Qual Quant (2017) 51:147–176
DOI 10.1007/s11135-015-0299-5

Influence factors on settlement intention for floating population in urban area: a China study

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Published online: 26 December 2015

Abstract Floating population has had a tremendous impact on China's urban development in the past three decades. Understanding this population's settlement intention in cities is crucial for China's process of urbanization. Based on a nationwide survey, this paper focuses on the floating population's intention for urban settlement and effect factors. The empirical evidence shows that more than half of migrants provide positive answers to the question about long-term settlement plan. Using logistic regression model, factors including socio-economic, occupational, institutional, neighbourhood and origin–destination characteristics are examined. Results indicate that majority of the variables are significantly associated with settlement intention. For example, having more welfare benefits,

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self-occupied housing and better social integration are representative indications of a long-term settlement plan. This study also highlights non-physical neighbourhood characteristics such as social participation, interaction with locals, and migrant's attitude to the destination city as important factors of settlement intention.

Keywords Settlement intention · Floating population · Determinants of settlement · China

1 Introduction

China's floating population, or temporary migration, generally refers to those rural-to-urban migrants without official transfer of household registration status (Hukou) (Shen and Huang 2003; Chen et al. 2011). Since the major market reforms in the late 1970s, China has experienced the biggest stream of internal migration in history. By 2013 this population has grown to over 268 million, about one fifth of the nation's total population (National Bureau of Statistics 2014). The floating population has played an important role in the prosperity of the coastal areas, and has been instrumental in the development of their hometowns (Rozelle et al. 1999).

As the largest developing country, China's rapid urbanization is significant, with the rate increasing from 17.9 percent in 1978 to 53.7 percent in 2013. According to official statistics, the number of cities increases from 193 to 658 from 1978 to 2013 (State Council 2013). China's urbanization is still continuing in the years ahead and the proliferation of the floating population seems inevitable. However, although the statistics has counted massive floating population as the urban population, the urbanization of these migrations is incomplete (Wang et al. 2010a, b). The floating population, especially rural–urban migration, generally chooses to keep circulating and maintain their temporary residential status.

In order to control the size of cities, the government used to acquiesce to this migration pattern and refuse to provide urban benefits to the floaters. However the emergence of growing social problems such as "spring rush" and "left-behind children" has led to increased attention from the authorities. The "spring rush" refers to about 40-day Spring Festival travel rush with nearly 3 billion population's movement. This is a severe test on China's transportation systems annually. China's "left-behind children" is a group who grow up without one or both parents and a recent survey shows that there are 61 million "left-behind children" across China. Their parents, who are usually young migrants, often have to leave their children in their rural hometowns because of the high urban living costs given to their paltry salary (Gao 2013). Therefore new urban policies are adopted to encourage "people-focused" urbanization process, which called 'a new type of urbanization'. The prerequisites of Hukou transfer are being relaxed in large-cities and middle-cities. At the same time, the restriction of Hukou transfer in small-cities has been gradually released (State Council 2012). Many local governments take measures to remove the hurdles created by the Hukou system, in the hope that the floating population will settle down in the cities (Zhu 2007). In this context, understanding the floating population's settlement intention and its determinants helps provide further insights into how this enormous migration makes choices.

The floating population has drawn much attention from researchers. Their migration status (Wong et al. 2005), size (Goodkind and West 2002), characteristics (Yang and

Goldstein 1990), origin and destination (Liang and Ma 2004) and socioeconomic consequences (Chai and Chai 1997) are fully discussed, while the research on floating population's settlement intentions just emerges. Although several case studies on floating population's settlement intention have been conducted in recent years, current knowledge remains insufficient. Most recent studies on this topic are conducted with limited samples or specific categories of population (Zhu 2007; Zhu and Chen 2010; Fan 2011; Du and Li 2012; Tang and Feng 2012; Gu and Ma 2013; Cao et al. 2015; Tang and Feng 2015; Tang et al. 2016). Policymakers are still poorly informed about the willingness of settling nationwide. Due to the importance of floating population' settlement decision to China's urbanization, there is a need to study the overall settlement plan. Moreover, broaden the lens to identify determinants is equally urgently required as the identification of determinants is helpful for providing comprehensive recommendations on the resettlement of floaters. Therefore this study aims to fill this gap by exploring the following questions:

(1) What is the overall settlement intention of China's floating population?
(2) What are the differences in their settlement plan with different demographic characteristics?
(3) What factors affect the floating population's settlement intention?

The remainder of the paper is organized as follows. Next section begins with a literature review on China's floating population, level of floating population's settlement intentions and affecting factors. We propose hypotheses accordingly. Section 3 describes data source, variables which are hypothesized to affect settlement intention, and the model framework, followed by descriptive findings on three issues: (1) overall settlement intention; (2) settlement intention with different gender, age and education; (3) settlement intention with different employment status in Sect. 4. Section 5 presents empirical results from models and robustness test. The last two sections provide discussion and conclusions.

2 Literature review

2.1 Overview of China's floating population

As one of the biggest migrant populations in the world, China's floating population has attracted much attention of scholars. Their characteristics such as age and gender profiles, employment traits, socio-economic status and accommodation types are examined in many papers (Chan et al. 1999; Shen 2002; Shen and Huang 2003; Wong et al. 2005). Some studies analyzed the floating population's geographic distribution and its underlying causes (Yang and Goldstein 1990; Liang and Ma 2004). Besides, the floating population's motivation and socio-economic consequences are also well elaborated (Shen 1995; Chai and Chai 1997; Seeborg et al. 2000; Zhao 2002; Zhang and Song 2003). One of the bones of contention is this population's unsettled nature and their long-term plan about whether to settle down. Some scholars stressed this population's unsettled nature and began to discuss the deep-seated causes by taking surveys on the floaters' settlement plan in local areas (Zhu 2007; Gu and Ma 2013).

2.2 Level of settlement intentions of the floating population

In 1986, a survey conducted by the Chinese Academy of Social Sciences in 74 Chinese cities and towns shows that only about one in five of all temporary migrants had been

residents in those cities for more than half a year (Goldstein and Goldstein 1991). According to Zhu (2003)'s survey of 112 migrant workers in a foreign-funded enterprise in Fuzhou, only 13.4 % of the respondents choose to stay in the destination city permanently, 49.1 % say they will go home after saving money, 26.8 % will migrate to other places, and 10.7 % have other choices. Another study conducted in five cities in Fujian Province shows that among the 243 valid responses, 20.6 % of the respondents have the intention of settling down in the places of destination (Zhu 2007). Using data from 2000 Chinese Census, the 2005 One-percent Population Survey, and the 2001 Chinese Urban Labor Survey (CULS), Connelly et al. (2011) describe the rural migrants' settlement intention, with their length of stay and co-residence with family members as proxies for permanent settlement. Gu and Ma (2013)'s report based on 626 questionnaires in Shenzhen shows that 45.7 % of the respondents intend to live in the cities for a long time, about half of the respondents (50.0 %) do not intend to live in these cities for a long time, and only 4.3 % people are not considering this issue.

Changes in settlement intention over time are also noticeable. Li (2006) suggests that many migrants, unlike their predecessors in previous years who came and left, now intend to settle down in the city. Another study indicates that the intention of the floating population to settle in the cities has increased based on the data from two surveys conducted in Fujian Province in 2002 and 2006 (Zhu and Chen 2010). Additionally, Yue et al. (2010) elucidate that sharp differences exist between the two generations' rural migrants in the reasons that underlie their settlement intentions. It is therefore reasonable to infer that the settlement intention will be stronger with the development of urbanization and the improvement of floating population's condition.

