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Article

Policies Towards Migrants in the Yangtze River Delta Urban Region, China: Does Local Hukou Still Matter after the Hukou Reform?

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Abstract: The 2014 hukou reform introduced by the Chinese central government was a turning point in China's policies towards migration. Different from the previous hukou policies, which were largely exclusionary, the reformed policy encouraged migrants to permanently settle in their destination cities and make use of the public services available there. However, the actual results and consequences of this policy seem to vary between cities. This is due to the fact that Chinese municipal governments still have their own discretionary power when it comes to defining the criteria for accessing a local hukou. This raises the question of what the real impact of the hukou policy reform has been. This paper attempts to answer this question. It starts with a hukou access policy analysis of 20 different cities in the Yangtze River delta urban region. This analysis shows that the strictness of the local hukou access policy is related to city specific factors such as economic strength, share of migrant population, and population size. In the second part of the paper, we examine the impact of local hukou access policies on the intentions of migrants. Based on two logistic regression models, we find that the stricter the local hukou access policy is, the more willing migrants are to convert their current hukou into a local hukou. Furthermore, we observed that the settlement intention of migrants has a V-shaped rather than a linear relation with the strictness of local hukou access policies. Cities with relatively loose and cities with relatively strict hukou access policies are more desired as permanent settlement location than cities with moderately strict hukou access policies.

Keywords: hukou policy; hukou access; permanent settlement; migrants; Yangtze River delta urban region

1. Introduction

The rapid but spatially uneven economic growth and urbanization in China since the market reform of the late 1970s has triggered a large population redistribution. Millions of people became migrants and left their original domicile to work and live in other places in China [1]. In 2017, the Chinese internal migrant population, also called the “floating population”, had a size of 244 million persons, which equals more than 1/6 of the total population and 1/3 of the urban population [1]. There are three main triggers for the generation of this large migrant population: the unique Chinese household registration system called “hukou”, the strong economic inequality between urban and rural regions, and migrants’ willingness to pursue a higher quality of life [2]. The migrant population is characterized by a relatively low level of educational attainment and income. Migrants are mainly

engaged in labor-intensive industries and have a comparatively low degree of social integration in their destination communities [3,4].

China's hukou system was introduced during the planned economy period in 1958 in order to facilitate population management and prevent large scale rural to urban population movement. For each new-born child, the hukou records the original residential location, as well as the characteristics of this location (agricultural or non-agricultural/urban). A hukou is local if the person still lives in the location where he/she was born whereas the hukou is non-local if the person concerned has moved to another location.

People with an urban hukou are entitled to several welfare benefits such as access to local government jobs, access to subsidized housing, and access to various social services. The exact package of welfare benefits that urban hukou holders enjoy depends on the city they live in [5]. In contrast, rural hukou holders are granted access to farmland and a homestead, but little else [6]. Given these differences between urban and rural hukou holders, the hukou system has become a tool for social welfare distribution, and the political, economic, and cultural dimensions of the urban-rural differences are deeply attached to one's hukou [7,8].

In the first decades after the introduction of the hukou system, Chinese people were basically only allowed to work in the town in which they possessed a hukou. However, since the 1980s, these restrictions have been gradually relaxed. This was due to rural labor surpluses and economic development and corresponding labor shortages in the urban areas [9]. It became legitimate for migrants to work and live outside the location they were born. This process cumulated in the 2014 hukou policy reform introduced by the central government. This reform actively sought to promote a more equal, sustainable, and humanized urbanization process. This implies that migrants are encouraged to transfer the (agricultural) hukou of their hometown into the (urban) hukou of the city they currently live in. The reform also required small- and medium-sized cities to relax their hukou access criteria, whereas larger cities kept the right to set up their own hukou access policy. However, all cities were urged to offer basic public services to all *de facto* residents, regardless of their hukou situation [10] (the '*de jure* population' indicates the population of local urban hukou holders. The '*de facto* population' refers to the population that actually lives in the city. This population consists of both local urban hukou holders and migrants with a non-local hukou.) In practice, the reform led to an increasing diversification of local hukou access policies across the country [5].

This paper investigates the background and effects of this policy reform. It focuses on the post-reform local hukou access policies in 20 different cities in the Yangtze River delta urban region. The following research questions will be addressed:

1. What are the differences in city level hukou access policies and how can these differences be explained?
2. To what extent do the local hukou policies influence the permanent settlement and the hukou transfer intention of migrants?

The paper starts with a literature review (Section 2), which is followed by a description of the study area and the research data (Section 3). Section 4 contains a policy analysis and attempts to answer research question 1, whereas Section 5 describes the results of the statistical analysis that was carried for the purpose of research question 2. The conclusions of the paper are presented in Section 6, and Section 7 contains a brief discussion and some policy implications.

2. Literature Review

In this section, we first describe the development of the Chinese hukou system in order to set the institutional scene for the further analysis (Section 2.1). Section 2.2 switches to the micro-level and reviews the literature on the settlement and hukou transfer intentions of migrants.

2.1. The Development of the Chinese Hukou System

2.1.1. Historical Development

The Chinese hukou system, which started in 1958, has gone through different stages of development (see Figure 1). Initially, when basic goods were in short supply, productivity was low, and priority was given to the development of heavy industry, the rural population in China was forced to stay in the countryside so that they could produce a stable amount of basic products such as food and clothing [7]. The urban population, relying on the means of livelihood offered by the rural population and working in so-called work units (*danwei*), mainly engaged in industrial production [11].

After the economic and institutional reforms of 1978, China entered the stage of rapid development. Large-scale urban construction and rapid industrial development in Chinese cities required a larger labor force, while the modernization of agricultural practices led to a surplus of labor in the rural areas. Consequently, the rural surplus began to flow into the cities in pursuit of better job opportunities, higher income, and a better living environment [12,13]. After 1984, the country eased restrictions on population migration and made it legal for civilians to live and work in places other than their hukou-registered ones.

Since then, with the continuous acceleration of economic development and urban construction, China's migrant population has expanded rapidly. In response to this, the central government has kept population registration policies under review. In the late 1990s, the hukou registration system was further relaxed, better allowing agricultural hukou holders to settle in small-sized cities and towns (with fewer than 0.2 million inhabitants), thereby transferring their hukou status to “non-agricultural”. However, in the bigger and wealthier cities, hukou transfers remained complicated. Here, a local hukou meant access to wider and better public services and social insurance [14]. In such a context, migrants without a local hukou were often seen as “second-class citizens” by both the established population with a local hukou and the local government. They were treated differently in terms of employment opportunities, remuneration for work, social security, and public services provided by the urban government, even though they offered cheap manual labor and facilitated the rapid urbanization of the destination city [7]. In 2003, further reforms in the hukou system were implemented and the central government gradually attached more importance to the migrant population after the law of custody and repatriation was repealed. The aim of offering a more equal treatment by trying to undercut the attached value of hukou was put forward [15]. Eliminating discrimination against migrant workers, especially in employment, has been a major state policy ever since.

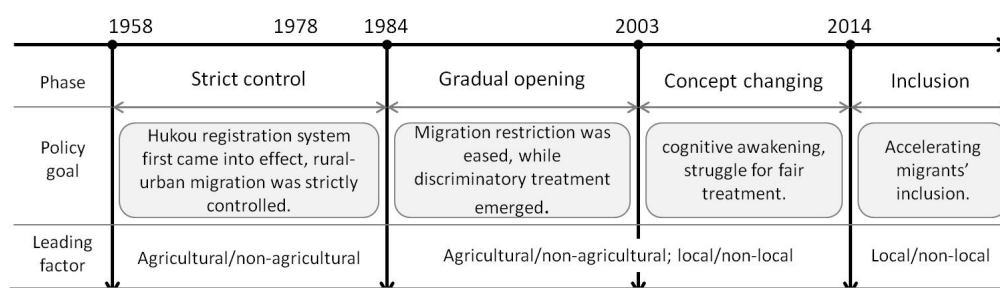


Figure 1. Process of hukou policy development. Source: own elaboration.

