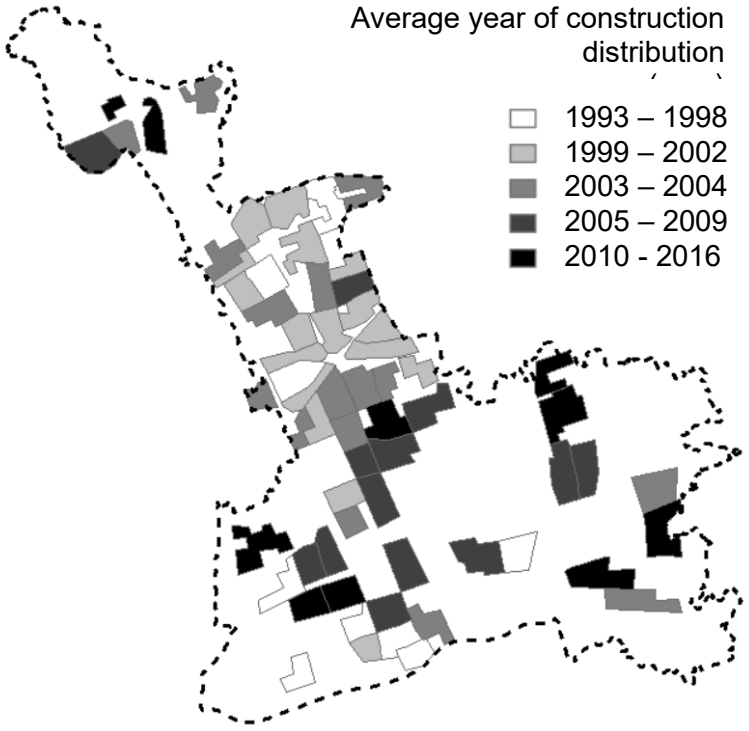

Figure 4 Distribution map of average construction years

of communities in Minhang District

3.4 Model selection and construction

Since the number of complaints is a counting variable, it is more appropriate to use the negative binomial regression model as the influencing factor model of community conflict. The intensity of community conflict is used as the dependent variable to establish a negative binomial regression model:

$$\mathrm{p(y)} = \mathrm{P(Y = y)} = \frac{\Gamma(\mathrm{y}+1/\alpha)}{\Gamma(\mathrm{y}+1)\Gamma(1/\alpha)}\left(\frac{1}{1+\mathrm{au}}\right)^{1/\alpha}\left(\frac{\alpha\mu}{1+\alpha\mathrm{u}}\right)^{\mathrm{y}} \qquad (3)$$

$$\boldsymbol{ln\left(\mu/Q_i\right) = \beta_0 + \sum_i \beta_i x_i} \qquad \textbf{(4)}$$

Where: y is the number of community conflicts, μ Is the average number of community conflicts, α Is the heterogeneity parameter, Q_i is the adult population of the community, μ/Q_i represents the intensity of community conflict; β_0 is a constant, x_i is each influencing factor, β_i is its parameter, which represents the influence of factors.

4. Results

4.1 Regression Results of Community Conflict

Use equations 3 and 4 to analyse the community conflicts. See Table 2 for the model results.

Table 2 Regression results of community conflict

Parameter	Meaning	Estimated value
β_0	constant	-3.917 ***
age_2	Middle aged group	-2.768×10^{-1} *
age_3	later youth group	-2.825×10^{-1} *
pop_dens	population density	-1.199×10^{-5} **
mean_property	average property fee	-1.411×10^{-1} *

- Parameter significance: . <0.1, * <0.05, ** < 0.01, *** <0.001
- Eliminate insignificant parameters from the model, which is equivalent to a parameter of 0

The results indicate that the community with the highest share of middle-aged or later youth (middle-aged or later youth group) has low conflict intensity, confirming hypothesis 1. Contrary to hypothesis 2, the higher the population density, the lower the severity of communal conflicts. The severity of community conflict complaints is negatively connected with the average property tax, i.e., the higher the average property tax, the lower the intensity of the conflict. The third hypothesis is valid. When the main age group of the community changes from former youth or old age to later youth, the intensity of community conflicts decreases to 75.4%; when population density increases by 10,000 people per square kilometre, the intensity of community conflicts decreases to 88.7% of the original; and when the average property fee increases by 1 yuan per square metre per month, the intensity of community conflict decreases to 86.8% of the original.

4.2 Regression Results of Main Types of Community Complaints

In order to further examine the influence of age structure, residential density, and housing quality on various types of community conflicts, equations 3 and 4 are used to conduct regression analysis on the three most prevalent types of community conflict: group renting, noise nuisance, and illegal constructions. The outcome is as Table 3.

Table 3 Regression results of main types of neighborhood conflict

Parameter	Meaning	group renting estimated value	noise nuisance estimated value	illegal constructions estimated value
β_0	constant	-4.950 ***	-7.902×10^{1} ***	1.337×10^{2} ***
age_1	Elderly group	-5.831×10^{-1} *	-	-
age_2	Middle aged group	-7.048×10^{-1} **	-4.974×10^{-1} ***	-
age_3	later youth group	-1.075 ***	-3.665×10^{-1} .	-
pop_dens	population density	1.409×10^{-5} *	-	-1.902×10^{-5} ***

mean_property	average property fee	-2.014×10^{-1} .	-2.314×10^{-1} *	1.395×10^{-1} .
mean_build	average construction year	-	3.66×10^{-2} *	-6.973×10^{-2} ***

- Parameter significance: . <0.1, * <0.05, ** < 0.01, *** <0.001
- Eliminate insignificant parameters from the model, which is equivalent to a parameter of 0

Considering age structure, for the complaints on 'group renting', communities with a relatively high proportion of former youth have the highest complaint intensity compared to other communities, while communities with a relatively high proportion of later youth have the lowest complaint intensity; for complaints of noise nuisance, communities with a relatively high proportion of young and middle-aged people have relatively low complaint intensity; however, for complaints of compulsive gambling, communities with a relatively high proportion of former youth have the highest complaint intensity.

