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Effect of *hukou* Accessibility on Migrants' Long Term Settlement Intention in Destination

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Abstract: Migrants' long-term settlement intention in urban areas has been emphasized by both policy makers and researchers in promoting urbanization and coordinating regional economic development. This study advances the body of knowledge by investigating the effect of what E.S. Lee has proposed as 'intervening obstacles' in the 'push-and-pull' theory—the difficulty in obtaining *hukou* in migration destination, on their long-term settlement intention in urban areas. Logistic regressions were applied to examine the effect of urban registered residence system (the *hukou* system) accessibility on migrants' long-term settlement intention in urban areas, as well as the determinants of subjective evaluated difficulty in obtaining urban *hukou*, based on a nation-wide large-scale survey in 46 Chinese cities. Our results suggest that difficulty in obtaining urban *hukou* does play an important role in shaping country-wide population movement. However, the negative impact of *hukou* difficulty on migrant workers' residence intention is not linear, and only when the threshold in obtaining *hukou* is too high and difficult to achieve will migrant workers choose to return to their hometown in the long term. Moreover, the subjective evaluation of difficulty is further influenced by personal capability and living conditions in cities. This study provides pragmatic implications for administrations from either push side or pull side to improve habitant-related development strategies.

Keywords: *hukou*; intervening obstacles; long-term settlement intention; migrants; push-and-pull theory



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1. Introduction

Since the reform and opening up in China, migrants from rural to urban areas have become an indispensable driving force of China's economic development [1–3]. The growth rate of the migrants slowed down recently but still exceeded 290 million, accounting for 20.8% of the total population in 2019 [4]. Most of them have realized the transition from agricultural to nonagricultural in occupations rather than in their lives because they have not yet obtained urban registered residency (called *hukou* in the following sections), which is an identification document where general household information such as names, marital status and one's place of residence were recorded. Therefore, high difficulty in obtaining an urban *hukou* has been considered as an important factor that prevents migrants from moving to urban areas but also affects their daily life and consumption level [5]. In addition, *hukou* not only has population registration functions but also is an important administrative tool to distribute key welfare such as access to primary and secondary schools, affordable housing and medical insurance reimbursement ratios. The long-standing *hukou* system also prevents migrant workers from integrating into local society and even suffer discrimination from the labour market [6]. The *hukou* system and its subsidiary social welfare distribution system in Chinese cities is accordingly an intervening obstacle in the 'push-and-pull' theory. The research of *hukou*'s impact on long-term settlement intention provides ideal evidence

in the effects of institutional intervening obstacle in developing countries, where countries such as China are enduring fast urbanization.

In the past, scholars have constructed a corresponding evaluation index system to measure the difficulty of obtaining *hukou* according to the specific requirements of policies in cities [7–9]. However, this approach is based on the strong assumption that migrants in the same cities feel the same way about the difficulty of obtaining *hukou*, which ignores the heterogeneity of the individual. As an improvement, this paper measures the difficulty of obtaining *hukou* based on respondents' subjective judgments from the survey question: 'How do you think of the requirements for obtaining a local *hukou* in your current city?'. In addition, this paper also referred to the experience of previous scholars by exploring the influencing factors and their differences from four dimensions: individual attributes, economic status, mobility characteristics and social integration status.

Specifically, based on a panoramically representative survey in 46 cities in China in 2020, this paper analyses the relationship between the difficulty of obtaining local *hukou* and the long-term settlement intention. Moreover, this paper attempts to quantitatively evaluate for the first time the impact of this obstacle on migrants' long-term settlement intention in urban areas. It contributes to the development of the 'push-and-pull' theory for other economics managing to design wise immigration policies that well balance inbound labor and talent supplies, permanent residency threshold, aging society, and social welfare fund management.

The outline of this paper is as follows: the Section 2 reviews the influencing factors on long-term settlement intention, particularly from the institutional perspective. The Section 3 introduces *hukou* system, its reform process, and explains what makes it an intervening obstacle in the 'push-and-pull' mechanism. The Section 4 presents research data and methodology. The Sections 5 and 6 illustrate the analyses of preliminary and empirical results, respectively, followed by conclusion and policy recommendations.

2. Three Factors That Have Major Impact on Long-Term Settlement Intention

The study on migration behaviour can be traced back to the end of the 19th century [10] and has become quite mature at the present stage. Among them, the factors affecting the long-term settlement of the labour force can be summarized into three aspects: economic, family and destination characteristics factors.

2.1. Economic Perspectives

'Push-and-pull' theory is recognized as one of the earliest theories of population mobility [11]. It suggests the purpose of migration is to improve their living standard [12]. This means that migrants will hesitate to stay in urban regions when their living conditions do not improve or when there are better investment opportunities in their hometown [13]. The other situation is that the expected income of agricultural production is constantly increasing, while the migrants have to bear a lot of potential risks in urban regions. Therefore, they may consider returning to the countryside so that they can also enjoy the happiness of their family [14]. Chinese scholars have long tried to explain the phenomenon of labour mobility in China by push-and-pull theory. For example, Liu established an urbanization population model based on the push-pull theory, which took the GDP, consumption and regional total population as functions, and used the model to predict and analyse the urbanization population of Shaanxi Province [15]. When comparing the influence factors of Chinese internal migration with those of international migration. Li [16] found that underemployment and poverty in rural areas, rapid development of capital-intensive technology in cities, government development policies leaning toward cities, and concentration of economic activities in urban areas are the common pushing and pulling factors.