2.1.2. The 2014 Hukou Reform

A follow-up reform of the hukou registration system occurred in 2014 when the state council announced it would be “further promoting the reform of the hukou registration system”. The new reform aimed to vigorously promote the inclusion of migrants in the urbanization process and set a target of registering 100 million migrants as local urban hukou holders by 2020.

Firstly, this hukou reform eliminated the “agricultural or non-agricultural” registration term. Since 2014, both rural and urban populations are registered as “residents” in the hukou system. Although, this change does not affect the welfare and social security entitlements of hukou holders from either a rural or an urban background, it can be seen as a symbolic gesture by the central government that aims to eliminate discrimination of rural migrants and encourage inclusion [16].

Secondly, the state council decided to implement a tiered approach to hukou access policy in accordance with the population size of cities (see Figure 2). The barriers of access to a local hukou were advised to be completely eliminated in small- and medium-sized cities (population size < 1 million), but they were maintained or became stricter in large cities [5]. For example, cities with a population of more than 3 million people are allowed to build up their own point registration system. Such a system allocates scores to migrants in order to determine whether they can get a local hukou. Criteria that could be used in such point systems are age, educational background, skills, employment type, housing tenure, payment into local social insurance schemes, length of residence, etc. [5].

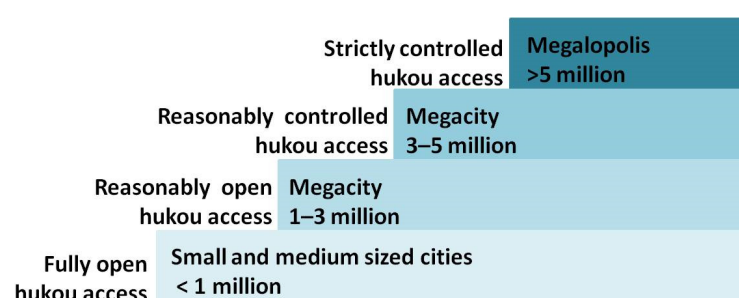


Figure 2. City size and corresponding hukou access criteria. Source: own elaboration.

Thirdly, the objective of providing all permanent residents with basic public services was proposed. According to the “provisional regulations on residence permits” [17], once a migrant has lived in a destination city for more than half a year, they may apply for a local residence permit (which is different to local hukou) if they have legal and stable employment and/or housing in this destination city. In theory, holders of a local residence permit should enjoy access to the same social security and public services as the local hukou holders. However, in practice, particularly in the bigger cities, differences in welfare entitlements between local and non-local hukou holders remain strong and therefore it seems difficult to reach this target in the short term. In many cities, migrants are still largely excluded from the local welfare package. They are often excluded from unemployment insurance, healthcare and pension provision, housing benefits, and even the right for children to enter local public schools [5,18,19].

The 2014 hukou reform policy served as a concrete statement from the central government to municipal governments to inform them about the desired hukou policy. Eventually, however, the local governments remain responsible for their own hukou access policies [4]. Due to different economic, spatial, and institutional conditions, even cities with the same population size may formulate different responses to the hukou reform. In particular, cities with good public services set strict criteria for local hukou registration. As a result of this, differences in welfare state entitlements between local and non-local hukou holders could become even more magnified [5,20–22].

Zhang and Tao [23] analyzed the strictness of local hukou policies in 45 Chinese cities. They discovered that cities with a strong local economy tend to have higher hukou entry barriers. Zhang, Wang and Lu [5] constructed a hukou registration stringency index for 120 Chinese cities before and after the 2014 hukou reform. Their analysis revealed that not all cities loosened their hukou access criteria after the hukou reform. Wu and Zhang [24] measured the hukou access policy of 46 Chinese cities and they also explored the explanatory factors behind the differences that were observed. They concluded that urban fiscal and economic characteristics, degree of urbanization, and degree of external dependence are the most important determinants of the strictness of local hukou policies.

2.2. Permanent Settlement and Hukou Transfer Intentions of Migrants

It is not yet very clear what influence the 2014 hukou reform has had on individual behavior and intentions of migrants. Some scholars argue that the appeal of an urban hukou is diminishing [15,25,26]. Several factors potentially play a role here. First of all, hukous from rural areas increasingly give access to welfare entitlements in the field of education, health care, and pensions. Second, cities have gradually opened up their public services to migrants with a local residence permit. As a result of both these developments, the benefits gap between the two different types of hukou holders seem to have narrowed [25]. Furthermore, if migrants transfer their hukou to the hukou of their destination city, they may have to give up their entitlements to land and a homestead in the village where they come from. This may be problematic and undesirable since retaining these property rights offers a safety net should their circumstances in the city change, prompting a return move [26,27]. Moreover, those with property rights in areas in close proximity to a city do not want to lose entitlements to financial compensation in the event that the land is reclaimed and urbanized [25]. Consistent with this, Meng and Zhao [26] point out that rural land holding has a negative relationship with both permanent and temporary migration decisions.

As a consequence, more and more migrants have decided to settle in a city without converting their hukou [15,25,28]. This brings a new dimension to the large body of academic literature on the settlement intentions of Chinese migrants. In this literature, migrants' socio-demographic characteristics, migration characteristics, economic conditions, and integration attributes are generally identified as the main determinants of permanent settlement intentions. Xie and Chen [29] examined the extent to which housing can affect permanent settlement decision making. They concluded that housing price, access to formal housing, housing ownership, and housing support are all significant factors. Yang and Guo [15] point out that in terms of permanent settlement intention, migrants' economic ability and social integration showed a more significant effect than one's hukou status. Huang, *et al.* [30] found that social ties in destination cities strongly affect migrants' permanent settlement and hukou transfer intentions.

Some studies also take the characteristics of destination cities into consideration. Due to the uneven patterns of urbanization and economic development in China, there are strong inter-city differences in terms of local resources, local institutional power and local welfare policies [6,31]. Liu, Deng and Song [22] studied migrants' settlement intentions in 282 Chinese cities, and found that regional differences and city characteristics had a significant impact on the settlement choices of migrants. Correspondingly, migrants with different socio-demographic and economic features prefer different cities as their migration destination [21,31]. Gu, Liu and Shen [20] present the fact that in large and wealthy cities, there are many migrants who want to convert their hukou into a local one but they cannot do so because of the strict hukou access policies. On the other hand, the medium- and smaller-sized cities with relatively loose hukou access policies are often not attractive as a permanent settlement destination for migrants, which makes hukou transfer a less desired option [25]. Liu and Wang [21] also emphasized the importance of city size and local policies when it comes to explaining settlement intentions decisions of migrants.

In the research reported in this paper, new elements are introduced. First of all, whereas Gu, Liu and Shen [20] and Liu and Wang [21] only looked at city size, we introduce a so-called hukou stringency index to measure the strictness of local hukou policies. Second, most of the previously discussed literature focuses on the permanent settlement intentions of migrants and less so on their intentions to transfer their hukou. By taking both these aspects into consideration, we try to generate a more comprehensive understanding of the impact of local hukou policies on the decision-making process of individual migrants.

