Perceived social distance, socioeconomic status and adaptive residential mobility in urban China

Qiong He a,*, Willem Boterman a, Sako Musterd a, Ying Wang b, c

a Urban Geographies/Centre for Urban Studies, Universiteit van Amsterdam, Nieuwe Achtergracht 166, 1018 WV, Amsterdam, Netherlands
b Department of Geography and Environmental Science, University of Southampton, United Kingdom
c The Bartlett School of Planning, University College London, United Kingdom

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ABSTRACT

Social distance between individuals/households and their neighbourhood of residence has been garnering increasing attention in residential mobility research, as it shapes a series of phenomena including neighbourhood sorting, social mixing and segregation. Up-to-now the relations between ‘objective’ social distance and actual moves have dominated this field of study. This study argues that the perception of social distance and subsequent planning of residential moves add to the knowledge in this field. Using a survey in Nanjing, China, we conducted Logit Analysis to uncover how perceived social distance impacts plans to move and how socioeconomic status moderates such impact. By doing so, we also bring into dialogue quantitative residential mobility research focusing on how objective residential mismatch triggers residential mobility, and predominantly qualitative research focusing on subjectively perceived residential mismatches. It is found that people are significantly more likely to plan a move when they perceive a mismatch between their household income and that of the majority of the neighbourhood, compared to those perceiving a better match. When we dissect individuals/households who perceive a residential mismatch into a group which perceives a higher relative position compared to the neighbourhood majority and a group which perceives a lower relative position, we find that only those perceiving a higher relative position is more likely to plan a move. These findings also apply to those who have a higher socioeconomic status. In contrast, for the lower socioeconomic status group, a perceived mismatch, particularly a perceived lower relative position, is associated with a significantly lower probability to plan a move, compared to those who perceive a residential match position.

1. Introduction

Social distance between individuals/households and their surrounding environment has been an increasingly distinguished interest in residential mobility and neighbourhood effect research, as it shapes a series of phenomena including neighbourhood sorting, social mixing and segregation (Galster & Turner, 2017; Musterd et al., 2016). It can touch on the objective and perceived perspectives. Objective social distance is usually measured by the discrepancy between individual/household socioeconomic, life-cycle and cultural status (income, etc.) and neighbourhood status (neighbourhood median income etc.), or the discrepancy between people’s own standing in dimensions of education, income, ethnicity, aesthetics as well as lifestyle, and the neighbourhood composition along these dimensions (Galster & Turner, 2017; Musterd et al., 2016; van Gent et al., 2019). Research based on objective social distance shows that exposing to a mismatched residential environment is generally associated with residential stress and dissatisfaction (Clark & Ledwith, 2006; Speare, 1974) and might trigger adaptive residential mobility behaviour in pursuit of ‘social homophily’ (McPherson et al., 2001). Research on objective social distance predominantly uses large-scale register data and quantitative analysis. It is typically shown that people with a larger distance between their income and the neighbourhood median income, either positive or negative, are more likely to move out of the neighbourhood, compared to those with a roughly median income. People basically move to reduce their social distance with their residential environment (Musterd et al., 2016; Galster & Turner, 2017). However, while these quantitative studies present the general trend of how people conduct residential mobility behavior in...
response to social distance, such analysis takes a structuralist view and
misses the nuanced psychological and affective elements in residential
decision-making process. In most of the cases, people might not have the
knowledge of the neighbourhood composition, but rather could only
respond to their own perception. We have to acknowledge that it is
indeed the perception of social distance that matters when making res-
idential mobility decisions. People behave based on what they perceive
as that is their lived reality, instead of what they are categorized to be
and what is imposed on them (Miao, 2017).

There is instead a thread of residential mobility research based on
perceived residential (mis)match in the neighbourhood, mainly gound-
on spatializing the Bourdieusian concepts ‘habitus’ and ‘field’ in the study
of gentrification and middle class (Atkinson, 2006; Boterman & Bridge,
2015; Bridge, 2006; Butler, 2007). The perceived residential
(mis)match is usually abstracted out of people’s expression in terms of
their feeling, belonging and affiliation with regard to the neighbour-
hood. The focus is on how different fractions of middle class move to
seek alignment and correspondence between the housing field and their
class habitus in aspects like tastes in residential aesthetics, environment
and lifestyle preferences, as well as how strategic trade-offs are made in
the intersections of multi-fields as education, employment, consumption
and parenthood (Boterman, 2012; Bridge, 2006). Moving to live with
people ‘like them’ and to feel ‘at home’, as well as class
distinction-making (Bourdieu, 1984; Savage et al., 2005, 2010; Watt,
2009) are motives for and the nature of residential selection and
mobility, although these could be sacrificed for better education and job
opportunities (Bridge, 2006). These studies are predominantly qualita-
tive, and rich in information in the psychological and affective processes
of strategizing and compromising in residential decision making. How-
ever, we do not know to what extent these studies could be generalized.

To address the limitations of existing quantitative research on
‘objective’ social distance and qualitative research on subjective social
distance, we capture in this research the perception of someone’s so-
cioeconomic position in neighbourhoods with a representative survey
and address the main research question:

**How does perceived social distance between individuals/house-
holds and their residential neighbourhood impact on their plans to
move out of the neighbourhood, and how does socioeconomic status
moderate the relationship?**

We investigate this in the context of the Chinese city of Nanjing.
Unlike most western countries, China is still undergoing rapid trans-
formation in terms of industrialization and globalization, as well as
massive urbanization. This is a context of permeable class boundaries
and pervasive opportunities for upward social mobility on the one hand
(Anagnost, 2008), and a space of relative deprivation due to increasing
inequality and polarizing social structures on the other (Miao, 2017).
We might expect perceived social distance to play a rather strong role in
predicting residential mobility in China. In the following section we first
present the conceptual and theoretical framework. This is followed by a
section on data and methods. Thereafter, we try to answer the proposed
empirical question. This is followed by discussion and conclusion.