Unlike the 'push-and-pull' theory, Lewis [17] only focused on the labour migration behaviours from rural agricultural sector to urban industry. His two-sector model emphasizes that the key drive of labour migration is the higher wage level. Compared with the agricultural sector, a higher level of labour productivity in the urban modern industrial

sector leads to higher wage. Meanwhile, the urban industrial sector has unlimited ability to absorb the migrant labour force under Lewis' model. Under this strong assumption, labour will reside in urban regions permanently until the end of their working life. In reality, the urban industrial sector has a certain limit to absorb labour. Moreover, with the continuous outflow of labour, agricultural marginal productivity will begin to increase. By then, wages were set by the market, and the agricultural and industrial sectors competed together for labour on the basis of their respective productivity [18]. In this case, the willingness of the labour force to stay in the urban areas depends only on the wage level in both places. In addition, Ranis and Fei [18] also argued that when real wages do not meet their expectations, they will also consider leaving. Many scholars have drawn on the insights of Lewis and Todaro to explain the large flows of rural-to-urban migration in China. They generally agree that the higher wages or expected incomes in urban areas are fundamental drivers of rural to urban migration [19,20].

Economic theories mainly analyse the reasons that hinder the labour force from settling down in the destination from the perspectives of wage level and human capital. These theories imply that migration behaviour is to maximize individual utility. Obviously, they ignore the role of households in the migration process.

2.2. Family Perspectives

Different from the Neoclassical theory, the New Economic of Labour Migration (NELM), which emerged in the 1980s, believes that the pursuit of labour migration is to maximize the benefits of the whole family rather than individual [21]. NELM theory regards labour mobility as family risk-sharing behaviour. As a whole, the family can distribute its labour force in different industries or regions and carry out risk diversification among all family members, minimizing the financial risk level of the whole family. The income of family members is highly complementary and negatively correlated. Therefore, the migrants have the obligation to send their income back or back to supplement the family's needs. On the other hand, migrants also can receive support from his/her family [22]. This theory partly explains the phenomenon of labour mobility even when there is no significant difference in wage income between regions. It suggests that the migration of workers is temporary, and that they will leave their destinations to return to their hometown once they reach the earning target their families expect.

NELM essentially begins to shed the light on the importance of blood relationship on migration behaviour. On this basis, a large number of scholars began to try to explore the issue of labour migration from the perspective of sociology. The life course approach holds that the study of an individual's life should be conducted in the context of a specific society, structure and culture [23], which is increasingly used to study migration behaviours [24]. Scholars have introduced the concept of family solidarity to explain why family ties contribute to migration behaviour [25,26]. This means that there is an obligation and responsibility among family members to take care of those in need. Although migrants provide financial support to the family by moving out to work, this also limits their possibilities for those intergenerational care exchanges [27]. The study found that the vulnerability of left-behind women is increased after husband's migration alone [28]. This vulnerability is reflected in the increase in labour burden and responsibility, emotional damage and other aspects [16]. For instance, studies in Nepal and Pakistan have found that in households where remittances earn less, the burden of labour is heavier for women left behind [29]. Scholars from China and India have studied the mental health of left-behind women and found that their psychological problems, such as psychological pressure and loneliness, are more serious than those of non-left-behind women [30]. Besides that, left-behind children's school performance and unhealthy behaviours (smoking, internet addiction, etc.) are also associated with a lack of parental care [31–33].

2.3. Destination Characteristics Factors

The external factors that influence the long-term migration intention can be divided into two perspectives: the local amenities and institutional factors.

Local facilities are considered to be important factors in destination influencing migration behaviour. When choosing a destination for migration, people are more likely to move to an area with a higher quality of life, even if it is more densely populated and housing prices are higher [34]. The effect of natural amenities such as climate has been tested in the U.S. Based on the data after World War II, Rappaport [34] found that residential movement in U.S. relates to the warm winters. Unnatural amenities also affect migration behaviours. For instance, high-quality consumer goods and services are more conducive to a high human capital migrants' inflow [35]. Education quality at a university also enhances their willingness to stay at a destination as recent graduates have stronger competitive edges locally in earlier career stages [36].

On the other hand, the influence of institutional factors cannot be ignored. The research of western scholars in this aspect focuses on transnational migration. The research on migrants from Albania in Western Europe found that to be true. In these areas, more than 10 percent of the population has gone abroad to work. The income of these people is one of the most important sources of income for their families. However, about 55% of them do not have the legal permanent residence permit, or some have only obtained a short-term job permit. About 70% of them return for good [37]. A study of global asylum applications since 2000 by Hatton [38] found that a third of the decrease in asylum applications to Europe, North America and Australia was due to stricter policies.

Previous studies on China's internal migration have found that *hukou* is the main reason for the weak social status of migrants, which affects their residence intention. Although the *hukou* system has been loosened, allowing migrants to live and work in cities without having to migrate, they still suffer social exclusion because of their household registration status [39]. A study in Hubei province found that because of the *hukou* system, migrants' access to some basic public services are restricted, preventing them from truly integrating into urban areas [40]. When Liu [15] studied the attitudes of local residents towards migrants, he found that local residents generally agree with the contribution of migrants to the local area, but they also hold that migrants should not have the same rights as local people in some public services such as unemployment relief and low-rent housing. Therefore, the *hukou* system not only affects migrants' rights to public services, but also create identity discrimination among residence. The higher the perception of fairness, the stronger the willingness to stay in the city, which even has a moderating effect on the initial willingness to stay [41].

3. The *hukou* System

3.1. The Fundamental Role of *hukou* System in China

China's *hukou* system essentially performs three functions: population registration, mobility restriction, and competitive welfare restriction.

