

## Original Paper

# A Study of the Effect of Urban Comforts on the Willingness of Migrants to Stay in the City

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### Abstract

*As China's urbanisation process accelerates, more and more migrant populations are choosing to settle in cities, and studies affecting their willingness to stay are becoming increasingly diverse. In addition to traditional factors such as economic income and employment opportunities, the comfort of urban life has gradually become an important consideration influencing the choices of migrants. Based on social capital theory, ecosystem theory, social identity theory and social support theory, this paper focuses on the influence of urban comforts on the intention to stay of urban migrants, and explores the mechanism of urban comforts on the intention to stay of migrants. In the empirical study, this paper synthesises the urban comforts indicator based on the data collected at the city level and carries out a benchmark regression analysis, and the regression results show that urban comforts have a significant positive impact on the willingness to stay of the migrant population. In the individual heterogeneity analysis, it is found that urban comforts have a stronger effect on the willingness to stay of married migrants than unmarried or divorced migrants, and that urban comforts have a stronger effect on the willingness to stay of highly educated migrants than those with a low level of education. In the analysis of urban heterogeneity, it is found that the effect of urban comforts on the willingness to stay of the migrant population varies according to whether the city is in the east, middle and west of China, whether it is the Yangtze River Economic Belt, or whether it is a municipality directly under the central government. Based on this, this study proposes relevant policy recommendations.*

### Keywords

*urban amenities, willingness to stay, migrant population*

## 1. Introduction

As China's urbanisation process accelerates, the size of cities and the number of people have grown significantly, creating the phenomenon of a large number of people on the move. The mobile population plays an important role in the economic, social and cultural aspects of cities, but also faces many problems and challenges. Urban amenities, as an important factor in enhancing the livability of cities, have a significant impact on the willingness of mobile populations to stay. Urban comforts cover public service facilities, infrastructure, environmental quality, healthcare, education resources, etc. These factors not only relate to the quality of life of urban residents, but also directly affect the social integration and life satisfaction of the migrant population. According to the China Migrant Population Development Report 2022 released by the National Bureau of Statistics, by the end of 2022, China's total migrant population reached 244 million, accounting for 17.4% of the country's total population. Among them, the proportion of inter-provincial mobile population was 36.7 per cent, the proportion of inter-city mobile population within provinces was 44.5 per cent, and the proportion of intra-city mobile population was 18.8 per cent. The mobile population is mainly concentrated in the eastern coastal areas and large and medium-sized cities, and the density of the mobile population in regions such as Beijing-Tianjin-Hebei, the Yangtze River Delta and the Pearl River Delta is significantly higher than in other regions. The introduction and implementation of national policies have not only provided protection for the life and work of the floating population, but also created favourable conditions for enhancing their willingness to stay in cities. However, there are still regional imbalances in the allocation and service level of urban comforts, and how to optimise the allocation of urban comforts in order to enhance the willingness to stay of the migrant population has become an important issue in urban management and social governance. Therefore, it is of great theoretical and practical significance to explore the influence of urban comforts on the willingness to stay of the migrant population.

This study adopts a variety of research methods to analyse in depth how urban comforts affect the willingness to stay of migrant populations. These methods include inductive reasoning, data mining, and causal measurement, aiming to comprehensively assess the impact of various urban amenities (e.g., quality of living environment, public service facilities, accessibility, etc.) on an individual's choice of different places of residence. Through this comprehensive methodological framework, we hope to shed light on the importance of comforts on the willingness to stay of the migrant population and to inform policy makers' decision making for a more equitable and inclusive urban development.

First, starting from the actual situation of China's rapid urbanisation, the huge size of the migrant population, and the obvious differences in the allocation of urban comforts, we inductively reason out the importance and practical significance of urban comforts on the willingness of the migrant population to stay in the city. Secondly, based on the domestic China Knowledge Network (CNKI) and the international Web of Science database, we extensively reviewed the relevant literature to comprehensively understand and summarise the current research progress and existing problems. Through the systematic combing of domestic and international literature, we summarise the research

gaps and deficiencies in the field of urban comforts affecting the willingness of migrant population to stay. Then, taking into account the characteristics and needs of the migrant population, we will explore how urban amenities (e.g., public service facilities, healthcare, education resources, etc.) affect their willingness to stay. Finally, on the basis of existing research, we try to systematically analyse the mechanism by which urban comforts affect the willingness to stay of the migrant population, taking into account the social integration and life satisfaction of the migrant population in the city, as well as exploring in-depth the different types of cities, attributes of the migrant population, and so on. In this study, the CMDS questionnaire was used to collect data related to the allocation of urban comforts and the willingness to stay of the migrant population. At the same time, the data are cleaned and processed with the help of statistical software to ensure the completeness and accuracy of the data. In addition, big data mining technology will be used to obtain relevant information about the mobile population and the configuration of urban public service facilities from the statistical data released by the relevant government and research organisations to further enrich the research data base. Based on the collected data, multiple regression analysis measures will be used to test the causal relationship of urban comforts on the willingness of the migrant population to stay. In order to solve the possible endogeneity problem, this study will adopt the instrumental variable (IV) method for robustness testing. The differential impact of urban comforts on the willingness to stay of the migrant population will be explored in depth by analysing subgroups of different cities and demographic characteristics. In addition, parallel trend tests and placebo tests will be conducted to ensure the reliability of the findings.

## 2. Literature Review

### 2.1 Research Related to Urban Comforts

#### 2.1.1 Concept of Urban Comforts

In the literature of urban economics, the term "urban amenities" was first proposed by scholars and quickly became a focus of research. Hunter defines it as urban features and facilities that can enhance people's quality of life. He believes that parks, green spaces, cultural facilities, high-quality public services, and many other convenient facilities in the city all belong to the category of urban comfort. These comfort items not only exist to meet basic living needs, but also play an important role in attracting population inflows and promoting local economic prosperity.

The proposal of this concept reflects a significant trend in the evolution of urban functions: cities are no longer solely focused on material production, but have become more focused on culture, entertainment, and convenience in daily life. In traditional urban economics theory, "function" is usually interpreted as social or industrial activities directly related to economic development. However, with the deepening of urbanization, people are paying more attention to how to make cities more livable, which requires us to re-examine the functional definition of cities.

In a broad sense, urban comfort refers to urban elements that bring comfort, pleasure, and satisfaction to the senses and emotions. It includes natural landscapes such as parks and green spaces, cultural

facilities such as music halls and theaters, dining venues such as cafes and restaurants, reading spaces such as bookstores and libraries, as well as sports facilities such as fitness centers and swimming pools. In addition, there are commercial facilities and services required for daily life such as taxis, public transportation, online shopping, express delivery services, and housekeeping services. These factors together constitute a comfortable environment within the city, greatly improving the quality of life and work efficiency of residents.