Taking into account the population density, the higher the population density of a neighbourhood, the greater the intensity of group rental complaints and the lower the intensity of unlawful construction complaints. When the population density grows by 10,000 persons per square kilometre, the complaint intensity of group renting rises to 115% while the complaint intensity of unlawful building falls to 82.75%.

Considering the average property cost, the higher the average property charge, the fewer complaints about group renting and noise annoyance, but the contrary is true for complaints about illegal construction. When the average property fee increases by 1 yuan per square metre per month, the complaint intensity of group renting falls to 81.8%, the complaint intensity of noise annoyance falls to 79%, and the complaint intensity of unlawful building rises to 115%.

And for construction year, the later the average year of building, the greater the intensity of noise annoyance complaints and the lower the intensity of illegal construction complaints. When the construction year is 10 years, the complaint intensity of noise disturbing residents rises to 144,2%, whereas the complaint intensity of illegal building falls to 49,8%.

5. Discussion

Consistent with Hypothesis1, neighbourhood conflict complaints are least intense in communities with a relatively high proportion of middle-aged people in the traditional sense (i.e. later-youth aged 30-39 and middle-aged aged 40-59 in this paper), whereas neighbourhood conflict is more intense in communities with a relatively high proportion of former-youth aged 20-29 and elder people aged 60 and older. This may be owing to the bigger disparity in living habits between former youth and older people, which makes them more prone to conflict; however, it may also be related to the fact that these two groups are more likely to conflict within their own groups compared to other age groups. Young people comprise a greater proportion of complaints about 'group rent' and noise, which reflects the social reality that young people, who are typically less rent-affordable and more active, are the predominant group where group rent and noise occur, whereas older people have a lower tolerance for group rent and noise.

The outcomes about the second hypothesis warrant additional research. According to 12345 Citizen Hotline data in Shanghai, population density has an inverse relationship with the intensity of neighbourhood conflict complaints, contradicting hypothesis two. There are numerous potential causes for this result. One is that density and settlement environment do not have a straightforward linear connection (Hong and Wang, 2021). Australia's residential density is normally low, but Shanghai's is substantially higher. When residential densities reach a particular range, further increases in density lead to a decrease in per capita neighbourhood conflict, which may be due to both physical and psychological causes, such as an increase in people's tolerance of their neighbourhood as density increases. Secondly, in the context of the continuous promotion of grid-based and refined community administration in Shanghai, it is feasible that the negative consequences of the existing population density are outweighed by its favourable benefits on management. In addition, this may be partly related to the peculiarities of Minhang, where the areas with higher residential density are primarily central areas with relatively mature development and high housing quality, dominated by local residents, whereas the areas with lower residential density are primarily located in the periphery with relatively poor housing quality and dominated by foreigners. Factors that could not be accounted for in the model may also affect the intensity of neighbourhood conflicts.

Consistent with Hypothesis3, the severity of complaints decreases as the property fee increases. Accordance with the overall pattern, the higher the average property fee, the lower the intensity of complaints about group rentals and noise; however, for illegal structures, the results are reversed, i.e. the higher the property fee, the higher the intensity of complaints, likely because residents in communities with higher property fees are more stringent about illegal structures. Besides, the later a neighbourhood was constructed, the more complaints about noise nuisance and the less complaints about unlawful structures there were. Although newer neighbourhoods do not mean higher quality, the affection of construction year is different with the relationship between property fees and neighbourhood complaints.

6. Reflection and Perspective

This research applies a negative binomial regression model to examine the relationship between the intensity of neighbourhood conflict complaints and age structure, residential density, property fee levels, and year of construction, but there are numerous limitations, such as the abundance of complaint data but the dearth of spatial socio-economic data for cross-comparison. The Citizen Hotline data spans multiple years (even days), whereas the neighbourhood’s population, property values, and year of construction are 'static' data that are difficult to match precisely, and the imprecise nature of the latter data makes it possible that the analysis results are inaccurate. Due to the limitations of the available data, it is also unable to discuss the influence of more significant physical and social elements on neighbourhood conflicts.

Using urban administrative sources as an object does reveal patterns in varied communities, but merits further investigation. There are the following issues with the data analysis in this paper: First, there is a discrepancy between the number of cases reported by the public and the actual number of neighbourhood conflicts occurring in the community; the high number of certain types of cases may indicate that the public has a strong desire for the government to solve the problem, but not necessarily the high frequency of such conflicts. Secondly, the screening of cases in the study is based on the initial classification from the grid-based centre, and the analysis of the specific content of the complaints may aid in gaining a deeper understanding of community. Thirdly, depending just on the regression analysis of complaint intensity makes it challenging to understand the process of community conflicts and its causal relationship with community characters. In order to optimise community research based on Citizen Hotline data, subsequent attempts can be made to combine field surveys, qualitative research, natural language processing, and other methods, to understand residents' preferences for using the Citizen's Hotline and to mine the raw data for information such as detailed case descriptions.

How can we develop a more peaceful community based on this? It is evident that the frequency of community conflicts is related to the age structure; all-age communities may generate inevitable neighbourhood conflicts, but residents between the age 30 to 59 can serve as the pacifier. In settlements above higher density levels, the conflict density is not necessarily to pull down by residential density, but can be reduced by the influence of other factors, such as socio-demographic structure, management, and housing quality, so that higher densities promote neighbourly interaction and the establishment of mutually supportive and friendly neighbourhoods, which are conducive to harmonious community.

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