

## Article

# On the Settlement of the Floating Population in the Pearl River Delta: Understanding the Factors of Permanent Settlement Intention versus Housing Purchase Actions

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**Abstract:** Previous investigations of the settlement intentions of China's floating population have been undermined by an oversimplification of the concepts and measurements related to settlement intentions. More attention should be paid to influencing factors from the theoretical framework of “place utility” in new periods. Based on this framework, we use a multinormal logistic regression model to explore the impact of economic, human capital, and social factors on migration intentions and housing purchase actions of the floating population in the Pearl River Delta. The results revealed that the floating population's purchasing ability is generally lower than its willingness to settle down, and this population experiences an incomplete citizenization problem. Among the economic and human capital factors, family economic factors have become an important basis for the housing purchase actions of the floating population and may even be more important than their own economic income and education level. After the State Council implemented the “Notice of Further Promoting the Reform of the Hukou System”, the decision of whether to pass restrictions of urban hukou (household registration) acquisition threshold has played an important role in the settlement decisions of the floating population. The government should formulate settlement policies according to the characteristics of the floating population.

**Keywords:** floating population; incomplete citizenization; permanent settlement intention; housing purchase action; multinormal logistic regression

## 1. Introduction

An important feature of China's rapid urbanization over the past 40 years is the large influx of surplus rural laborers into its cities. The population living in urban areas increased from 6.6 million in 1978 to 244.5 million in 2017, which has promoted rapid urban development and expanded industrialization and urbanization in China, according to a 2018 report issued by the National Health Commission [1]. The issue of settlement and citizenization of the floating population has become an important topic affecting the sustainable development of the nation. China's floating population is defined as migrants without local household registration (hukou) status and is one of the largest migrant populations in the world. In recent years, China's internal rural immigrants have expressed an increasingly strong willingness to settle permanently in cities [2], especially the new generation

of rural migrants who prefer urban to rural lifestyles. This preference is deeply rooted in the social changes in China in recent years [3–5]. With the reform of China's hukou system and the relaxing of urban hukou acquisition restrictions, rural migrants have found more opportunities to be on equal footing with their established urban counterparts since the 1980s [6,7]. As a result, more immigrants choose to live in cities.

However, the high housing prices in China's urban areas create stability problems for the floating population to settle down and become new citizens in their destination cities. Some members of the floating population have been more adaptable to the rhythm of resident cities, particularly in their work and living habits aspect. Therefore, even though it is difficult for them to buy a house, they are more likely to settle down in the city where they live. As a result, much of the floating population lives in city neighborhoods with few services, and because their houses are usually rented, they have a higher risk of being evicted by their landlords at any time. The notions of "home" and citizen identity are out of the question, so it is easy to produce the problem of incomplete citizenization [8].

Settlement choice is determined by subjective factors, and it is only when members of the floating population buy a house in a residential city that they can lead a decent life while staying in the city. Chinese people attach great importance to their own homes, and homeownership is the ideal living condition for most Chinese people. The ownership rate of private housing in China is as high as 89.68%, and that of private urban housing is 85.39%, far exceeding the world's 60% average (Research Report of China Household Finance Survey. Southwest University of Finance and Economics and the People's Bank of China. 2012). In Chinese culture, only when a person acquires their own house in a residential city does it mean that they have settled down and become a member of the community. We define "citizenization" as accomplishing homeownership and full integration into a city. In summary, comparing the characteristics and causes of migration willingness and the housing purchase action of the floating population is of practical importance to better understand the incomplete citizenization problem in China and promote policy research into China's new urbanization.

Since China's reform and opening up, a policy first implemented in 1978, the export-oriented and labor-intensive industrial characteristics of the Pearl River Delta region have attracted a large proportion of China's floating population. The Pearl River Delta region has experienced rapid urbanization, and in this process, a large migrant population has created many problems and challenges. Moreover, the Pearl River Delta region features diverse industries with a relatively balanced broad spatial distribution. The region has become an important representative area of China's various urban agglomerations and features a large representation of the country's floating population. Therefore, research on the settlement and housing purchase rates of the floating population in the Pearl River Delta urban agglomeration has reference value. In this context, using questionnaire data obtained in Guangzhou, Dongguan, Foshan, Zhongshan, Zhuhai, and Shenzhen, the following questions were examined: (1) Does a difference exist between the permanent settlement intention and the housing purchase action of the floating population? (2) What are the differences between the willingness to settle permanently and housing purchase action of different groups of floating populations? (3) How do the characteristics of the floating population affect their willingness to settle permanently and their housing purchase action? Through an analysis of the relationship between the characteristics of the floating population and their permanent settlement intention or their housing purchase action, this study provides evidence for policymakers and urban managers to formulate future socioeconomic development plans. Furthermore, we formulate settlement and housing policies to solve the problem of incomplete citizenization.

## 2. Analysis Framework and Research Hypothesis

### 2.1. Evaluation Indicators of Settlement Intention: Permanent Settlement Intention versus Housing Purchase Action

Existing studies on the determinants of settlement and urbanization intention generally have only examined a single indicator, such as permanent settlement intention, housing ownership planning,

or household register intention [9–13]. In such cases, the settlement and citizenization of immigrants in cities is considered an independent event rather than a multi-faceted process, so it is difficult to fully explain the migration behavior of the floating population. Some studies have adopted multiple indicators but lack an interpretation of the connotation and interrelationships of each indicator [14]. Permanent settlement intention is more likely associated with the floating population's willingness and preference, while intention to own a house reflects their capability to lead a decent life in the destination city and realize citizenization [15]. It is necessary to use multiple measures to capture the complexity of the floating population's settlement intention. Thus, we mainly compare the two important settlement indicators of the floating population: permanent settlement intention and housing purchase action.

Huang (2015) proposed permanent residence as the basis for the citizenization of migrant workers and an important condition for the realization of the permanent settlement of migrant families. If the floating population cannot live and work in the city in peace and contentment, they are not close to undergoing full citizenization [16]. Because the floating population in China faces the problems of low income and increasing housing prices, many migrants, especially those employed in the manufacturing and service industries, live in temporary accommodation provided by employers, such as factory dormitories, cottages, and lodgings at construction sites [17,18].

Another option for the floating population is to live in private rental housing, which is usually located in marginalized communities, such as “villages in cities” [19]. Members of the floating population who live permanently in the city but lack housing of their own generally face crowded living environments, poor housing quality, difficulty accessing public service resources, and difficulty in realizing a fully urbanized lifestyle [16,20]. Moreover, compared with the permanent residents who have permanent housing in the community, members of the floating population who lack housing have difficulty integrating into the local community because of frequent moving. Because of these problems, it is difficult for members of the floating population to have a sense of identity with the city as a home. Therefore, we posit that housing is a crucial factor for the complete citizenization of the floating population.

