

# How Equalization of Basic Public Services Affects Settlement Intentions of Rural-Urban Migrants: Evidence from China Migrants Dynamic Survey

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**Abstract.** From a public economics perspective, basic public services play a crucial part in influencing rural-urban migrants' settlement intentions. However, there is limited research analyzing this issue in terms of the equitable access to these public services among different migrant groups. This study uses data from the 2017 China Migrants Dynamics Survey (CMDs2017) and within the context of large-scale migration in China, calculates individual access to basic public services for rural-urban migrants across six dimensions. It develops an equalization index of basic public services at the urban level to examine how this affects the settlement intentions of rural-urban migrants and the underlying mechanisms. The results indicate that improvements in the equalization of basic public services significantly enhance migrants' intentions to settle permanently in urban areas. These findings are robust across various tests. Further heterogeneity analysis indicates that the positive impact of public service equalization is more noticeable among older generations but does not differ significantly by education level or mobility ranges, showing hardly any difference in coefficients. Mechanism analysis reveals that participation in social activities and psychological identity are key mediators of these effects. These insights offer valuable policy suggestions for governments. The policymakers should concentrate on enhancing the equalization of basic public services to effectively attract more rural-urban migrants, thus accelerating urban development in China.

**Keywords:** Basic Public Services, Migration, Settlement Intention, Urbanization.

## 1. Introduction

Migration issues have been extensively discussed on a global scale, especially due to globalization, income inequality, and changing in economic demands, more individuals pursue better economic opportunities and higher living standards through migration [1]. However, migrants often face numerous challenges in their new environments, including social integration, resource allocation, and policy barriers [2, 3]. In China, the most significant migration issue is not international but domestic migration, particularly rural-to-urban migration [4]. Over the past decade, rapid economic growth and urbanization have driven large-scale rural-to-urban migration with the characteristic of labor market division and family immigration [5]. In line with the Seventh National Population Census, rural-urban migration reached 375.82 million people, representing a 69.73% rise compared to 2010 [6]. Despite this massive migration, many rural-urban migrants do not settle down permanently in the cities they migrate to, frequently returning to their hometowns. These migrants occupy a marginal status in urban society, posing significant challenges to social stability and sustainability [7]. The reasons causing China's migrants to form this transfer pattern are still left to be considered.

For decades, the hukou (household registration) system has been seen as a primary factor influencing rural-urban migrants' settlement intentions [8]. This system categorizes residents into rural and urban categories, resulting in unequal availability of social services such as education, social security, work prospect, and housing subsidies. Migrants without urban hukou are often excluded from urban benefits and marginalized [9]. However, recent studies have revealed that the influence of the hukou system on settlement intentions is weakening due to reformation. [10].

In addition to hukou reforms, another critical policy affecting rural-urban migrants' welfare is the equalization of basic public services. Recognizing that relying on unequal access to public services to drive urbanization is unsustainable, the Chinese government has taken steps to address this issue

[11]. Since the 18th National Congress of the Communist Party of China (CPC) in 2012, the government has issued several policy documents emphasizing people-centered urbanization, hukou reform, and the need to provide rural migrant workers with equal access to basic public services. In particular, the 2013 Third Plenary Session of the 18th CPC Central Committee established the goal of “steadily promoting full coverage of basic public services for permanent residents”. In the following years, the government has worked to enhance equalization of basic public services through policies such as “Opinions on Further Promoting the Reform of the Household Registration System”.

“National Standards of Basic Public Service 2021”, “14th Five-Year Public Service Plan”, “National Standards of Basic Public Service” and the “The Establishment of a System of Standards for Basic Public Service”. These initiatives have clarified the baseline for public services, updated national standards, and aimed to improve the equalization of basic public services.

Despite the recent policy changes, few studies have explored how the equalization of basic public services affects rural-urban migrants’ settlement intentions. Moreover, the mechanisms through which these policies influence settlement intentions remain under-examined. Therefore, this paper seeks to address this gap by examining whether the equalization of basic public services enhances rural-urban migrants’ settlement intentions, identifying the underlying mechanisms, and analyzing how these effects vary across different demographic groups. To better examine the relationship between the equalization of basic public services and the settlement intention of rural-urban migrants, this paper utilizes data from the China Migrants Dynamic Survey (CMDS2017) for regression analysis.