Narrowly speaking, urban comfort refers to the unique facilities and services within a city that provide convenience for urban residents to live and work. For example, airport terminals, subway stations, bus stops, convenience stores, shopping malls, banks, hospitals, schools, government agencies, office buildings, residential buildings, hotels, restaurants, bars, etc. are all concrete manifestations of urban comfort. The opposite of urban comfort is "urban dissonances", which refer to urban environmental factors that bring discomfort and unpleasantness, such as noise pollution, traffic congestion, and environmental degradation. Urban anti comfort objects are seen as factors that drive residents away from a certain area, while urban comfort objects are factors that attract population inflows. In a broad sense, urban comfort includes not only the natural environment, but also artificially created public facilities and services, which have significant local and difficult to market characteristics. Therefore, economist Miller believes that urban amenities can be seen as a scarce resource that provides unique living conditions for urban residents. Wilson further pointed out that urban amenities are not only a part of productive capital, but also play an important role in enhancing urban attractiveness, involving comprehensive investment in urban infrastructure, public services, and government agencies.

Based on the characteristics of urban development in the post industrial era, scholars Harris&Norman have conducted a comprehensive exploration of urban comfort products. They believe that the concept of urban comfort goods is closely related to economics and consumer behavior, involving the pleasant experience brought by the use or enjoyment of related goods and services. However, the difficulty in studying urban comfort products lies in their difficult to quantify characteristics, which are different from productive capital that directly enhances market value. In existing research, many economists attempt to evaluate the value of urban comfort products through hedonic models. Harris and Norman believe that urban comfort products and their related businesses and services not only provide pleasant experiences, but also have high market value, similar to the cultural and symbolic capital analyzed by Pierre Bourdieu. The comfort of a city defines the quality of life and attractiveness it can provide to existing and potential residents. Urban amenities encompass both the natural environment and public facilities that enhance the attractiveness of the city.

In addition, with the advancement of urbanization, the role of urban comfort products is constantly evolving. For example, the development of digital and intelligent technologies has expanded the scope of urban comfort products to emerging fields such as intelligent transportation systems, urban safety monitoring, and digital service platforms. These modern urban amenities not only enhance the convenience of urban life, but also to some extent improve the quality of urban environment and the

overall happiness of residents. Therefore, research on urban comfort products needs to focus on the new changes brought about by technological advancements, and how these changes affect the overall attractiveness of the city and the living experience of residents.

### 2.1.2 Social Value of Comfortable Objects

In sociological research, urban comfort objects are not only physical facilities in urban environments, but also important manifestations of urban social values and cultural identity. As the ancient saying goes, "Cities should be both convenient and beautiful, and this requirement has not changed for thousands of years." The social value of urban comfort is mainly reflected in its impact on social services and public welfare. These facilities and buildings not only carry the temperament characteristics of the city, but also provide a unique perspective for studying urban development from a cultural and aesthetic perspective. They concretize abstract cultural concepts into tangible and tangible social phenomena, which in turn become the core elements for analyzing urban charm and innovative development.

Firstly, urban comfort items showcase the aesthetic characteristics of the city. The man-made facilities in cities, such as buildings, streets, municipal facilities, etc., carry rich cultural history and aesthetic ideas. Comfortable objects, as a concrete manifestation of culture and aesthetics, embody the historical and modern, regional and contemporary styles through architecture and spatial layout. As Kevin Lynch has said, "Aesthetic emotions and symbolic systems are often expressed in public squares, historical landmarks, and urban monuments in urban environments." These facilities not only reflect the authenticity of history, but also witness the temporal and spatial changes of the city, providing tangible carriers for its aesthetics and culture. Comfortable objects with historical significance are not only the inheritors of civilization, but also the continuation of citizens' daily lives, constantly playing a role in cultural transmission over time.

Then, urban comfort products stimulated the driving force of urban culture. According to Yuri Lotman's theory of cultural semiotics, cultural symbol systems are constantly generated and developed in social interactions and interactions. Comfortable objects, as a part of cultural symbols, promote the dissemination and innovation of culture by providing diverse social activity spaces and experiences. Every comfort scene in the city contains rich cultural activities and social experiences, which are further stimulated and developed through the effective use of comfort objects. The existence of comfort objects not only promotes individual creativity and enthusiasm, but also promotes the effective integration of social resources, enhancing social cohesion and centripetal force. By stimulating cultural innovation and social vitality, urban amenities help cities break through traditional concepts and institutional constraints, creating a vibrant and creative social environment.

Finally, enhance environmental sustainability and quality of life. Environmental sociologist Bell emphasizes the important role of urban amenities in enhancing environmental sustainability and quality of life. Through green infrastructure and environmentally friendly design, urban amenities not only improve the quality of the urban environment, but also enhance the quality of life for residents. For

example, green belts and rainwater management systems in cities not only beautify the urban landscape, but also reduce environmental pollution and ecological damage, promoting sustainable development of the city. This environmentally friendly design can provide residents with a healthy and comfortable living environment, while supporting long-term urban sustainable development goals.

## *2.2 Research on the Residence Intention of Floating Population*

### *2.2.1 Concept of Mobility of Floating Population*

Population mobility is a continuous phenomenon in the evolution of human society, and its importance is particularly prominent in the post industrial era driven by the knowledge economy. With the changes in the social economy, population mobility not only affects the total population and structure of the region, but also triggers the rapid flow and transfer of key production factors such as skills, knowledge, and technology. This flow has brought about the reconfiguration of land resources and the reorganization of urban space, thus having a profound impact on regional economy, social structure, and cultural landscape (Miller, 2015).

The International Population Society (IUSSP) has provided a clear definition of "population migration", emphasizing the dual dimensions of this phenomenon: firstly, the movement of populations between different geographical regions; Secondly, this type of movement typically involves long-term changes in place of residence (IUSSP, 2003). This definition highlights the spatial attributes of population mobility (whether it involves different places of residence), temporal attributes (whether the mobility has a long-term nature), and purposive attributes (whether it aims to change the place of residence). In western countries, the concepts of population mobility and migration are mostly the same, but in China, due to the unique registered residence system, the academic circles have different interpretations of these two concepts. Cai Fang, a Chinese sociologist, pointed out that "population migration" not only includes the long-term change of residence, but also involves the adjustment of registered residence, while "population migration" mainly refers to spatial activities across administrative divisions for a long time. The emergence of floating population, that is, the distinction between floating population and local permanent residents, has become an important concept in China's population statistics and management (Cai Fang, 2008). Cai Fang further emphasized that the driving factors of population mobility are multifaceted, including economic and non economic factors such as policy environment and social relations (Cai Fang, 2011).

Population mobility, a natural phenomenon, has always played a pivotal role in the long river of history, not only affecting the geographical distribution of population, but also profoundly shaping the trajectory of economic and social development. It is a multidimensional concept that encompasses mobility from individual to regional, national, and even global levels. The academic research on population mobility has never stopped. It is not only a broad field of theoretical exploration, but also an important factor that must be considered when formulating policies.

With the acceleration of globalization, people's mobility has increased, leading to drastic changes in population distribution patterns. Scholars attempt to explain the driving forces behind these changes

and how they have had profound impacts in different regions. They found that there are various reasons for mobility, including but not limited to employment opportunities, education level, medical conditions, environmental quality, cultural identity, etc. The forms of mobility are diverse, ranging from simple family migration to complex cross-border migration, and even including remote work brought about by the technological revolution.