Population registration function: in 16 July 1951, the Ministry of public security promulgated the *Provisional Regulations on City Household Registration Management*, which established the function of population registration in a registered residence system. Because it defines regulation for social affair management such as birth, death, immigration, relocation, social change and social identity, this function has its counterpart in the *hukou* system in Japan and the social security system in the United States.

Mobility restriction function: Based on the distinction between "agricultural household registration" and "non-agricultural household registration" in the *Household Registration Regulations Of The People's Republic Of China* passed by the Standing Committee of the National People's Congress in January 1958, the provisions of the Ministry of public security on the *Handling of Household Registration Migration (Draft)* "in August 1964 established restrictions on moving from rural areas to cities and market towns; and restrictions on moving from market towns to cities. " Consequently, Chinese cities are regarded collectively

as welfare highland, with walls defined. The *hukou* system has become an administrative tool in restricting inbound migrants for long-term settlement.

Competitive welfare restriction function: What makes China's *hukou* system different from other countries' population management systems is that it artificially divides urban welfare according to its competitive attributes in the time when social production is not as high as nowadays. Noncompetitive welfare refers to public goods that have positive externalities, such as the degree of cleanliness of one city, the accessibility of municipal infrastructure and convenience. The number or quality of these benefits does not decline sharply due to the increase in people. Residents, no matter original or newcomer, can enjoy the same level of benefits. Competitive welfare refers to public service that has relatively high incremental cost due to limited professional resources such as teachers and doctors, or dedicated facilities such as schools and hospital beds. These services cover the field of healthcare, compulsory education, affordable housing, etc. The investment on these public services tightly links to local fiscal expenditure that mainly come from land transaction fees and cooperation tax, rather than property tax (this might also explain why municipal administrations are generally keen on inviting investment but are less enthusiastic in inviting population under the current tax system). Therefore, the *hukou* system protects vested population (citizens with local *hukou*) by setting access threshold on competitive benefits, such as public-school qualifications, college entrance examination qualifications, house purchase qualifications, car purchase qualifications, and medical insurance reimbursement ratios.

Under the current system, the mobility restriction function of registered residence system makes it possible to maintain the basic functions of a city and maintain public order. Through the administrative control of settlement conditions, settlement procedures and annual *hukou* quotas, cities are able to handle corresponding demand according to their own public service carrying capacity.

3.2. *hukou* Is an Intervening Obstacle in the 'Push-and-Pull' Theory

During the development of the 'push-and-pull' theory, E.S. Lee [12] argued that the mobility of migrants is not only affected by the 'push' and 'pull' factors from their hometown and destination but is also affected by intervening obstacles, such as distance and transportation between hometown and destination, cultural and dietary differences and the immigration laws.

The competitive welfare restriction function theoretically makes *hukou* an intervening obstacle besides the 'push-and-pull' mechanism, because it does not restrict migrants from entering the urban labor market at the present stage but restricts their right to obtain equal public services (esp. competitive welfare that are fundamental in access equal local development opportunity) in the city. For instance, participation in the middle school entrance examination and college entrance examination outside migrants' children's *hukou* registration place have been challenging. First, they are required to provide evidence that their parents are legally domiciled and employed locally (e.g., most provinces stipulate that in order to take the exam in the destination, the children who have migrated with parents need to provide a certificate of residence of their parents, a proof of stable occupation and a number of years of social security payment from their parents). Second, most cities do not open all types of public secondary schools to the children of migrants. Megacities such as Beijing, Shanghai and Tianjin only allow children of migrants to take entrance exams of secondary vocational schools.

3.3. The Reform of *hukou* System

The establishment of *hukou* system can be traced back to 1958, when the Standing Committee of the National People's Congress passed the Household Registration Ordinance. It stipulated that "citizens migrating from rural areas to urban areas must hold an employment certificate, a certificate of enrolment from educational institutions, or a permission document from the urban household registration authority". From the 1960s

to the 1970s, the *hukou* system saw strengthened restrictions on the movement of people between urban and rural areas legally. For example, in 1964, the Ministry of Public Security issued regulations to restrict population movement from two aspects: (1) from rural areas to cities; (2) from towns to cities.

Due to China's market-oriented reform in the 1990s, the rapid development of urban industry led to an increasing demand for labour, which provided incentive for the reform of the *hukou* system to gradually expand from small towns to cities. The State Council approved pilot schemes for reforming the *hukou* administration system in small towns in 1997, allowing rural residents who already work and live in small towns and meet certain conditions to apply for permanent *hukou* locally. After 2000, some local governments began to explore the path of household registration reform in cities. Cities such as Shenyang and Anshan introduced policies in 2010 to encourage talented people to transfer their *hukou* [42].

In recent years, the state has accelerated the reform of the *hukou* system. In 2013, the promulgation of the CPC Central Committee on reform of the overall number of major issues signifies the beginning of the systematic reform of the *hukou* system. In 2014, the State Council issued a guideline on the reform of the *hukou* system, which stated that by 2020, about 100 million migrants and other permanent residents would be encouraged to register as urban residents [43]. In 2019, the National Development and Reform Commission issued the *Key Tasks for New Urbanization Construction*. Under the plan, cities with a population under 3 million should remove all limits on *hukou*—household registration—and cities with populations between 3 million and 5 million should relax restrictions on new migrants [43]. Table 1 shows the relevant documents and main contents of *hukou* reform in recent years.

Table 1. The timeline of *hukou* system reform by city scales.