2.3 Factors influencing the settlement intention

Many scholars suggest that the Hukou system is responsible for the floating population's unsettled nature, as without local Hukou they are not entitled to some of the benefits that local people enjoy (Solinger 1999; Fan 2002; Wang et al. 2010a). Whereas Zhu (2007) stresses the limited impact of Hukou on the settlement intention and suggests that the underlying factors are job instability, income level, low level of social insurance, the expectation of risk in the migration process and the prospect of risk. Yue et al. (2010) explore the correlation between rural–urban migrants' employment status and settlement intentions, highlighting of the difference of two generations' migrants. Using logistic regression model, Zhu and Chen (2010) have examined five groups of indicators influencing the floating population' settlement intentions which include demographic characteristics, working and living conditions, household conditions, Hukou status and origin–destination characteristics. Results show that female, young, unmarried and better educated are more likely to choose to settle down. They also conclude that having non-agricultural Hukou status, higher household income, longer working contracts, better housing conditions, and a higher administrative status and bigger population size of the destination cities, are factors that promote the settlement intention of the floating population in the cities. A study carried out by Tang and Feng (2012) argues that the characteristics of the destination cities are related to the settlement intentions of floating population. They suggest that after mega-cities, small cities are the second most popular destinations of the floating population in Jiangsu province. The authors also find that migrants in small cities are more inclined to transfer their rural Hukou to an urban one. Gu and Ma (2013) find a positive correlation between settlement intention and opinion towards the local environment. In addition, Hao and Tang (2015) find that both the possession of farmland and housing land in rural areas

significantly influences the intention of rural migrants to obtain an urban Hukou in their destination cities.

Based on the available literature, settlement intention is affected by five sets of factors: (1) socio-economic attributes, such as age, gender, marital status, education, duration of residence, and household size; (2) occupational characteristics, such as employment status, income, working contract and medical insurance status; (3) institutional characteristics, such as Hukou status, and temporary residence permit status; (4) housing characteristics, such as unit size, homeownership (i.e., rental housing, self-occupied housing, etc.), housing conditions (e.g., toilet or not), housing cost; (5) origin–destination characteristics, such as the regional feature of origin and destination. It's worth noting that concerning the non-physical dimension of residential environment such as interpersonal interaction and participation, little research has been undertaken as yet. Thus we raise the question that whether these non-physical residential environment factors affect the floating population's settlement intention and how, if at all. So, four hypotheses are formed by integrating the above discussion and fresh question:

H1 Socio-economic attributes and occupational characteristics have positive relationships with settlement intention.

H2 Institutional characteristics, including Hukou status and temporary residence permit status, have significant impacts on the settlement intention.

H3 Neighbourhood characteristics, including physical and non-physical residential environment factors, both significantly affect the settlement intention.

H4 Origin–Destination characteristics, especially the position of origin and destination cities, significantly influence the settlement intention.

3 Research methodology

3.1 Data source

Our analysis is mainly based on a national survey dataset conducted in May 2012, which is part of the statistical information system for the floating population established by the National Population and Family Planning Commission. Unfortunately, no longitudinal data are captured because of the annual changes of detailed investigation contents. This survey contains plenty of information on characteristics of floating population, such as their occupation, accommodation, income, social lives, settlement intentions and attitude towards the destination city. A total of 156,705 valid responses are obtained, which cover China's 31 provinces, autonomous regions and municipalities. This national survey targets migrants that age between 15 and 59 and have moved across a county-level boundary for more than 1 month without changing their places of household registration. Stratified random sampling method is used for selecting the respondents. The provincial sample size is grouped into six categories: 15,000, 12,000, 10,000, 8000, 6000, and 4000 based on the data from the annual report of the floating population in 2011.

Another data source is the China City Statistical Yearbook [CCSY] (National Bureau of Statistics 2012). It provides information such as the wage level of the local workers, which is not included in the survey.

3.2 Variables and measurements

Our research includes 23 independent variables in five categories. According to existing documents, once other variables are controlled, these 23 variables may determine the floating population's settlement intention. The detailed explanations of the variables are as follow:

3.2.1 Socio-economic characteristics

In our analysis, the socio-economic characteristics include demographic features (i.e. gender, age, marital status, education), migration feature (i.e. duration of residence), medical insurance status, and relative income level in comparison with local residents'. Given the lack of data on household characteristics, factors such as household size and children are not discussed. There is a proven relationship between demographic features and migration's settlement intention (Zhu and Chen 2010). In addition, the relationship between age and settlement intentions is concluded as an inverse U-shaped curve, namely the middle-aged people are more willing to settle in the cities, the younger and older ones' intentions are weaker (Hu et al. 2011; Gu and Ma 2013). As for the duration of residence, if the floaters stay longer, they could accumulate more savings and contacts, and then are more likely to choose to settle down. In addition, given the wide differences in China's economic development and income level, our analysis chooses the ratio of wage level rather than the absolute as the independent variable.

3.2.2 Occupational characteristics

It is generally considered that the occupational characteristics are highly associated with the settlement intention. Job instability, income level and length of working contract have been proved to be significantly connected to the settlement intentions (Zhu 2007; Zhu and Chen 2010; Gu and Ma 2013). In this study we introduce three variables related to occupation: industry, employment status, nature of employment unit. Working in different industries and employment units means different working environment, length of contracts, wage levels and fringe benefits. This condition has been particularly evident in China with the presence of state-owned work units, which was once a fundamental building block of Chinese cities (Zhang and Chai 2014). Despite nearly three decades of economic reform, these units still play a significant role in the economy and represent secure and well-paying jobs.

3.2.3 Institutional characteristics

The role of institutions should not be overlooked in China with a socialist and transitional economy. We select Hukou status and temporary residence permit (zan zhu zheng) status to account for institutional characteristics. As the representative institutional characteristic, the Hukou system is usually viewed as the hindrance for the floaters to settle down. China's Hukou system was first introduced as a state institution to regulate or restrict population mobility during the planned economy period. For the purpose of national independence and economy recovery, the system of planned economy was set up by gathering dispersive social resources and developing industrial and agricultural construction with clear plan and goal in the 1950s. Until the 1990s, the classification of rural and urban Hukou still

determined the access to many benefits, such as grain rations, government provided housing, employment, education and medical care (Hu et al. 2011). Although the reform of Hukou system has been in progress for many years, it remains potent and intact as a major divide between the urban and rural population. As for the temporary residence permit, it is one of the temporary (non-local) Hukou categories which was created by the authorities in the mid-1980s for bettering the management of floating population. It is worth mentioning that this permit is unwelcome initially according to the interviews with the floaters (Fan 2002). However, the function of the permit has changed in some big cities. For example, the permit holders in Beijing are entitled to some of the benefits that local people enjoy. They have access to healthcare, car shopping, family planning service and school enrolment for their children. In fact, a relatively large part of the floating population has been registered as temporary residents (Chan and Zhang 1999).

3.2.4 Neighbourhood characteristics

Evidence shows that the migrant workers, major components of the floating population, have tended to live in disadvantaged neighbourhoods: they are segregated from locals residentially and socially (Shen 2002; Gu and Shen 2003; Song et al. 2008; Wang et al. 2010a). Previous research has shown that features of neighbourhood play an influential role in determining residents' feeling and wellbeing (Sampson 2009). The neighbourhood characteristics may, therefore, impact the floater's settlement intention, and a few researches are involved (Du and Li 2012). Following the analysis taken by Cheng and Wang (2013), the neighbourhood characteristics are manifested in both physical and non-physical form, including physical residential environment, social participation, and interpersonal relationship. Consequently, eight independent variables are examined in this study: (1) housing type; (2) participation in community activities; (3) participation in elections; (4) participation in public service activities; (5) condition of involvement with natives; (6) the attitude towards the current place of residence; (7) whether or not concern about the city they stay; and (8) the degree of happiness compared with the life in the place of origin.