Researchers also focus on the direction of choice for migrant populations, that is, which regions or cities they tend to move to. This is closely related to various factors such as the country's industrial layout, infrastructure construction, public service system, and legal environment. Similarly, the role of mobility in regional economic development cannot be ignored. Some scholars point out that population mobility can promote the rise of emerging industries, optimize the allocation of labor resources, and may also trigger new social problems.

The research of Western countries is particularly prominent in this field, as they have accumulated rich experience and data in the process of industrialization. Many scholars have established a series of mature theoretical frameworks through long-term tracking research. For example, Lee (2010) proposed the theory of population mobility, which suggests that population mobility is a process driven by multiple factors, including individual decision-making, market forces, government policies, and other levels. This theoretical framework helps researchers understand the complexity of population mobility and provides analytical tools for policy makers.

In addition to geography and sociology, multiple disciplines such as economics, demographics, and psychology have also joined the study of population mobility. Economists study the economic effects of population mobility, such as its impact on wages and prices, as well as its effects on changes in consumption patterns; Demographers focus on analyzing the characteristics and challenges faced by different types of migrant populations, such as migrant workers and immigrants; Psychologists, on the other hand, explore the impact of population mobility on social and psychological health, especially for those who are in an unstable state. These studies reveal the profound impact of population mobility on social structure, economic growth, and social mentality.

#### 2.2.2 Factors Influencing the Willingness of Floating Population to Reside

The floating population is a continuous phenomenon in the evolution of human society, and its influencing factors are diverse and complex. Existing research indicates that economic factors, social factors, environmental factors, and policy factors have significant impacts on population mobility. In terms of economic factors, they are widely regarded as the main driving force affecting population mobility. Economists Bossaert and Wilson have pointed out that economic opportunities, employment opportunities, and income levels are key factors driving population migration (Bossaert & Wilson, 2012). Economic growth and regional disparities play a central role in attracting and driving population mobility. Domestic scholar Chen Jianhua (2018) also emphasized that the uneven level of economic development is an important reason for population mobility between regions, especially in the context of globalization, where the distribution of economic opportunities is even more uneven (Chen Jianhua,

2018); In terms of social factors, they also have a significant impact on population mobility. Sociologists Kaufmann and Fischer found that social factors such as social networks, family relationships, and educational opportunities play key roles in migration decisions (Kaufmann & Fischer, 2015). The attractiveness of educational opportunities often prompts students and families to migrate to areas with abundant educational resources (Fisher, 2007). In China, social networks and family aggregation are also important migration factors (Wang Jun, 2019); In terms of environmental factors, especially natural disasters, climate change, and environmental degradation, they have become important factors in population mobility in recent years. Smith and Johnson pointed out that environmental degradation and climate change have an impact on living conditions, leading people to migrate when seeking a more suitable living environment (Smith & Johnson, 2018, climate change induced sea level rise prompts residents in low-lying areas to migrate to areas with lower risk (Zhang Hua, 2020). In terms of policy factors, policy factors also have a significant impact on population mobility. Policymakers influence the direction and scale of population flow through migration policies, registered residence system and regional development policies. Simmons and Robinson's research shows that government policies not only directly affect population migration decisions, but also change population mobility patterns by optimizing resource allocation and providing migration support (Simmons & Robinson, 2012). Similarly, the impact of China's registered residence system and urbanization policies on population mobility cannot be ignored (Liu Hong, 2017). In recent years, research has tended to comprehensively analyze how economic, social, environmental, and policy factors work together to influence the overall trend of population mobility and regional development (Lee, 2011). This comprehensive analysis provides important theoretical support for revealing the regularity and complexity of population mobility (Li Qiang, 2019).

### *2.3 Research on the Correlation between Urban Comfort Goods and the Willingness of Migrant Population to Reside*

In recent years, with the acceleration of urbanization, the role of urban comfort products in urban development has received increasing attention from academia and policy makers. Urban comfort products not only meet the convenience and comfort needs of residents' daily lives, but also carry cultural connotations and spiritual enjoyment, making cities an ideal place for people to live. Core elements such as parks and green spaces, cultural and entertainment facilities, high-quality educational resources, comprehensive medical services, and efficient public transportation networks constitute the basic framework of urban comfort. They not only directly enhance the livability and attractiveness of cities, promoting population inflow and increasing long-term residency willingness, but may also have a profound impact on the population mobility of specific groups, especially among highly educated talents, the elderly, and migrant populations. Therefore, studying the impact of urban comfort on the settlement intention of migrant population has important theoretical value and practical significance, which can provide scientific basis for optimizing urban planning, improving urban livability, and enhancing urban competitiveness.



Existing research generally believes that urban amenities play a crucial role in attracting and retaining high-quality talent, skilled workers, and other specific groups such as migrant populations. The "creative class" theory proposed by Richard Florida (2002) suggests that cities with abundant amenities are more likely to attract creative and technical talents. These talents tend to choose cities with high quality of life, rich and diverse cultural activities for settlement. Florida's research emphasizes that art facilities, entertainment activities, and a multicultural atmosphere are crucial for attracting high skilled labor. The gathering of such groups in cities further enhances the city's innovation capability and economic vitality, while also promoting the influx of more population. This phenomenon has a great appeal to the floating population, especially those who pursue a higher quality of life, such as the new generation of migrant workers and young highly educated floating population.

Moreover, the study by Glaeser, Kolko, and Saiz (2001) suggests that good public services and cultural facilities are crucial for improving the quality of life for urban residents, and are also important factors in attracting migrant populations, especially young high-income groups. These facilities not only include high-quality educational resources and advanced medical facilities, but also efficient public transportation systems. For the floating population, these comfort items greatly reduce the inconvenience and pressure of daily life, enhance the attractiveness of urban life, and encourage them to choose to settle in these cities for a long time. In fact, the floating population, especially the low - and middle-income groups, usually rely more on urban public services and infrastructure. Improved urban amenities not only reduce their economic and social costs during the migration process, but also increase their life satisfaction and happiness in the city, thereby enhancing their willingness to settle down (Liu Chang, 2018).

In addition, urban amenities also play an undeniable role in promoting social integration and cultural diversity. Kaufmann and Fischer (2015) pointed out that diverse public facilities and cultural activities can help attract residents from different backgrounds, promote cultural exchange and social integration. This multicultural environment not only enriches the cultural landscape of cities, but also enhances social inclusiveness and innovation, which is particularly important for migrant populations. Floating populations often face difficulties in integrating into local society, and a multicultural atmosphere and rich cultural activities help alleviate their sense of social isolation, enhance their opportunities for social integration, and further strengthen their willingness to settle down. The study also found that the enhancement of cultural diversity and inclusiveness not only attracts more people from different backgrounds to flow in, but also reduces the risk of population outflow caused by cultural conflicts (Li, 2017).

The existence of urban amenities not only has a direct impact on the migration and settlement choices of migrant populations, but also reduces population mobility by improving living environments and enhancing quality of life. Puga's (2010) research shows that urban amenities such as green spaces, parks, and leisure facilities not only provide residents with places for leisure and entertainment, but also enhance their life satisfaction by improving urban environmental quality and reducing pollution.