Many of these migrants are willing to settle permanently in their new place of residence, but some of them have “separated” from their communities of origin and are unable to fully integrate into the urban social life of their new locales because they cannot purchase real estate in their new place of residence. This results in incomplete citizenization issues, such as poor living environments, unsettled residence, incomplete social integration, and the inability to fully obtain urban public services [17,18]. Therefore, this study represents an attempt to understand the problem of the complete citizenization of the floating population in China through a comparison of two settlement indicators: permanent settlement intention and housing purchase action. In this context, the first hypothesis is proposed:

**Hypothesis 1 (H1).** *The rate of the floating population planning to buy or have a house is lower than the rate of respondents willing to permanently settle in the resident city.*

## 2.2. Factors Influencing the Settlement of the Floating Population

The immigration literature contains some analytical theories. The first kind of theoretical framework is about economic incentives, which are based on the hypothesis of the rational person. The theories presuppose that migration flow is a result of the best choices made by individuals on the basis of rational calculation [21–23]. For example, neoclassical economics regard immigration as a cost-effective decision in which people's migration decision is to maximize their expected lifetime income [24]. In the second analytical theory, rooted in sociology, it is argued that sociocultural conditions (i.e., social attachment and integration of migrants) are crucial to the decision to settle down [14,25,26].

Wolpert put forward the theoretical framework of “place utility”, which theorizes that people will base their migration decision on the varying values of utility they associate with potential destinations [27–29]. The theory usually used empirically model to test the migration utility influenced by personal economy, skill characteristics, family and social network characteristics, regional characteristics, and institutional policies [2,9,10,30]. The theory is conducive to the comprehensive consideration of economic and social factors on population migration and has good applicability for the regional migration of migrant workers’ family cities and villages [31]. At present, the local utility theory models design independent variables often based on economic analysis. Among economic factors, income is one of the fundamental predictors of “place utility” in migration decisions [32,33]. Migrants who do not have sufficient income to live in cities are unlikely to decide to stay. As an important factor to improve income, human capital conditions are also emphasized. Migration decision-making is generally described as the process of maximizing the utility of migrant human capital. It is used to improve the marginal utility of employment in the immigration areas, such as the accumulation of human capital and the labor market conditions promoting settlement intention [6,9,34]. Education is the most important human capital factor [33]. Because higher value human capital conditions can improve the ability of immigrants to integrate into the destination, high education levels can boost the settlement intention of immigrants. Generally, members of the floating population with higher rates of self-investment opportunities can obtain a higher position and salary in the employment market and enjoy better economic conditions. They tend to settle in cities with well-established opportunities and services in destinations [35].

Compared with the willingness to settle down, the impact of economic conditions on the housing purchase action of the floating population is undoubtedly more fundamental [14]. With the relaxing urban hukou acquisition restrictions and welfare housing system reform, the market has become the dominant factor determining the housing conditions of Chinese immigrants. The cost of living in cities has made it even costlier for immigrants to settle down [36–39].

Education and skills have a positive impact on the economic conditions of immigrants. However, with the rapid rise of housing prices in China, members of the floating population with higher education are facing great challenges in purchasing real estate in cities relying on their own income [23]. In this context, family economic factors have become an important basis for the actual migration of the floating population, and may even be more important than their own economic income and education level. In the new theory of the economics of labor migration, migration is considered to be the response of families to the failure of the source community market and the desire to maximize family income [40]. Especially in the social and cultural background of China, which attaches great importance to family, many parents raise their children and provide them with houses. In return, children are obligated to care for their parents when they are old [41], so family factors, especially family assets factors, may play a more important role in the actual migration action. On this basis, the second hypothesis is proposed:

**Hypothesis 2 (H2).** *The family assets of the floating population play a more important role in the actual migration action (house purchase) of the floating population than the current income or educational attainment.*

Furthermore, migrants do not necessarily pursue the “rational economic man” of “utility maximization”, but also consider the influence of social factors or other factors. Social network and social integration factors are gradually used to analyze the migration process of immigrants [42,43]. In addition, recent research on urban–rural migration in China has also examined the effects of migrants’ daily life experiences, social integration, and religion on settlement in cities [12,14,44–48]. These studies have shown that rural migrants who can establish good social relations with local urban residents have a stronger willingness to settle permanently in urban areas [14,49]. Although some of the literature indicates urban social network factors have a positive impact on housing ownership plans [14], there are also studies that appear not to test for a correlation between the social network



factors and the housing ownership plans of the floating population. As a result, the groups who prefer to stay in big cities find it difficult to purchase houses with property rights.

Economic social theories assume that the floating population's mobility is not restricted. Due to the existence of the hukou system, population mobility in China is restricted on an institutional basis. Therefore, the hukou system factor should be added to explain the settlement intention of the floating population in China [50]. China's registered residence system has always been the focus of attention on the settlement intention of the floating population. Previous studies assumed that the hukou system is the main obstacle for migrants to settle down in cities. Removing the institutional hurdles created by the hukou system can inevitably lead to the settlement of the floating population [2,3].

In 2010, the Guangdong provincial government issued the guiding opinions on "the implementation of the point redemption policy for migrant workers to enter cities and towns (Draft)", which took the lead in implementing the "the point redemption policy" in China. "The point redemption policy" refers to the floating population's education, skills, participation in social security, living years, social contributions, and other indicators of quantitative scoring; when the score reaches the specified value, immigrants can apply for hukou in the city where they move in. In 2014, China's State Council issued the "Notice of Further Promoting the Reform of the Hukou System". It puts forward that we must strictly control the scale of the population and establish a transparent and perfect system of registered residence (State Council (2014) Opinions on Further Promoting the Reform of the Household Registration System; see, [http://www.gov.cn/zhengce/content/2014-07/30/content\\_8944.htm](http://www.gov.cn/zhengce/content/2014-07/30/content_8944.htm). Retrieved, June 8, 2016). In 2015, the State Council adopted the "Interim Regulations on residence permit (Draft)" to establish a residence permit system throughout the country (State Council (2015) Interim Residence Permit Regulations (Draft); see, [http://www.gov.cn/zhengce/2015-10/21/content\\_2951597.htm](http://www.gov.cn/zhengce/2015-10/21/content_2951597.htm)). It also clarified the channels for the holders of residence permits to settle down through points and other means.

With registered residence system reform, instead of closing the doors to migration, local governments in these metropolises have adopted different ways of attracting desired migrants while excluding unwanted migrants. Local governments have applied market mechanisms in reforming hukou policies [51]. Driven by market incentives, local governments prefer to attract migrants with better economic capabilities and skills or more education because such migrants are considered more likely to perform better in the labor market and to promote local economic growth [7]. As the Point Redemption Policy of household registration acquisition has only been implemented in recent years, and there is relatively little relevant research based on "place utility" theory [30,51], we put forward the third hypothesis:

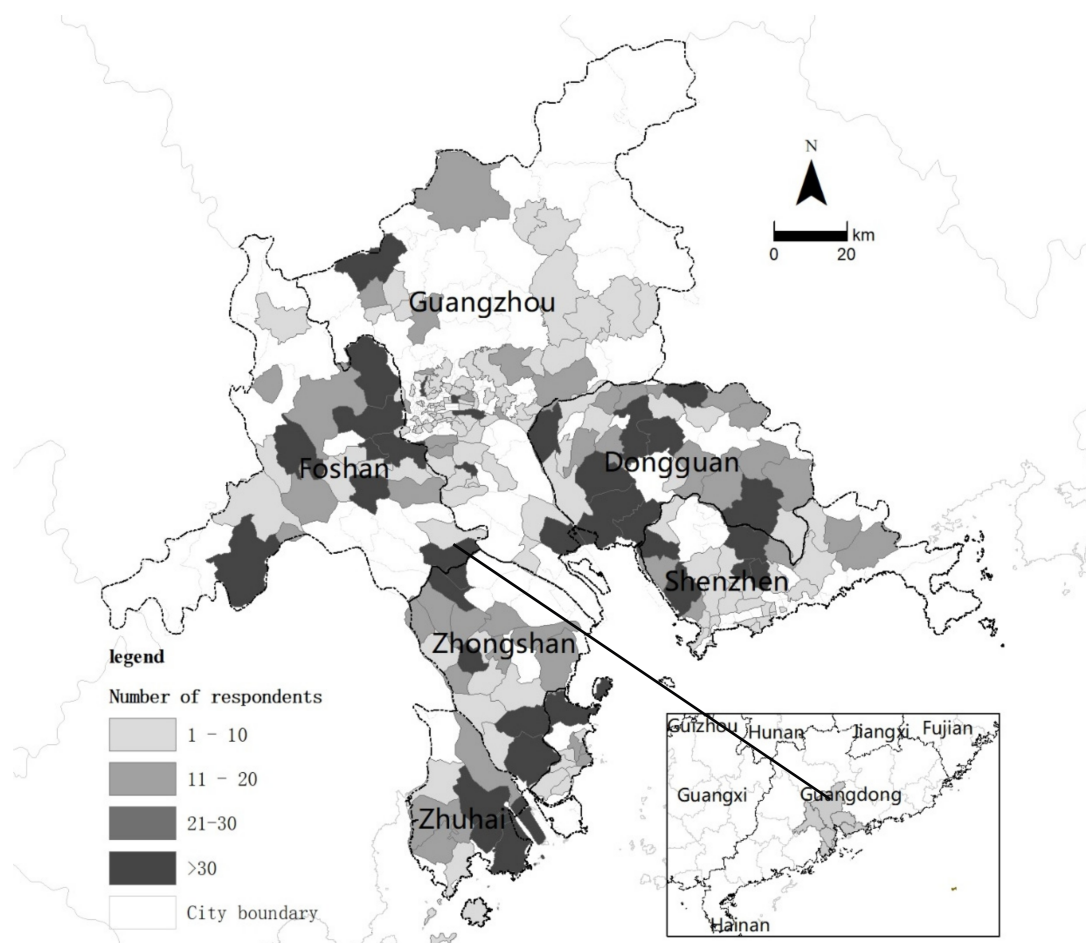
**Hypothesis 3 (H3).** *Household registration acquisition of the floating population has an impact on their settlement, including permanent settlement intention and housing purchase action.*

### 3. Research Design

#### 3.1. Data

The cities in the Pearl River Delta in Guangdong Province (including Guangzhou, Dongguan, Foshan, Zhongshan, Zhuhai, and Shenzhen) are at a high level of economic development and thus, provide a large number of different types of jobs. These six cities are relatively attractive to the floating population and have a relatively large net migrant population, making them representative areas of China's floating population migration and citizenization. Meanwhile, Zhaoqing, Huizhou, and Jiangmen have relatively low levels of industrial development and relatively smaller migrant populations. Moreover, these six cities represent three kinds of cities with different permanent population sizes: (1) more than 10 million people—Guangzhou and Shenzhen; (2) between 5 million and 10 million people—Foshan and Dongguan; (3) less than 5 million people—Zhuhai and Zhongshan. Therefore, we selected the above six cities for the case study. The selected survey sites are six cities in the Pearl River Delta—Guangzhou, Dongguan, Foshan, Zhongshan, Zhuhai, and Shenzhen. We adopted

PPS (Probability Proportionate to Size Sampling, a sampling method that uses auxiliary information so that each unit has the probability of being selected in proportion to its size), which is hierarchical, multi-stage, and proportionate to scale, to distribute the appropriate number of questionnaires to each city and their inner districts and streets. Crucially, the number and distribution of the sample in each city and district were controlled according to the total number and distribution of the migrant population (Figure 1). After five months of investigation, 2468 questionnaires were collected and 2416 valid questionnaires were identified. The interviewees were all members of the six cities' floating populations, whose hukou was not in the urban area of the city, including all the households in other counties and cities (whether rural or urban), and who have worked and lived in the locations in the survey for more than 3 months.



**Figure 1.** Study area and spatial distribution of respondents.

### 3.2. Variable Setting and Descriptive Analysis

#### 3.2.1. Dependent Variable

This paper mainly compares two indicators for the floating population, namely permanent settlement intention and housing purchase action. Permanent settlement intention in the resident city represents the respondents' subjective yearning for urban life. Respondents' housing purchase action means that they have certain abilities and realizable actions in terms of staying in the resident city. In the questionnaire, "permanent settlement intention in the resident city" was examined by the question "What is your settlement plan permanently in the future?" and the answers to the question were 0 for "return to place of origin", 1 for "stay in this city currently living in", and 2 for "not sure or

other cities". Meanwhile, "housing purchase action in the resident city" was examined by the question "How do you solve your housing problem in the resident city now and in the future?". The answers to the question were 0 for "rent house and will rent in the long run (including renting houses from the landlord, dormitories provided by employers, borrowing from relatives and friends, etc.)", 1 for "have purchased or plan to purchase a house in the future in the resident city", and 2 for "unsure".

### 3.2.2. Independent Variables

Following previous studies [14,49], the factors affecting permanent settlement intention and housing purchase action are divided into two categories: economic and social factors. Economic factors include individual and family economic factors, individual human capital factors, and occupational factors. Meanwhile, social factors include hukou factors, social network and integration factors, and family migration factors. The variables are as follows:

#### (1) Demographic controls factors

Studies have confirmed the impact of independent variables, including age and gender factors. For example, women and younger immigrants may tend to settle in cities [9,12]. As an alternative to age, the intergenerational factor of the post-1980s generation is an important factor for understanding immigration behavior in the Chinese context [6]. We use age and gender as demographic control variables. Therefore, we hypothesized that women and younger immigrants tend to settle down permanently and buy houses in the resident city.

#### (2) Individual and family economic factors

As decision-making factors related to economic rationality, individual and family economic factors may affect the willingness of floating populations to settle down and buy houses or other property [6]. We use the variables of individual income, household income per capita, family assets, living area per capita, household consumption, and housing expenditure to indicate these factors. Among them, family assets include the value of real estate, cars, and other real estate; housing consumption includes housing loans, rent, property fees, and water and electricity fees. In addition, the total household consumption in 2016 was used to indicate household consumption conditions [52].