Due to the lack of information on housing space or quality, we only have housing type as the physical characteristic of neighbourhood. The housing type in our analysis refers to the choices of accommodation which commonly belongs to the following categories: rental housing provided by private accommodation; low-rent housing provided by government; free housing provided by employer or borrowed housing; self-occupied housing; and informal housing. These five types could, in some ways, reflect the housing condition and homeownership. It is particularly worth mentioning that the relationship between housing type and settlement intention has been proven by Wu (2004). The author finds that the migration's housing choice is influenced by the settlement decision. Conversely, this paper will explore whether the floater's housing choice in turn makes a difference to their settlement intention. The correlation between satisfaction, attachment and the stay-leave intention also been discussed with a household survey of temporary migrants in villages-in-the-city in Guangzhou city in China (Du and Li 2012).

Participation in social activities and involvement with natives are very likely to influence the floating population's settlement intention, as these experiences could improve the sense of identification and belonging. As an "outsider", the floating population's participation in election and public service activities is very meaningful, which can be regarded as an integration of city life. In addition, the interpersonal social interaction can help people obtain job information, thereby influencing their income levels and settlement intentions in a positive manner. Considering the emotion's great effect upon one's decision

making, we add the perception-related variables such as attitude, concern and happiness. Although these variables might not be decisive in the settlement decision, they can have some influences.

3.2.5 Origin–destination characteristics

Origin–Destination characteristics such as area of origin and destination are found to affect floating population's settlement intention significantly (Zhu and Chen 2010). Most previous studies examine the origin–destination factors at provincial level. Fortunately, our dataset which covers China's 31 provinces, autonomous regions and municipalities allows us to look at this topic nationwide. We classify the provinces into three main regions: eastern, central and western China. The regional classification is on the basis of the division from National Statistics, with the three provinces in Northeastern China incorporated into eastern China (Fig. 1). In addition, we assume that the floating range is also a factor in determining migration's settlement intention. The floating range, or scope of floating, is representation by 3 different levels of administrative district the floaters cross: county-level, prefecture-level and provincial-level. One point should be noted that all these

Fig. 1 China's regional division

factors' influence on settlement intention will be investigated in the following part with a national data.

The floating population's choice on whether to settle down is the dependent variable to reflect the settlement intention. In this paper, we define the "settling down in the cities" as a condition that living in a fixed destination city for a long time (5 or more years) rather than migrating recurrently between the places of origin and destination. The data on settlement intention are collected through the question of "do you have long-term settlement intention (at least 5 years)?" in the questionnaire. As the dependent variable, the settlement intention can only be "0" or "1", therefore we exclude a total of 42,902 cases with the answer of "undecided" to that question. A total of 113,803 samples are obtained after the data selection.

3.3 Model framework

Given that the dependent variable is a dichotomous variable (i.e., take on the value '0' or '1'), binary logistic regression model is used to estimate the determinants of their choices on whether to settle down.

$$\mathrm{Y} = \mathrm{Logit(p)} = \beta_0 + \sum_{m=1}^{n} \beta_m x_m = \ln\left(\frac{p}{1-p}\right)$$

where p denotes the probability value of dependent variable and is always a number that lies between zero and one. x denotes the array of independent variables. β_m denotes the estimated coefficients of x_m and β_0 denotes the intercept parameters. In the context of this study, p will be either '0' when one has the intention to settle down or '1' when one don't.

4 Descriptive findings

4.1 Demographics of survey respondents

Table 1 shows the characteristics of all respondents. Of these interviewed, about 53 % of the respondents are male. The majority of respondents are young and middle-aged people, with 71 % of them younger than 40. The proportion of married responders (76 %) is larger than singles (24 %). Nearly 70 % of the respondents stopped at junior high school and below, followed by senior high school (21 %), and only 9 % have got the technical or university education. In addition, eighty-four percent of the respondents have agricultural Hukou who are generally called "rural migrant" or "migrant worker". A total of 19 % of the respondents have medical insurance, and 14 % are living in the self-occupied housing. Among the 156,705 respondents, 82 % are employed.

4.2 Settlement intention of survey respondents

4.2.1 General results

Compared with results in previous literature, the nationwide data shows a more positive result that more than half of the respondents (60.2 %) have the intention of settling down (Table 2). Besides, 12.4 % of the people don't intend to live in the destination cities for a long time, nearly a quarter of the people (27.4 %) say they are undecided. As a reference,

Table 1 Social-demographic characteristics of the floating population

	No.	%
Male	83,174	53.08
Age		
15–24	29,002	18.51
25–39	82,822	52.85
40–59	44,881	28.64
Married	119,393	76.19
Education		
Junior high school and below	108,721	69.38
Senior high school	33,369	21.29
Vocational school and college levels and above	14,615	9.33
Agricultural Hukou	132,026	84.25
Medical insurance owner	29,339	18.72
Self-occupied housing	22,131	14.12
Employed	129,004	82.32

the answers to the question "if there is no limit, would you like to transfer your Hukou to the destination city?" are also calculated. Consistent with the findings from the literature (Zhu and Chen 2010), their decisions on the Hukou transfer are cautious with a percentage of 50.0 % on affirmative answers. The gap between the floating population's settlement intentions and their practical action still exists.

4.2.2 Settlement intention with different gender, age and education

According to the total survey data, the settlement intention varies with the gender, age and education level, as showed in Figs. 2 and 3. The distributions of proportion in male and female groups are roughly equal. Consistent with the findings from Gu and Ma (2013), the highest point of percentages is in the middle of the age range in our investigation (Fig. 2). The group of 35 to 44 years old has the biggest proportion of the people with intentions of permanent residence and the youngest group (15–24) has the smallest. It can be summarized that the older people generally has greater settlement intentions.

Figure 3 shows that the more educated floating population is more inclined to settle down in destination cities. And the increase of proportion of willingness to settle down from ones with an education level of junior high school or lower to those with an education level of senior high school is not significant. While the result still supports the point that more educated people has stronger intention to settle down, which has been proved in previous study (Zhu and Chen 2010).

Table 2 Distribution of settlement intentions and choices on Hukou transfer

	Settlement intention		Hukou transfer	
	Frequency	Percentage	Frequency	Percentage
Yes	94,398	60.2	78,372	50.0
No	19,405	12.4	38,139	24.3
Undecided	42,902	27.4	40,194	25.6
Total	156,705	100.0	156,705	100.0

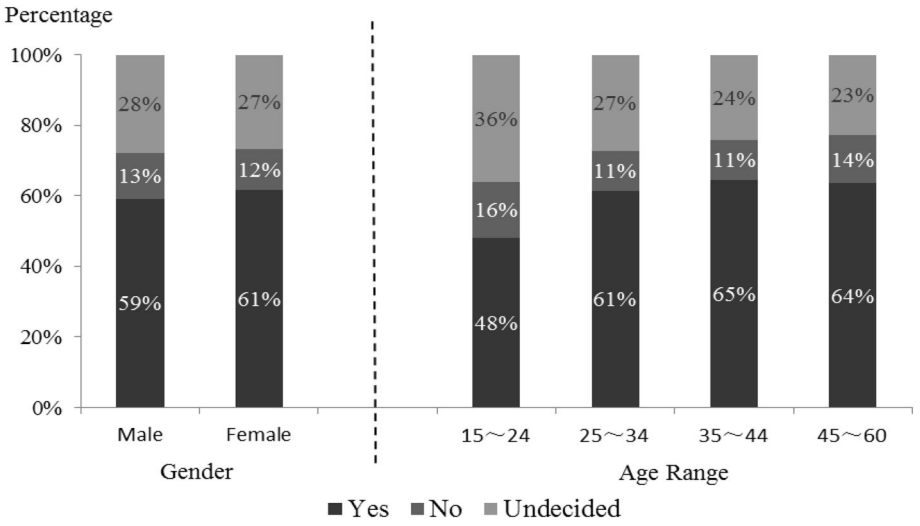

Fig. 2 Composition of settlement intentions related to respondents' gender and age range