3. Study Area and Data

3.1. Study Area

The Yangtze River delta urban region spreads over the alluvial plain along the lower reaches of the Yangtze River, in the eastern part of China (see Figure 3). The whole region has an area of over

0.2 million square km (2% of the total territorial area of China), a total population over 150 million (18% of the total population), and a GDP that equals 23% of the national GDP [32]. It is one of the most developed, wealthy, and crowded urban regions in China, and its local government enjoys a significant degree of autonomy [33]. The region includes one direct state-controlled municipality (Shanghai), 25 prefectural level cities, 40 county-level cities, and a large number of towns, distributed over the provinces of Jiangsu, Zhejiang, and Anhui [32]. According to the 2018 report on regional migration [1], the Yangtze River delta urban region has the biggest migrant population (25.9 million) of all Chinese urban regions. This large migrant population, as well as the great diversity of cities, makes the Yangtze River delta urban region a good case study for the purposes of our research.

Of the 66 main cities in the region, 20 have been chosen as study objects, including 1 national-level city (Shanghai), 11 prefectural-level cities (Nanjing, Hangzhou, Suzhou, Changzhou, Hefei, Wuxi, Shaoxing, Nantong, Huzhou, Jinhua, and Chuzhou), and 8 county-level cities (Kunshan, Jiangyin, Yiwu, Jiaxing, Yixing, Zhuji, Ma'anshan, and Tongling). The reason for this is pragmatic. Analyzing the hukou access policies of individual cities is a labor-intensive undertaking and we did not have the staffing capacity to analyze all 66 cities. The city selection process was based on three criteria:

1. The selected cities needed to have a balanced spread over the three provinces;
2. The selected cities needed to represent different population sizes, economic characteristics, and administrative levels;
3. Information on local hukou policies needed to be available.

Some basic information about the selected cities is presented in Table 1 and Figure 3.

Table 1. Names and numbers of 20 study cities.

No.	City	No.	City
1	Shanghai	11	Jiangyin
2	Nanjing	12	Yiwu
3	Hangzhou	13	Huzhou
4	Suzhou	14	Jiaxing
5	Changzhou	15	Yixing
6	Hefei	16	Zhuji
7	Wuxi	17	Jinhua
8	Shaoxing	18	Ma'anshan
9	Nantong	19	Tongling
10	Kunshan	20	Chuzhou

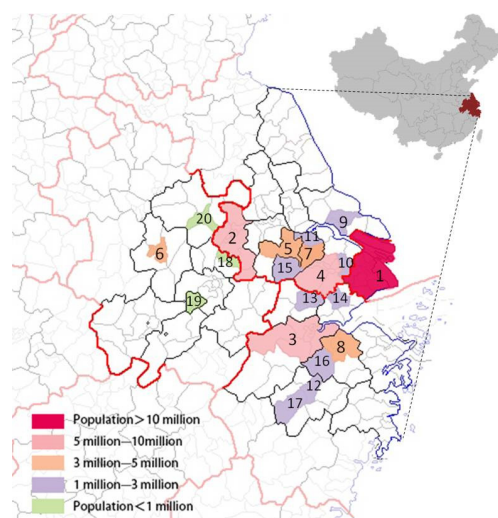


Figure 3. Location of the Yangtze river delta urban region and population size of the 20 study cities. Source: own elaboration.

For each city, the city boundary is confined to the scope of the city's urban districts instead of the municipality as a whole. This implies that rural spaces attached to the city administration are eliminated from the study area [34] (more detailed explanation can be found in the article of Chan [32]).

3.2. Data

The data for this study come from the China Migrants Dynamic Survey (CMDS) 2017, which was conducted by the National Health and Family Planning Commission of the People's Republic (PR) of China. The CMDS is a random (on the individual level) annual survey targeting migrant population. It seeks to understand the sociodemographic characteristics, migration and settlement trends, employment and social security attributes, housing and financial situations, health status and family planning, and social integration of migrants. The sample size in this survey reaches 200,000 per year, and the survey covers almost all provinces and cities in China. The survey data used in this paper yielded a total of 19,100 valid responses, covering all 20 study cities. The sample size per city depends on the population size of the city concerned (see Table 2) and is at least 120.

Table 2. Sample size of study areas. Source: China Migrants Dynamic Survey (CMDS), 2017.

No.	City	Sample Size	No.	City	Sample Size
1	Shanghai	7000	11	Jiangyin	560
2	Nanjing	2000	12	Yiwu	520
3	Hangzhou	1800	13	Huzhou	240
4	Suzhou	960	14	Jiaxing	360
5	Changzhou	760	15	Yixing	240
6	Hefei	1580	16	Zhuji	120
7	Wuxi	1120	17	Jinhua	240
8	Shaoxing	440	18	Ma'anshan	120
9	Nantong	200	19	Tongling	160
10	Kunshan	440	20	Chuzhou	240

4. Explaining Stringency of Local Hukou Access Policies

The analysis presented in this section attempts to answer the first research question: What are the differences in city level hukou access policies and how can these differences be explained? (When we speak of explaining in this section, we refer to explaining in a statistical sense, which is not necessarily the same as explaining in a causal sense.) First, we outline the methods that were applied for this policy evaluation (Section 4.1). In this section, we strongly build upon the work of Jipeng Zhang and his colleagues [5]. In Section 4.2, we present the results of the analysis.

4.1. Methods

Within the framework of the hukou policies of the central and local governments, there are five channels into local hukou acquisition (see Figure 4): investment (including house purchase), employment, joining family, making a special contribution, and others [23,24]. In practice, investment and employment have become the primary channels to grant immigrants access to a local hukou and these two channels are often translated into several more detailed criteria such as amount of investment, amount of tax payment, floor area of purchased housing, age, educational qualification, type of labor contract, years of social security payments, years of residence, availability of a rental contract, etc. [5,24]. Although the general pattern is largely the same, specific access criteria may differ between cities [5].

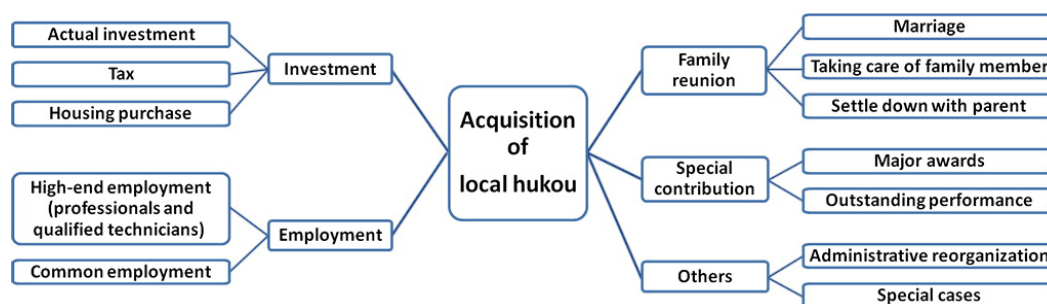


Figure 4. Channels into local hukou acquisition. Source: own elaboration.

In our analysis, we also focused on the housing and employment related aspects of local hukou access policies. In line with the central government's hukou policy reform document [10], we distinguished five stringency levels in local hukou access policy (see Table 3).

Table 3. Evaluation criteria of hukou stringency level. Source: own elaboration based on [5] and an analysis of local policy documents.