2. Conceptual and theoretical framework

Residential mobility is a multi-step process, involving thinking about
moving (the desire or wish to move), initial planning (the expectation or
plan to move) and the actual move (Rossi, 1955; Kley, 2011). While
desires and wishes to move are shown to be strongly associated with
subjective evaluation and (dis)satisfaction of the dwelling and neigh-
bourhood (van Ham & Feijten, 2008), plans to move are more embedded
in estimations of the ability (income and affordability for instance) and
macro-contextual constraints (housing market and housing availability
for instance) to escape undesirable residential situations (Ajzen, 1991;
Coulter et al., 2011; de Groot et al., 2011). Therefore, plans to move
are more firmly related to actual residential mobility, although abandoned
plans and unplanned moves due to unexpected events are not infrequent
Clark & Lisowski, 2017; Coulter et al., 2011). This study focuses on
plans to move out of the neighbourhood. The theoretical framework is
presented in Fig. 1. This is similar to the frameworks deployed in resi-
dential mobility research involving quantitative analysis and ‘objective
social distance’, but with an emphasis on perceived social distance and
its influence on residential mobility behaviour as well as the potential
modification of socioeconomic status on such influences. We first illus-
trate typical factors that might lead to plans to move. As plans to move
often precede actual moves, factors known to influence actual residen-
tial mobility can also be expected to play a large role in explaining
people’s plans to move. We then focus on how perceived social distance
between the individual/household and their neighbourhood might in-
fluence plans to move, and how socioeconomic status might moderate
this influence.

2.1. Plans to move out of the neighbourhood

Residential mobility has long been considered as a function of resi-
dential stress and (dis)satisfaction due to a disequilibrium between the
current and desired residential environment (see for example Bach &
Smith, 1977; Speare, 1974). When people develop new residential needs
and aspirations (due to changes in life-cycle position and socioeconomic
status for instance) that mismatch with the current situation, they feel
stressed and dissatisfied residentially; as the stress and satisfaction level
reaches a certain threshold, people might proactively plan a move to
adjust their housing situation and recover the equilibrium (Speare,
1974; Wolpert, 1965). It is posited that the more satisfied residents are
with their housing and residential environment, the less likely they will
plan to move out of the neighbourhood (Speare, 1974; Wang et al.,
2019). Inadequacy of housing spaces due to housing composition
changes and related factors may trigger residential stress and dissatis-
faction (Rossi, 1955), and consequently plans to move. Besides,
attachment or sentimental feelings regarding the neighbourhood would
also have a curbing effect on plans to move out the neighbourhood (van
Ham & Feijten, 2008). Renters compared to owners are more likely to
plan a move out of their neighbourhood. Owners usually tend to have
more emotional commitment to and physical investment in their
neighbourhood (Coulter et al., 2011), and tend to be more satisfied
(Bach & Smith, 1977). In addition, people who live in their neigh-
boutighbour for a longer period of time tend to accumulate residential
inertia and show a relatively lower intention to move out (Huff & Clark,
1978).

The life-course approach has also proved to be a powerful framework
in explaining residential mobility behaviour (Mulder & Hooimeijer,
1999). Life events including union formation and dissolution and
childbirth might compel an individual/household to reassess the suit-
ability of their current dwelling and neighbourhood, and trigger pro-
active plans to move out (Cui et al., 2015; de Groot et al., 2011).
However, unanticipated life events can also lead to unexpected moves or
abandoned plans (de Groot et al., 2011). People in different life stages
associate with differentiated probabilities of planning a move. Those
who are married, or have children, are expected to be less likely to
considering moving, than people who are unmarried and who have no
children (Li et al., 2019; Wang et al., 2019). Young people usually have
increasingly dynamic education, employment and family careers when
growing older, and are thus more likely to develop plans of residential
moves; in a later stage, people become more residentially stable and
inert. In addition, socioeconomic status is also an important predictor of
planning a move. People of lower socioeconomic status, usually people
with a low income and low education level, might retreat from planning
a move, considering the costs, restrictions and constraints of actualizing
it, although many studies show that they are highly likely to be dissat-
isfied with their housing situation and to desire a move (Coulter et al.,
2011; van Ham & Feijten, 2008). Hukou status is an important institu-
tional factor predicting residential mobility behaviour in China. Mi-
grants, compared to local people tend to have a higher propensity of
moving (Li & Wu, 2008; Wu, 2006), due to their less stable occupation status and higher probability of renting rather than owning.

2.2. Perceived social distance and plans to move out of the neighbourhood

While most of the residential mobility behaviour studies have been focusing on the characteristics of the individual/household, dwelling and neighbourhood, there is another thread of research that investigates how the social distance between the individual/household characteristics and neighbourhood characteristics in dimensions of socioeconomic, life-cycle and cultural status (education, income, ethnicity, aesthetics and lifestyle, etc) influence residential mobility behaviour (Galster, 2005). However, in some other cases, even when people consciously choose to move or not, they might have abandoned their chosen social status. Another such case involves consuming low housing prices in relatively dilapidated neighbourhoods. This is often epitomized by the pragmatic discourse as getting ‘value-for-money’ and typically centres on residential behaviour of the marginal middle class (Allen et al., 2007; Pinkster, 2014; Watt, 2009). Although these people are well aware of their higher relative status compared to the majority of people in the neighbourhood, they might not plan to move. Low housing prices and good locations are of higher values for them than selective belonging or distinction (Allen et al., 2007; Pinkster, 2014). Besides, strategic compromises might be made in the housing field for satisfactions in other fields including education, employment and parenthood. People might plan to move even if they perceive a socioeconomic match, as a trade-off for a better education opportunity elsewhere for instance (Boterman, 2012; Bridge, 2006). In contrast, people might not plan to move due to economic restraints, when perceiving a mismatch between themselves and the neighbourhood, even though they might want to. These residents are highly likely to experience residential stress and dissatisfaction (Jones & Dantzler, 2020). However, they might have accepted the undesirable situation as a reality through cognitive restructuring, and even ‘make a necessity out of it’ (Bourdieu, 1980:77; Reay et al., 2009) to avoid feeling disadvantaged.