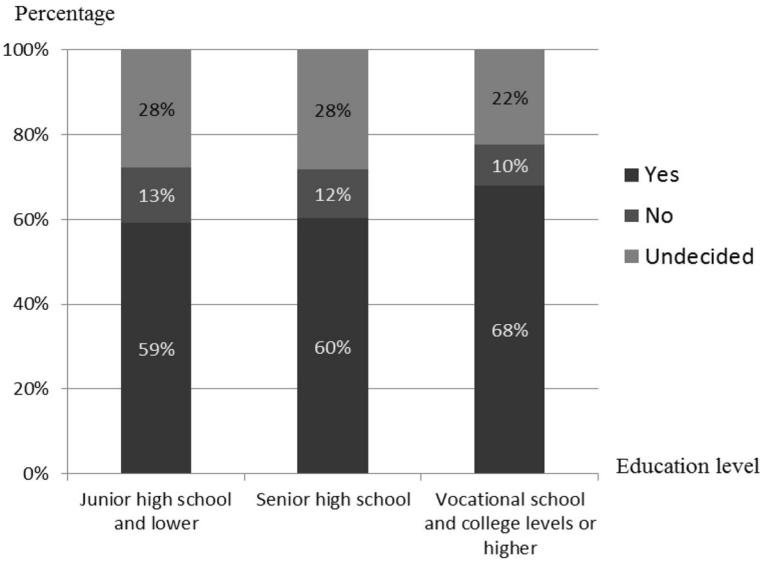

Fig. 3 Composition of settlement intentions related to respondents' education level

4.2.3 Settlement intentions with different employment status

In terms of employment status, about 82 % of the respondents fell into the category of 'employment' and 9 % are 'homemaker'. The 'retirement' occupies the least proportion, followed by the category of 'student' (Fig. 4). As Fig. 5 shows, settlement intentions vary among groups divided by employment status. The retired people with a long-term

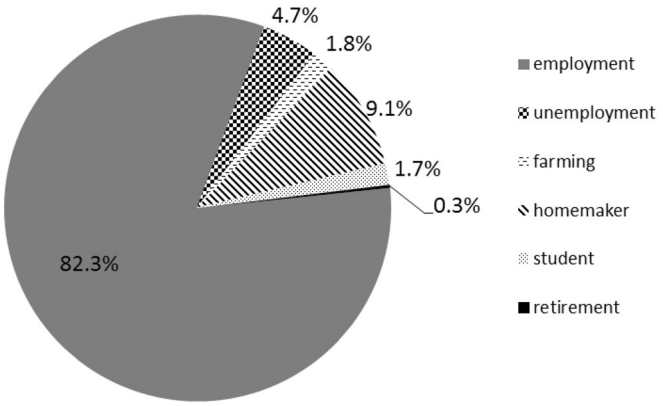

Fig. 4 Breakdown of floating population's employment status

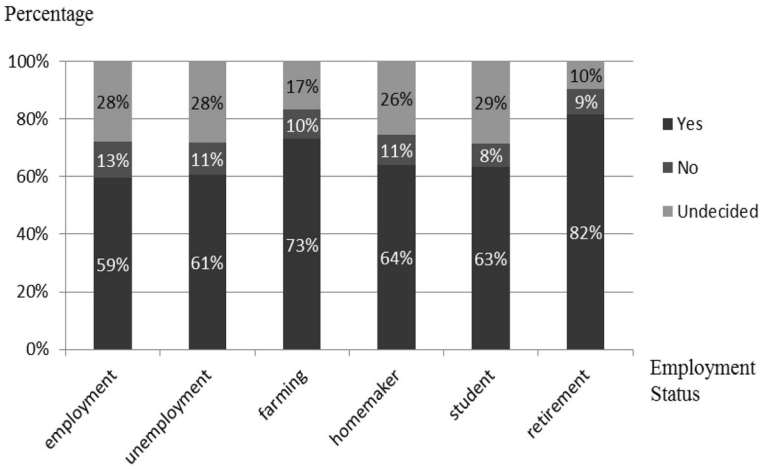

Fig. 5 Composition of settlement intentions related to respondents' employment status

residence plan are in the majority (82 %). Generally, these individuals have oriented themselves and can also get steady incomes if they belong to a public institution or a state-owned enterprise. 73 % of the people who are engaged in farming want to settle down in current cities, reflecting their relative strong desire of settlement. This result is a bit unexpected and the possible explanations may be that those members used to do farm work in their hometown and feel less pressured to acquire new professional skills which other jobs need. When people works on jobs they know intimately, they could accommodate the local life better. Interestingly, the settlement intentions of 'employment' and 'unemployment' are almost the same. In the following part, specific categories of jobs are identified for the examination of the differences in settlement intentions. Based on the proportion of settlement intentions, one can infer that a fair amount of working population will return to their hometown after saving some money. It appears that homemakers and students are more willing to settle down compared with the employed and unemployed. Perhaps it's because their burden of livelihoods are less than the working individuals.

5 Modeling the level of settlement intention

Table 3 shows the descriptive statistics of the 23 independent variables. Considering these individual level factors may be correlated with each other, there would be co-linearity in our regression equations. Therefore, a pearson correlation matrix is presented before the logistic regression (see "Appendix 1"). As the degree of correlation for industry and employment status ($r = 0.6359$) is relative high, the variable "employment status" (i.e., X_9) is eliminated from the models. Furthermore, the variance inflation factor is introduced for the diagnosis of colinearity, which shown in Table 4.

5.1 Model 1: socio-economic and occupational characteristics

Except the gender, all the socio-economic and occupational characteristics are significant at the 99 % confidence level (Hypothesis 1 accepted). As the Table 4 indicates, the middle-aged, married and more educated people are more inclined to settle down, as well as the members who stay longer. This is probably because the members who are too young or too old have difficulty in accumulating enough wealth to support the urban life. The reason for the greater settlement intentions of the married might be that they have stronger demand for settling down with consideration of other family members, while the singles have more choices with greater uncertainty in the future. The result of educational attainment reflects the fact that higher education level contributes to better employment and life in the cities. As expected, the settlement intention also has a positive relationship with the duration of residence. The longer they stay, the better they orient themselves.

The medical insurance' significant impact on settlement intention implies that providing equal access to public services will inspire their settlement intentions. However, the result of income level is inconsistent with our expectation that the lowest income group's settlement intention is even stronger than the reference group (i.e. comparable income group). Speculatively, the members of the lowest income group could still make more money in destination cities than in the origin places. This finding implies that the gap between floater's current income and wage in their hometown might play a more important role in influencing the settlement decision. However, this assumption needs to be further verified with more detailed data.

In terms of occupational characteristics, people working in tertiary industry are more likely to choose to settle down, in comparison with the secondary industry. Surprisingly, members engaged in private-owned units have more enthusiasm on settling down, compared with those engaged in state-owned and foreign-funded units.