Level	Stringency	Criteria	City	Index Value
1	Very low	Stable residence (including private rental) or legal stable employment.	Tongling, Chuzhou	<0.3
2	Low	Requires 2 years (or less) of local residence, working and participation in social security scheme; or other additional conditions, such as education, housing purchase.	Hefei, Shaoxing, Zhuji, Jinhua, Ma'anshan	0.3–0.5
3	Medium	Requires 3 years (or less) of local residence, working and participation in social security scheme; or other additional conditions, such as education, housing purchase.	Jiangyin, Yiwu, Jiaxing, Yixing, Nantong, Huzhou	0.5–0.7
4	High	Requires 5 years (or less) of local residence, working and participation in social security scheme; or other additional conditions, such as education, housing purchase.	Nanjing, Hangzhou, Changzhou, Wuxi, Kunshan	0.7–1.0
5	Very high	Requires more than 5 years of local residence, working and participation in social security scheme or other additional conditions, such as education, housing purchase plus waiting in line.	Shanghai, Suzhou	>1.0

The construction of Table 3 is based on an analysis of existing literature and municipal policy documents. Several researchers have measured the strictness of local hukou registration policies [5,23,24,35]. Our local hukou policy assessment is mainly based on the hukou access policy index constructed by Jipeng Zhang and his team [5] (see also Appendix A). They studied the hukou policies of 120 cities in China and built up an index that measures the strictness of hukou access policies. For 13 out of our 20 selected cities, we base our classification on existing data from this index. For the other 7 cities, we analyzed local hukou policy documents and calculated the stringency index ourselves, following the method of Zhang, Wang and Lu [5].

4.2. Determinants of the Strictness of Local Hukou Policies

Table 3 already gives an insight into the stringency of local hukou access criteria in the 20 selected cities. In this subsection, we try to provide an explanation for the pattern shown in this table, thereby answering the first research question: What are the differences in city level hukou access

policies and how can these differences be explained? Previous studies [23,24] have pointed out that a city's financial resources, its attractiveness, the pace of urbanization and construction, and its external connections can explain about 80% of the strictness of local hukou access criteria. In order to assess whether these variables still play a role after the 2014 hukou reform, we looked at the correlations between the stringency of local hukou policies on the one hand, and the de facto population size, the proportion of migrants, the per capita GDP, and the geographical location of the destination city on the other (see Appendix B for detailed statistical information on these indicators).

As shown in Figure 5, there is a clear correlation between a city's financial situation and its' hukou access stringency level. The richer the city is (in relative terms), the stricter the hukou access policy tends to be. Wealthy cities are very popular among migrants which allows these cities to be selective in their access criteria. In this respect, it is ironic that it is the migrant population that has made a considerable contribution to these cities' economic development [36].

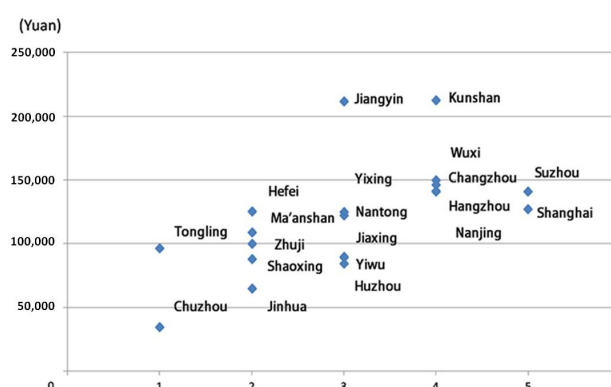


Figure 5. Per capita GDP and hukou access stringency level. Source: own elaboration based on Table 3 and Appendix B.

Figure 6 presents the relationship between the proportion of migrants and the local hukou access stringency level. Just as with the per capita GDP, a positive correlation with the local hukou stringency index can be discerned. Cities with a larger proportion of migrants tend to have stricter hukou access criteria. With such criteria, they attempt to protect their local welfare systems against a too heavy burden.

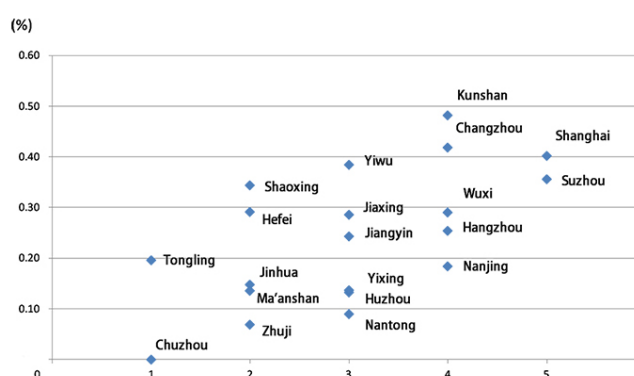


Figure 6. Proportion of migrants and hukou access stringency level. Source: own elaboration based on Table 3 and Appendix B.

Figure 7 shows the relationship between strictness of local hukou access policies and the local de facto population (consisting of both local hukou holders and migrants). Here, a positive correlation is also seen, but the pattern is less clear than in Figures 5 and 6. This suggests that the stringency of local hukou access policies is not always in correspondence with the size of the population, as recommended by the central government (see also Figure 2). For example, rather big cities such as

Hefei and Shaoxing have a rather relaxed hukou access policy, whereas a relatively small city such as Kunshan actually has a comparatively strict hukou access policy.

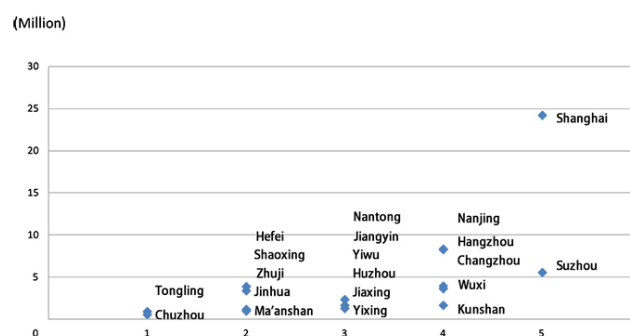


Figure 7. De facto population and hukou access stringency level. Source: own elaboration based on Table 3 and Appendix B.

Geographical factors may offer an explanation for the deviations observed in Figure 7. As Figure 8 shows, the strictness of local hukou policies shows a tendency to lessen as the distance from the central city of Shanghai increases. This reflects the economies of agglomeration of the megalopolis Shanghai [37]. Smaller cities that are close to Shanghai, such as Kunshan, Suzhou, and Jiaxing clearly have a comparatively good economic situation and relatively stringent local hukou policies. On the other hand, cities at a greater distance from Shanghai, for example Hefei, have fewer development opportunities and less stringent local hukou policies, even if they have a considerable population size.

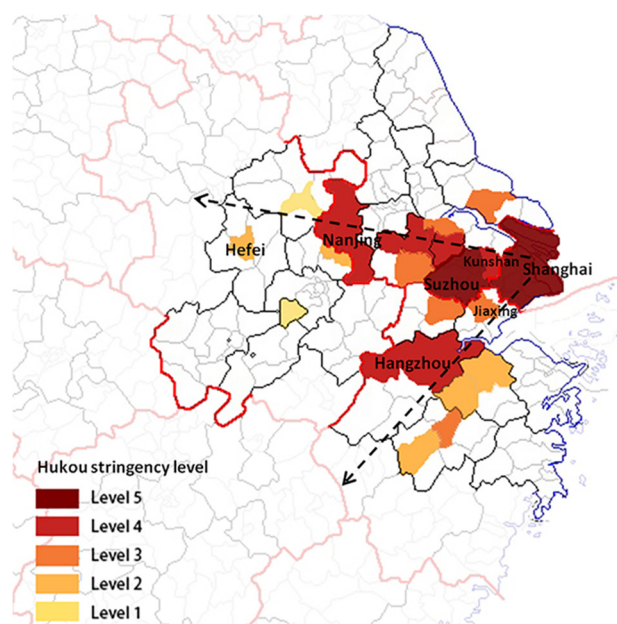


Figure 8. Geographic position and hukou access stringency level. Source: own elaboration based on Table 3.

5. Local Hukou Policy and Intentions of Migrants

This section deals with the second research question: To what extent do the local hukou access policies influence the permanent settlement and the hukou transfer intentions of migrants? In order to answer this question, we connected the results of our hukou policy evaluation (Section 4) to micro-level data on the intentions of migrants from the CMDS database. We first carried out a bivariate analysis (Section 5.1), followed by multivariate logistic regression analysis (Section 5.2).