#### (3) Individual human capital and occupational factors

Two variables were used to measure individual human capital and occupational factors: educational attainment and the occupation of the floating population. Stable employment, education, and wider experience are factors that motivate migrants to seek permanent urban residence [53]. The occupations of the floating population are categorized as follows:

(i) Migrant workers are generally engaged in nonskilled or low-skilled work and make a living through manual labor. Traditional occupations for migrant workers include jobs in agriculture, industry, mining and construction, transportation and cosmetology, the food service industry, security, and other service industries. In the logistic regression model in our study, the migrant workers are set as the reference group.

(ii) Individual and private entrepreneurs include individual households (non-employees) and private entrepreneurs (employees).

(iii) Professionals generally have certain professional skills, including business managers, company clerks, sales/design personnel, accountants, planners, etc.

#### (4) Hukou status factors

This set of factors was examined using two variables. The first variable is whether respondents have family members who also have an urban hukou and the second is hukou acquisition (whether they meet the hukou threshold conditions) in destination cities. If the respondents' family members have an urban hukou, it means that their families were better integrated into the city and it was more convenient for them to migrate and settle down under Chinese national legislation and city norms.

The hukou system has a high impact on settlement decisions in China; those with a local hukou in China can generally enjoy more benefits such as local public services. Hence, the local government will generally set some threshold conditions for the migrant population to settle in the local area. Moreover, The National Plan on New-Type Urbanization (2014–2020) and a hukou reform package released recently have significantly relaxed the restrictions on urban hukou acquisition. When migrants pass a points threshold, they can obtain household registration (hukou acquisition) and access to urban public services enjoyed by local residents. Therefore, we assume that the floating population who can pass the household registration acquisition may be more likely to obtain hukou in the city and settle permanently in the future [7,52].

#### (5) Social network and integration factors

These include the variables of the number of relatives or friends living in the same city, and whether they were born where their parents worked. Social networks play an increasingly important role in determining the mobility and urban permanence of migrants [14,49]. The more relatives or friends a person has living in the same city, the closer the social relationship between the floating population, making such individuals more likely to settle down or buy houses. Moreover, the migration behavior of parents and the living environment since childhood has an intervention effect on the new generation of migrants. If they were born where their parents worked, they may be more adapted to the living environment in the city and prefer to settle down in cities.

#### (6) Family migration factors

These include the variables of the proportion of family members living in the city of residence and whether they return to their hometown for Chinese New Year. The higher the proportion of family members living in the same city, the easier the household migration process is [12]. At the same time, many people return home for the Spring Festival in China. If the respondents stay in the place of migration for the Spring Festival, it can be assumed they consider the new city of residence to be their new “home” [54–56].

The variable partitions and descriptive analyses are shown in Table 1. In terms of age composition, the respondents were mainly between 21 and 50 years old, with an average age of 34.59 years and an average education time of 10.64 years (Table 1).

**Table 1.** Independent variables and their descriptive statistics.

Factors	Independent Variable		Number	Proportion
	Sample size		2416	100.00%
Demographic controls	Age	Born before 1979	850	35.18%
		1980 and beyond	1566	64.82%
	Gender	Female	1306	54.06%
		Male	1110	45.94%
Individual and family economic	Individual income (CNY 1000)	(≤30)	669	29.46%
		(30–60)	1107	48.75%
		(>60)	495	21.79%
	Household income per capita (CNY 1000)	(≤20)	851	35.22%
		(20–50)	1184	49.01%
		(>50)	381	15.77%
	Family assets (CNY 1000)	(≤200)	759	31.42%
		(200–1000)	1154	47.76%
		(>1000)	503	20.82%
	Living area per capita (m <sup>2</sup> )	(≤30)	1073	44.41%
		(15–30)	876	36.26%
		(>60)	467	19.33%
	Household consumption (CNY 1000)	(≤30)	500	20.70%
		(30–100)	1097	45.40%
		(>100)	819	33.90%
	Housing expenditure (CNY 1000)	(≤24)	1112	46.03%
		(24–60)	630	26.08%
		(>60)	674	27.90%

Table 1. Cont.

Factors	Independent Variable		Number	Proportion
Individual human capital and occupational	Educational attainment	Primary school and below	346	14.32%
		Junior and senior high school	1493	61.80%
		College and above	577	23.88%
	Occupation	Migrant workers	1352	61.09%
		Individual or private entrepreneurs	259	11.71%
		Professional technicians	602	27.20%
Hukou status	Family members with urban hukou	Yes	504	20.86%
		No	1911	79.10%
	Hukou acquisition	Yes	360	14.90%
		Unsure	863	35.72%
		No	1193	49.38%
Social network and integration	Number of living relatives in the same city	0	733	30.34%
		(1–6)	1157	47.89%
		(>6)	526	21.77%
	Social networks (number of friends in the same city)	0	693	28.68%
		(1–5)	1043	43.17%
		(>5)	680	28.15%
	Birthplace (born where parents work)	Yes	27	1.12%
		No	2389	98.88%
Family migration	Proportion of family members living in the city	(≤50%)	1311	54.26%
		(>50%)	1105	45.73%
	Going back home for Spring Festival	Every year	1788	75.03%
		Sometimes or not	595	24.97%

### 3.3. Research Methods

Based on the theory of local utility [27], we established multinomial logistic models to analyze the influence of different factors on the permanent settlement intention and housing purchase action of the floating population. In a multinomial logistic model of permanent settlement intention, the assigned value for “stay in this city currently living in” was 1, that of “return to place of origin” was 0, and that of “not sure or other cities” was 2. In the multinomial logistic model for housing purchase action, the assigned value for “have purchased or plan to purchase a house in the future in the resident city” was 1, for “rent house and will rent in the long run” was 0, and for “unsure” was 2. The function form of logistic regressions for both models is as follows:

$$P_i = F(x, \beta) = \frac{\exp(\alpha + \sum_{j=1}^m \beta_j x_{ij})}{1 + \exp(\alpha + \sum_{j=1}^m \beta_j x_{ij})}$$

In this function,  $P_i$  indicates the probability that the floating population intends to settle permanently or (plans to) own house or a residence in a city.  $\alpha$  is a constant term,  $x_{ij}$  is the  $j$  variable of permanent settlement or house planning,  $m$  is the number of explanatory variables,  $\beta_j$  is the regression coefficient of explanatory variables, and  $\beta_j x_{ij}$  is the place utility of the variables. The probability ratio  $\frac{p_i}{1-p_i}$  of settlement permanently and housing planning is considered as the event occurrence ratio. A logarithmic transformation was conducted to obtain the linear expression of the logistic regression model as follows:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \alpha + \beta_0 \sum_{j=1}^m \beta_j x_{ij}$$

The independent variables cover the 17 independent variables of the 6 categories shown in Table 1. In this study, a correlation analysis of all variables included in the model was conducted. The correlation coefficients of all variables were generally small. The maximum value of the variance expansion factor (VIF) was less than 5, and most of them were below 1.5. Therefore, the model had no obvious collinearity.