Fig. 1. The theoretical framework.
Note: the bold variables are of main interest in this study.
themselves for instance.

3. Setting the scene: the housing market and residential mobility in China and Nanjing

Under the socialist housing system, housing was a welfare product (in the form of public housing with negligible rent) allocated through and located inside the work units (Wang & Murie, 2000). Considerable housing equality was pursued and achieved, underpinned by the socialist egalitarian ideology, although differentiations existed within work units based on administrative hierarchy and seniority and among work units based on their administrative rank and economic performance. Residential mobility is low (Huang & Deng, 2006) and most often initiated by the work units (Huang, 2003). For instance, it is shown that the residential relocations of people from the city centre to the suburb are mostly brought along by the suburbanization of manufacturing industry work units (Feng et al., 2009).

However, since the onset in the 90s and the since prevailing housing commodification and marketization processes, the market developed to be the dominant housing provider while the work-units withdrew gradually (Li & Huang, 2006). Public rental housing only occupies a small proportion of the housing volume while commodity housing came to the fore. Homeownership is promoted as an ideal way of living and even a symbol of status. Consequently, residential mobility increases and is increasingly based on individual/household-housing demands and preferences, especially since the beginning of the 2000s. Socioeconomic positioning and affordability stratify and sort people, resulting in residential spatial distributions and (re)shaping the social spatial structure of the city, although institutional factors like hukou and work-unit type still exert influences on residential locations and tenure choices. People of high skills and education are increasingly able to occupy preferential places and enjoy better environments, while others are marginalized and even displaced. Besides utility- and function-based housing consumption, symbolic housing consumption also arises for distinction and exclusion through aestheticization (Pow, 2009), packaging and place-making processes (Wu, 2010). Furthermore, the long established theory of residential mobility as housing-adjustment related to life courses and events begin to apply to China (Cui et al., 2015). It is shown in China changes in life events, including marital status change and child birth, are increasingly associated with residential moves (Cui et al., 2015; Li & Li, 2006).

Nanjing, our case study area, as a typical Chinese metropolitan city, has also witnessed similar transformation and changes in the housing market and residential mobility pattern. As a traditional manufacturing industry centre in the socialist period, it has gradually transited into a service and consumptive city (Wu et al., 2014). Residential mobility behaviour is dynamic in pursuit of children education opportunities, improvement in housing conditions and symbolic values (Wu et al., 2014; Wu, Zhang, & Waley, 2016). This is especially so in the city centre where most of the good schools concentrate and where housing situations tend to be more dense and crowded (also see in Table 1). As a second-tier city, Nanjing is an ‘ordinary’ city compared to Beijing and Shanghai, with a relatively affordable housing market (see for example Wu et al., 2014). This might enable residential mobility behaviour based on more comprehensive estimation and active selection rather than merely by income/housing matching. In this context, we may expect to observe that neighbourhood perception plays an important role in impacting residential mobility.

4. Data and method

4.1. Data

The study is based on a survey on neighbourhood cohesion and residential mobility behaviour in Nanjing conducted between March 2017 and February 2018. Data collection can be divided into two stages.

### Table 1

<table>
<thead>
<tr>
<th>Selected characteristics of Nanjing, and its city centre, inner suburb and far suburb of Nanjing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nanjing</td>
</tr>
<tr>
<td>Share of non-agriculture people</td>
</tr>
<tr>
<td>Density (Persons/km²)</td>
</tr>
<tr>
<td>Floor space per person (m²)</td>
</tr>
<tr>
<td>Share of rental households</td>
</tr>
<tr>
<td>Share of self-built ownership housing</td>
</tr>
<tr>
<td>Share of commercial ownership (commodity housing, public ownership housing etc)</td>
</tr>
<tr>
<td>Share of people with a university degree</td>
</tr>
<tr>
<td>Share of professionals and managers</td>
</tr>
<tr>
<td>Share of manufacturing industry</td>
</tr>
<tr>
<td>Share of service industry</td>
</tr>
</tbody>
</table>

Notes: the data is from Census data in 2010. The definitions of city centre, inner suburb and far suburb are the same as shown in Fig. 2.

In the first stage, we conducted a pilot study in three neighbourhoods to gain a deeper understanding of residential mobility on the ground. Based on the feedback, we revised and finalised the questionnaire and carried out the second stage of the fieldwork using a multistage stratified sampling strategy. First, 32 neighbourhoods were selected, regarding their types (commodity neighbourhoods, traditional neighbourhoods, and public housing estates) and geographical locations (city centre and suburb). The number of each type of neighbourhoods to be selected was roughly proportional to the total number of such neighbourhoods in Nanjing. Second, we utilized a proportional to size sampling method and interviewed approximately 1% of the residents in each sampled neighbourhood. At least 20 people were selected from each sampled neighbourhood to ensure that the results are valid and reliable, even when the number of cases required based on the proportions was smaller than 20. The respondents were approached either through interval sampling based on the distribution of households within the neighbourhood or random encounters in the neighbourhood. This finally led to 918 valid responses. Notably, 28 out of the 32 neighbourhoods and 845 out of the 918 responses include information related to perceived social distance. Besides, we expect perceived social distance within the neighbourhood is more likely to influence short-distance residential mobility behaviour within the same housing market; long-distance migration is more economically driven like seeking for jobs. Thus, we exclude respondents who plan to move out of Nanjing. After excluding such cases and cases with missing values, 764 responses were left to be employed for this study. The sampled neighbourhoods in Nanjing are shown in Fig. 2.