5.1. Introduction and Bivariate Analysis

The CMDS database contains responses to two questions about the intentions of migrants. The first of these questions is: “Do you want to transfer your hukou into a local hukou if you are qualified?”. The answer categories for this question are “yes”, “no”, and “not sure”. During the data processing, both “no” and “not sure” are considered as “no”. The second question is: “Do you intend to remain living here for some time? If you do, how long do you expect to stay?”. The answer categories include “I do not intend to stay”, “1 to 2 years”, “3 to 5 years”, “6 to 10 years”, “a decade and above”, “permanently”, and “not sure”. In the data processing process, “permanently” is considered as “permanent settlement intention”, whereas the rest mean “no permanent settlement intention”.

Figure 9 shows the relationship between the intentions of migrants and the stringency of local hukou access policies. The table shows that a relatively large proportion of migrants are not interested in permanent settlement nor in hukou transfer. This supports the hypothesis that after the most recent hukou reform, the acquisition of local urban hukou has become less important for migrants (see also Section 2.2). Nevertheless, important differences between cities remain. In the remainder of this section, these differences, and their connection with the stringency of local hukou access policies, are further explored.

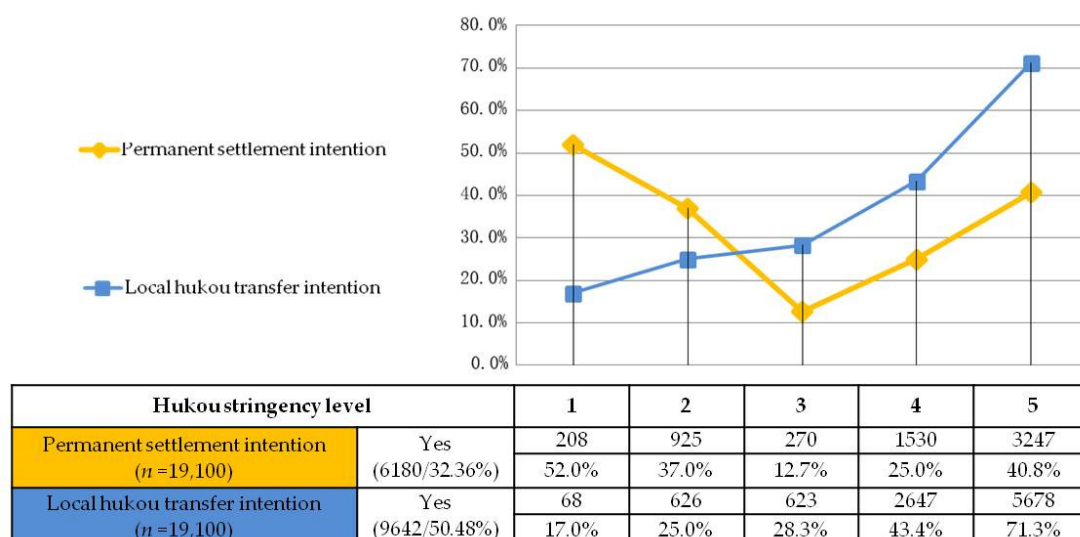


Figure 9. Permanent settlement and hukou transfer intention in cities with different hukou access stringency levels. Source: CMDS, 2017.

The hukou transfer intention is positively related to the strictness of the local access hukou policies in a fairly linear way. The stricter the local hukou access policy is, the stronger the willingness of migrants to opt for transferring their current hukou into a local one. This indicates that hukou transfer is less attractive in cities with a relatively loose hukou access policy, but still very attractive for migrants residing in cities with a strong level of economic development and a large migrant population. This is consistent with the findings of Liu and Wang [21], and Gu, Liu and Shen [20].

The connection between strictness of local hukou policies and permanent settlement intention follows a V-shaped curve. Migrants living in cities with either loose or strict hukou access criteria show a higher permanent settlement intention than migrants who live in cities with moderately strict hukou access criteria. As far as the cities with a strict local hukou policy access are concerned, a likely explanation for this can be found in the fact that these cities have a strong economic base, reflected in a relatively high per capita income. Therefore, these cities can offer their citizens good professional and income opportunities, as well as a good level of public services [38]. For the cities with a loose local hukou access policy, the story is different. In these cities, it seems that migrants relatively often

want to settle down permanently in order to reduce their living expenses and gain access to cheaper housing (compared to living in a bigger city) [31].

To better grasp this perhaps somewhat unexpected pattern, Table 4 gives insight into the reasons why migrants want to settle down permanently. It refers to the 20 cities in our sample and is broken down into the five different levels of strictness of local hukou access policies. The table shows that in cities with relatively loose local hukou access criteria, education and family-oriented reasons are relatively important. This is probably related to the fact that in China, even smaller cities offer access to a level of education that is superior to that available in rural areas. For example Ma'anshan, a city with a population of "just" 740,000 inhabitants, accommodates 2 of the top 300 high schools nationwide (according to China's top high school ranking 2017 (<http://www.cuaa.net>)).

Table 4. Reasons for permanent settlement in cities with different hukou access stringency levels, Source: CMDS, 2017.

Reasons for Permanent Settlement	Hukou Stringency Level					Average
	1 (52.0%)	2 (37.0%)	3 (12.7%)	4 (25.0%)	5 (40.8%)	
1. Career development and income	14.4%	13.6%	34.8%	35.6%	33.2%	30.3%
2. Convenient urban life	9.6%	11.1%	7.8%	11.1%	6.6%	8.6%
3. Better education for children	38.9%	46.6%	29.3%	28.6%	27.7%	31.2%
4. Better medical care	0.0%	0.9%	0.0%	0.9%	1.4%	1.1%
5. Local social network	13.5%	8.3%	15.2%	10.3%	17.9%	14.3%
6. Better governance	1.0%	0.9%	0.4%	0.8%	1.4%	1.1%
7. Family used to local situation	18.8%	16.6%	10.4%	10.2%	10.2%	11.4%
8. Other	3.8%	1.9%	2.2%	2.5%	1.6%	2.0%

In cities with stricter local hukou access policies, education seems to be somewhat less important as a reason for permanent settlement, perhaps because a good level of education is taken for granted. In these cities, career development and income feature as the primary reasons for permanent settlement. In general, the prospects for making a good professional career and earning a good income are best in the biggest and richest cities, which also tend to be the cities with the strictest local hukou access criteria. Our hypothesis is that the above trends make the cities with medium strict local hukou criteria comparatively less attractive for permanent settlement. In these cities, living costs tend to be higher than in the cities with less stringent hukou policies, whereas local education will be of a similar standard. Furthermore, even though the income and career opportunities may be somewhat better than in smaller cities, they are not as good as in the cities with the strictest local hukou access criteria. Thus, in a way, the cities with medium strict local hukou criteria "fall between two stools", which may explain why they are not very popular among migrants as a permanent settlement destination. However, further research based on a large sample of cities is needed to test this assumption.

If we compare the two intentions for cities with of the same hukou access stringency level, it can be observed that in cities with loose hukou access conditions, more migrants choose to settle down permanently without transferring into local hukou. For cities with strict local hukou access criteria, it is the other way around. In these cities, hukou transfer is more desired than permanent settlement. Based on this pattern, we hypothesize that in cities with loose hukou registration regulations, a local hukou is no longer attractive to the migrant population and may even be repelled. In cities with strict hukou access criteria, a local hukou is still popular and may even be a prerequisite for permanent residence.