## 4. Results

### 4.1. Home Ownership, an Important Factor for the Floating Population to Realize Citizenization

Home ownership is a pursuit in life for most Chinese people, as well as an important indicator for the floating population to improve life happiness and realize citizenization. At present, respondents mainly adopted two approaches to solving their housing problems, namely, house buyers (the respondents with housing in resident cities, 10.40%) and renters (including those renting houses from the landlord, dormitories provided by employers, borrowing from relatives and friends, etc.) (89.60%). In terms of room congestion, house buyers had a spacious living space with a per capita building area of 36.51 m<sup>2</sup>. The living space of the renters was relatively small, with an average building area of 18.16 m<sup>2</sup>. From the perspective of life satisfaction, the higher the score is (from 1 to 10), the more satisfied the respondents are. Generally speaking, house buyers have higher life satisfaction than renters, especially in the aspects of housing status, children's education, marriage life, etc. Those who have bought houses have higher satisfaction scores, and their life is happier (Figure 2).

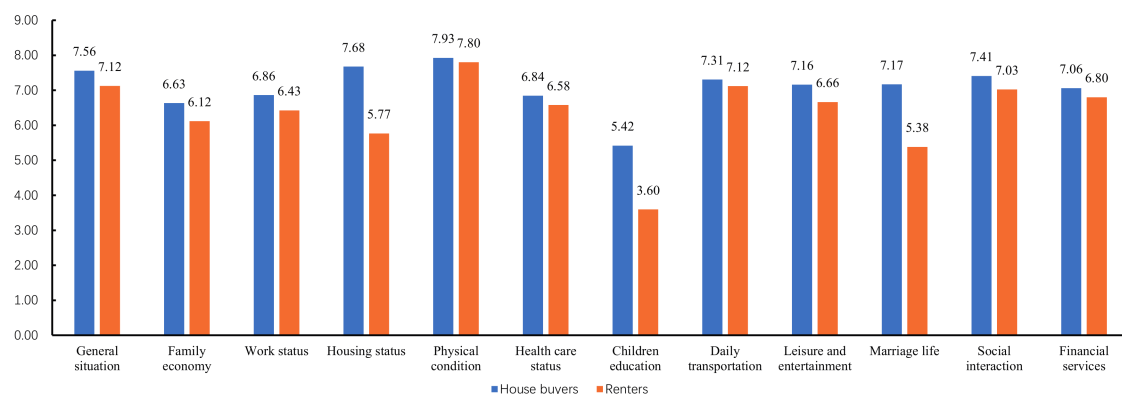


Figure 2. Comparison of life satisfaction between house buyers and renters.

Although owning one's own house in the city they are living in can bring greater happiness, housing has become an important problem to the citizenization of the floating population in today's soaring urban housing prices in China. As for the question of "the mainly problem to realizing citizenization in the resident city", the majority of respondents chose "can't afford to buy a house and don't want to rent in the long run" (1627), "higher cost of daily living" (1063), "difficult to bring parents and children to live in resident city" (748), and "children have difficulty in attending school" (746) (Figure 3).

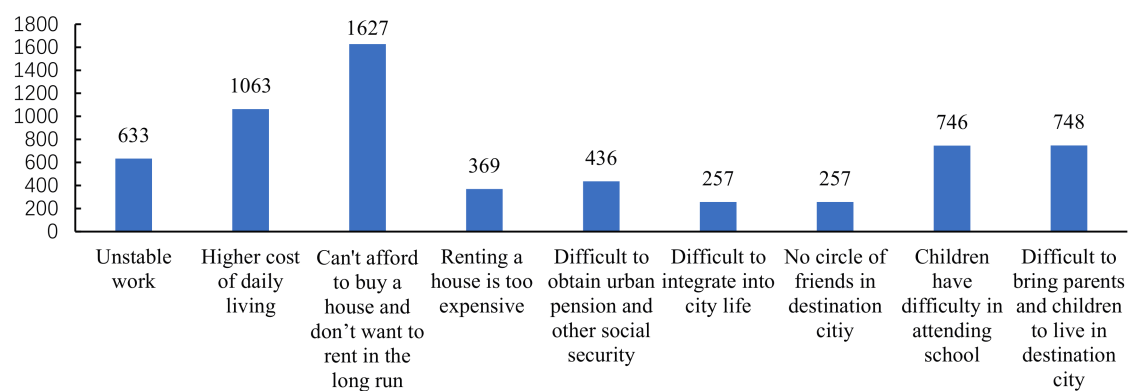
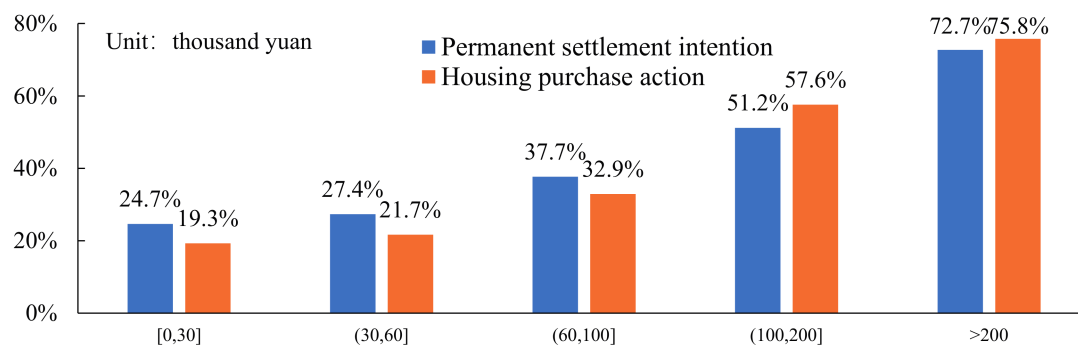


Figure 3. The main problems for the floating population to realize citizenization in resident city.

#### 4.2. Comparison of Permanent Settlement Intention and Housing Purchase Action

Residence desire is the subjective desire of the floating population to stay in the resident city in the future, and housing purchase is the real ability of the floating population to stay in the resident city. Among the 2416 interviewees, 30.13% had a permanent settlement intention to stay in the resident city, but only 25.54% had housing purchase action. Consistent with hypothesis 1, the housing purchase action of the floating population was generally lower than their willingness to settle down, and some of the population encountered incomplete citizenization problems. The incomplete citizenization problem of the floating population with better economic conditions was relatively small, and the high-income group made up a minority of the respondents willing to settle down, which is complemented by a greater housing purchase action ability. Among respondents with an annual income of more than CNY 100,000 in 2016, the percentage of those with housing purchase action was 5% higher than that of those who intended to settle down. Some of the high-income groups who bought properties in multiple cities may leave those properties for the next generation to live in or for investment purposes, so they may not necessarily settle permanently in the destination city. Therefore, the housing purchase action of high-income groups is higher than permanent settlement intention. The lower the value of respondents' household assets, income, and consumption capacity, the weaker was their willingness to settle down and buy a house. It is difficult for those with poor economic conditions to buy houses and settle down permanently in cities. Specifically, 24.66% of respondents with personal income less than CNY 30,000 have intentions to settle down but only 19.28% have housing purchase action (Figure 4).