For the floating population, these comfort items enhance their recognition of the urban environment and reduce their willingness to leave the city. Therefore, improved urban amenities can not only attract more migrant population into the city, but also effectively reduce population outflow, further promoting population stability in the city.

### **3. Theoretical Analysis and Research Hypotheses**

#### *3.1 Theoretical Analysis*

In recent years, the academic community has gradually deepened its research on how urban amenities affect the settlement willingness of migrant populations, covering theoretical dimensions such as social capital, ecosystems, and identity. Urban comfort not only reflects the material environment level of the city, but also includes soft factors such as cultural atmosphere and social security, which directly affect the quality of life, social integration, and sense of belonging of the floating population. The following elaborates from three aspects: social capital theory, ecosystem theory, and identity theory, in order to construct a more systematic theoretical framework and provide theoretical support for analysis.

##### *3.1.1 Social Capital Theory*

The theory of social capital provides an important perspective for explaining the mechanism by which urban amenities affect the settlement willingness of migrant populations. Bourdieu (2018) proposed that social capital is the collection of actual or potential resources that individuals acquire through social networks. In urban life, comprehensive public services and infrastructure (such as healthcare, education, transportation, etc.) help migrant populations build and maintain social networks in new environments, thereby enhancing their accumulation of social capital. The increase of social capital not only enhances the sense of social integration of the floating population, but also provides them with broader social support, reduces their anxiety and isolation in the new environment, and thus increases their willingness to settle down (Putnam, 1993).

Specifically, urban amenities such as community facilities, medical services, and educational resources enhance the formation of social trust and support networks by promoting interaction between migrant populations and local residents (Zhang Yu, & Yang Caiyun, 2011). The expansion and deepening of this social network enables the accumulation of social capital among migrant populations in cities, thereby enhancing their sense of belonging and dependence on the city, and increasing their likelihood of long-term settlement (Florida, 2002).

##### *3.1.2 Ecosystem Theory*

The ecosystem theory emphasizes the interactive relationship between individual development and their environment. Bronfenbrenner (1979) pointed out that individual behavior and social adaptation are influenced by multi-level environmental systems. In the settlement decisions of the floating population, urban comfort as the micro environment of their daily life directly affects their life satisfaction. Improved housing conditions, transportation facilities, and comfortable public green spaces can enhance the convenience and happiness of migrant populations, thereby increasing their

willingness to settle down (Li Qiang, 2016).

In addition, ecosystem theory emphasizes the synergistic effects between different environmental systems. When evaluating urban comfort, the floating population should not only focus on their own quality, but also consider the correlation with macro environments such as job opportunities and social security. For example, cities with comprehensive social security and public services can provide stable living security for migrant populations, reduce uncertainty in their lives, and enhance their willingness to settle down (Wang Wei, 2019).

### 3.1.3 Social Identity Theory

Identity theory emphasizes the influence of an individual's self-awareness and sense of belonging within the social structure on their behavioral choices. Jackman and Jackman (1973) believed that an individual's sense of class identity is their subjective perception of their socioeconomic status. In cities, the social identity of the floating population is closely related to their perception of urban comfort. Improved public services, cultural facilities, and community activities not only enhance the material quality of life for migrant populations, but also accelerate their identification with urban culture and lifestyle, and strengthen their emotional dependence on the city (Liu Chang, 2018).

Good urban amenities such as cultural spaces, public services, and social security can help migrant populations deepen their sense of belonging and identity in the city. The formation of this emotional identity reduces the sense of alienation among the floating population, making them more willing to stay in the city for a long time. In addition, soft comfort items such as education and healthcare further strengthen the settlement intention of migrant populations and their children by enhancing their social status identity (Andersen & Curtis, 2012).

In summary, social capital theory, ecosystem theory, and identity theory reveal the multidimensional impact of urban comfort on the settlement willingness of migrant populations from different perspectives. Urban comfort products not only enhance the life satisfaction of migrant populations by improving their material living conditions and social support networks, but also further strengthen their sense of belonging and dependence on the city by promoting social integration, identity recognition, and providing social support. Based on this, research hypothesis 1 is proposed.

Hypothesis 1: Urban livability is attractive to migrant populations and can promote their spatial distribution.

## 4. Descriptive Analysis of the Impact of Urban Amenities on the Settlement Intention of Migrant Population

### 4.1 Data Sources and Variables

#### 4.1.1 Data Source

The mobile population data used in this article comes from the dynamic monitoring data of the mobile population in CMDS2018, CMDS2017, CMDS2016, and CMDS2014. The questionnaire covers the survival and development status, migration trends and characteristics, and utilization of public health

services of the mobile population, clarifying the migration patterns of the mobile population and exploring the impact of cross-border inflows in the new era on a healthy China. According to the needs of the management of health and family planning services for the floating population and policy research, sample points were randomly selected from 31 provinces (regions, cities) in China where the population is relatively concentrated to conduct a sampling survey. The research question in this article is the settlement issue of the floating population, so only samples with agricultural household registration for working and doing business were retained in data processing. In addition, registered residence districts and counties with only one sample are excluded, and the data of cities are from China Urban Statistical Yearbook

#### 4.1.2 Core Explained Variables

The willingness of floating population to reside, with the "willingness to reside" of floating population as the dependent variable, refers to the willingness of floating population to reside in the city for a long time, generally referring to whether floating population intends to reside in the place of migration for a long time. Referring to the practice of existing literature (Hou Huili, 2016), this article uses the question "Do you plan to reside locally for a long time (more than 5 years)" from the National Dynamic Monitoring Survey of Floating Population to measure the residence intention indicator of floating population (Dj). The answer to the question includes three categories: "willing", "unwilling", and "not thinking well". Considering that people who choose "not thinking well" do not have a strong current willingness to stay and are more inclined to not stay for a long time, the two categories of "unwilling" and "not thinking well" were combined in the survey sample. "Dj" was defined as a binary categorical variable representing the residence intention of the floating population, and "willing" was assigned a value of 1, while "unwilling" and "not thinking well" were combined and assigned a value of 0.

#### 4.1.3 Core Explanatory Variables

Construction of urban comfort indicators: (1) Natural comfort indicators: green coverage rate of built-up areas, air quality PM2.5, and harmless treatment rate of household waste; (2) Artificial comfort materials: primary school student teacher ratio and per capita medical resources; (3) Market consumption comfort goods: proportion of employees in industries closely related to residents' lives, such as retail, catering, culture, entertainment, and resident services; (4) Social comforts: reflected by three indicators of social composition: openness, diversity and inclusiveness. Among them, openness is represented by the use of foreign direct investment, inclusiveness is measured by the proportion of migrant population in the city, and diversity is reflected by the diversity indicators of registered residence provinces.