Documents	Key Contents					
	Megacities More than 10 Million	Super Cities 5 to 10 Million	Type I Big Cities 3 to 5 Million	Type II Big Cities 1 to 3 Million	Medium Sized Cities 500,000 to 1 Million	Small Cities Below 500,000
<i>CPC Central Committee on reform of the overall number of major issues (11/2013)</i>	Strictly control the size of the population		Establish reasonable requirement for household registration		Lifted the restrictions in an orderly manner	Fully lift restrictions on household registration
<i>13th Five-Year Plan-the plan to help 100 million migrants settle in cities (09/2016)</i>	Megacities and super cities with a low household registration share should further reduce the requirements for the <i>hukou</i> of migrants		The requirement on social security should not exceed 5 years		The requirement on social security should not exceed 3 years	
			The household registration requirements such as housing purchases and investment taxes were abolished		Points system for household registration was abolished	
<i>Key Tasks on Urbanization in 2019 (04/2019)</i>	Improved the points system based on residence years and participation in social security		Restrictions in key groups will be lifted across the board	Fully lift restrictions on household registration		
<i>Opinions of the CPC Central Committee and the State Council on Improving the Systems and Mechanisms for Market-based Allocation of Factors of Production (03/2020)</i>	1. Megacities and super cities will continue to adjust and improve points-based household registration policies. 2. Promote mutual recognition of household registration requirements in urban agglomerations such as the Yangtze River Delta and the Pearl River Delta. 3. Continue to relax restrictions on urban household registration except in some mega-cities.					
<i>Key Tasks on Urbanization and Urban-Rural Integrated Development in 2020 (04/2020)</i>	Continue to improve the point-based household registration policies in megacities and Type I big cities, and ensure that the number of years of social security payment and residence accounts for the main proportion.			Urge those three types of cities to fully lift restrictions on <i>hukou</i> .		

4. Data and Methods

4.1. Data

A survey of migrants' long-term residence intention was conducted in April 2020. Questionnaires were handed out randomly in four types of location—the four first-tier global cities, cities in developed coastal regions, other provincial capitals/subprovincial cities, other prefecture-level cities (Table 2 and red dots in Figure 1). The selection of survey locations was based on popularity of the city in attracting cross-region migration. A total of 23,381 surveys were collected, 99.36% (23,232) of which were valid.

Table 2. Four types of cities surveyed.

Regions	Cities	Observation	Percentage
First-tier global cities (4)	Beijing, Shanghai, Guangzhou, Shenzhen	2529	10.89%
Coastal cities (7)	Dongguan, Jiaxing, Nantong, Suzhou, Taizhou (Jiangsu province), Taizhou (Zhejiang province) and Zhongshan	3420	14.72%
Provincial capitals and sub-provincial cities (14)	Chengdu, Dalian, Guiyang, Hangzhou, Jinan, Nanjing, Ningbo, Qingdao, Shenyang, Wuhan, Xian, Changsha, Zhengzhou and Chongqing	8056	34.68%
Prefecture-level cities (21)	Anyang, Baoji, Heze, Jinhua, Linyi, Luoyang, Nanchong, Shantou, Shangqiu, Weifang, Wenzhou, Xiangyang, Xuzhou, Yantai, Yan' an, Yichang, Yingkou, Yulin, Zhoukou, Zhuzhou, Zunyi	9227	39.72%
Total		23,232	100%



Figure 1. Distribution of cities surveyed and where surveyed migrants come from.

In our survey, 6973 respondents said they were not sure of their long-term residence intentions and were therefore not considered in this study. In addition, 895 respondents that did not answer questions about the difficulty of the local household registration system were also discarded. Finally, 10 respondents did not provide valid information required for some independent variables and were then discarded. Thus, the final valid observations

were 15,355 covering all 46 surveyed cities. These respondents came from 304 prefecture-level cities (90.2% of the total 337 mainland prefecture-level cities in 2020). The distributions of regions and demographic characteristics of these 15,355 observations and the whole observations did not display significant statistical differences. It suggests that our sample could be legitimately used to reflect the nature of the whole sample.

4.2. Methodology

In order to better understand the long-term residence intention of migrants in China, this paper mainly adopts two quantitative research methods, descriptive statistical analysis and binary logistic regression modeling. In our case, we defined the dependent variable ‘long-term settlement intention’ based on the question, ‘*What are your long-term residence plans in the future?*’. The respondents who choose ‘1. Purchase commercial housing locally. 2. Rent a house locally. 6. Stand in line to apply for affordable housing locally’ have settlement intention in destination in long-term. The difficulty of obtaining a local *hukou* is considered as the key dependent variable in our study, which is based on the question ‘*How do you think of the requirements for obtaining a local hukou in your current city?*’. Other control variables include personal characteristics (gender, education, marital status, age and land right in hometown), migration characteristics (employment, income level and migration duration of migration) and destination characteristics (Ln (GDP per Capita), education resources and medical resources) (see Table 3 for summaries).

Table 3. Socioeconomic characteristics and long-term settlement intention of the sample studied.