5.2 Model 2: institutional characteristics

Model 2 contains the institutional characteristics of floating population and its pseudo R-squared statistic (i.e., 0.0641) is higher than that of Model 1 (i.e., 0.0654). It is noticeable that the floating population's Hukou status doesn't have a significant effect on their settlement intentions. The result is somewhat surprising but understandable, as the benefits with the threshold of local Hukou are still not available to the floaters. Without local Hukou, the people with non-agricultural Hukou are also "outsiders" just like those with agricultural Hukou. By contrast, the impact of "temporary residence permit" on settlement intention is statistically significant at level of 0.01. As aforementioned, the "temporary residence permit" has been attached some benefits in some cities. This

Table 3 Descriptive statistics of independent variables

Variables	Number	Percentage (%)
Socio-economic characteristics		
X_1		
Gender (Ref. = male)		
Male	60,013	52.73
Female	53,790	47.27
X_2		
Age (years) (Ref. = middle)		
Young < 25	18,505	16.26
Middle 25–50	89,821	78.93
Old 50–60	5477	4.81
X_3		
Marital status (Ref. = married)		
Married	89,901	79.00
Single	23,902	21.00
X_4		
Educational attainment (Ref. = junior high school and lower)		
Junior high school and below	78,492	68.97
Senior high school	23,975	21.07
Vocational school and college levels and above	11,336	9.96
X_5		
Duration of residence(years) (Ref. = short-term)		
Short-term < 5	69,399	60.98
Medium-term 5–20	42,364	37.23
Long-term 20–65	2040	1.79
X_6		
Medical insurance status (Ref. = no)		
No	88,554	77.81
Yes	22,825	20.06
Unclear	2424	2.13
X_7		
Relative income level in comparison with local residents' (Ref. = comparable 0.5–1.5)		
Lower < 0.5	44,663	39.25
Comparable 0.5–1.5	58,087	51.04
Higher ≥ 1.5	11,053	9.71
Occupational characteristics		
X_8		
Industry (Ref. = tertiary industry)		
Primary industry	4,065	3.57
Secondary industry	29,282	25.73
Tertiary industry	62,193	54.65
Not easily classified	18,263	16.05
X_9		
Employment status (Ref. = employed)		

Table 3 continued

Variables	Number	Percentage (%)
Employed	93,159	81.86
Unemployed	5299	4.66
Farming	2381	2.09
Homemaker	10,641	9.35
Student	1953	1.72
Retirement	370	0.33
X_{10}		
Nature of employment units (Ref. = private-owned)		
Private-owned	66,119	58.10
State-owned	7276	6.39
Collective-owned	4289	3.77
Foreign-funded	5370	4.72
Not easily classified	30,749	27.02
Institutional characteristics		
X_{11}		
Hukou status (Ref. = agricultural)		
Agricultural	94,661	83.18
Non-agricultural	18,951	16.65
Unclear	191	0.17
X_{12}		
Temporary residence permit status (Ref. = no)		
Yes	74,420	65.39
No	37,792	33.21
Unclear or unsuited	1591	1.40
Neighbourhood characteristics		
X_{13}		
Housing type (Ref. = rental housing by private accommodation)		
Rental housing by private accommodation	76,170	66.93
Low-rent housing provided by government	326	0.29
Free housing provided by employer or borrowed housing	12,125	10.65
Self-occupied housing	20,061	17.63
Informal housing	5121	4.50
X_{14}		
Participation in community activities (Ref. = no)		
Yes	30,967	27.21
No	82,836	72.79
X_{15}		
Participation in elections (Ref. = no)		
Yes	12,295	10.8
No	101,508	89.2
X_{16}		
Participation in public service activities (Ref. = no)		
No	78,603	69.07

Table 3 continued

Variables	Number	Percentage (%)
Yes	35,200	30.93
X_{17}		
Interpersonal status (Ref. = interact with floaters coming from hometown)		
Rarely interact with people	11,360	9.98
Interact with floaters coming from hometown	44,297	38.92
Interact with other floaters	11,005	9.67
Interact with locals coming from hometown	14,674	12.89
Interact with other locals	32,467	28.53
X_{18}		
Attitude towards the current place of residence (Ref. = dislike)		
Like	111,492	97.97
Dislike	2311	2.03
X_{19}		
Concern about the current place of residence (Ref. = no)		
Yes	110,199	96.83
No	3604	3.17
X_{20}		
Happiness (Ref. = better than that at the place of origin)		
Same as that at the place of origin	34,592	30.4
Better than that at the place of origin	77,412	68.02
Worse than that at the place of origin	1799	1.58
Origin–Destination characteristics		
X_{21}		
Floating range (Ref. = inter-provincial)		
Inter-provincial	64,203	56.42
Intra-provincial	31,783	27.93
Intra-city	17,817	15.66
X_{22}		
Area of origin (Ref. = central)		
East	35,906	31.55
Central	39,339	34.57
West	38,558	33.88
X_{23}		
Area of destination (Ref. = east)		
Central	16,204	14.24
East	61,457	54.00
West	36,142	31.76

indicates that the equal welfare treatment, instead of the identity, could make a difference in boosting the floating population's settlement intention. The results are partly in agreement with the Hypothesis 2 (one of the institutional characteristics has strong impact on settlement intention).

Table 4 Summary results from the models

Independent variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	Cd	B	SE	Cd	B	SE	Cd	B	SE	Cd
Constant	1.424***	0.019		1.311***	0.022		0.095	0.060		0.263***	0.063	
X_1 Gender (Ref. = male)												
Female	−0.010	0.018	1.18	−0.013	0.018	1.18	−0.038**	0.019	1.19	−0.043**	0.019	1.19
X_2 Age (years) (Ref. = middle 25–50)												
Young < 25	−0.219***	0.026	1.66	−0.203***	0.026	1.67	−0.189***	0.027	1.68	−0.197***	0.028	1.68
Old 50–60	−0.359***	0.037	1.04	−0.355***	0.038	1.04	−0.429***	0.040	1.04	−0.434***	0.040	1.05
X_3 Marital status (Ref. = married)												
Single	−0.339***	0.024	1.69	−0.336***	0.024	1.69	−0.133***	0.026	1.73	−0.135***	0.026	1.74
X_4 Educational attainment (Ref. = junior high school and below)												
Senior high school	0.215***	0.021	1.10	0.206***	0.022	1.14	0.151***	0.023	1.16	0.146***	0.023	1.16
Vocational school and college levels and above	0.491***	0.033	1.22	0.462***	0.035	1.44	0.375***	0.038	1.46	0.366***	0.038	1.46
X_5 Duration of residence(years) (Ref. = short-term <5)												
Medium-term 5–20	0.904***	0.020	1.07	0.888***	0.020	1.07	0.728***	0.021	1.10	0.721***	0.021	1.11
Long-term 20–65	1.513***	0.099	1.03	1.493***	0.099	1.03	1.114***	0.102	1.04	1.098***	0.102	1.04
X_6 Medical insurance status (Ref. = no)												
Yes	0.522***	0.025	1.35	0.497***	0.025	1.37	0.433***	0.027	1.39	0.394***	0.027	1.41
Unclear	−0.344***	0.049	1.01	−0.353***	0.049	1.01	−0.171***	0.052	1.02	−0.190***	0.052	1.02
X_7 Relative income level in comparison with local residents' (Ref. = comparable 0.5–1.5)												
Lower < 0.5	0.135***	0.021	1.58	0.123***	0.021	1.59	0.269***	0.022	1.60	0.243***	0.022	1.62
Higher > 1.5	0.062**	0.030	1.09	0.063**	0.030	1.09	−0.033	0.032	1.10	0.037	0.032	1.12
X_8 Industry (Ref. = tertiary industry)												