**Table 1. Comprehensive Evaluation Indicators for Constructing Urban Comfortable Objects**

| Composite variables | Indicator 1 | Indicator 2                                                                                         | Positive and negative |
|---------------------|-------------|-----------------------------------------------------------------------------------------------------|-----------------------|
| Urban Comfort Goods | nature      | Green coverage rate of built-up areas                                                               | +                     |
|                     |             | Air quality PM2.5                                                                                   | -                     |
|                     |             | Harmless treatment rate of household waste                                                          | +                     |
|                     | public      | Student teacher ratio (primary school)                                                              | -                     |
|                     |             | Number of physicians per 10000 people                                                               | +                     |
|                     |             | Traffic road length                                                                                 | +                     |
|                     | consumption | Proportion of retail employment                                                                     | +                     |
|                     |             | Proportion of employed personnel in the catering industry                                           | +                     |
|                     |             | Proportion of employed personnel in the cultural, entertainment, and residential service industries | +                     |
|                     |             | Actual utilization ratio of foreign capital                                                         | +                     |
|                     |             | Number of foreign-invested enterprises                                                              | +                     |
|                     | economy     | Per capita GDP                                                                                      | +                     |

#### 4.1.4 Control Variables

Individual characteristics, mobility characteristics, and urban characteristics. Individual characteristics include gender, household registration nature, age, and family migration scale of mobile individuals. The flow characteristics include the scope and duration of the current flow. The urban characteristics include the industrial structure, average housing price, and the proportion of the secondary industry to GDP and the proportion of the tertiary industry to GDP. See Table 2 for details.

**Table 2. Variable Definition**

| type                                           | variable                       | definition                                                                                                                                            |
|------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dependent variable                             | Residence intention (Dj)       | Based on the responses from the questionnaire survey, assign a value of 1 to "willing" and combine "unwilling" and "not sure" to assign a value of 0. |
| Explanatory variables                          | Urban Comfort Index (allscore) | Author's Construction                                                                                                                                 |
| Control variables (individual characteristics) |                                | According to the actual questionnaire response definition, the value for females is 0, and for males it is 1.                                         |

|                         |                                                 |                                                                                                                                                                      |
|-------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (Flow characteristics)  | Gender                                          | According to the actual questionnaire response definition, the value for non urban household registration is 0, and the value for urban household registration is 1. |
|                         | Nature of household registration                | Define age based on actual questionnaire responses.                                                                                                                  |
|                         | Age                                             | Define the number of family members based on the actual questionnaire responses.                                                                                     |
|                         | Scale of family migration                       | According to the actual questionnaire response definition, non cross province is defined as 0, and cross province is defined as 1.                                   |
| (Urban characteristics) | Scope of this flow                              | According to the definition of actual questionnaire response flow time.                                                                                              |
|                         | Flow time                                       | The ratio of the gross domestic product of the tertiary industry to the gross domestic product of the secondary industry in the jurisdiction of the city             |
|                         | Urban industrial structure                      | Average housing prices within the jurisdiction of the city                                                                                                           |
|                         | Average house price                             | The proportion of the secondary industry to GDP within the jurisdiction of the city                                                                                  |
|                         | The proportion of the secondary industry to GDP | The proportion of the tertiary industry to GDP within the jurisdiction of the city                                                                                   |

Using factor analysis method to synthesize urban comfort index. Based on all indicators, conduct factor analysis to calculate the urban comfort index and use it as the core explanatory variable for econometric analysis. Firstly, KMO and Bartlett sphericity tests need to be conducted on the variables. According to the factor analysis of the urban comfort index in Table 2, the KMO value is 0.697, which is much greater than 0.6. The approximate chi square value of the Bartlett sphericity test is highly significant at the 0.01 level and meets the requirements of factor analysis. Therefore, these keywords are very suitable for factor analysis; Then, using principal component analysis, common factors with eigenvalues greater than 1 were extracted, with four common factors and a cumulative variance contribution rate of 70.03%, indicating that the extracted factor information can reflect key information; Finally, perform variance maximization orthogonal rotation on the load matrix to calculate factor scores.

**Table 3. Factor Analysis of Urban Comfort Index**

| Index               | KMO<br>value | Bartlett<br>test | sphericity | Number<br>of<br>common factors | Variance<br>contribution rate |
|---------------------|--------------|------------------|------------|--------------------------------|-------------------------------|
| Urban Comfort Index | 0.697        | 2680000***       | (0.000)    | 4                              | 70.03%                        |

*Note.* The P-values in parentheses are for Bartlett's sphericity test; \* \*, \* \*\* Representing significance levels of 1%, 5%, and 10% respectively.

#### 4.2 Descriptive Statistics

Descriptive statistics are used to reveal the basic characteristics of data, such as mean, median, standard deviation, maximum, minimum, skewness, and kurtosis. These statistics help researchers understand the distribution pattern and central tendency of variables, providing background information for subsequent econometric analysis. For example, through descriptive statistics, it is possible to identify whether a variable has a normal distribution or extreme values, which is crucial for selecting appropriate estimation methods and hypothesis testing. Therefore, this article first conducted descriptive statistical analysis on the data to reveal the basic characteristics and distribution of each variable. By calculating statistical measures such as mean, standard deviation, minimum value, and maximum value, this article has gained a preliminary understanding of the central tendency and dispersion of the sample data. In addition, descriptive statistics help identify potential outliers and missing values in the data, ensuring the integrity and reliability of the data. Descriptive statistical results also show preliminary relationships between variables, providing a foundation for subsequent econometric model setting and result interpretation. The descriptive statistics of the variables involved in this study are shown in Table 4. The mean of dj is 0.57, the standard deviation is 0.495, and the minimum and maximum values are 0 and 1, respectively. The mean of allscore is 0.103, the standard deviation is 1.058, and the minimum and maximum values are -2.09 and 2.462, respectively.

**Table 4. Descriptive Statistics**

| Variable                         | Obs    | Mean   | Std. Dev. | Min   | Max   |
|----------------------------------|--------|--------|-----------|-------|-------|
| dj                               | 298728 | .574   | .495      | 0     | 1     |
| allscore                         | 298728 | .21    | 1.096     | -2.09 | 2.462 |
| Gender                           | 298728 | .581   | .493      | 0     | 1     |
| Age                              | 298728 | 35.424 | 9.471     | 15    | 99    |
| Scale of family migration        | 298728 | 2.946  | 1.184     | 1     | 10    |
| marital status                   | 298728 | .8     | .4        | 0     | 1     |
| Educational level                | 298728 | .194   | .396      | 0     | 1     |
| Nature of employment unit        | 298728 | .072   | .259      | 0     | 1     |
| Nature of household registration | 298728 | .101   | .302      | 0     | 1     |

|                                                 |        |        |        |       |       |
|-------------------------------------------------|--------|--------|--------|-------|-------|
| Urban industrial structure                      | 298728 | .791   | .375   | .199  | 2.747 |
| Average house price in 10000 yuan               | 298728 | 1.823  | 1.558  | .231  | 5.939 |
| Flow time                                       | 298728 | 6.146  | 5.686  | 0     | 58    |
| Scope of this flow                              | 298728 | .585   | .493   | 0     | 1     |
| The proportion of the secondary industry to GDP | 298728 | 39.858 | 10.978 | 16.5  | 72.9  |
| The proportion of the tertiary industry to GDP  | 298728 | 55.688 | 12.437 | 26.12 | 83.1  |