(Observation = 15,355)					
Variable	Description	Mean/Percentage	Std. Dev	Min	Max
Settlement intention	Dependent Variable				
	Local	0: 64.44%	-	1	2
Subjectively evaluated difficulty in obtaining <i>hukou</i> in migrant destination (will be called <i>hukou difficulty</i> afterward)	Hometown	1: 35.56%			
	Independent Variables				
Gender	Not difficult	0:16.39%			
	A bit difficult	1:42.00%	-	1	3
	Very difficult	2:41.62%			
Education	Male	0:40.28%		1	2
	Female	1:59.72%	-		
Marital Status	Below College	1:60.81%		1	2
	College and above	2:39.19%	-		
Age (Mean)	Unmarried	1:22.85%		1	2
	Married	2:77.15%	8.29	17	71
Whether own land in hometown	No	35			
	Yes	1:46.49%	-	1	2
Employment	Yes	2:53.51%			
	Unemployed	1:14.48%			
	General staff	2:77.14%	-	1	4
	Senior manager	3:7.16%			
Income Level	Employer	4:1.22%			
	Less than 3500	1:41.46%			
	3501–5000	2:35.62%	-	1	4
	5001–8000	3:17.70%			
Distance	over 8000	4:5.22%			
	Within City	48.49%			
	Cross city	19.26%	-	1	3
Duration	Interprovincial	32.24%			
	less than 1 year	1:11.30%			
	1–5 years	2:26.55%	-	1	3
Regions	over 5 years	3:62.16%			
	Eastern	1:61.54%			
	Central	2:20.81%	-	1	3
Ln (GDP Per Capita)	Western	3:17.65%			
Education Resources		10.80	0.17	9.98	12.15
Medical Resources	The number of schools (per 10,000)	1.34	0.41	0.6	6.2
	The number of hospitals (per 10,000)	46.52	18.06	10.96	84.12

The binary logistic model works by adapting the standard random utility model to our specific problem of resident intention choice as follows:

$$U_{ij} = \beta_j X_{ij} + \varepsilon_{ij} \quad (1)$$

where i refers to the individual and j to the type of intention. X_{ij} is a vector of independent variables such as gender, age, education, etc.) and ε_{ij} is a stochastic error component. Then the probability of choosing a given alternative can be shown as

$$P_j = Pr(U_{ij} > U_{ik}), \forall k \neq j \quad (2)$$

Obviously, the sum of the four probabilities must equal 1,

$$\sum_{j=1}^J P_{ij} = 1 \quad (3)$$

Then, followed Long and Freese (2005), the multinomial logit model is given as follows:

$$P_{ij} = \frac{\exp(\beta_j X_{ij})}{\sum_{j=1}^J \exp(\beta_j X_{ij})} \quad (4)$$

Finally, the estimation of parameter β_j is solved by using the maximum likelihood estimation methods operationalized with Stata.

5. Preliminary Analysis

5.1. Basic Characteristics and Long-Term Settlement Intention

Overall, Chi square test showed that the difference in all variables across groups (hometown and local) was statistically significant ($p < 0.05$). In terms of personal characteristics, about 56.05% of migrants are male in the local group, more than 10 percent points lower than the hometown group. It suggests that male workers are more likely to return to their hometown (see Table 4). Moreover, compared with the hometown group, a higher proportion of unmarried and young workers choose to stay locally. Moreover, well-educated (College and above) migrants are more likely to stay rather than return. About 47.29% of migrant workers have college and above degrees in the local group, about 23 percentage points higher than the return group. Migrants who have land rights in their hometown seems more likely to return than stay. Nearly 49% of workers in the local group state that they own lands in their hometown, 13 percent points lower than the return group.

Considering migration characteristics, 11.2% of workers in local group are unemployed, 6 percentage points lower than the return group (see Table 4). In terms of income level, the low-income level (less than 3500 RMB per month) takes up a higher proportion in the local group than the hometown group. This indicates that migrants with lower income level might be more willing to return home in the long-term. Migrants who have been local for more than five years are more likely to stay. A total of 65.37% of migrants in the local group have been living locally more than 5 years, over 9 percentage points higher than the hometown group. Lastly, as the distance increased, migrants were more likely to return home. Table 4 indicates that among respondents in the returning group, 42.25% were long-distance interprovincial migrants to other provinces, a significantly higher proportion than the local group.

Destination characteristics also differ between the two groups. In terms of regions, eastern migrants accounted for 59.27% in local group, more than 6 percent lower than the hometown group (see Table 4), which suggests that migrants in eastern China have a stronger desire to return home than other regions. It is worth noting that economic status of two groups has not much difference according to GDP. Finally, Table 4 shows that the medical and educational resources in the cities of migrant workers who are willing to

return home are slightly lower than those of migrant workers who are willing to stay in local areas.

Table 4. Basic characteristics of migrants by different long-term settlement intention.

Basic Characteristics		Hometown	Local
Gender%	Female	33.64	43.95
	Male	66.36	56.05
Marital Status%	Unmarried	20.64	24.07
	Married	79.36	75.93
Age (Mean)		34	36
Education%	Below College	75.48	52.71
	College and above	24.52	47.29
Whether own land in hometown%	No	38.03	51.15
	Yes	61.97	48.85
Employment%	Unemployed	18.79	12.10
	General staff	74.14	78.80
	Senior manager	6.04	7.78
	Employer	1.03	1.32
Income Level%	Less than 3500	38.29	43.21
	3501–5000	38.23	34.18
	5001–8000	18.59	17.21
	over 8000	4.89	5.40
Duration%	less than 1 year	15.64	8.90
	1–5 years	28.04	25.72
	over 5 years	56.33	65.37
Distance%	Within City	38.09	54.23
	Cross City	16.66	20.70
	Inter provincial	45.25	25.07
Regions%	Eastern	65.65	59.27
	Central	19.90	21.32
	Western	14.45	19.42
Ln (GDP in Capita) (mean)		10.80	10.81
Education Resources at hometown(mean)	The number of schools (per 10,000)	1.37	1.32
Medical Resources at hometown(mean)	The number of hospitals (per 10,000)	41.41	37.29

5.2. What Kind of People Think It Difficult to Get a Local hukou?

This part of the analysis preliminarily presents *hukou difficulty* among different socio-economic groups. As shown in Table 5, for migrants with different education levels, 48.60% of migrants with low educational background perceive that it is too difficult to obtain local *hukou* currently, and this figure gradually decreases with the level of education increase. Only 30.77% of migrants with college degree or above have the same feeling. On the other hand, 47.72% of well-educated migrants find it a bit difficult to obtain a local *hukou* but believe that they would meet the requirements in the future. It suggests that the current *hukou* condition still casts hurdle for migrants with lower education levels.