5.2. Multivariate Analysis

Section 5.1 has shown that there is a bivariate association between the strictness of local hukou access policies on the one hand, and the permanent settlement intention and hukou transfer intention of migrants on the other. It also demonstrated that there is a positive, and fairly linear, relationship between strictness of local hukou access policies and the intention of hukou transfer, whereas the

connection between strictness of local hukou access policies and permanent settlement intention followed a V-shaped curve. The question is would these patterns remain if we correct for individual level factors that determine the intentions of migrants? In order to gain insight into this we carried out two logistic regression analyses. The dependent variables are the intention of permanent settlement in the current destination city and the willingness of transferring the current hukou into the hukou of the destination city. As has already been mentioned in Section 5.1, both variables have been transformed into binary variables (1 = yes, 0 = no).

Independent Variables

Informed by the literature review and the possibilities that the database offers, 17 independent variables were selected. As Table 5 shows, the independent variables can be grouped into six different categories. The first category concerns the stringency of local hukou access policies for the 20 cities in this study. In a bivariate way, the influence of this variable has already been discussed in Section 5.1. The variable is of an institutional nature and refers to the city level.

In contrast, all the other variables listed in Table 5 refer to the individual characteristics of migrants. Of these, the second category of variables refers to the sociodemographic characteristics of migrants, such as gender, generation, level of education and hukou type (agricultural vs. non-agricultural). The third group of variables is about migration features (these features refer to the adult life of the migrant), including length of time a migrant resided in their last destination (local migration duration), total migration duration, migration frequency (number of migration moves), and the type (inter-province or intra-province) of the last move. The fourth group of variables focuses on the employment and financial situation: employment status, monthly family income, and farmland ownership. The fifth group of variables is about the housing situation of migrants: housing tenure and monthly housing expenditure. Finally, the sixth group of variables refers to the extent to which migrants are integrated into the urban society they currently reside in: perception of belonging, degree of local social interaction, and participation in local social insurance schemes.

Taking into account the independent variables shown in Table 5, two binary logistic regression models were estimated. In the first model, the permanent settlement intention was used as the dependent variable, whereas the second model used the intention of transferring the current hukou into the hukou of the destination city as the dependent variable.

Table 5. Descriptive statistics of the independent variables. Source: CMDS, 2017.

Variables		Number of Cases	(%) / Mean
Dependent variables			
Permanent settlement intention	Yes	6180	32.4
	No	12,920	67.6
Hukou transfer intention	Yes	9627	50.4
	No	9473	49.6
Independent variables			
Institutional factors			
Strictness of local hukou access policies	Very low (level 1)	400	2.1
	Low (level 2)	2500	13.1
	Medium (level 3)	2120	11.1
	High (level 4)	6120	32.0
	Very high (level 5)	7960	41.7
Sociodemographic factors			
Gender	Male	9804	51.3
	Female	9296	48.7
Generation	First generation (born ≤1980)	7669	40.2

	New generation (born > 1980)	11,426	59.8
Marital status	Married	15,999	83.8
	Single	3101	16.2
Education	Primary school and below	2741	14.4
	Junior high	7924	41.5
	Secondary school/senior high	4010	21.0
	College and above	4425	23.2
Hukou type	Agricultural hukou	14,830	77.7
	Non-agricultural hukou	4263	22.3
Migration experiences			
Migration scope	Inter-province	14,505	75.9
	Intra-province	4595	24.1
Local migration duration (years)	Average in years	19,100	6.6
Total migration duration (years)	Average in years	19,100	12.1
Total migration frequency	Average number of moves	19,100	2.2
Financial and employment situation			
Monthly family income	<4000 yuan	2233	11.7
	4000–8000 yuan	8528	44.6
	8000–12,000 yuan	4647	24.3
	≥12,000 yuan	3692	19.3
Employment status	Self-employed	4370	22.9
	Employee	12,100	63.4
	Unemployed	2630	13.8
Farmland	Farmland in possession	8856	46.4
	No farmland in possession	10,244	53.6
Housing factor			
Housing tenure	Dormitory provided by	2367	12.4
	Rental housing	11,401	59.7
	Home ownership housing	4968	26.0
	Home of relatives and friends	201	1.1
Monthly housing expenditure (rents and loans)	0 yuan	4392	23.0
	0–1000 yuan	8561	44.8
	1000–2000 yuan	2808	14.7
	>2000 yuan	3339	17.5
Integration factors			
Perception of belonging	Yes	12,297	64.4
	No	6803	35.6
Degree of local interaction	Mainly with local friends	4614	24.2
	Mainly with non-local friends	9964	52.2
	Rarely interacts with others	4522	23.7
Participation in local social insurance schemes	Yes	11,044	57.8
	No	8056	42.2

5.3. Regression Results

Table 6 shows the results of the two binary logistic regression analyses that were carried out. In the remainder of this section, these results are presented and interpreted.

Table 6. Predictors of migrants' permanent settlement intention and hukou transfer intention in a binary logistic regression analysis. Source: CMDS, 2017.

Variables	Model 1			Model 2		
	b	P	Exp (b)	b	P	Exp (b)
Institutional factor						
Hukou access stringency level (ref: Level 5)		0.000			0.000	
Level 4	−0.32	0.000	0.73	−0.94	0.000	0.39
Level 3	−1.04	0.000	0.36	−1.44	0.000	0.24
Level 2	−0.43	0.000	0.65	−1.92	0.000	0.15
Level 1	−0.22	0.103	0.80	−2.43	0.000	0.09
Socio-demographic factors						
Gender (ref: Female)	−0.20	0.000	0.82	−0.12	0.001	0.89
Generation (ref: New generation)	−0.44	0.000	0.65	−0.12	0.006	0.89
Education (ref: College and above)		0.000			0.000	
Secondary school/senior high	−0.54	0.000	0.58	−0.36	0.000	0.70
Junior high	−0.83	0.000	0.44	−0.65	0.000	0.52
Primary school and below	−0.94	0.000	0.39	−0.74	0.000	0.48
Hukou type (ref: Non-agricultural hukou)	−0.32	0.000	0.73	−0.45	0.000	0.64
Migration feature						
Migration scope (ref: intra-province)	−0.24	0.000	0.79	0.18	0.000	1.20
Local migration duration in years	0.04	0.000	1.04	0.03	0.000	1.03
Total migration duration in years	0.02	0.000	1.02	0.02	0.000	1.02
Total migration frequency	−0.04	0.004	0.96	−0.01	0.294	0.99
Financial factors						
Monthly family income (ref: >12000 yuan)		0.000			0.000	
8000–12000 yuan	−0.23	0.010	0.79	−0.28	0.000	0.76
4000–8000 yuan	−0.39	0.000	0.68	−0.35	0.000	0.70
<4000 yuan	−0.46	0.000	0.63	−0.46	0.000	0.63
Employment status (ref: Self-employed)		0.000			0.007	
Employee	−0.21	0.000	0.81	−0.11	0.012	0.90
Unemployed	0.15	0.031	1.16	0.02	0.736	1.14
Farmland (ref: No farmland)	0.04	0.369	1.04	−0.13	0.000	0.88
Housing factors						
Housing tenure (ref: Dormitory provided by employer)		0.000			0.000	
Rental housing	0.66	0.000	1.93	0.41	0.000	1.51
Home ownership	2.16	0.000	8.71	0.34	0.000	1.40
Relatives and friends' home	1.11	0.000	3.04	0.18	0.295	1.20
Monthly housing expenditure (ref: >2000 yuan)		0.000			0.000	
1000–2000 yuan	−0.13	0.043	0.88	0.65	0.304	1.07
0–1000 yuan	−0.60	0.000	0.55	−0.29	0.000	0.75
0 yuan	−0.04	0.536	0.96	−0.02	0.787	0.98
Integration factors						
Perception of belonging (ref: No)	0.93	0.000	2.53	0.55	0.000	1.72