This study complements the relevant literature. First, by constructing an evaluation framework to measure the level of basic public service equalization at the city level, and this framework enables the analysis of how equalization impacts migrants’ settlement intentions. Second, the paper complements the analysis with heterogeneity based on the migrants’ generation, education level, and migration distance. Third, it explores the potential mechanisms related to social participation and psychological integration. Additionally, according to the findings of empirical analysis, this paper makes pertinent research conclusions and specific policy recommendations.

The remainder of this paper is structured as follows. Section 2 proposes the hypotheses based on relevant literature. Section 3 outlines the data, variables, and estimation models employed in the analysis. Section 4 displays the baseline results and robustness checks. Section 5 discusses the heterogeneity results and mechanism analysis. Finally, Section 6 presents the conclusions.

## 2. Research Hypotheses

With the rise in the awareness of rural-urban migrants about public services, the factors related to settlement intention can be broadly divided into personal feature and external effect. Individual factors include human capital, social capital, health status, and labor market performance [12]. External factors, which are mainly related to the characteristic of the cities. Studies have shown that access to healthcare and education, local attitudes towards migrants and environmental quality are significant factors. Scholars have assessed the equalization of basic public services using various dimensions, such as public input-output, basic government financial expenditure, public service satisfaction or using Gini coefficient to measure equalization [13-16].

As mentioned before, rural-urban migrants’ settlement intention will be differed due to internal and external factors. In the Chinese context, the hukou system plays a decisive role in settlement decisions, with stricter hukou policies reducing the likelihood of permanent settlement [17]. Additionally, land ownership in migrants’ hometowns significantly reduces their intention to transfer their hukou while access to social security or formal housing in the destination city increases this intention [18, 19]. For external variables, Zhou and Ren et al. found that cities where migrants prefer to settle offering higher wages, more job opportunities, and greater digitalization [20, 21]. Bayoh et al. demonstrated that improvements in education and public services enhance migrants’ willingness to settle [22]. In China, similar theories also show that improvements in education and the

environment can increase migrants' willingness to settle [23]. Social insurance schemes, such as health insurance, have been shown to positively affect settlement intentions [24]. The paper found that participation in urban social welfare programs significantly enhances migrants' intention to stay and transition to urban residency, especially over time [25]. Chen and Liu highlighted the positive role of participation in social organizations and connections with locals in fostering settlement intentions [26]. Moreover, Liu et al. revealed that policies promoting equal access to basic public health services have a particularly strong effect on low-income and cross-provincial migrants, as well as younger generations [24]. These findings have already implied that "equalization of public services" influences the "settlement intentions of rural-urban migrants", thus proposing Hypothesis 1.

H1 (Hypothesis 1). Improving public services equalization will enhance migrants' settlement intention.

Despite those factors, individual characteristics can also be considered to cause differences in migrants' settlement intention. In contrast, older migrants usually have strong family ties and consideration for children's education, their settlement intention is weakened by these effects [25]. Some studies show that due to better education access and stronger social network and higher pursuit in employment opportunity, younger migrants tend to have higher settlement intention [26]. Moreover, Jensen and Pederson found that migrants with higher education and better job quality are more likely to integrate into their new cities [27]. Similarly, Liu and Wang observed that high-skilled migrants exhibit a greater inclination than low-skilled migrants to settle in urban area [26]. Additionally, the range of mobility is negatively related to migrants' settlement intention, studies found that longer distance, more living arrangements needed to consider, that discourages long-term settlement willingness [28]. These studies suggest that the equalization of public services may have heterogeneous effects on migrants' settlement intentions, thus proposing Hypothesis 2:

H2 (Hypothesis 2). Public service equalization has a heterogeneous impact on migrants' settlement intention in terms of generation, education and mobility range.