Table 4 continued

Independent variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	Cd	B	SE	Cd	B	SE	Cd	B	SE	Cd
Primary industry	0.072	0.055	1.30	0.101*	0.055	1.30	−0.179***	0.059	1.34	−0.156***	0.060	1.35
Secondary industry	−0.672***	0.019	1.23	−0.678***	0.019	1.23	−0.522***	0.021	1.27	−0.539***	0.021	1.31
Not easily classified	−0.184***	0.038	2.60	−0.164***	0.038	2.61	−0.422***	0.040	2.64	−0.399***	0.040	2.65
X_{10} Nature of employment unit (Ref. = private-owned)												
State-owned	−0.184***	0.036	1.17	−0.169***	0.036	1.17	−0.222***	0.039	1.18	−0.188***	0.040	1.19
Collective-owned	−0.197***	0.046	1.27	−0.192***	0.046	1.27	−0.244***	0.050	1.27	−0.217***	0.050	1.28
Foreign-funded	−0.282***	0.039	1.20	−0.302***	0.039	1.27	−0.230***	0.042	1.21	−0.269***	0.042	1.22
Not easily classified	0.185***	0.029	2.21	0.195***	0.029	1.21	0.159***	0.030	2.22	0.156***	0.030	2.23
X_{11} Hukou status (Ref. = agricultural)												
Non-agricultural				0.079**	0.026	1.29	−0.027	0.028	1.31	−0.036	0.028	1.31
Unclear				−0.064	0.201	1.00	0.013	0.214	1.00	0.088	0.214	1.00
X_{12} Temporary residence permits (Ref. = no)												
Yes				0.181***	0.017	1.08	0.303***	0.019	1.12	0.251***	0.020	1.24
Unclear or unsuited				−0.211***	0.064	1.03	−0.034	0.069	1.03	−0.025	0.069	1.03
X_{13} Housing type (Ref. = rental housing by private accommodation)												
Low-rent housing provided by government							0.321*	0.172	1.00	0.325**	0.173	1.00
Free housing provided by employer or borrowed housing							−0.564***	0.025	1.12	−0.575***	0.025	1.13
Self-occupied housing							1.261***	0.040	1.23	1.248***	0.040	1.25
Informal housing							−0.207***	0.038	1.03	−0.199***	0.038	1.03
X_{14} Participation in community activities (Ref. = no)												
Yes							−0.038*	0.022	1.17	−0.045**	0.022	1.18

Table 4 continued

Independent variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	Cd	B	SE	Cd	B	SE	Cd	B	SE	Cd
X_{15} Participation in elections (Ref. = no)												
Yes							0.087***	0.033	1.13	0.120***	0.033	1.13
X_{16} Participation in public service activities (Ref. = no)												
Yes							0.224***	0.021	1.18	0.231***	0.022	1.19
X_{17} Interpersonal status (Ref. = interact with floaters coming from hometown)												
Rarely interact with people							0.016	0.029	1.15	0.020	0.029	1.16
Interact with other floaters							0.171***	0.030	1.15	0.163***	0.030	1.15
Interact with locals coming from hometown							0.102***	0.028	1.20	0.124***	0.029	1.21
Interact with other locals							0.330***	0.024	1.37	0.343***	0.024	1.42
X_{18} Attitude towards the current place of residence (Ref. = dislike)												
Like							0.914***	0.052	1.20	0.902***	0.053	1.20
X_{19} Concerm about the current place of residence (Ref. = no)												
Yes							0.578***	0.042	1.19	0.585***	0.042	1.19
X_{20} Happiness (Ref. = better than that at the place of origin)												
Same as that at the place of origin							−1.140***	0.018	1.07	−1.138***	0.018	1.07
Worse than that at the place of origin							−1.790***	0.054	1.05	−1.798***	0.054	1.05
X_{21} Floating range (Ref. = Inter-provincial)												
Intra-provincial										0.201***	0.023	1.35
Intra-city										0.141***	0.028	1.38
X_{22} Area of origin (Ref. = central)												
East										−0.062**	0.025	1.85

Table 4 continued

Independent variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	Cd	B	SE	Cd	B	SE	Cd	B	SE	Cd
West										−0.083***	0.025	2.21
X_{23} Area of destination (Ref. = east)												
Central										−0.374***	0.032	1.81
West										−0.266***	0.026	2.16
Pseudo R^2	0.0641			0.0654			0.1631			0.1656		

1. Cd indicates colinearity diagnosis; * indicates a significance level of 0.1; ** indicates a significance level of 0.05; *** indicates a significance level of 0.01. 2. Results of the Models with Hukou transfer are shown in "Appendix 2"

5.3 Model 3: neighbourhood characteristics

The neighbourhood characteristics are included in Model 3, and the pseudo R-squared statistic has increased significantly. The results show a strong link between neighbourhood characteristics and the floating population's settlement intentions (Hypothesis 3 accepted). Consistent with our expectations, those people who live in self-occupied housing have the greatest willingness to setting in the cities, or their desire to settle down drives them to become a home ownership. The people who live in informal housing, borrowed housing or free housing provided by employer have weaker intention to settle down, compared with the reference group. And the results also indicate that the homeowners and members live in low-rent housing are most likely to choose to settle down. The finding also suggests that social participation (election and public service activities) could be helpful in improving the floating population's settlement intention. However, when it comes to community activities, the effect is negative at the 90 % confidence level. The possible explanation may lie in the fact that the floating population is generally concentrated in some disadvantaged parts of the city and the activities in these neighbourhoods are relatively limited. Connecting with other "outsiders" can hardly promote the feelings to the city. This is confirmed by the result of the effects of interpersonal interaction on the settlement intention. It shows that interaction with locals exerts positive effects on the floating population's settlement intention. Also, the settlement intention is positively related to one's attitude to the destination city, concern about the place of residence and the "relative happiness", which proves our original assumption. For example, people who feel happier in the destination city than in the origin city tend to choose to settle down.

5.4 Model 4: origin–destination characteristics

Three variables of origin–destination characteristics are added to Model 4 based on Model 3. And those variables are statistically significant (Hypothesis 4 accepted). In terms of the floating range, we divide the floating population into three categories: intra-city floaters (i.e. member coming from a different county within a city), intra-provincial floaters (i.e. member coming from a different city within a province) and inter-provincial floaters (i.e. member coming from a different province). Not unexpectedly, the effect of floating range is significant. This suggests that even though physical boundaries are less of a hurdle in moving to a new place in contemporary society, the distance is still of great importance for the floating population's settlement intentions. However, the effect is not linear with the intra-provincial floaters being the most likely to settle down in the destination cities. The settlement intention weakens if the distance is too short or too long. A possible explanation for the results is that the resettlement involves much uncertainty for the inter-provincial floaters, but it's not much necessary for the intra-city floaters. In terms of the area of origin and destination, the results indicate that the members of floating population coming from central China have the stronger settlement intentions than that coming from western China, and the eastern China is the favorite settlement destination. In fact, this preference is also manifested in the regional distribution of floating population. Based on our investigation, central China is the major origin (35 %) and eastern China is the biggest concentration (53 %), which can be partly explained by the demographic advantage in central China and economic advantage in eastern China. The summary of this finding is that the settlement intention is positively related to the level of development but negatively related to size of the population.

In summary, most results from the logistic analysis are consistent with what we expect of the variables in general, confirming the findings from previous studies (Zhu 2007; Zhu and Chen 2010; Gu and Ma 2013). In particular, neighbourhood characteristics have been

identified to be important factors influencing floating population's settlement intention, which is firstly examined with national dataset according to available literatures.

5.5 Robustness test

There are eight potential endogeneity problems in examining the factors influencing settlement intention: (1) Marital status; (2) Educational attainment; (3) Duration of residence; (4) Temporary residence permits; (5) Housing type; (6) Participation in public service activities; (7) Interpersonal status; (8) Concern about the current place of residence. For example, floaters with strong settlement intention may be more likely to connect with locals and would spend more time in cities, pay more attention to the current cities. The instrumental variable (IV) technique is commonly used when the regressor variables are endogeneity. And this solution is appropriate if the researcher can find instrumental variables that are correlated with the endogenous regressor but uncorrelated with the error in the structural equation (Larcker and Rusticus 2010). Regrettably, no suitable instrumental variables are found due to the features of primary data - these large sample data are non-longitudinal.