Local interaction (ref: Local friends)	0.000			0.000		
Non-local friends	−0.56	0.000	0.57	−0.30	0.000	0.74
Rarely interacting with others	−0.52	0.000	0.60	−0.37	0.000	0.69
Participation in local social insurance scheme? (ref: No)	0.23	0.000	1.26	0.04	0.272	1.04
Constant	−0.52	5.300	0.56	1.24	0.000	3.46
Nagelkerke R-square	0.47 ($p < 0.001$)			0.30 ($p < 0.001$)		
Number of valid cases	19,100			19,100		

5.3.1. Influence of Strictness of Hukou Access Policies

In this analysis, we are also primarily interested in the effects of the stringency of local hukou policies. In line with the results of the bivariate analysis, the logistic regression analysis revealed a relationship with a V-shaped curve between permanent settlement intention and hukou access stringency level of the city concerned. Migrants show a relatively high propensity to settle down in cities with either a relatively strict or a relatively loose hukou access policy. At the same time, cities with a moderately strict hukou access policy are considered relatively unattractive for permanent settlement. As hypothesized in Section 5.1, this may be related to issues around living costs, quality of available education, and professional opportunities. In any case, our research supports the findings of Liu, Deng and Song [22], who also observed that local hukou access policies have a significant influence on the settlement intention of migrants.

The second logistic regression model shows that the stringency of local hukou access policies is also a statistically significant predictor of the intention of migrants to convert their current hukou into the hukou of the destination city. As far as this is concerned, here the logistic regression analysis also reflects the findings of the bivariate analysis: the stricter the local hukou access policy is, the more popular the local hukous are. Gu, Liu and Shen [20] refer to this paradox as “hukou game”: in cities where local hukous are desired, many migrants are unable to access one, whereas in cities where the local hukous are relatively accessible, many migrants do not desire one. The background of the hukou game is that the welfare entitlements that come with a hukou of a city with strict hukou access policies are generally much more generous than the welfare entitlements that are provided in cities where the hukou policies are less strict. In short, our main conclusion is that the relationships that we reported in Section 5.1 remain valid if we correct for possible confounding individual level factors. In the remainder of this section, the influence of these individual level factors will be further discussed and interpreted against the available literature.

5.3.2. Influence of Socio-Demographic Features

Obviously, socio-demographic features, like gender, generation, education, and hukou type are of significance in the permanent settlement decision-making process. The model shows that compared with the older generation (born < 1980), the younger migrants (born > 1980) show a stronger permanent settlement intention. This may be related to the fact that the younger generation usually has less farming experience and attachment to land and an agricultural way of life. As a result, they are more eager to engage in urban life. They usually focus more on the future development opportunities and character of the destination cities while making residential relocation decisions [38]. Education level also has a strong influence. Migrants who have completed higher education (college and above) have stronger intentions to settle down permanently than migrants with lower education levels. This is consistent with the work of Yang and Guo [15], Zhou [18], and Chen and Liu [39] whose studies all observe that human-capital accumulation can increase the permanent settlement intention of migrants. Compared with migrants owning a non-agricultural hukou, those with an agricultural hukou are less willingly to settle down permanently. This is possibly related to the appreciation of the value of a rural hukou, especially the economic asset that farm land and homestead property can represent [25]. In terms of parameters and statistical significance, model 2

(on hukou transfer intention) is very similar to model 1 as far as the influence of socio-demographic factors is concerned.

5.3.3. Influence of Migration Factors

With regard to the permanent settlement intention, all migration factors turned out to be statistically significant. Migrants with longer migration duration (both in general and in the destination city) are more willing to settle down permanently in the destination city [15,30]. Also, intra-province migrants are more willing to settle permanently than inter-provincial migrants. Similar results can also be found in the research of Zhou [18] and Huang, Liu, Xue, Li and Shi [30]. Finally, we found that the total migration frequency (total number of migration moves) had a slight negative effect on the permanent settlement intention. This indicates that the more mobile an individual has been, the less likely they are to settle down permanently. Similar results can be found in the study of Liu and Wang [21].

As far as the intention of hukou transfer is concerned (model 2), the results of the analysis were rather similar. Migrants with a longer migration history (both in general and in the destination city) are more interested in converting their hukou than migrants with a shorter migration history. Furthermore, and in contrast to model 1, inter-province migrants are more interested in getting a local hukou than intra-province migrants. In model 2, the total migration frequency turned out to be statistically insignificant.

5.3.4. Influence of Financial Factors

Financial aspects also play an important role in statistically explaining permanent settlement and hukou transfer intentions. In this respect, a difference between self-employed migrants and migrants who work for an employer can be observed. Migrants who work for themselves are more likely to settle down for good (model 1) and convert their hukou (model 2). Cao, *et al.* [40] concluded that self-employed migrants show a better integration into the local urban society and economy, which may explain their stronger intention for permanent settlement. Tang and Feng [38] and Xie and Chen [29] found similar results in their studies. Family income is a significant variable as well. The higher the income, the more likely it is that migrants choose for permanent settlement. This is related to the fact that having a permanent life in the destination city may not be a feasible option for low income migrants who can barely make ends meet [30]. Contrary to our expectations, the possession of farmland does not have a statistically significant influence on the settlement intention.

As far as the intention for hukou transfer is concerned (model 2), the patterns are largely comparable. Gu, Liu and Shen [20] also pointed out that socio-economic factors, especially income, are among the most significant elements affecting migrants' hukou transfer intention. Furthermore, in this model, the possession of farmland turned out to have a statistically significant negative influence on the intention to transfer hukou. Migrants who possess farmland are less likely to transfer their hukou than migrants who do not possess such an asset. This is consistent with the findings of Meng and Zhao [26], who also conclude that the more farmland a household owns, the less likely family members are to engage in hukou transition.

5.3.5. Influence of Housing Factors

Housing factors have an influence on migrants' permanent settlement intentions as well; according to the regression results, migrants who bought their own houses showed most interest in permanent settlement, followed by migrants who stay with relatives and friends, and then tenants. Migrants who live in dormitories provided by their employer show the least interest in permanent settlement. This is consistent with the findings of Yang and Guo [15], Xie and Chen [29], Tang and Feng [38], and Wen and Wallace [28]. Apart from tenure, housing expenditure is an influential factor too. Migrants with a relatively high housing expenditure are more likely to settle down permanently than migrants with a relatively low housing expenditure. This may be related to the fact that the former migrants can be expected have a better and more comfortable housing situation.

Model 2 shows that housing tenure and housing expenditure are also significant determinants of the hukou transfer intentions of migrants. As far as tenure is concerned, the differences between homeowners and tenants are limited, and both groups show stronger intention of hukou transfer than migrants who live in employer provided dorms. The influence of housing expenditure on hukou transfer intention is less clear and mostly statistically insignificant.

5.3.6. Influence of Integration Factors

Finally, the integration of migrants in the destination city is of clear importance. Migrants with a strong feeling of belonging in the destination city are more inclined to permanent settlement than migrants without such feelings. This is in line with the research results of Yang and Guo [15]. Furthermore, frequent interaction with local people effectively encourages the permanent settlement intention of migrants. This finding is consistent with the research of Huang, Liu, Xue, Li and Shi [30], Yang and Guo [15], and Cao, Li, Ma and Tao [40], who also point out that interactions with local people can significantly improve migrants' permanent settlement intentions. Finally, participation in local social insurance schemes significantly enhances migrants' permanent settlement intentions. Huang, Liu, Xue, Li and Shi [30] came to similar findings in their research.

As far as the intention of hukou transfer is concerned (model 2), the patterns are similar with the exception of the influence of participation in local social insurance schemes. Even though participating in local social insurance schemes for a given number of years is one of the requirements for hukou access in several cities, this factor did not have a statistically significant influence on the hukou transfer intentions of migrants.