4.2. Dependent variable

The dependent variable is the plan to move out of the neighbourhood. The information is captured by a survey question “Do you plan to move in the coming two years”. Five options include very likely, quite likely, maybe, quite unlikely and very unlikely. As not planning to move, rather than planning to move, could be considered as the default response, respondents who answered that they ‘maybe’ plan to move, indicate that they might have given planning a move some thought, but not much. In contrast, respondents who expressed that they are ‘very likely’ and ‘quite likely’ to plan a move show that they have clearly evaluated their desire and possibility to move, and might have been seriously planning a move. Thus, we define the responses ‘very likely’ and ‘quite likely’ as planning to move and the other responses not planning to move. A time frame of two years is most frequently used in mobility planning research. It is a period suitable for not only rent-dominant, but also ownership-dominant housing markets, where a relatively longer transition period is expected (Galster et al., 2007).
The main independent variable perceived social distance between the individual/household and neighbourhood touches on the socioeconomic status dimension. It is defined as perceived social position in terms of household income relative to the majority of the people in the neighbourhood of residence. The information is captured through a question ‘How do you perceive your household income compared to the majority of the households in your neighbourhood’. Rather than measuring the objective distance between individual/household and neighbourhood status (discrepancy between household income and neighbourhood median income for instance) using large-scale individual and neighbourhood level data, this question captures the socioeconomic distance based on people’s own perception and estimation. People might base such estimation on the observations of their neighbors’ daily behaviour, consumption of items including but not limited to cars and clothes, as well as the interactions with their neighbors. It is shown that people might be able to systematically assess their social standing in the neighbourhood (Bach & Smith, 1977). However, their perceptions might also deviate from the ‘objective’ distance with their neighbourhood. Nonetheless, this is their lived reality and their basis for residential decision making. There are indeed papers using the term ‘perceived social distance’ as a proxy to ‘objective social distance’ (Hagendoorn & Pepels, 2003; Morgan, 1984, P309; Schaake, Burgers, & Mulder, 2014, P517). However, they predominantly refer to distances in terms of social position and hierarchy in the society, rather than relative to the neighbourhoods. Thus, we argue that we should be the first one to use this concept to refer to the perceived distance between the individual and the majority/the composition of their immediate surrounding environment, namely the neighbourhood here, to our knowledge. Five options are offered: much higher, higher, approximately similar, lower and much lower. This information is used in two ways. First, we construct a three-option variable as perceived lower, medium (namely, match) and higher. The option ‘approximately similar’ is assigned as ‘perceived match’; the options ‘much lower’ and ‘lower’ are termed into ‘perceived lower’, and ‘much higher’ and ‘higher’ into ‘perceived higher’. Secondly, we combine the ‘perceived lower’ and ‘perceived higher’ into one option and term it as ‘perceived mismatch’. In this way, we construct a two-option variable operationalized into ‘perceived match’ and ‘perceived mismatch’.

Fig. 2. The location of Nanjing in China and the sampled neighbourhoods in Nanjing.

4.3. Main independent variable and moderating variable

The main independent variable perceived social distance between the individual/household and neighbourhood touches on the socioeconomic status dimension. Uni-versity degree holders are considered as people of higher socioeconomic status (SES hereafter), non-university degree holders as people of lower SES. Along with ongoing industrialization and liberalization processes, knowledge, skills and techniques instead of inherited prestige are more and more incorporated into the means of economic production (Treichman, 1970). Against this backdrop, education becomes an increasingly significant indication for social stratification and upward social mobility (Bian, 2002). The economic return of an education degree is increasing and high in China (Zhou, 2014). Based on the middle class program in China, higher-education is an entry to the middle class and pre-requisite to achieve excellence, which implies hierarchical distinction and high quality, namely ‘suzhi’ (Goodman, 2014; Miao, 2017). In addition, higher education degrees are still a scarcity. In 2018, only 14% of the population in China had a university degree and vocational certification.

From Table 2, we see that highly educated people are over-represented in the sample (47.7%) compared to the Nanjing population (35.4% in 2015). Although it is common in Chinese survey research that highly educated people show a more active participation compared to those who are lower educated, the bias here still seems relatively large by 12%. However, this can be explained. First, the share of the highly educated people in Nanjing shown in Table 2 (35.4%) was measured in 2015; in 2010, it was 26.1%1, indicating a rapidly increasing trend. If it would have continued to increase by 1.87% each year as during the period of 2010–2015, the share in 2018 would be around 41%. Secondly, the share of highly educated people in Nanjing should be higher than shown here if it, like our sample, only regards the urban area where most of the highly educated people concentrate (see Fig. 2), rather than both rural and urban areas. Finally, although family income and occupation are also used as proxies of socioeconomic status (see for example Reardon & Bischoff, 2011), these variables have more missing values than the education variable.