Nonetheless, to testify the robustness of results, one test was conducted. Settlement intention is replaced by the choice of Hukou transfer due to the consideration that this choice is another reflection of settling plan. The signs for the key variables are still consistent with the results from the original models basically (see "Appendix 2"). So the results are considerably robust.

6 Discussion

Our statistical results present that a fair amount of floating population have the intentions to settle down in the destination cities, with more than half of them providing positive answers to the question about long-term settlement plan. The proportion of members who are willing to transfer their Hukou indicates their cautious attitudes towards turning the intention to action.

All eight core variables of neighbourhood characteristics are significantly associated with settlement intention. Seven of eight variables have expected effects. For example, owning the property of housing, more participation in elections and public service activities, more contact with locals, more concern about the cities could help floating population increase their willingness to settle down. The negative influence of participation in community activities may be explained by the fact that social interaction with other "outsiders" in disadvantaged neighbourhood can hardly increase the affection for the destination city.

Apart from these, another important finding from the analysis is that those intra-provincial floaters' settlement intentions are the strongest. Besides, the relationship between settlement intention and area of origin and destination is also identified, with members who originate from central China or migrant to eastern China exhibiting more intense interest in resettlement.

The findings concerning individual characteristics reveal that the middle-aged, married and more educated members have greater propensity to settle down. And longer they stay, stronger their intention. Results of the occupational characteristics show that those members engaged in tertiary industry and private-owned units, members possess medical insurance are prone to choose to settle down in the cities. Interestingly, individuals with lower income have relative stronger desire of settlement. The effects of institutional characteristics demonstrate that equal welfare treatment still plays a crucial role in boosting the floating population's resettlement in destination cities.

7 Conclusions

China's floating population is one of the biggest migrant populations in the world whose choices on settlement profoundly influence the development of origin and destination cities. Concurrently, attention is given to their settlement intentions and determinants. However, although there are several pilot surveys investigating the floating population's intentions on settlement, few existing studies deal with the topic nationwide. This paper empirically examines the effect of five groups of variables on settlement intention by applying logistic regression model with a country-wide dataset, tries to shed light upon the underlying logic in this enormous migration's choice-making.

Determinants identified in this study convey several important messages. Firstly and importantly, creating an inclusive and friendly residential environment will help the floaters increase their settlement intention at large, which means, cities and communities should provide opportunities for participation in public service activities, encourage interactions with locals, and then strengthen sense of belonging. Besides, an open and diversified housing market is quite needed, which could fulfil the demand of both home buyers and renters. And the low-rent housing provided by government is also an essential part as a complement of the market. Secondly, Hukou is no longer the barrier to the free flow of population, but the welfare provisions attached to the local Hukou are still influential in retaining the floaters. Consequently, in order to attract floaters to settle down, it is imperative to recalibrate polices to grant fundamental rights to them, such as the rights to access family planning service, enjoy equal job opportunities and education opportunities to their children. Thirdly, the settlement preference showed in the origin and destination at national level hints that the settlement intention is somewhat motivated economically. Thus the urbanization promotion should be carried forward relying on the level of economic development. The government needs to focus on the improvement on social fairness and public services. As we believe that the floaters would make the settlement choices that are best of themselves.

It is important to note that this is not an exhaustive list of the potential affecting factors. Because of the data limitation, some other factors, such as property in hometown (e.g. real estate), number of households, are not covered in this study. While such factors should not be neglected in the future research. For example, as essential source for production and ultimate social security, the rural landholdings, contracted land (cheng bao di) and house sites (zhai ji di), are expected to have an impact on rural–urban migration's settlement intention. The contracted land and house sites are allocated by rural collective economic organizations and the landholders share the right of use, revenue and transfer. But no contracted land can be used for non-agricultural development without approval. And the acquiring, exercising and alienating the right to use house sites all have multiple constraints. The rural contracted land and house sites are basic rights for the farmers, and they are also the important ties which bind farmers to the countryside.

Acknowledgments This work is financially supported by the National 985 Project of Non-traditional Security at Huazhong University of Science and Technology and National Natural Science Found of China (Grant No. 41401631) and National Social Science Fund of China (Grant No. 13CJY035). Authors are thankful to the anonymous reviewers for their comments and suggestions. Any remaining errors are the authors' own responsibility.

Appendix 1

	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}	x_{12}
x_1	1											
x_2	−0.0553	1										
x_3	−0.0547	0.3602	1									
x_4	−0.0196	0.0228	0.2075	1								
x_5	−0.0043	−0.0562	−0.1632	−0.067	1							
x_6	−0.0259	−0.0115	0.0715	0.255	−0.0012	1						
x_7	0.1211	0.0319	−0.0439	−0.0345	0.0576	−0.066	1					
x_8	0.136	0.0873	−0.0122	−0.066	−0.0135	0.0161	0.1338	1				
x_9	0.2725	0.1176	−0.0107	−0.0494	0.0429	−0.1207	0.2446	0.6359	1			
x_{10}	0.1682	0.0551	−0.0525	−0.0492	0.0533	−0.0642	0.1657	0.5006	0.5962	1		
x_{11}	0.0079	−0.0086	0.0446	0.4305	0.0023	0.1733	0.009	−0.0421	−0.0089	−0.0211	1	
x_{12}	−0.0039	−0.0631	−0.0419	0.01	0.0867	0.1069	−0.0077	−0.0409	−0.1103	−0.0625	−0.0054	1
x_{13}	−0.0159	0.0423	−0.0006	0.0939	0.0923	0.0545	0.018	0.021	0.0501	0.0057	0.1186	−0.0824
x_{14}	0.0121	0.0089	0.0215	0.0517	−0.0043	0.0707	−0.0151	−0.0024	0.0236	0.0026	0.0404	0.0281
x_{15}	−0.0002	−0.0069	−0.0042	0.0859	0.0432	0.0758	0.0106	−0.0194	0.0043	0.0056	0.0849	0.0177
x_{16}	−0.0332	−0.0029	0.0448	0.141	0.0453	0.0898	−0.0079	−0.0664	−0.0217	−0.031	0.0888	0.0276
x_{17}	−0.0001	0.0024	0.0294	0.1354	0.0521	0.0242	0.0043	−0.0571	0.0428	0.0052	0.1298	−0.1177
x_{18}	0.018	−0.0079	−0.0223	−0.0171	0.0271	−0.0145	−0.0026	−0.0102	0.0109	0.0081	−0.0155	0.0102
x_{19}	−0.0006	−0.0209	−0.0352	0.0177	0.0426	−0.003	0.0038	−0.0193	0.0123	0.0107	0.0144	0.0005
x_{20}	−0.0327	0.0267	0.0825	0.0111	−0.0743	0.0314	−0.0201	0.0087	−0.0565	−0.0288	−0.0099	0.0179
x_{21}	0.016	0.0065	0.0117	0.0047	−0.0664	−0.0642	−0.0458	−0.0326	0.0594	0.021	0.0002	−0.2686
x_{22}	−0.005	0.0169	0.034	−0.0171	0.0162	−0.0179	0.0223	0.0561	0.0589	0.0273	0.0309	−0.0938
x_{23}	−0.0275	0.0029	−0.0064	−0.0651	−0.04	−0.1546	0.0713	−0.0405	0.0804	0.0128	−0.0392	−0.2527

	x_{13}	x_{14}	x_{15}	x_{16}	x_{17}	x_{18}	x_{19}	x_{20}	x_{21}	x_{22}	x_{23}
x_1											
x_2											
x_3											
x_4											
x_5											
x_6											
x_7											
x_8											
x_9											
x_{10}											
x_{11}											
x_{12}											
x_{13}	1										
x_{14}	0.0356	1									
x_{15}	0.074	0.2579	1								
x_{16}	0.0542	0.3158	0.237	1							
x_{17}	0.1364	0.0875	0.0854	0.1165	1						
x_{18}	0.0026	0.0281	0.0132	0.0238	0.0336	1					
x_{19}	0.0128	0.0454	0.028	0.049	0.0553	0.3838	1				
x_{20}	−0.0596	−0.0922	−0.0617	−0.0782	−0.1155	−0.1508	−0.1458	1			
x_{21}	0.0704	0.0566	0.0329	0.0579	0.2211	0.0289	0.0387	−0.0898	1		
x_{22}	0.0444	0.0087	0.0275	0.0021	0.0492	0.0055	0.0111	−0.033	0.1387	1	
x_{23}	0.0189	0.0091	0.0684	0.0321	0.1218	−0.0045	0.0207	−0.0405	0.2715	0.4014	1