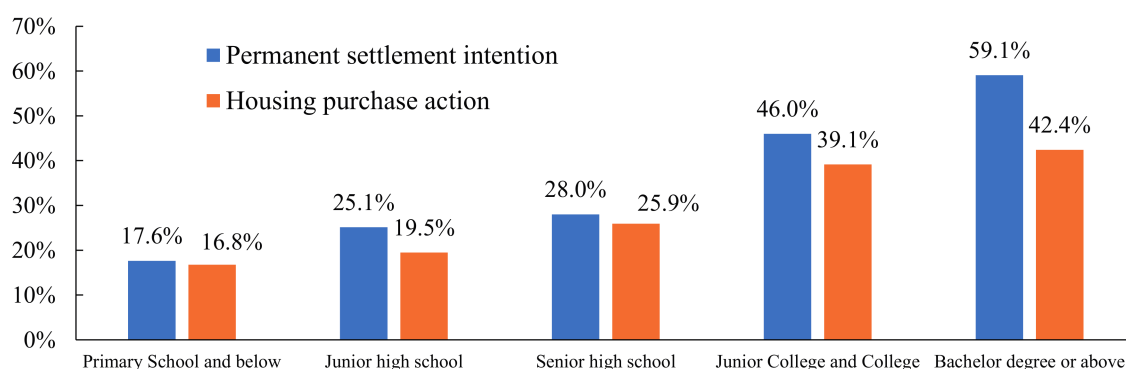


**Figure 4.** Permanent settlement intention and housing purchase action of different income groups.

Notes: In terms of brackets at the bottom, "(" means "<", and "]" means "≤".

The results indicate that the incomplete citizenization problem is more prominent among the floating population groups with higher education and professional technical skills. The low-education and low-skilled floating population generally matches their purchasing power with their willingness to settle down. However, the floating population group with higher education and professional skills has a larger increase in willingness to settle down, but their purchasing ability has not improved simultaneously [57]. Only 17.63% of the respondents with educational attainment of primary school level and below had intentions to settle down, and 16.76% had housing purchase actions. However, among the respondents above the undergraduate level, the proportion of those with the intention to settle down increased to 59.09%, and only 42.42% had housing purchase actions (Figure 5).

Among the floating population, only approximately 20% of the low-skilled migrant workers had the desire to settle down and the ability to buy houses, whereas 58.2% and 63.4% of private entrepreneurs had the desire to settle down and had housing purchase actions, respectively. The future incomplete citizenization of these two groups was not severe. However, 45.3% of professional and technical personnel had intentions to settle down, but only 33.76% have housing purchase action.



**Figure 5.** Permanent settlement intention and housing purchase action of different educated groups.

It is notable that the permanent settlement intention and housing purchase action differ significantly among different demographic or social attribute groups. The incomplete citizenization problem is more serious among the post-1980s, urban hukou, and urban social network respondents. Among the floating population born before 1979, 23.29% choose to settle down in the long term, and 22.82% have housing purchase actions. However, 33.84% of the floating population born in or after 1980 chose to settle down in the future, and only 27.01% of them had housing purchase actions. Respondents with family members who have an urban hukou chose to settle at a rate 9.13% higher than those who had housing purchase action, whereas those without family members who had urban hukou chose to settle at a rate only 3.4% higher than those with housing purchase actions (Table 2).

**Table 2.** Permanent settlement intention and housing purchase action of different demographic and social attribute groups.

Independent Variable		Permanent Settlement Intention	Housing Purchase Action	Differences between Settlement Intention and Purchase House
Age	Born before 1979	23.29%	22.82%	0.47%
	Born 1980 or later	33.84%	27.01%	6.83%
Gender	1 = Female	25.96%	24.12%	1.84%
	0 = Male	35.05%	27.21%	7.84%
Family members with urban hukou	Yes	47.02%	37.89%	9.13%
	No	25.69%	22.29%	3.40%

#### 4.3. Influence of Different Factors on the Permanent Settlement Intention and Housing Purchase Action of Floating Populations

The likelihood ratio test results suggest that all of the variables except for household consumption and social networks explain the variance in permanent settlement intention. Meanwhile, family assets, living area per capita, household consumption, housing expenditure, educational attainment, household registration acquisition, proportion of family members living in the city, and going back home for Spring Festival explain the variance in housing purchase action. Most of the factors considered have a stronger influence on settlement intention than on the housing purchase action, which indicates that settlement is a behavior affected by many factors, whereas housing purchase action is mainly related to economic processes, human capital, family citizenization, etc. (Tables 3 and 4). These results confirmed our hypotheses (H2, H3).

**Table 3.** Likelihood ratio tests of the permanent settlement intention and housing purchase action.

	Permanent Settlement Intention			Housing Purchase Action		
	−2 Log Likelihood of Reduced Model	Chi-Square	Sig.	−2 Log Likelihood of Reduced Model	Chi-Square	Sig.
Intercept	3862.973			4188.023		
Age	3942.056	79.083	0.000	4189.719	1.696	0.428
Gender	3870.830	7.857	0.020	4189.156	1.134	0.567
Individual income	3875.892	12.920	0.012	4192.541	4.519	0.340
Household income per capita	3877.567	14.594	0.006	4188.925	0.902	0.924
Family assets	3874.108	11.135	0.025	4234.538	46.516	0.000
Living area per capita	3887.239	24.266	0.000	4244.136	56.113	0.000
Household consumption	3867.772	4.799	0.309	4209.686	21.664	0.000
Housing expenditure	3883.928	20.955	0.000	4198.529	10.506	0.033
Educational attainment	3873.753	10.780	0.029	4199.295	11.272	0.024
Occupation	3886.523	23.550	0.000	4195.421	7.398	0.116
Hukou status	3881.247	18.274	0.000	4188.776	0.754	0.686
Hukou acquisition	3900.797	37.824	0.000	4232.368	44.345	0.000
Relatives in the same city	3871.554	8.581	0.072	4193.170	5.147	0.273
Social networks	3864.347	1.374	0.849	4192.192	4.170	0.384
Birthplace	3868.961	5.988	0.050	4189.352	1.329	0.514
Proportion of family members living in the city	3884.877	21.904	0.000	4221.060	33.037	0.000
Going back home for Spring Festival	3897.719	34.746	0.000	4196.032	8.010	0.018

Notes: In likelihood ratio tests of the permanent settlement intention, Pseudo R-square includes Cox and Snell at 0.259, Nagelkerke at 0.296, and McFadden at 0.145. In likelihood ratio tests of the housing purchase action, Pseudo R-square includes Cox and Snell at 0.213, Nagelkerke at 0.242, and McFadden at 0.112.