### **3. Research Design**

#### **3.1. Data Source**

The microdata utilized in this study comes from the 2017 China Migrant Population Dynamics Monitoring Survey (CMDS2017), carried out by the Chinese National Health and Family Planning Commission, using a multi-stage, hierarchical, probability proportional to size (PPS) sampling technique. It covered 31 provinces across China, randomly selecting representative samples of approximately 170,000 individuals, with data on around 450,000 family members. The survey was directed at individuals at least aged 15 who had lived in their migration destination for at least one month. The questionnaire collected information on various aspects, including family structure, income, employment, settlement intentions, health, and access to public services. Compared to previous iterations, the 2017 survey included more detailed questions on rural-urban migrants' settlement intentions, making it particularly suitable for this study. Additionally, city-level data from the 2018 China City Statistical Yearbook was incorporated, reflecting urban conditions in 2017.

Focusing on rural-urban migrants, this study uses Stata to process data, following the definition provided by the National Bureau of Statistics. First, the sample includes only individuals aged 15 to 64 with rural household registration. Second, individuals who had resided at their present location for less than six months were excluded. Third, only those who migrated primarily for employment or business purposes were retained. To reduce potential bias due to small sample sizes, cities with fewer than 30 respondents were excluded, resulting in a final dataset of 87,659 valid cases covering 231 cities.

### 3.2. Variable Selection

#### 3.2.1. Dependent Variable

The dependent variable in this study is the long-term settlement intention of rural-urban migrants, represented as a binary variable (0-1). It is derived from two survey questions: “If all conditions are met, would you like to settle permanently in this city?” and “How long do you plan to stay here?” The reason for using these questions is to reflect rural-urban migrants’ settlement intention through the time they are willing to stay. Responses included “yes,” “no,” and “undecided.” For the analysis, “yes” is coded as 1, and all other responses are coded as 0. Additionally, individuals expressing an intention to stay for at least five years were coded as 1, while those planning to stay less than five years were coded as 0. Based on this definition, 31,838 respondents (35.72% of the total sample) expressed a desire for long-term settlement, reflecting a relatively low overall intention to settle permanently.

#### 3.2.2. Independent Variable

The key independent variable is the level of equalization of basic public services in urban areas. This is constructed by assessing access to services in six dimensions: employment (characteristics of employment), basic education (distribution of education resources), health and sanitation (urban healthcare), social security (ease of access), housing security (real estate policy), and residence permits (hukou system) [29]. Eleven indicators were selected to measure access to these services (see Table 1). Employing the methodology from Alkire and Foster the equalization of public services is calculated for each city [30].

**Table 1.** Frameworks of Equalization of Basic Public Services

| Dimension              | Indicator                        | Indicator Description                                                                                                                                                                                            | Weight |
|------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Employment             | Employment opportunity           | Whether provided paid work more than 1 hour a week before the survey (yes=1, no=0)                                                                                                                               | 1/12   |
|                        | Labor contract                   | Whether signed up any labor contracts with workplace (yes=1, no=0)                                                                                                                                               | 1/12   |
| Basic public education | Accompanied children’s education | At local places, whether there are difficulties on children’s education (yes=1, no=0)                                                                                                                            | 1/6    |
| Health and sanitation  | Health awareness                 | Whether you have heard about the “National basic public sanitation service program” (yes=1, no=0)                                                                                                                | 1/24   |
|                        | Health file                      | Whether build up resident health file at local place (yes=1, no=0)                                                                                                                                               | 1/24   |
|                        | Health education                 | Kinds of health education received before (From A to I, more than 5 kinds =1, less than 5 kinds=0)                                                                                                               | 1/24   |
|                        | Medical service                  | The time needed to travel to nearest health service institution from living place is less than 15 minutes (yes=1, no=0)                                                                                          | 1/24   |
| Social insurance       | Social security card             | Whether to transact a personal social security card (yes=1, no=0)                                                                                                                                                | 1/12   |
|                        | Medical insurance                | Joining urban-rural resident, urban resident, urban workers’ medical insurance or being covered by public expense medical insurance=1, join newly co-operate rural medical insurance or not join any insurance=0 | 1/12   |
| Housing guarantee      | Property of housing              | Which characteristic is the currently lived-in house (government-provided house, self- purchase protection house=1, other kinds=0)                                                                               | 1/6    |
| Residence permit       | Temporary residence permit       | Whether obtained a temporary residence permit/residence permit (yes=1, no=0)                                                                                                                                     | 1/6    |

First, let there be  $m$  rural-urban migrants in City  $C$ , with  $n$  representing the number of dimensions of public services. The matrix  $x_c = [X_{ij}]_{m \times n}$  reflects the extent to which migrants in City  $C$  access various public services. Here,  $x_{ij}$  is a binary variable, where  $x_{ij} = 1$  indicates that migrant  $i$  has access to service  $j$ , and  $x_{ij} = 0$  indicates deprivation.