Appendix 2

Independent variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	Cd	B	SE	Cd	B	SE	Cd	B	SE	Cd
Constant	0.519***	0.017		0.212***	0.020		−0.821***	0.062		−0.261***	0.065	
X_1 Gender (Ref. = male)												
Female	−0.036**	0.016	1.18	−0.045***	0.016	1.18	−0.075***	0.017	1.19	−0.076***	0.017	1.19
X_2 Age(years) (Ref. = middle 25–50)												
Young < 25	−0.147***	0.025	1.65	−0.099***	0.025	1.67	−0.093***	0.026	1.67	−0.115***	0.027	1.67
Old 50–60	−0.280***	0.033	1.04	−0.278***	0.033	1.04	−0.294***	0.035	1.04	−0.312***	0.035	1.05
X_3 Marital status (Ref. = married)												
Single	−0.037	0.023	1.68	−0.049**	0.023	1.68	0.181***	0.025	1.72	0.186***	0.025	1.73
X_4 Educational attainment (Ref. = junior high school and below)												
Senior high school	0.249***	0.019	1.10	0.211***	0.019	1.15	0.184***	0.020	1.16	0.187***	0.020	1.16
Vocational school and college levels and above	0.666***	0.030	1.23	0.543***	0.032	1.45	0.526***	0.033	1.48	0.491***	0.034	1.48
X_5 Duration of residence (years) (Ref. = short-term < 5)												
Medium-term 5–20	0.474***	0.016	1.07	0.431***	0.016	1.08	0.340***	0.017	1.11	0.294***	0.017	1.12
Long-term 20–65	0.740***	0.061	1.03	0.688***	0.062	1.03	0.501***	0.063	1.04	0.410***	0.064	1.04
X_6 Medical insurance status (Ref. = no)												
Yes	0.522***	0.022	1.35	0.486***	0.023	1.37	0.446***	0.023	1.39	0.367***	0.024	1.41
Unclear	−0.018	0.050	1.01	−0.060	0.050	1.01	0.086	0.053	1.02	0.018	0.053	1.02
X_7 Relative income level in comparison with local residents' (Ref. = comparable 0.5–1.5)												
Lower < 0.5	0.386***	0.019	1.57	0.357***	0.019	1.58	0.472***	0.020	1.59	0.386***	0.020	1.62
Higher > 1.5	−0.113**	0.025	1.09	−0.116***	0.025	1.09	−0.171***	0.026	1.10	−0.096***	0.027	1.12

Independent variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	Cd	B	SE	Cd	B	SE	Cd	B	SE	Cd
X_8 Industry (Ref. = tertiary industry)												
Primary industry	0.438***	0.049	1.31	0.526***	0.049	1.32	0.413***	0.052	1.36	0.360***	0.052	1.37
Secondary industry	−0.406***	0.018	1.23	−0.416***	0.018	1.23	−0.325***	0.019	1.27	−0.411***	0.020	1.30
Not easily classified	−0.123***	0.033	2.60	−0.076**	0.033	2.61	−0.212***	0.034	2.65	−0.164***	0.034	2.65
X_{10} Nature of employment unit (Ref. = private-owned)												
State-owned	−0.096***	0.033	1.17	−0.070**	0.033	1.18	−0.079**	0.035	1.18	−0.007	0.035	1.19
Collective-owned	0.132***	0.045	1.29	0.154***	0.045	1.29	0.132***	0.047	1.29	0.177***	0.047	1.29
Foreign-funded	0.023	0.039	1.20	−0.029	0.039	1.20	0.044	0.041	1.21	−0.067	0.041	1.21
Not easily classified	0.118***	0.024	2.23	0.145***	0.024	1.24	0.129***	0.025	2.24	0.128***	0.026	2.24
X_{11} Hukou status (Ref. = agricultural)												
Non-agricultural				0.283***	0.023	1.30	0.275***	0.024	1.32	0.241***	0.025	1.32
Unclear				−0.234	0.172	1.00	−0.189	0.180	1.00	−0.173	0.182	1.00
X_{12} Temporary residence permits (Ref. = no)												
Yes				0.474***	0.016	1.08	0.534***	0.016	1.11	0.322***	0.017	1.24
Unclear or unsuited				−0.013	0.062	1.03	0.137**	0.066	1.03	0.119*	0.066	1.03
X_{13} Housing type (Ref. = rental housing by private accommodation)												
Low-rent housing provided by government							0.572***	0.161	1.00	0.544***	0.161	1.00
Free housing provided by employer or borrowed housing							−0.306***	0.025	1.12	−0.351***	0.025	1.13
Self-occupied housing							0.265***	0.024	1.24	0.284***	0.024	1.25
Informal housing							−0.222***	0.035	1.03	−0.221***	0.035	1.03
X_{14} Participation in community activities (Ref. = no)												
Yes							0.062***	0.019	1.18	0.070***	0.019	1.18
X_{15} Participation in elections (Ref. = no)												
Yes							−0.036	0.027	1.13	0.025	0.027	1.14
X_{16} Participation in public service activities (Ref. = no)												
Yes							0.102***	0.018	1.19	0.135***	0.018	1.19

Independent variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	Cd	B	SE	Cd	B	SE	Cd	B	SE	Cd
X_{17} Interpersonal status (Ref. = interact with floaters coming from hometown)												
Rarely interact with people							−0.109***	0.026	1.15	−0.052*	0.027	1.16
Interact with other floaters							0.168***	0.028	1.15	0.171***	0.028	1.15
Interact with locals coming from hometown							0.179***	0.025	1.20	0.290***	0.026	1.22
Interact with other locals							0.048**	0.020	1.37	0.168***	0.020	1.42
X_{18} Attitude towards the current place of residence (Ref. = dislike)												
Like							0.716***	0.055	1.22	0.718***	0.055	1.22
X_{19} Concerm about the current place of residence (Ref. = no)												
Yes							0.573***	0.044	1.21	0.610***	0.044	1.21
X_{20} Happiness (Ref. = better than that at the place of origin)												
Same as that at the place of origin							−0.949***	0.016	1.07	−0.981***	0.017	1.07
Worse than that at the place of origin							−1.717***	0.058	1.05	−1.789***	0.058	1.05
X_{21} Floating range (Ref. = Inter-provincial)												
Intra-provincial										−0.002	0.020	1.36
Intra-city										−0.353***	0.024	1.37
X_{22} Area of origin (Ref. = central)												
East										−0.159***	0.023	1.86
West										−0.112***	0.024	2.23
X_{23} Area of destination (Ref. = east)												
Central										−0.748***	0.029	1.80
West										−0.517***	0.024	2.19
Pseudo R^2	0.0385			0.0478			0.1018			0.1122		

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