4.4. Control variables

Other individual background and housing/neighbourhood related variables that might influence the plans to move are controlled for. Gender is operationalized as male and female and marital status married and unmarried (including single, widowed and divorced people). Age and age squared are included based on its theoretically nonlinear relationship with plans to move. Hukou status is operationalized into local and nonlocal hukou. Housing tenure (rental and ownership) and length of residence by years are also included in the model. The housing stress variable is operationalized as perceived housing space compared to housing demand. It includes three options: the house is relatively bigger, approximately fitting and relatively smaller compared to housing demand. The neighbourhood location is operationalized as city centre, near suburb and far suburb (Fig. 2 and Table 1). The city centre tends to be highly urbanized, more dense and more crowded and dominated by highly skilled and highly educated people (Wu et al., 2014), while the far suburb is the least urbanized, most spacious in average floor space, with the lowest share of highly skilled and highly educated people, higher share of migrants (Cui, 2020). The inner suburb falls in between in these metrics. Four neighbourhood types are identified based on the housing types: old traditional housing neighbourhoods, work-unit and reformed housing neighbourhoods, public housing neighbourhoods and commodity housing neighbourhoods. Old traditional housing neighbourhoods are predominantly located in the inner centre. They tend to be over-crowded, old and dilapidated with inadequate infrastructures; most of them have experienced certain degrees of urban redevelopment. Low socioeconomic status people are overrepresented in these neighbourhoods including those who are laid-off, unemployed and rural

migrants (Wu & He, 2005). Work-unit and reformed housing neigh-
bourhoods are mostly occupied by people who (used to) belong to work
units; they usually co-own (with the work-units) or own the housing.
Acquaintance and interaction among residents are high. Commodity
housing is the emerging housing estate in the marketization period. This
mainly concerns high rising buildings in the suburbs (Li et al., 2019).
They usually is limited interaction between residents in the neigh-
bourhood but a better physical environment (Zhu et al., 2012). They also
tend to have a higher level of residential mobility in general. Public
housing mostly refers to housing subsidized by the government, mainly
including economic comfortable housing (ECH) and public rental
housing. The neighbourhood status variable is measured by the
perceived neighbourhood status. A three-option variable is included
and operationalized as lower, medium and higher relative to most of the
neighbourhoods in Nanjing. Besides, neighbourhood characteristics like
green infrastructures might have important influences on residential
mobility behaviours (Laszkiewicz et al., 2018). We also asked the re-
pondents to score their ‘overall satisfaction degree’ of the neighbour-
hood on a scale of 1–5 based on aspects including building arrangement,
public facilities, public space, greenness and neighbourhood services.
This subjective estimation might predict residential mobility more
accurately as this is the lived reality of the respondents. The affective
attachment to the neighbourhood is measured through asking ‘to what
extent do you agree with the statement ‘I like my neighbourhood’. A
scale of 1–5 is reported. For both the neighbourhood satisfaction and
attachment variables, we combine the first two and last two scales into
one scale and construct three-option variables. Besides, two neigh-
bourhood variables are also added including the neighbourhood popu-
laration and whether the share of migrants is higher than 20% of the
neighbourhood (2 categories)

Table 2
Descriptive statistics of variables included in the models.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Options</th>
<th>Nanjing Sample</th>
<th>Move Bivariate Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan to move</td>
<td>Not plan to move</td>
<td>86.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plan to move</td>
<td>13.7</td>
<td></td>
</tr>
<tr>
<td>Socioeconomic status (SES)</td>
<td>Lower SES (Non-university degree holders)</td>
<td>64.6%²</td>
<td>51.4</td>
</tr>
<tr>
<td></td>
<td>Higher SES (University degree holders)</td>
<td>35.4%²</td>
<td>48.6</td>
</tr>
<tr>
<td>Perceived social distance between individual and the majority of the neighbourhood (2 categories)</td>
<td>Perceived Medium/Match</td>
<td>69.2</td>
<td>87.8</td>
</tr>
<tr>
<td></td>
<td>Perceived Mismatch</td>
<td>30.8</td>
<td>83.0</td>
</tr>
<tr>
<td>Perceived social distance between individual and the majority of the neighbourhood (3 categories)</td>
<td>Perceived Medium/Match</td>
<td>69.2</td>
<td>87.8</td>
</tr>
<tr>
<td></td>
<td>Perceived mismatch and lower</td>
<td>24.5</td>
<td>89.3</td>
</tr>
<tr>
<td></td>
<td>Perceived mismatch and higher</td>
<td>6.3</td>
<td>58.5</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>49.8%³</td>
<td>53.4</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>50.2%³</td>
<td>46.6</td>
</tr>
<tr>
<td>Age (years old)</td>
<td>Married</td>
<td>88.6</td>
<td>87.2</td>
</tr>
<tr>
<td></td>
<td>Unmarried</td>
<td>11.4</td>
<td>79.7</td>
</tr>
<tr>
<td>Duration of staying</td>
<td>Duration of staying (years)</td>
<td>Ownership</td>
<td>85.7</td>
</tr>
<tr>
<td></td>
<td>Rental</td>
<td>14.3</td>
<td>75.3</td>
</tr>
<tr>
<td>Hukou status</td>
<td>Local</td>
<td>81.7%³</td>
<td>84.2</td>
</tr>
<tr>
<td></td>
<td>Nonlocal</td>
<td>18.3%³</td>
<td>15.8</td>
</tr>
<tr>
<td>Neighbourhood type</td>
<td>Traditional</td>
<td>9.5</td>
<td>93.5</td>
</tr>
<tr>
<td></td>
<td>Work-unit/Reformed</td>
<td>26.8</td>
<td>84.5</td>
</tr>
<tr>
<td>Neighbourhood type</td>
<td>Commodity neighbourhood</td>
<td>48.2</td>
<td>83.7</td>
</tr>
<tr>
<td></td>
<td>public housing/resettlement</td>
<td>15.5</td>
<td>93.1</td>
</tr>
<tr>
<td>satisfaction with neighbourhood physical environmnt</td>
<td>Not satisfied</td>
<td>21.2</td>
<td>83.3</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>41.7</td>
<td>84.9</td>
</tr>
<tr>
<td></td>
<td>Satisfied</td>
<td>37.1</td>
<td>89.6</td>
</tr>
<tr>
<td>Neighbourhood location</td>
<td>City centre</td>
<td>58.3</td>
<td>89.2</td>
</tr>
<tr>
<td></td>
<td>Near suburb</td>
<td>20.8</td>
<td>84.4</td>
</tr>
<tr>
<td></td>
<td>Far Suburb</td>
<td>20.9</td>
<td>80.1</td>
</tr>
<tr>
<td>Perception of the living space compared to demand</td>
<td>Smaller</td>
<td>31.1</td>
<td>81.2</td>
</tr>
<tr>
<td></td>
<td>Approximately fit</td>
<td>61.1</td>
<td>87.4</td>
</tr>
<tr>
<td></td>
<td>bigger</td>
<td>7.8</td>
<td>98</td>
</tr>
<tr>
<td>Perception of the neighbourhood status compared to other neighbourhoods in Nanjing</td>
<td>Lower</td>
<td>27.4</td>
<td>83.1</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>47.2</td>
<td>88.3</td>
</tr>
<tr>
<td></td>
<td>Higher</td>
<td>25.4</td>
<td>86.1</td>
</tr>
<tr>
<td>Attachment to the neighbourhood</td>
<td>Unattached</td>
<td>7.5</td>
<td>87.8</td>
</tr>
<tr>
<td></td>
<td>Moderately attached</td>
<td>29.7</td>
<td>82.4</td>
</tr>
<tr>
<td></td>
<td>Highly attached</td>
<td>62.8</td>
<td>88</td>
</tr>
<tr>
<td>Migrants higher than 20% of the neighbourhood population</td>
<td>No</td>
<td>28.3</td>
<td>88.6</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>71.7</td>
<td>85.4</td>
</tr>
</tbody>
</table>