Next, the share of basic public service access for each migrant is calculated as follows:  $c_i = \sum_{j=1}^m w_j x_{ij}$  where  $w_j$  represents the weight assigned to each dimension. This study uses an equal-weight approach, assigning a weight of 1/6 to each of the six dimensions. Let  $k$  be the threshold for equalization of basic public services. The identification function  $p_i(k)$  indicates whether migrant  $i$  has access to services across multiple dimensions. When  $c_i \geq k$ ,  $p_i(k) = 1$ , meaning migrant  $i$  has access to multiple public services. When  $c_i < k$ ,  $p_i(k) = 0$ , meaning migrant  $i$  does not have access to sufficient services. In the base analysis,  $k$  is set to 0.4, with robustness tests using  $k$  values of 0.5 and 0.6.

Finally, each city's equalization of basic public services index  $P_c$  is calculated as follows:  $EP_c = P_c \times A$ , where  $P_c$  measures the breadth of access to services, calculated as the proportion of migrants with access to services across multiple dimensions:  $P_c = \sum_{i=1}^n p_i(k) / n$ . This reflects the proportion of rural-urban migrants with multi-dimensional access to basic public services. A measure the depth of service access:  $A = \sum_{i=1}^n p_i(k) \sum_{j=1}^m w_j x_{ij} / \sum_{i=1}^n p_i(k)$ . This reflects the average number of services accessed by rural-urban migrants.

By following these steps, the equalization index for basic public services is calculated for each city, representing the level of service equalization available to rural-urban migrants.

### 3.2.3. Control Variables

Based on previous researches, this paper selects three categories of control variables: individual characteristics, job characteristics and migration characteristics. Additionally, a dummy variable for the inflow province is included into the model.

The individual characteristics include gender, age, education level, marital status, household size, and political affiliation. The job characteristics indicate whether the migrants are employed in white-collar jobs. The migration characteristics consist of property ownership, migration range, and duration, also cover GDP per capita and the type of dominant industry. In total, 15 variables are considered. The definitions of these variables are presented in Table 2.

**Table 2.** Definitions of Variables

| Variables                     | Definitions of variables                                                                                                |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Settlement intention          | If the local settlement conditions are met , willingness to move hukou to the local area = 1, unwilling and no idea = 0 |
| Basic public service provided | Index of basic public service equalization, calculated by the author                                                    |
| Age                           | Respondents' ages in 2017                                                                                               |
| Age*2/100                     | The square of respondents' age divided by 100 in 2017                                                                   |
| Gender                        | Respondents' gender male=1; female=0                                                                                    |
| Number of educated years      | The years of education received by respondents (year)                                                                   |
| Marriage                      | Marriage status of respondent: married(first marriage, remarry)=1; spinsterhood, divorce, widowed and cohabitation=0    |
| Home size                     | Family number of respondents in 2017                                                                                    |
| Party affiliation             | Party affiliation of respondents: member of the Chinese Communist Party=1; others=0                                     |
| Employment status of migrants | Employment status of respondents: employee=1, employer=0                                                                |
| Occupation                    | Types of respondents' employment: white collar=1, others=0                                                              |
| Outflow place                 | Outflow place is prefecture- level cities or higher=1, others=0                                                         |
| Time of inflow year           | The time respondents stayed at inflow place (year)                                                                      |
| GDP of the inflow city        | GDP of cities respondents lived (Ln)                                                                                    |
| Industry                      | The weight of tertiary industry at cities respondents lived                                                             |

Table 3 provides the statistical descriptions. According to these data, 31,838 migrant workers, representing 35.72% of the total sample, expressed a desire to settle permanently. From the table, the mean value of the dependent variable is 0.4, with a standard deviation of 0.49. The mean of the core independent variable is 0.38, with a standard deviation of 0.07. Among the control variables, migrants with a settlement intention tend to be older and more educated than those without such intentions. Furthermore, these migrants are more likely to reside in urban areas with greater levels of industrialization.