In terms of income, as the income level rises, it becomes less difficult for migrants to obtain a local *hukou*. A total of 41.08% of migrants in low-income group (less than 3500) believe that the current *hukou* condition is too difficult for them. This figure did not change much in the wage range between 3501 and 8000. However, as the income level reaches 8000, the proportion of migrants who perceive *hukou* difficulty as high drop to 34.45%, which is significantly lower than other income groups.

Table 5. Subjective evaluation of difficulty in obtaining local hukou by demographic characteristics.

		Not Difficult	a Bit Difficult	Very Difficult
Education%	Below College	13.09	38.31	48.60
	College and above	21.50	47.72	30.77
Income Level%	Less than 3500	16.60	42.32	41.08
	3501–5000	15.59	41.17	43.24
	5001–8000	16.52	41.76	41.72
	over 8000	19.60	45.94	34.46
Living Conditions%	Houseowner	27.21	52.01	20.78
	Renting	10.24	36.83	52.93
	Dorms or others	11.82	37.15	51.03
Duration%	less than 1 year	10.37	35.27	54.35
	1–5 years	14.38	41.54	44.09
	over 5 years	18.34	43.42	38.24

According to the current *hukou* policy, purchasing a house locally is still one of the key approaches in obtaining *hukou* in some cities. Table 5 also shows the attitudes of migrants towards *hukou* with different living conditions. First, only 20.78% migrants who own houses in destinations think it is too difficult to obtain a *hukou*. This number goes over 50% in other two groups (renting and living in dorms). This result might be due to the existence of survivor bias. On the one hand, buying a house might help migrants to gain a local *hukou* easier; on the other hand, it is likely that migrants themselves find it is not difficult to gain a local *hukou*, so they are willing to buy a house locally.

In terms of migration duration, with the increase in migration duration, the proportion of migrants who perceive obtaining local *hukou* as very difficult showed a downside trend, decreasing from 54.35% to 38.24%. This might be because of the recent *hukou* reform's emphasis on duration-orient policy, based on living duration and working duration locally. Consequently, as duration in destination increases, the chance of satisfying local requirement in obtaining *hukou* goes higher.

6. Empirical Analyses

6.1. Modelling the Long-Term Settlement Intention in China

In order to better understand influencing factors of residence intention, this paper establishes four binomial logistic models with residence intention as the dependent variable. Model 1 includes only the subjectively evaluated *hukou* difficulty as an independent variable. Variables of personal characteristics, migration characteristics and destination characteristics were successively added in Model 2 to Model 4 on the basis of Model 1 (see Table 6). The explanatory power of Model 1 to Model 4 was gradually enhanced according to the Pseudo R².

In Model 1, key independent variable *hukou* was introduced. The positive coefficient suggested that compared with migrants who feel it is not difficult to obtain a local *hukou*, those who find it difficult are more likely to stay in the destination for a long term, but this result is not statically significant. Moreover, the negative value of *very difficult* variable meaning that migrants who found that it is very difficult to obtain a *hukou* locally were more likely to return to their hometowns than to stay is a result that was statistically significant. However, endogenous issues might exist in this simple regression, which mainly comes from the missing variables at the city and individual levels. For instance, *hukou* threshold is closely related to city characteristics such as the economy, population and industrial development. The more developed a city's economy is, the more intensive its industries are, consequently the more attractive it would be to migrants, and the higher the threshold of household registration would be (due to the constraints of population carrying capacity and management capacity of the city). In Model 2–4, the characteristic variables at the individual, migration and destination levels are gradually controlled, which significantly alleviates endogenous problems caused by the omission of variables. The coefficients of *hukou* difficulty are becoming significant in both 'a bit difficult' and 'very difficult'. This indicates that when migrants find it a little difficult to obtain a local *hukou*, but they can

meet the requirements later, they are more willing to stay in the destination for a long time. However, when migrant workers find it is very difficult to meet the *hukou* requirements, they tend to return home in the future rather than stay locally.

Table 6. Binomial logistic regression on influential factors of the long-term settlement intention (Ref = Hometown).