## 5. Empirical Analysis of the Impact of Urban Comfortable Objects on the Residency Intention of Floating Population

### 5.1 Benchmark Regression Results

To investigate the impact of urban amenities on the willingness of migrant population to reside, this paper constructs the following model:

$$DJ_{i,j} = \alpha + \beta \text{allSocre}_{i,t} + \rho \text{Control} + \varepsilon_{i,t}$$

Among them,  $DJ_{i,j}$  represents the residence intention of respondents in city  $j$ , and  $\text{allSocre}_{i,t}$  represents the urban comfort index of city  $t$  in city  $i$ . Control is a set of variables related to economic characteristics, including individual characteristics such as gender, household registration, age, and marital status of migrant individuals. The "agricultural to resident" option of the nature of mobile individual household registration is merged into the agricultural registered residence, and the "non-agricultural to resident" option is merged into the non-agricultural registered residence. The characteristics of mobility include the time and scope of mobility, and the scope of mobility is divided into intra provincial mobility and inter provincial mobility. The characteristics of a city include its Gross Domestic Product (GDP).  $\varepsilon$  is a random perturbation term.

This article is based on equation (1) regression, and the benchmark regression results are shown in Table 2. Among them, column (1) did not include any control variables, column (2) included control variables for personal characteristics, column (3) added control variables for mobility characteristics on the basis of column (2), and column (4) added control variables for urban characteristics on the basis of column (3). The results showed that the urban comfort index had a significant positive impact on population residence intention, with an allscore coefficient of 0.009 and a positive value at the 5% significance level, indicating that the urban comfort index significantly increased the urban residence intention of the floating population by 0.009 percentage points. Based on hypothesis 1 of this study, it is confirmed.



**Table 5. Benchmark Regression Results**

|                                                 | (1)                 | (2)                  | (3)                  | (2)                  |
|-------------------------------------------------|---------------------|----------------------|----------------------|----------------------|
|                                                 | dj                  | dj                   | dj                   | dj                   |
| allscore                                        | 0.036***<br>(0.001) | 0.049***<br>(0.002)  | 0.048***<br>(0.002)  | 0.009**<br>(0.004)   |
| Gender                                          |                     | -0.006***<br>(0.002) | -0.005***<br>(0.002) | -0.005***<br>(0.002) |
| Age                                             |                     | 0.002***<br>(0.000)  | -0.001***<br>(0.000) | -0.001***<br>(0.000) |
| Scale of family migration                       |                     | 0.057***<br>(0.001)  | 0.047***<br>(0.001)  | 0.047***<br>(0.001)  |
| Nature of employment unit                       |                     | 0.120***<br>(0.003)  | 0.108***<br>(0.003)  | 0.107***<br>(0.003)  |
| Nature of household registration                |                     | 0.120***<br>(0.003)  | 0.110***<br>(0.003)  | 0.111***<br>(0.003)  |
| Flow time                                       |                     |                      | 0.016***<br>(0.000)  | 0.016***<br>(0.000)  |
| Scope of this flow                              |                     |                      | -0.098***<br>(0.002) | -0.097***<br>(0.002) |
| Urban industrial structure                      |                     |                      |                      | -0.105***<br>(0.014) |
| Average house price in 10000 yuan               |                     |                      |                      | 0.027***<br>(0.002)  |
| The proportion of the secondary industry to GDP |                     |                      |                      | 0.003***<br>(0.001)  |
| The proportion of the tertiary industry to GDP  |                     |                      |                      | -0.001<br>(0.000)    |
| year                                            | NO                  | YES                  | YES                  | YES                  |
| province                                        | NO                  | YES                  | YES                  | YES                  |
| _cons                                           | 0.566***<br>(0.001) | 0.355***<br>(0.008)  | 0.485***<br>(0.008)  | 0.472***<br>(0.031)  |
| N                                               | 298728              | 298728               | 298728               | 298728               |

|                |       |       |       |       |
|----------------|-------|-------|-------|-------|
| r <sup>2</sup> | 0.007 | 0.076 | 0.109 | 0.109 |
|----------------|-------|-------|-------|-------|

*Note.* \*, \*\*, \*\*\* respectively indicate significance at the 10%, 5%, and 1% levels. The following table is the same.

## 5.2 Heterogeneity Analysis

### 5.2.1 Individual Heterogeneity Analysis

#### (1) Heterogeneity of marital status

This article divides the overall sample of urban residents into two categories based on their marital status. The first category is married, including first and second marriages, while the second category is unmarried, including widowed, cohabiting, and single individuals; The regression results are shown in Table 4. The allscore coefficient for married individuals is 0.014, which is significant at the 10% level, while the coefficient for unmarried individuals is 0.006, which is not significant. In summary, the marital status of the floating population affects their perception of urban comfort and their willingness to reside in the city through various channels such as the construction of social support networks, the assumption of family responsibilities, and the improvement of life satisfaction. Married migrant populations often form more stable family support and social relationship networks in cities, enhancing their willingness to settle down, while unmarried or divorced migrant populations may be more inclined to short-term residence or continue migration due to the lack of these support and stability. Understanding these mechanisms is of great significance for formulating targeted social policies, promoting the urban integration and social harmony of migrant populations.

**Table 6. Heterogeneity of Marital Status**

|                                  | (1)<br>dj           | (2)<br>dj            |
|----------------------------------|---------------------|----------------------|
| allscore                         | 0.014*<br>(0.008)   | 0.006<br>(0.004)     |
| Gender                           | -0.006<br>(0.004)   | -0.000<br>(0.002)    |
| Age                              | 0.003***<br>(0.000) | -0.004***<br>(0.000) |
| Scale of family migration        | 0.041***<br>(0.002) | 0.025***<br>(0.001)  |
| Nature of employment unit        | 0.120***<br>(0.007) | 0.100***<br>(0.003)  |
| Nature of household registration | 0.087***<br>(0.007) | 0.112***<br>(0.003)  |

|                                                 |                                  |                                  |
|-------------------------------------------------|----------------------------------|----------------------------------|
| Flow time                                       | 0.019 <sup>***</sup><br>(0.000)  | 0.016 <sup>***</sup><br>(0.000)  |
| Scope of this flow                              | -0.080 <sup>***</sup><br>(0.005) | -0.100 <sup>***</sup><br>(0.002) |
| Urban industrial structure                      | -0.112 <sup>***</sup><br>(0.031) | -0.099 <sup>***</sup><br>(0.016) |
| Average house price in 10000 yuan               | 0.016 <sup>***</sup><br>(0.005)  | 0.030 <sup>***</sup><br>(0.003)  |
| The proportion of the secondary industry to GDP | 0.001<br>(0.001)                 | 0.003 <sup>***</sup><br>(0.001)  |
| The proportion of the tertiary industry to GDP  | -0.002 <sup>**</sup><br>(0.001)  | -0.000<br>(0.000)                |
| year                                            | YES                              | YES                              |
| province                                        | YES                              | YES                              |
| _cons                                           | 0.455 <sup>***</sup><br>(0.075)  | 0.648 <sup>***</sup><br>(0.034)  |
| N                                               | 59869                            | 238859                           |
| r2                                              | 0.113                            | 0.097                            |

## (2) Heterogeneity of educational attainment.

Divide the overall sample of urban residents into two categories based on their level of education. The first category is those with 16 years or more of education, i.e. college degree or above; The second category is those with less than 16 years of education, namely high school and below. The regression results are shown in Table 5. The allscore coefficient for those with lower education level is 0.003, which is not significant, while the coefficient for those with higher education level is 0.029, which is highly significant at the 1% level. Compared to respondents with higher levels of education, migrant populations with lower levels of education have no significant perception of urban comfort. Based on hypothesis 2 of this study, it is confirmed.