**Table 4.** Multinomial logistic estimates of permanent settlement intention and housing purchase action.

	Permanent Settlement Intention				Housing Purchase Action			
	Stay		Not Sure/Other Cities		Having/Intending		Not Sure	
	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio
Age (ref: born before 1979)								
Born after 1980	0.793	2.211 ***	1.179	3.252 ***	0.130	1.139	−0.064	0.938
Gender (ref: male)								
Female	0.254	1.290 **	−0.114	0.892	−0.05	0.951	−0.114	0.892
Individual income (ref: ≤30 thousand)								
>60 thousand	0.488	1.629 **	0.694	2.002 *	0.164	1.178	0.123	1.131
30–60 thousand	0.304	1.355 *	0.359	1.432	0.043	1.044	0.234	1.263
Household income per capita (ref: ≤20 thousand)								
>50 thousand	0.502	1.652 **	0.793	2.209 ***	−0.064	0.938	−0.01	0.99
20–50 thousand	0.034	1.034 *	0.141	1.152	0.063	1.065	−0.027	0.973
Family assets (ref: ≤200 thousand)								
>1000 thousand	0.134	1.143	−0.424	0.654 **	1.025	2.788 ***	0.442	1.555 **
200–1000 thousand	−0.072	0.930	−0.367	0.693 ***	−0.120	0.887	−0.039	0.962
Living area per capita (ref: ≤15)								
>30	0.748	2.112 ***	0.228	1.256	1.246	2.788 ***	0.348	1.416
15–30	0.453	1.573 ***	0.061	1.063	0.769	2.159 ***	0.158	1.171
Household consumption (ref: ≤30 thousand)								
>100 thousand	0.361	1.435 **	0.222	1.249	0.889	2.433 **	0.117	0.454
30–100 thousand	0.141	1.152	0.112	1.118	−0.454	1.574	0.085	0.512
Housing expenditure (ref: ≤24 thousand)								
>60 thousand	0.577	1.781 ***	−0.007	0.993	0.427	1.532 **	0.236	1.266
24–60 thousand	0.141	1.152	−0.304	0.738 **	−0.075	0.927	0.013	1.013
Educational attainment (ref: primary school and below)								
College and above	0.738	2.092 ***	0.449	1.567 *	0.304	1.355	−0.313	0.731
Junior and senior high school	0.368	1.445 *	0.093	1.097	0.304	1.355	0.111	0.118
Occupation (ref: migrant workers)								
Professional technicians	0.553	1.739 ***	0.510	1.665 ***	0.118	1.125	−0.027	0.973
Individual or private entrepreneurs	0.518	1.678 ***	−0.023	0.978	0.405	1.499 **	−0.11	0.895
Hukou status (ref: family members without urban hukou)								
With urban hukou	0.602	1.826 ***	0.431	1.539 ***	0.082	1.085	0.118	1.126
hukou acquisition threshold (ref: no)								
Unsure	0.172	1.188	0.220	1.245 *	−0.406	0.666 ***	0.311	1.365 ***
Yes	0.873	2.395 ***	−0.046	0.955	0.537	1.711 ***	0.311	1.364 *

Table 4. Cont.

	Permanent Settlement Intention				Housing Purchase Action			
	Stay		Not Sure/Other Cities		Having/Intending		Not Sure	
	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio
Relatives in the same city (ref: 0)								
>6	0.392	1.480 **	0.060	1.062	0.041	1.042	−0.251	0.778
1–6	−0.014	0.987	−0.053	0.948	−0.117	0.889	−0.17	0.844
Friends in the same city (ref: 0)								
>5	0.121	1.129	0.061	1.063	−0.027	0.974	0.218	1.244
1–5	0.087	1.091	0.142	1.153	−0.02	0.98	0.209	1.232
Born where parents work (ref: no)								
Yes	1.494	4.456 **	1.366	3.920*	−0.500	0.607	0.223	1.249
Proportion of family members living in the city (ref: ≤50%)								
>50%	0.556	1.744 ***	0.067	1.069	0.768	2.156 ***	0.183	1.201
Going back home in Spring Festival (ref: every year)								
Sometimes or not	0.747	2.110 ***	0.551	1.734 ***	0.375	1.455 **	0.000	1.000

Notes: standard error in parentheses: \*  $p < 0.1$ . \*\*  $p < 0.05$ . \*\*\*  $p < 0.01$ .

As illustrated in Table 4, family economic status (including living area per capita, household consumption, and housing expenditure variables), hukou status (hukou acquisition), and family migration factors (including proportion of family members living in the city and going back home for Spring Festival) have a significant effect on both the permanent settlement intention and housing purchase action.

With present housing prices in the Pearl River Delta being high, it is necessary to have the economic resources to buy houses in residential cities. Moreover, for respondents' willingness to settle down and their purchase behavior, we should mainly consider the results of conditions maximizing the overall economic benefits of their whole families. The results show that when families' economic conditions are better, the group enjoys higher overall income, and the willingness to settle down and purchase housing is higher, resulting in the relatively low difficulty of housing purchase actions. It is worth noting that when the floating population reaches a certain threshold, for example, when their household consumption is above CNY 100 thousand or housing consumption is above CNY 60 thousand, they are more able to settle down and buy a house. In terms of family migration factors, the coefficients of the proportion of family members living in the city and going back home for Spring Festival are all positive and significant, indicating that the floating population who have moved closer to their families and spent the Spring Festival in their resident city are more eager to settle down permanently and purchase a house in resident cities.

Compared with the control group, i.e., the respondents with higher education, professional technicians have a stronger willingness to settle down, but their ability to buy houses was relatively low. This research revealed that the problem of incomplete citizenization in the future is not serious for migrant workers. Those with low educational backgrounds and non-skilled or low-skilled workers are more likely to return home in the future as they find it difficult to buy houses in the cities [49]. However, for the floating population with high educational background and professional skills, the improved educational background and the recent improvement of work quality are still insufficient to improve their families' economic conditions. The improvement of human capital and professional skills is still weak when the purchasing ability of this section of the floating population is considered, although it is stronger than their willingness to settle down (Tables 3 and 4). Among all factors, family factors, especially family asset variables, are basic predictors in migration and are even more important than their individual income and education entertainment. These results confirmed our hypothesis (H2).

The results indicated that hukou acquisition is another important predictor. The coefficients and odds ratios show that the members of the floating population with hukou acquisition threshold in the resident city were more likely to settle down permanently and purchase housing. Despite the relaxation of restrictions on population mobility, the hukou system continues to play an important role in determining the destination choices and settlement intention of migrants in China. The floating



population lacking a local hukou status suffers from low-quality living conditions and limited access to schooling and social welfare. Therefore, once people from the floating population could obtain the hukou in the resident city, they would be more likely to permanently settle down. Meanwhile, when the floating population has hukou acquisition threshold in the resident city, it means that they have enough property, better education, and other comprehensive conditions, so they can be more likely to afford a house now or in the future (H3). The other hukou status variable (respondents with urban hukou family members) also has a significant impact on the willingness of the floating population to settle down, which means that respondents with urban hukou are more likely to settle down permanently, as shown in previous studies [58]. However, there is no significant effect on the housing purchase action. This means that respondents with urban hukou have no more assets with which to buy their houses than those with rural hukou.

Generally, the groups with higher rates of adaptability to urban life, degrees of integration, and receiving more social support for local life would obtain more “place utility” and be more likely to finally settle down. Women can migrate through marriage, and their willingness to migrate is stronger. Once the family members of the floating population have moved out of rural areas, the family is also more inclined to settle in the city. To a large extent, willingness to stay in the city represents the subjective will of the floating population, and not many considerations are made about the economic conditions of individuals and families. When indicators of citizenization are considered, such as the purchase of houses in cities and towns, economic factors such as individuals’ and households’ assets must be considered. In this sense, it is not always possible for the floating population to achieve complete citizenization in the short term.