Long Term Residential Intention	Model 1	Model 2	Model 3	Model 4
<i>hukou</i> (Ref = Not Difficult)				
A bit difficult	0.0205 (0.40)	0.0642 (1.20)	0.150 ** (2.75)	0.162 ** (2.96)
Very difficult	−0.701 *** (−13.86)	−0.546 *** (−10.39)	−0.270 *** (−4.91)	−0.232 *** (−4.18)
Marital Status (Ref = Unmarried)				
Married		0.0196 (0.41)	−0.124 * (−2.44)	−0.134 ** (−2.62)
Age		−0.00674 ** (−2.72)	−0.0143 *** (−5.51)	−0.0136 *** (−5.21)
Gender (Ref = Female)				
Male		−0.289 *** (−7.72)	−0.258 *** (−6.49)	−0.277 *** (−6.90)
Education (Ref = Below college)				
College and Above		0.823 *** (20.44)	0.715 *** (17.00)	0.722 *** (17.05)
Land Right (Ref = Without)				
With		−0.337 *** (−8.96)	−0.317 *** (−8.24)	−0.313 *** (−8.11)
Migration Duration (Ref = Less than 1 year)				
1 to 5 years			0.314 *** (5.02)	0.342 *** (5.44)
Over 5 years			0.606 *** (10.03)	0.640 *** (10.54)
Migration Distance (Ref = Within City)				
Cross City			−0.118 * (−2.34)	−0.0625 (−1.20)
Interprovincial			−0.730 *** (−16.60)	−0.622 *** (−12.97)
Income (Ref = less than 3500)				
3501–5000			−0.137 ** (−3.19)	−0.123 ** (−2.84)
5000–8000			−0.0914 (−1.63)	−0.0772 (−1.35)
Over 8000			0.0652 (0.71)	0.0750 (0.81)
Employment (Ref = Unemployed)				
General staff			0.256 *** (4.96)	0.270 *** (5.18)
Senior manager			0.365 *** (4.08)	0.434 *** (4.81)
Employer			0.553 ** (3.17)	0.573 ** (3.27)
Destination Region (Ref = Eastern)				
Central Region				0.00941 (0.18)
Western Region				0.120 * (2.20)
LnGDP				0.297 ** (2.64)
Doctor				−0.00711 *** (−5.74)
School				−0.297 *** (−6.45)
_cons	0.895 *** (20.37)	1.110 *** (10.94)	1.001 *** (8.23)	−1.681 (−1.38)
N	15355	15355	15355	15355
Pseudo R2	0.022	0.0639	0.0914	0.0969

t statistics in parentheses; * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

According to the regression results of Model 4, individual characteristic variables have significant impacts on long-term residence intention in destination. Compared with female migrants, male migrants are less likely to stay in the destination. This result is inconsistent with Siu and Unger's findings; they argue that female immigrants do not have much advantage in the labour market, so they are more inclined to stay at home to take care of children and the elderly [44]. One of the possible explanations is that male migrants are more likely to migrate alone, while other family members, such as children and wives, are left behind in hometowns. Thus, male migrants are likely to have a stronger desire to return to their hometown in the long-term. Compared with low-educated migrants, the stay intention of migrants with higher education is stronger and statistically significant. This may be because well-educated migrants are more competitive in the labour market and can better adapt to local life so that they are more willing to stay in the long-term. The results of Model 4 also show that married and aged migrants show less inclination to stay. The odds ratio of land variable is 0.786, indicating that migrants with land rights in their hometown are more inclined to return in the long-term.

Four migration characteristic variables in the model also showed significant correlations with residence intention. Compared with migrant workers who are unemployed, migrant workers with stable employment have a stronger desire to stay in local areas for a long time. It is also worth noting that the higher the position of migrant workers, the stronger the intention of residence. In terms of income level, compared with the reference group whose income level was less than 3500, migrants who earn from 3500 to 5000 are less likely to stay, but the medium and high-income (over 5000) group were not statistically significant. With the increase in migration duration, migrants are more inclined to stay in the destination. This matches anecdotal experience that the longer the migrants stay in the local area, the more stable the local social network and living state will be, the stronger the social adaptability to the local will be, and the stronger the residence intention will be. Moreover, the increasing magnitude of migration distance suggests that there is a linear negative relationship between migration distance and migrant workers' stay intention in the destination, but it is not statically significant for medium-distance cross-city migration.

Migrant's stay intention in the destination is also related to destination characteristics. The coefficients of central and western regions variables indicate that migrants who migrate to these two regions are more willing to stay in the local area than those in the eastern region, but it is not significant for the central region. This may be due to the low level of living costs and housing prices in the western region, which encourage migrants to stay in the long term. A stronger level of economic development (GDP per capita) will also significantly enhance migrants' willingness to stay. The main reason is that economic growth will lead to an increase in job opportunities, which will attract migrants to stay in their destinations. Finally, consistent with the preliminary result, there is a negative correlation between education and medical resources and migrants' willingness to stay, that is, the higher the level of these two resources, the more reluctant migrants are to stay. One possible explanation for this result is that at present, the allocation of several key public resources is mainly based on *hukou* in most cities. Migrants without a local *hukou* therefore have to pay a higher price to access many public resources, such as medical fee. Therefore, the unequal distribution of public resources caused by the *hukou* system restrains migrants' willingness to stay.

6.2. Robustness Check

Based on the above analysis of the current *hukou* system reform, the objective difficulty of obtaining local *hukou* is related to the city scale (see Table 1). Therefore, the robustness test of this part will follow that of previous scholars [8,9] and take objective difficulty (i.e., city scales) as the core dependent variable to further examine the relationship between *hukou* accessibility and long-term settlement intention. Specifically, we divided the sample cities into three levels according to their population size. More specifically, we divided the sample cities into three levels according to their scale:

Level 1 (most difficult): Beijing, Shanghai, Guangzhou, Shenzhen.

Level 2 (a bit difficult): Shenyang, Chengdu, Hangzhou, Jinan, Ningbo, Qingdao, Suzhou, Wuhan, Xian, Changsha, Chongqing.

Level 3 (not difficult): The rest of the cities.

Interestingly, the results of Model 5 in Table 7 are similar to those of our models above. To be specific, taking migrants in cities without *hukou* threshold (Not difficult) as a control group, those in cities with certain *hukou* difficulty tend to stay local, but this result is not significant. However, for migrants in Beijing, Shanghai, Guangzhou and Shenzhen, their willingness to stay in their destinations for a long time is weakest, and they are more inclined to return to their hometown. The results of the rest of the control variables are the same as those above and will not be repeated here.

Table 7. Binomial logistic regression on influential factors of the long-term settlement intention (Ref = Hometown).