**Table 7. Heterogeneity of Educational Level**

|          | (1)<br>dj         | (2)<br>dj                        |
|----------|-------------------|----------------------------------|
| allscore | 0.003<br>(0.004)  | 0.029 <sup>***</sup><br>(0.009)  |
| Gender   | -0.002<br>(0.002) | -0.019 <sup>***</sup><br>(0.004) |

|                                                 |                      |                      |
|-------------------------------------------------|----------------------|----------------------|
| Age                                             | 0.000<br>(0.000)     | 0.005***<br>(0.000)  |
| Scale of family migration                       | 0.048***<br>(0.001)  | 0.065***<br>(0.002)  |
| Nature of employment unit                       | 0.059***<br>(0.005)  | 0.066***<br>(0.004)  |
| Nature of household registration                | 0.064***<br>(0.004)  | 0.040***<br>(0.005)  |
| Flow time                                       | 0.016***<br>(0.000)  | 0.012***<br>(0.000)  |
| Scope of this flow                              | -0.092***<br>(0.002) | -0.075***<br>(0.005) |
| Urban industrial structure                      | -0.124***<br>(0.015) | -0.090***<br>(0.035) |
| Average house price in 10000 yuan               | 0.030***<br>(0.003)  | -0.005<br>(0.005)    |
| The proportion of the secondary industry to GDP | 0.003***<br>(0.001)  | 0.005***<br>(0.001)  |
| The proportion of the tertiary industry to GDP  | -0.002***<br>(0.000) | 0.005***<br>(0.001)  |
| year                                            | YES                  | YES                  |
| province                                        | YES                  | YES                  |
| _cons                                           | 0.483***<br>(0.034)  | 0.007<br>(0.078)     |
| <i>N</i>                                        | 240702               | 58026                |
| <i>r</i> <sup>2</sup>                           | 0.111                | 0.118                |

### 5.2.2 Heterogeneity Analysis in Urban Areas

#### (1) Heterogeneity of geographical affiliation

This article conducts regional heterogeneity analysis based on the provinces where the floating population is located. In this paper, Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan are classified as the eastern region, Shanxi, Anhui, Jiangxi, Henan, Hubei and Hunan are classified as the central region, and finally Inner Mongolia Autonomous Region, Guangxi Zhuang Autonomous Region, Chongqing, Sichuan, Guizhou, Yunnan, Xizang Autonomous Region, Shaanxi, Gansu, Qinghai, Ningxia Hui Autonomous Region and Xinjiang Uygur Autonomous Region are classified as the western region, and then grouped and regressed. The results

are shown in Table 6. Specifically, column (1) shows the regression results of province grouping in the eastern region; (2) The regression results of provincial grouping in the central region; (3) It is the regression result of province grouping in the western region. From the regression results, it can be found that the comfort index coefficient of cities in the eastern region is 0.032, which is highly significant at the 1% level. The coefficient of urban comfort index in the central region is not significant at 0.013. The coefficient of urban comfort index in the western region is -0.037, which is significant at the 1% level. In summary, the impact of urban comfort index on the willingness of migrant population to reside in cities varies heterogeneously depending on the geographical location of the city.

**Table 8. Regional Heterogeneity**

|                                                 | (1)                  | (2)                  | (3)                  |
|-------------------------------------------------|----------------------|----------------------|----------------------|
|                                                 | dj                   | dj                   | dj                   |
| allscore                                        | 0.032***<br>(0.005)  | 0.013<br>(0.013)     | -0.037***<br>(0.008) |
| Gender                                          | -0.006***<br>(0.002) | -0.005<br>(0.006)    | -0.002<br>(0.003)    |
| Age                                             | -0.001***<br>(0.000) | -0.003***<br>(0.000) | -0.000<br>(0.000)    |
| Scale of family migration                       | 0.050***<br>(0.001)  | 0.024***<br>(0.003)  | 0.044***<br>(0.001)  |
| Nature of employment unit                       | 0.111***<br>(0.004)  | 0.109***<br>(0.009)  | 0.100***<br>(0.006)  |
| Nature of household registration                | 0.115***<br>(0.004)  | 0.090***<br>(0.011)  | 0.110***<br>(0.006)  |
| Flow time                                       | 0.017***<br>(0.000)  | 0.013***<br>(0.001)  | 0.014***<br>(0.000)  |
| Scope of this flow                              | -0.096***<br>(0.003) | -0.154***<br>(0.007) | -0.079***<br>(0.004) |
| Urban industrial structure                      | -0.227***<br>(0.028) | 0.366***<br>(0.062)  | -0.140***<br>(0.022) |
| Average house price in 10000 yuan               | 0.011***<br>(0.003)  | 0.084***<br>(0.016)  | 0.159***<br>(0.021)  |
| The proportion of the secondary industry to GDP | 0.004***<br>(0.001)  | -0.010***<br>(0.002) | 0.003***<br>(0.001)  |
| The proportion of the tertiary industry to GDP  | -0.003***            | 0.009***             | -0.003***            |

|                |          |          |          |
|----------------|----------|----------|----------|
|                | (0.001)  | (0.001)  | (0.001)  |
| year           | YES      | YES      | YES      |
| province       | YES      | YES      | YES      |
| _cons          | 0.664*** | 0.344*** | 0.397*** |
|                | (0.050)  | (0.093)  | (0.057)  |
| N              | 189879   | 29130    | 79719    |
| r <sup>2</sup> | 0.121    | 0.067    | 0.089    |

### 5.3 Robustness Test

#### 5.3.1 Robust Testing for Replacing Regression Models

This article believes that the primary effect of replacing the OLS model with an ordered Logit regression model is to better match the data characteristics of the dependent variable. The OLS model assumes that the dependent variable is continuous and follows a normal distribution, which is not appropriate when dealing with ordered categorical dependent variables such as satisfaction scores, rating scores, etc., as their discrete and sequential characteristics cannot be accurately modeled within the OLS framework. The ordered Logit regression model is designed specifically for ordered dependent variables, assuming that the dependent variable is an ordered category and the spacing between categories does not need to be equal, thus providing a more suitable modeling framework (McCullagh, 1980). Secondly, changing to an ordered Logit regression model can improve the model's fit and explanatory power. In the OLS regression model, the discreteness and ordinal nature of the dependent variable can lead to model residuals that do not follow a normal distribution, thereby affecting the accuracy of model fitting and parameter estimation. On the contrary, the ordered Logit model considers the ordered characteristics of the dependent variable, and the estimation results can provide marginal effects and cumulative probabilities between categories, enhancing the explanatory power of the model (Long & Freese, 2014). Then, changing to an ordered Logit model can improve the robustness of the estimation, especially in the presence of heteroscedasticity or nonlinear relationships. The robustness of OLS regression depends on the homoscedasticity of the error term and linear assumptions, which are often not valid in the case of ordered dependent variables. The ordered Logit model does not rely on these assumptions and adopts the maximum likelihood estimation method, which can better cope with potential heteroscedasticity between dependent variable categories and reduce parameter estimation bias (Agresti, 2010). Finally, the OLS model assumes a linear relationship between the dependent variable and the independent variable, which is often unreasonable in the case of ordered dependent variables because the differences between categories may be nonlinear. The ordered Logit model allows the effects of independent variables on different dependent variable categories to be non-linear in scale, which enables it to more accurately capture the true relationship between independent and dependent variables (Williams, 2006).