Notes: Chi-square tests is used to test whether there are significant differences among different groups in terms of their probability distribution of planning to move; ***p < 0.01, **p < 0.05, *p < 0.1.


The data is from the Statistical Yearbook of Nanjing 2019, the information of which is of 2018.
4.5. Models

In order to account for the cluster structure of the data and the unobserved heterogeneity of the neighbourhoods, a two-level random-intercept logit model is utilized. We first define the probability of planning to move as

$$
π_{ij} = \Pr(y_{ij} = 1 | X_{ij}, \xi_j)
$$

$\xi_j$ is the neighbourhood level random intercept; it is assumed to be independent across neighbourhoods and independent of the covariates indicated by the vector $X_{ij}$. Given the random intercept $\xi_j$ and independent variables $X_{ij}$, the responses $y_{ij}$ for person $i$ at neighbourhood $j$ are independently Bernoulli distributed, namely binomial:

$$
y_{ij} \mid π_{ij} \sim \text{Binomial (1, } π_{ij})
$$

A linear relationship is then fit between the log-odds (logit) of planning a move and the independent variables, indicated by Equation (1):

$$
\text{Logit}(π_{ij}) = \ln\left(\frac{π_{ij}}{1 - π_{ij}}\right) = β_0 + β_1 PSD_{ij} + β_2 SES_{ij} + β_3 X_{ij} + ζ_j
$$

The corresponding equation for the model with the interaction term should be:

$$
\text{Logit}(π_{ij}) = \ln\left(\frac{π_{ij}}{1 - π_{ij}}\right) = β_0 + β_1 PSD_{ij} + β_2 SES_{ij} + β_3 X_{ij} + β_4 PSD_{ij}^* SES_{ij} + ζ_j
$$

Here, $PSD_{ij}$ and $SES_{ij}$ are the perceived socioeconomic distance and socioeconomic status measured by the education degree for individual $i$ at neighbourhood $j$, respectively. $X_{ij}$ and $β_3$ are the vectors of other controlled variables and the corresponding vector of coefficients. The coefficients should be translated as the increase in log-odds of planning a move with one unit increase in the corresponding independent variable. The odds of planning to move $π_{ij}/(1 – π_{ij})$ is the probabilities of planning to move ($π$) divided by the probabilities of not planning to move ($1 – π$). It could be recovered by exponentiating the log-odds. We here use the model without the interaction term as an example.

$$
π_{ij} = \frac{e^{β_0 + β_1 PSD_{ij} + β_2 SES_{ij} + β_3 X_{ij} + ζ_j}}{1 + e^{β_0 + β_1 PSD_{ij} + β_2 SES_{ij} + β_3 X_{ij} + ζ_j}}
$$

The probability of planning to move could be recovered through further transformation of Equation (3). Its equation is shown as below:

$$
π_{ij} = \frac{e^{β_0 + β_1 PSD_{ij} + β_2 SES_{ij} + β_3 X_{ij} + ζ_j}}{1 + e^{β_0 + β_1 PSD_{ij} + β_2 SES_{ij} + β_3 X_{ij} + ζ_j}}
$$

We run all the models using the command ‘meqrlogit’ in Stata 14. After running the models, we use the command ‘margins’ to recover the probabilities of planning a move.

5. Results

In general, people tend to be residentially stable: 86.3% of the respondents show no plans to move, while only 13.7% indicate they plan to move in the following two years (Table 2). While 21.5% of the high SES group plan to move, only 6.3% of the lower SES group report a plan to move. Bivariate analysis also shows that this difference between these two SES groups is significant. While the difference in terms of the probability of planning to move between those who perceive a mismatch and match is not significant, that among those who perceive a match/medium position, a lower relative position and a higher relative position is significant. The significant difference might mainly come from the significantly higher probability of planning a move for those perceiving a higher relative social position in the neighbourhood. It is show that 41.5% of them report a plan to move, while the percentages are 12.2% for those perceiving a match/medium position and 10.7% for those perceiving a lower position (10.7%).

We now present the outcome of the multilevel logit models (Table 3). Two sets of models are reported, whereby the main independent variable perceived socioeconomic distance is operationalized as perceived residential match and mismatch (Model 1), and further dissected as perceived lower, medium (match) and higher (Model 2). Within each set of the models, we report a model with only the main independent variable (Models 1-1, 2-1), a full model without an interaction term (Models 1-2, 2-2), a full model with the corresponding interaction term (Models 1-3, 2-3). The standard errors of the odds ratios are also included in parentheses. Collinearity tests showed no significant multicollinearity. Model 2-3 fits the observed data best when the perceived social distance is operationalized into three categories and an interaction term is included, as shown by the lowest value in the AIC value.