Long Term Residential Intention	Model 5
<i>hukou</i> (Ref = Not Difficult)	
A bit difficult	0.001 (0.01)
Very difficult	−0.485 *** (−6.47)
Marital Status (Ref = Unmarried)	
Married	−0.136 ** (−2.66)
Age	−0.0131 *** (−5.01)
Gender (Ref = Female)	
Male	−0.300 *** (−7.47)
Education (Ref = Below college)	
College and Above	0.767 *** (18.24)
Land Right (Ref = Without)	
With	−0.316 *** (−8.19)
Migration Duration (Ref = Less than 1 year)	
1 to 5 years	0.369 *** (5.87)
Over 5 years	0.674 *** (11.10)
Migration Distance (Ref = Within City)	
Cross City	−0.107 * (−2.06)
Interprovincial	−0.671 *** (−14.20)
Income (Ref = less than 3500)	
3501–5000	−0.120 ** (−2.76)
5000–8000	−0.0510 (−0.90)
Over 8000	0.124 (1.35)
Employment (Ref = Unemployed)	
General staff	0.291 *** (5.58)
Senior manager	0.461 *** (5.11)
Employer	0.623 *** (3.56)
Destination Region (Ref = Eastern)	
Central Region	−0.0269 (−0.51)
Western Region	0.0994 (1.78)
LnGDP	0.302 ** (2.69)
Doctor	−0.00357 * (−2.39)
School	−0.273 *** (−5.58)
_cons	−1.922 (−1.58)
N	15355
Pseudo R2	0.0947

t statistics in parentheses; * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

7. Conclusions

Since the reform and opening up, due to the differences in economic development between urban and rural areas and between regions in China, a large number of migrant workers have flowed from rural areas to cities and from central and western regions to eastern regions. Unable to obtain local *hukou* (household registration), they are not truly local and cannot enjoy their fair share of local public resources. Since 2013, the household registration system has been further reformed. This study advances the body of knowledge by investigating the effect of what E.S. Lee has proposed ‘intervening obstacles’ in the ‘push-and-pull’ theory. Based on a nation-wide large-scale survey in 46 Chinese cities, this paper studies the relationship between the difficulty of obtaining a local *hukou* and long-term residence intention. The main conclusions are as follows.

First, an investigation on influence factors on migrants’ subjective evaluations on *hukou difficulty* presents that migrants with low education, low income and no property in destination might be vulnerable under the current *hukou* system. This implies that the current *hukou* system mainly unfriendly to migrant workers with low human capital and weak economic conditions.

Second, if other control variables remain unchanged, this paper found that the negative impact of *hukou difficulty* on migrant workers’ residence intention is not linear, and only when the threshold in obtaining *hukou* is too high and difficult to achieve will migrant workers choose to return hometown in the long term. This may indicate that after nearly 10 years of household registration (*hukou*) system reform, most cities have gradually achieved equal access to basic public services, and migrant workers can enjoy more public services than before, though not necessarily the same as the local. As a result, *hukou* in many cities is no longer the decisive factor in determining whether migrant workers will stay in the destination for a long time. However, although China’s household registration system (*hukou*) reform has been improving, it still hinders migrants’ residence intention to some extent and has considerable potential to be optimized. We believe that current household registration (*hukou*) system has two influences on migrants’ residence intention: first, migrants who without local *hukou* cannot enjoy public services such as medical services and social security services equally with local people; also, migrants without local *hukou* cannot easily reunite with their families locally because they do not have access to local public resources such as public schools for their children equally. Moreover, the long-standing *hukou* system leads to the lack of parental companionship and care for left-behind children, which has a negative impact on their physical and mental health [45]. That may encourage migrant workers to return home in the long term. In this sense, the application of E.S. Lee’s ‘intervening obstacles’ in the push–pull theorem could be extended to administrative barriers. The mechanism of this obstacle is, however, not as linear as physical distance might do. This provides implication for countries and regions within country globally to facilitate immigration policies and designation of benefits granted to non-citizen. Further research on the threshold that influence residence intention is necessary to collect more empirical evidence for this viewpoint.

Finally, the results of our model show that the human capital level of migrant workers, such as educational background and income level, is negatively correlated with residence intention. This may be because they have always been on the margins of local society and have been unable to integrate into local society due to the restrictions of the *hukou* system.

In terms of policy suggestions, the author suggests that future urban development strategies should give more consideration to migrants, especially in the distribution of educational resources, medical resources and other welfare. Thus, it can promote migrant workers to better integrate into the local society and enhance their willingness to stay. In particular, three policy tools are proposed in line with the findings. First, an ‘intervention unobstructed tool’ needs to be implemented to hedge the current obstacles. In detail, the current residence permit (similar to greencard that allows migrants who reside in destination for more than half year but have not yet obtained local *hukou*) system is suggested to upgrade so that non-*hukou* migrants could enjoy key settlement benefits

in cities, including safe, clean, affordable housing, equal compulsory education opportunity regardless of parental *hukou* status, higher medical insurance reimbursement ratios. Second, investment on public services and facilities needs to be based on settle population size, rather than size of population with local *hukou*. Third, distribution of national fiscal and land resources in this field is suggested to shift from GDP and income level base to inbound migrants' size base, in order to match the service and settlement demand of incremental migrants under the current taxation schemes in urban China.

There are also some obvious limitations in our research. For example, the sampling time of this study is from 2020. Due to the impact of COVID-19, many migrant workers could not go out for work normally and even chose to return to their hometown, thus causing some deviation in the results. Moreover, the objects of our study are local migrant workers. Migrant workers who have returned to their hometown are not considered, so the problem of survivor bias will also occur in this research.

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