Therefore, this article uses an ordered Logit regression model for regression in robust testing to reduce the bias of conclusions. The regression model of Model 1 is the reg model. In this study, an ordered Logit regression model was used for regression in the robustness test, and the results are shown in Table 6. The regression results are consistent with the baseline regression results.

**Table 9. Robust Testing of Modified Models**

|                                                 | (1)                 | (2)                  |
|-------------------------------------------------|---------------------|----------------------|
|                                                 | dj                  | dj                   |
| allscore                                        | 0.150***<br>(0.003) | 0.041**<br>(0.017)   |
| Gender                                          |                     | -0.020**<br>(0.008)  |
| Age                                             |                     | -0.005***<br>(0.000) |
| Scale of family migration                       |                     | 0.211***<br>(0.004)  |
| Nature of employment unit                       |                     | 0.522***<br>(0.016)  |
| Nature of household registration                |                     | 0.519***<br>(0.015)  |
| Flow time                                       |                     | 0.077***<br>(0.001)  |
| Scope of this flow                              |                     | -0.436***<br>(0.010) |
| Urban industrial structure                      |                     | -0.479***<br>(0.063) |
| Average house price in 10000 yuan               |                     | 0.124***<br>(0.011)  |
| The proportion of the secondary industry to GDP |                     | 0.012***<br>(0.002)  |
| The proportion of the tertiary industry to GDP  |                     | -0.003<br>(0.002)    |
| year                                            | NO                  | YES                  |
| province                                        | NO                  | YES                  |
| N                                               | 298728              | 298728               |

### 5.3.2 Robustness Test for Changing Sample Size

Referring to existing research (Hastie, Tibshirani, & Friedman, 2009), the primary effect of using Winsorization method to process data in this paper is to reduce the impact of outliers on regression results. Outliers refer to extreme and highly deviated points in data from other observed values, which may be caused by data input errors, extreme market behavior, or other random factors. OLS regression is highly sensitive to outliers because it minimizes the sum of squared errors, and the impact of outliers on estimated parameters is disproportionately amplified. By Winsorization of the upper and lower 1% of the data, extreme values are adjusted to boundary values, thereby reducing their impact on the overall estimation and making the estimation results more robust. Winsorization data processing helps improve the robustness and consistency of estimates. When there are outliers or abnormal distributions in the data, traditional OLS estimation may experience significant bias or failure. Through microfabrication, the data becomes more centralized, reducing the impact of extreme values and thus obtaining more robust parameter estimates. The results of the robustness test indicate that if the model can obtain similar results in both the raw data and Winsorization data, then the estimation results are insensitive to outliers, indicating that the model's results are consistent. Therefore, in order to determine whether the sample can reflect the research question, this article considers that there may be extreme values in the sample that could affect the robustness of the results. Therefore, in the robustness test, this article needs to remove individual outliers. Therefore, this article performs Winsor2 (1,99) on continuous variables and re performs benchmark regression. The results still maintain a significant positive level at the 1% level and pass the robustness test.

**Table 10. Robust Test for Modified Samples**

|                                  | (1)<br>dj           | (2)<br>dj            |
|----------------------------------|---------------------|----------------------|
| allscore                         | 0.036***<br>(0.001) | 0.010***<br>(0.004)  |
| Gender                           |                     | -0.005***<br>(0.002) |
| Age                              |                     | -0.001***<br>(0.000) |
| Scale of family migration        |                     | 0.048***<br>(0.001)  |
| Nature of employment unit        |                     | 0.108***<br>(0.003)  |
| Nature of household registration |                     | 0.111***<br>(0.003)  |



|                                                 |                     |                      |
|-------------------------------------------------|---------------------|----------------------|
| Flow time                                       |                     | 0.016***<br>(0.000)  |
| Scope of this flow                              |                     | -0.097***<br>(0.002) |
| Urban industrial structure                      |                     | -0.110***<br>(0.015) |
| Average house price in 10000 yuan               |                     | 0.026***<br>(0.002)  |
| The proportion of the secondary industry to GDP |                     | -0.001<br>(0.000)    |
| The proportion of the tertiary industry to GDP  |                     | 0.003***<br>(0.001)  |
| year                                            | NO                  | YES                  |
| province                                        | NO                  | YES                  |
| _cons                                           | 0.566***<br>(0.001) | 0.480***<br>(0.032)  |
| N                                               | 298728              | 298728               |
| r2                                              | 0.007               | 0.110                |

## 6. Conclusion and Policy Implications

The innovation of this article lies in the following aspects. Firstly, an analytical perspective that combines micro and macro perspectives. This study, for the first time, combines micro level personal data with macro level urban data to comprehensively and systematically analyze the impact of urban comfort on the willingness of migrant population to reside. By combining personal data from CMDS data with macro data from merged cities, it is possible to more accurately reveal the impact mechanisms of different levels of factors on the residence intentions of migrant populations. Secondly, multidimensional heterogeneity analysis. This study conducts heterogeneity analysis from multiple dimensions, including the attributes of the floating population (such as age, income, education level, etc.), urban types (such as first tier cities, second tier cities, etc.), and specific types of urban amenities (such as public transportation, medical services, educational resources, etc.), to deeply explore the differential effects of different groups and urban characteristics, and provide more detailed and targeted policy recommendations. Thirdly, in-depth exploration of transmission pathways. The study not only focuses on the direct impact of urban comfort on the residence intention of migrant population, but also explores the indirect impact of urban comfort on the residence intention of migrant population through mediating variables such as urban infrastructure construction by constructing theoretical models. This innovation provides a new perspective for understanding the intrinsic mechanism by which urban

comfort objects affect the willingness of migrant populations to reside.

In summary, the study of urban comfort objects reveals a new concept of urban development - that is, by building livable urban ecosystems, providing necessary living infrastructure, creating pleasant living spaces, and stimulating residents' willingness to settle down, it can promote the healthy development of urbanization process. Future research should continue to explore the comfort building models of different types of cities and how they can adapt to the specific conditions and needs of different regions. In addition, policy makers and planners should also recognize that creating a high-quality urban living environment is not only to attract population, but also to enable everyone to share the fruits of urban development and achieve the dual goals of social harmony and sustainable economic development.

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