We focus on illustrating the significant relationships, while also referring to insignificant ones when necessary. We first present the findings related to the main independent variables and the corresponding interaction terms. We then turn to the control variables. When interpreting the control variables, we mainly focus on Model 1–3 as results are predominantly similar.

When only the main independent variable is included, the odds of planning a move when perceiving a mismatch and when perceiving a match are not significantly different (Model 1-1). This insignificant relationship might be caused by the omission of important influential factors, which confounded the results. When other control variables are included, this relationship becomes significant; those who perceive a residential mismatch are significantly more likely (1.66 times) to plan a move out of their neighbourhood of residence in reference to those who perceive a match (Model 1-2). When we dissect the perceived residential mismatch into a perceived lower and a higher relative position, it is shown that perceiving a higher relative position in the neighbourhood suggests a significant and much higher likelihood (5.13 times) to plan a move compared to those with a perceived medium/matched position. The odds ratio is not significant between those perceiving lower and medium/matched relative positions (Model 2-1); this relationship still holds in the full model without the interaction term (odd ratio = 7.376 in Model 2-2).

Our second sub-question concerns how socioeconomic status moderates the above relationships, namely the relationships between plans to move and the social distance individuals/households perceive between themselves and the majority of their neighbourhood (Models 1–3 and 2–3 in Table 3). Here, how people respond to their perceived positions in their neighbourhood residential mobility behaviour is contingent on their socioeconomic status. For instance, in Model 1–3, the odds of planning a move when perceiving a mismatch are 0.388 times smaller than when perceiving a match for those of low SES; but for those of high SES, the odds is 3.116 times higher. To better understand the moderation effect, the varying predicted probabilities of each implied scenario are recovered and plotted based on these odds ratios using Equations (3) and (4) (Fig. 3). The predicted probabilities and their 95% confidence intervals are presented in Appendix 1. What is immediately apparent is that high SES and low SES people show

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1 The computation of the odds ratio of planning a move when perceiving a mismatch compared to perceiving a match for the reference group, namely the low status group, is the coefficient in odds ratio metric 0.388; but for the highstatus group, the computation of the odds ratio involves multiplying coefficients as odds ratio models are multiplicative rather than additive. Thus, for the high socioeconomic status group, the odds of planning a move when perceiving a mismatch is 3.116 (0.388*8.030) times higher than the odds of planning a move when perceiving a match.

2 The computation of the odds ratio of planning a move when perceiving a mismatch compared to perceiving a match for the reference group, namely the low status group, is the coefficient in odds ratio metric 0.388; but for the highstatus group, the computation of the odds ratio involves multiplying coefficients as odds ratio models are multiplicative rather than additive. Thus, for the high socioeconomic status group, the odds of planning a move when perceiving a mismatch is 3.116 (0.388*8.030) times higher than the odds of planning a move when perceiving a match.
For people of a relatively lower socioeconomic status, a perceived mismatch is related to a lower probability to plan a move compared to a perceived match (Figs. 3-1, 3-2). This contrasts with the findings about their higher socioeconomic status counterparts. Specifically, and also different from the higher socioeconomic group, the probability of planning a move is significantly lower when a lower position relative to the neighbourhood majority is perceived compared to those who perceive a medium position relative to the neighbourhood majority; the difference between a perceived higher and medium position is not significantly different (Figs. 3–4). These findings are evidenced by the fact that the shadowed area for the higher socioeconomic status group does not intersect with the horizontal axis when comparing their probability of planning a move between perceiving a higher and medium position in the neighbourhood, but does when comparing the probability between perceiving a lower and medium neighbourhood position in Fig. 3-4.

Notes: SES stands for socioeconomic status measured by education levels; **p < .001; ***p < .01; *p < .05. As this table reports the odds ratios, the constant is omitted. AIC (Akaike Information criterion) is a model fit index; a smaller AIC value indicates a better model fit.
perceiving a lower relative position compared to the neighbourhood majority (Fig. 3). In this situation, it might imply that residential stigmatization is in place and that there is little opportunity to escape the potentially less desirable residential situation.

Seen from the control variables, age, tenure, perceived housing pressure, satisfaction degree towards the neighbourhood, and the neighbourhood locations seem to function in a relatively robust manner across the four full models (Models 1–2, 1–3, 2–2, 2–3). The probability of people planning a residential move increases until their middle 30s (ranging from 35 years to 36 years across the four models) and drops afterwards, showing a nonlinear relationship. Renters in general are more than 2 times more likely to plan a move; the coefficients are all significant in four models and range from 2.340 in Model 1–3 to 2.942 in Model 2–2. As expected, compared to those who perceive that they have a smaller housing space than they need, those who perceive a spacious and approximately fitting/matching housing space appear significantly less likely to plan a move. People perceiving a moderate level of satisfaction tend to be more likely to plan a move compared to those who are very satisfied. Although people who feel unsatisfied also have a higher probability to develop plans to move, the relationship is not significant in two of the four models (Models 2–2, 2–3). It might be that those who feel unsatisfied are also those who are less financially capable. People who live in both near suburb and far suburb are in general more likely to plan a move than those who live in the city centre as anticipated across the four models.