Among all the factors, the difference between the two models confirms the difference between subjectivity and objective economy and explains the core reasons for the incomplete citizenization of the floating population; the working status, living habits, social network, and other aspects of the floating population encourage the floating population to settle in their cities, but their economic capacity still may be consistent with their subjective settlement intention. Therefore, the real realization of migration and settlement of the floating population cannot be summarized according to strong subjective will, and substantial improvements must be made to achieve the goal of citizenization (Table 4).

## 5. Discussion and Conclusions

Generally, citizenization is a complex combination of the place utility of economic, social, and cultural factors [49]. Therefore, understanding the migration behavior of the floating population cannot be simply based on its members’ settlement intention. Comprehensive consideration of indicators such as permanent settlement intention and housing purchase action will help us to better understand the migration behavior and the process of citizenization of the floating population.

The debate about the impact of economic and social factors on resettlement decision-making is widely discussed in the literature [12,13,53]. Recently, the relevant literature has emphasized the important role of social factors in the previous migration and settlement of the floating population [9,12,49]. Women, unmarried individuals, highly integrated individuals, and second-generation migrants have a stronger willingness to settle down [3,43], but these factors have not had a positive and significant influence over housing purchase action.

Groups with a higher urban life integration have a higher overall willingness to settle down, but they have difficulty buying urban housing; thus, they are more likely to experience problems of incomplete citizenization (i.e., problems with achieving full citizenization). To solve these problems, it is necessary to increase the floating population’s income and reduce housing costs and other citizenization obstacles. This is because the purchase of urban housing is a major long-term investment and mainly depends on economic factors such as household assets and income. Thus, even for highly educated individuals, professionals, and technical personnel of the floating population, the improvement of educational background, recent improvement of work quality and other factors, and their the ability to

improve the economic conditions of their families are still insufficient for homeownership, so such individuals experience the problem of incomplete citizenization.

Previous studies have generally believed that the settlement and housing problems of the floating population mainly existed in the low-skilled floating population groups and that with the improvement of human capital and education levels, these housing problems would be ameliorated or solved [13,59,60]. This study revealed that most low-skilled migrant workers tend to return to their hometowns rather than settle down in their current workplace location and buy a house. Therefore, the difference between willingness to settle and housing purchase action is relatively small, and the pressure or plans to buy housing among this group is relatively low.

With the expansion of higher education levels among the population in general, China has become the nation with the largest number of higher education graduates in the world. At the same time, most of China's industries are still at the middle and low end of the global industrial production chain. Globally, China occupies the low end of the division of labor, with few high-skilled and high value-added jobs. In addition, due to the imbalance of regional development, there is less demand for skilled jobs outside the urban agglomerations. Moreover, the floating population with higher education is more accustomed to the lifestyle of metropolitan areas [6], so this group is less willing to return to their hometowns. However, higher-educated workers do not receive sufficient payment to easily buy a house.

Moreover, after the 1990s, the Chinese government gradually reduced or canceled the work and home-purchasing welfare provisions for graduates of higher education institutions [61]. Since China's fiscal reform in 1994, land auction revenue has become the most important source of income for local governments [62,63]. To better maintain the constructed urban infrastructure and public services, local governments have attempted to maximize the income from land auctions, which has resulted in a shortage of residential land supply and high commercial housing prices [64]. At present, the rapid rise of housing prices in Chinese cities has made housing ownership a direct obstacle to the citizenization of immigrants and made it more difficult to citizenize the floating population [23,51]. Our empirical results show that family economic factors have become an important basis for the housing purchase actions of the floating population and may even be more important than their own economic income and education level. Many among the floating population with higher education cannot afford a house. These groups are used to city life and decide against returning to their hometowns, which exacerbates the problem of incomplete citizenization. In this context, the citizenization of colleges graduates has attracted increasing attention from academia and the government [65,66].

With the expansion of hukou system reforms, the restrictions on floating population settlement and hukou in China have gradually weakened, and the housing problem has become the highest cost factor and the most substantial obstacle in the path to citizenization. Respondents with higher education, professional skills, urban hukou, and weak contact with their families have expressed a stronger willingness to settle down, but their ability to buy houses has not improved; thus, it is difficult for respondents with low family assets and income to buy houses and settle permanently in their cities. As a solution to this problem, governments could implement innovative reforms to the housing system according to the family groups of floating populations, formulate targeted settlement and housing policies, and provide a more diversified urban integration path for the floating population.

First, the government should include the floating population in the scope of affordable housing security, increase the supply of affordable housing, and allow the floating population with rural hukou to use rural housing and homesteads as collateral to buy houses from banks. For the communities in the urban regions with strong pressure from the floating population, the central government should have special funds to support local governments in the construction of affordable housing or increase the index of residential land to alleviate local financial pressure.

Second, the floating population group should be included in rental housing construction plans. These plans should meet the long-term rental needs of the floating population group who cannot afford to buy houses but have a strong willingness to settle down, especially the floating population

with several years of working experience in cities, higher educational background, and working skills (i.e., the segment of the floating population most likely to settle down). Such a policy would provide conditions for the safe living of the floating population and implement the same right of rent and sale to provide basic public services for the floating population who rent houses. Rent control measures for rental housing should be ensured, and the rent should be linked with the minimum wage to ensure that the floating population can afford such housing.

Third, it is necessary to control the housing prices and completely remove all urban hukou acquisition restrictions in small cities and towns to help those migrants with difficulties settling in large- and medium-sized cities to achieve the goal of settling in small- and medium-sized cities. At present, some of the floating population have left voluntarily or were forced to return home because of house purchasing difficulties, family constraints, and homesickness. Some of these people have savings and are willing to live in a county or small town with a low cost of living, high social identity, and a livable environment. Therefore, various institutional arrangements should be provided to enable them to remain in counties or small towns. County governments should be allowed to apply a pilot program of replacing homesteads with affordable housing, which not only promotes the circulation of homesteads but also provides housing options for members of the floating population who are willing to settle down and buy a house in small cities.

In sum, we comprehensively analyzed the impact of the economic and social-cultural factors influencing the decisions and intentions of the floating population in the Pearl River Delta to permanently settle or purchase housing. This paper contributes to the study of China's migration in two aspects. First, this research explored the subjective intention of permanent residence and the housing ownership purchase action among the floating population rather than investigating a single indicator. Second, this research showed that among the influencing factors, family factors, especially family assets, have become an important basis for the housing purchase actions of the floating population and may even be more important than their own economic income and education level. After the State Council announced the "Notice of Further Promoting the Reform of the Hukou System", the decision of whether to pass restrictions of urban hukou acquisition plays an important role in the settlement decision of the floating population. Moreover, migrants who intend to own houses in their resident city may also be willing to return to their places of origin. In this case, they may leave the house to their offspring. Therefore, the proportion of the floating population who live permanently in the city but have no housing purchase action is higher than that revealed from the relevant analysis our study.

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