6. Conclusions

After the 2014 hukou reform, a lot of Chinese cities loosened their local hukou access policy and the value of a local hukou is increasingly questioned. By comparing the hukou access policies of 20 different cities in the Yangtze River delta urban region and relating those policies to the permanent settlement and hukou transfer intentions of migrants, this paper sheds some light on this issue. Based on our policy and statistical analysis, two main conclusions may be drawn.

First, it has become clear that the local hukou access policy is the result of a complex decision-making process in which the central government provides guidelines, but the local governments make the final decision. Indeed, even though the hukou access policy of each city is similar in structure and clause, the stringency of the hukou policies varies significantly among the 20 cities in our study. It is related to many factors including economic strength of the city (determines local fiscal revenue and public service expenditure), de facto population size, and share of migrant population. The local hukou access policy can be seen as a filter that is used to promote local interests and to optimize the local population structure by means of selecting talents, wealthy investors, or young workers. The stronger and more attractive a local municipality is, the more selective they are, and the higher the local hukou threshold tends to be.

Second, we observed that the strictness of local hukou access criteria has an influence on the perceptions and behavior of migrants, in particular on their willingness to settle down permanently in the destination city, and on their willingness to convert their current hukou into the hukou of that destination city. According to our analysis, cities with strict local hukou access criteria turned out to be popular with migrants, both with regard to permanent settlement and hukou transfer intentions (see also [20]). Indeed, Shanghai, a city with one of the strictest hukou access policies of whole China, also features as one of the most popular cities; in this city, 74.3% of the migrants expressed interest in hukou transfer while 42.7% of the migrants were interested in permanent settlement. At the same time, we observed that the interest in permanent settlement is relatively limited in some cities with medium strict hukou access policies (especially with hukou access stringency level 3), such as Yiwu and Huzhou. In these cities, the proportion of migrants who would like to settle down permanently is lower than 25%. We hypothesize that the limited popularity of these cities might be related to the fact that they have less comparative advantages than both cities with light local hukou access criteria (who tend to have low living costs and comparatively good education) and cities with strict local

hukou access criteria (who tend to offer very good welfare benefits and career and income opportunities). However, further research is needed to test this assumption. Such future research should also try to find out why this V-shaped pattern is visible with regard to permanent settlement intentions, but not with regard to hukou transfer intentions. The hukou transfer intention showed a fairly linear positive relationship with the stringency of local hukou access policies. This implies that in cities with rather strict hukou access policies, a local hukou still matters for migrants.

In our opinion, follow-up research on this topic should take much more cities and different geographical contexts into consideration. Indeed, an important limitation of our research is that only 20 different cities, all located within the specific geographical context of the Yangtze River delta urban region, were included in the analysis. Based on the criteria that we used for sampling these 20 cities, we believe that our research findings can be generalized to Yangtze River delta urban region as a whole (although the inclusion of more cities would lead to more robust results). However, it remains unclear to what extent our conclusions also apply to the city system of China of a whole.

7. Discussion and Policy Implications

Our analysis has shown that in China, and perhaps more in particular in the Yangtze River delta urban region, hukou access policies still matter. Despite the reforms that have taken place, hukou access policies continue to vary between different types of cities and this has an important impact on the behavior and opportunities of migrants. Particularly in bigger and wealthy cities, a local hukou remains a valuable asset. In order to fully achieve the blueprint of the 2014 hukou reform and come to a harmonious, sustainable, and humanized urbanization, more equalization of public services is an important issue. Not only should receiving cities offer basic public services to the migrant population, the strong differences in hukou-related welfare services between cities of different sizes, as well as between cities and rural areas, need to diminish as well. This requires a better coordination between the central government on the one hand and the municipal city governments on the other.

In 2019, the State Council of China took some further steps in the aforementioned direction when it announced new policies on urbanization and hukou reform [41,42]. These new policies propose to further relax the hukou access criteria of cities with a population of less than 3 million people, and they further promote the provision of basic welfare services to all migrants. Furthermore, they should result in more resources for small- and medium-sized cities and in a better coordination of the national urbanization process.

It remains to be seen whether these new policies will really make the hukou system less relevant and lead to a harmonization of hukou access policies across cities. Possibly, some municipal city governments will resist such a harmonization. After all, cities with different sizes and different hukou access policies face different challenges and have different interests. Popular cities with strict local hukou access criteria have to cope with a strong demand for, and pressures on, their local welfare system, whereas less popular cities struggle to maintain their population and increase their competitiveness. Finding a good balance between these different interests is not an easy task, now and in the future.

Although our paper focuses on China and its peculiar hukou system, we think that our research findings have broader implications. After all, urbanization and labor migration are global phenomena. Many big cities around the globe face the challenge of how to regulate, and provide for, the influx of labor migrants. In this sense, our paper connects to the growing literature on urbanization and migration [43–46].

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Results of hukou registration index (source: Zhang et al. 2017, adapted by authors)

No.	City	Index Value by Zhang	Stringency Level
1	Shanghai	2.1385	5
2	Nanjing	0.7379	4
3	Hangzhou	0.8621	4
4	Suzhou	1.3032	5
5	Changzhou	0.7917	4
6	Hefei	0.4403	2
7	Wuxi	0.8621	4
8	Shaoxing	-	2
9	Nantong	0.5886	3
10	Kunshan	-	4
11	Jiangyin	-	3
12	Yiwu	-	3
13	Huzhou	0.5908	3
14	Jiaxing	0.4694	3
15	Yixing	-	3
16	Zhuji	-	2
17	Jinhua	-	2
18	Ma'anshan	0.3897	2
19	Tongling	0.3243 *	1
20	Chuzhou	0.4306 *	1

* Because both Tongling and Chuzhou implemented a new hukou registration policy at the end of the year 2016, the scores of our evaluation are different than the scores that were allocated by Zhang and his team.

Appendix B

Table A2. Statistical description of the 20 cities in this study (source: Statistical Yearbooks of Cities 2018).

No.	City Name	De Facto Population (Million)	De Jure Population (Million)	Proportion of Migrant Population (%)	City District Area (km ²)	GDP (Billion Yuan)	Per Capita GDP (Yuan)
1	Shanghai	24.18	14.46	0.40	6340.5	3063.3	126,687
2	Nanjing	8.34	6.81	0.18	6596	1171.51	141,103
3	Hangzhou	8.24	6.15	0.25	8000	1162.15	143,392
4	Suzhou	5.53	3.56	0.36	4652.84	777.7	140,632
5	Changzhou	3.95	2.3	0.42	2837.63	576.04	145,833
6	Hefei	3.85	2.73	0.29	1283	481.25	88,456
7	Wuxi	3.65	2.59	0.29	1643.88	546.53	149,734
8	Shaoxing	3.37	2.21	0.34	2965	295.17	87,588
9	Nantong	2.35	2.14	0.09	1629	286.26	121,813
10	Kunshan	1.66	0.86	0.48	931.51	352.04	212,072
11	Jiangyin	1.65	1.25	0.24	986.97	348.83	211,412

12	Yiwu	1.3	0.8	0.38	1105	115.52	88,862
13	Huzhou	1.29	1.12	0.13	1565	108.5	97,457
14	Jiaxing	1.26	0.9	0.29	987	112.55	89,889
15	Yixing	1.25	1.08	0.14	1996.61	155.83	124,664
16	Zhuji	1.17	1.09	0.07	2311	116.54	99,607
17	Jinhua	1.15	0.98	0.15	2094	74.14	64470
18	Ma'anshan	0.96	0.83	0.14	704	104.25	74,709
19	Tongling	0.92	0.74	0.20	1064.47	88.5	96,196
20	Chuzhou	0.56	0.56	0.00	1405.5	19.32	34,500

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