6. Discussion and conclusion

This study asked the questions (1) how perceived social distance impacts on the plans to move out of the neighbourhood, and (2) how people of different socioeconomic status respond to perceived social distance differently. It is found that in general, people who perceive a residential mismatch with the majority of the neighbourhood are more likely to plan a move out of the neighbourhood, compared to those perceiving a residential match. When we dissect the perceived residential mismatch position into a perceived higher relative and a lower relative position in relation to the neighbourhood majority, we found that only those perceiving a higher relative position in the neighbourhood of residence tend to have a significantly higher probability to plan a move compared to those who perceive a medium position. Meanwhile, people respond differently to perceived social distance contingent on their socioeconomic status. Higher socioeconomic status people are also more likely to plan a move out of the neighbourhood when they perceive a mismatch generally and a higher relative position particularly, compared to when perceiving a residential match/medium position. In contrast, the lower socioeconomic status people are significantly less likely to plan a move when they perceive a residential mismatch, particularly a lower relative position, compared to when they perceive a medium position.

Social distance has long been proved to be predictive of residential mobility. This study argues that the perception of social distance between the individual/household and neighbourhood of residence impacts on the plans to move out of the neighbourhood, and it even predicts the probability of residential mismatch using predominantly quantitative analysis, and qualitative research focusing on perceived residential mismatches. Our findings imply an overlap and complementarity of these two threads of literature. Research based on objective social distance and actual residential mobility using a large-scale dataset has typically shown that a larger distance, measured by the difference between the household income and...
neighbourhood median income, tends to associate with a higher probability of moving out of the neighbourhood (Galster & Turner, 2017; Musterd et al., 2016). Similarly, our study also shows that people are more likely to plan a move when they perceive a residential mismatch and when they perceive a higher relative position, compared to those perceiving a match/medium. This indicates that people indeed estimate their socioeconomic status in their neighbourhoods consistently.

However, the relationship between plans to move and perceived social distance is not a linear one. Different mechanisms might be at work. Seeking for selective belonging could explain the significantly higher probability for people to plan a move out when they perceive a residential mismatch and in particular a higher relative position in the neighbourhood; they might move to live with people like them in a more homogeneous neighbourhood, so that they could feel more ‘at home’ (Atkinson, 2006; Savage et al., 2018; Watt, 2009). This finding is also applicable when we only consider the higher SES group, but not when only considering the lower SES group. This corresponds to the fact that higher SES people have a higher capability to realign their objective residential situations with their desires. In reality, seeking for selective belonging might lead to neighbourhood segregation when people, especially the higher SES group, isolate themselves from the rest. For those of relatively lower socioeconomic status, residential mobility behaviour seems more related to adaptation (Bourdieu, 1980:77; Reay et al., 2009). They have little opportunities to escape from less desirable residential situations, as implied by their significantly lower probabilities to plan a move when perceiving a residential mismatch in the neighbourhood and a lower relative position in particular, compared to perceiving a medium position. This might also imply concentrated poverty and relatively lower neighbourhood segregation when they are marginalized into disadvantaged areas (Atkinson, 2006). In addition, the feeling of having a lower status than the majority of the neighbourhood might also lead to psychological health issues. Further research should address that, and related policies should be in order.

The relationship between social distance and residential mobility has important implications on neighbourhood mix and segregation research and related public policy fields (Galster & Turner, 2017; Musterd et al., 2016). The neighbourhood mix policies in the Netherlands and Sweden and the Hope projects in the US all aim for mix in dimensions of income and ethnicity. However, such mix might not necessarily be stable and sustainable as people might not feel that they belong to the neighbourhood (Galster & Turner, 2017; Kleit, 2005). Our theoretical emphasis on perceived social position/distance in the neighbourhood, provides new and potentially fruitful perspectives in neighbourhood mix policies, for instance, through ‘manipulation’ of people’s perceived position in the neighbourhood in relation to their real position: making people ‘perceive’ they fit and feel ‘at home’ while they actually observe a mismatch and contribute to neighbours mix in objective terms. Indeed, people’s perceptions and self-positioning might be biased based on a complex set of factors including individual socioeconomic characteristics (Adler et al., 2000), collective status (Blumer, 1958; Jones et al., 1984) and macro-structures (Musterd & Ostendorf, 2013; Wilkinson, 1996). Some other household and neighbourhood characteristics, including but not limited to crime rates and the size of houses might also influence how people perceive their social distance with their neighbors. For example, a tentative cross-tabulation analysis with our sample suggests a relatively big mismatch between perceived and ‘real’ social positions in the neighbourhood. Future research could focus on how perceived and real social distance in the neighbourhood interact with each other. The factors influencing how people perceive their social distance would further mediate the relationship between perceived social distance and residential mobility behaviour. Further research could take this into consideration, and to establish to what extent our findings and theoretical assumptions hold. Additionally, caution is needed in interpreting and generalizing the results in this study, among other things due to the slight bias in the education variable and the fact that we were unable to use sampling weights. Furthermore, variables related to the built environment like greenspace and land use mix could not be included due to data availability, which might exert potential influence on people’s residential mobility behaviour (Laszkiewicz et al., 2018). Although highly unlikely to lead to misleading results, availability of related information would be useful in providing a more complete picture of how people respond to neighbourhood environment in residential mobility. Besides, while the multilevel model helped with controlling for the ‘large-scale’ effect, spatial autocorrelation might still exist and influence the standard errors of the estimations. Further research with access to XY-coordinates information of the respondents could test to what extent this influence exists. Furthermore, education is used to measure the SES status due to data availability. Further research based on household income or occupation could test whether applying these operationalisations result in the same conclusions or not. While these variables could all be considered good proxies of socioeconomic status, they might capture nuanced and different dimensions. Education might have stronger implications in terms of cultural capital, and income in terms of economic capital. In that sense their inclusion in analyses is expected to have differentiated impacts on residential mobility behaviour.

Appendix 1

Appendix 1. the predicted probabilities and their differences

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*Analysis not shown here, due to concerns connected to the relatively small sample and potentially high estimation errors.*
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References


Notes: SES implies social economic status; ‘CI’ confidence interval, ‘lb’ lower boundaries, and ‘ub’ upper boundaries.