**Table 3.** Descriptive Statistics

| Variable   | Mean  | Total Std. dev. | Min  | Max   | Settle=0 |       | settle=1 |       |
|------------|-------|-----------------|------|-------|----------|-------|----------|-------|
|            |       |                 |      |       | Mean     | SD.   | Mean     | SD4   |
| Settle     | 0.389 | 0.487           | 0    | 1     | \        | \     | \        | \     |
| Service    | 0.381 | 0.071           | 0.10 | 0.56  | 0.380    | 0.071 | 0.382    | 0.071 |
| Gender     | 0.57  | 0.50            | 0    | 1     | 0.56     | 0.50  | 0.57     | 0.49  |
| Age        | 36.50 | 9.215           | 16   | 59    | 36.21    | 9.582 | 36.97    | 8.586 |
| Age2       | 14.18 | 6.998           | 2.56 | 34.81 | 14.03    | 7.208 | 14.41    | 6.649 |
| Education  | 9.714 | 3.044           | 0    | 19    | 9.434    | 2.918 | 10.15    | 3.184 |
| Mariage    | 0.84  | 0.37            | 0    | 1     | 0.80     | 0.40  | 0.90     | 0.30  |
| Homesize   | 3.20  | 1.18            | 1    | 10    | 3.11     | 1.23  | 3.34     | 1.08  |
| Party      | 0.03  | 0.18            | 0    | 1     | 0.03     | 0.16  | 0.05     | 0.21  |
| Employ     | 0.05  | 0.22            | 0    | 1     | 0.04     | 0.19  | 0.07     | 0.26  |
| Occupation | 0.08  | 0.27            | 0    | 1     | 0.06     | 0.25  | 0.10     | 0.30  |
| Timeyear   | 7.113 | 5.805           | 1    | 40    | 6.32     | 5.31  | 8.37     | 6.31  |
| Outflow    | 0.01  | 0.08            | 0    | 1     | 0.01     | 0.07  | 0.01     | 0.08  |
| GDP        | 11.27 | 0.497           | 9.37 | 12.15 | 11.26    | 0.500 | 11.27    | 0.492 |
| Industry   | 0.540 | 0.123           | 0.28 | 0.83  | 0.533    | 0.120 | 0.550    | 0.126 |

### 3.3. Regression Model

Traditional OLS models, being primarily linear, are not well-suited for this context. Instead, we employ a binary Probit model to quantify the effect of basic public services on settlement intentions. The model can be expressed as:

$$\text{Settle}_i = \beta_0 + \beta_1 \text{Ser city}_j + \delta \text{Controls} + \varepsilon_i$$

Where the subscript  $\text{Settle}_i$  refers to the migrant workers in the local city. The dependent variable represents settlement intention,  $\text{Ser city}_j$  is the independent variable of interest, and Controls represents a series of control variables. The error term  $\varepsilon_i$  captures unobserved factors, with the assumption of constant variance.

## 4. Empirical strategy

### 4.1. Basic Regression Analysis

Table 4 displays the estimation results of the Probit model, showing the relationship between basic public services and migrants' settlement intentions. Column (1) includes only the core independent variable and the province dummy variable. In Columns (2), (3), and (4), control variables—such as individual traits, occupational traits and migration traits—are progressively added. Across all specifications, the coefficients are significantly positive at the 1% level, suggesting that as cities improve the equalization of basic public services, the settlement intentions of rural-urban migrants increase. Specifically, the estimates in Column (4) indicate that a 0.317 increase in the equalization index of basic public services leads to a 1-unit increase in migrants' settlement intentions. This also suggests that to attract more rural-urban migrants, authorities should focus on enhancing the equalization of basic public services, which can incentivize more rural-urban migrants to settle

permanently. In turn, this would provide stable labor force for destination cities and support economic growth. In summary, this confirms the Hypothesis 1 stated above.

**Table 4.** The effect of BPS on MSI

| Variables    | Explained Variable: MSI |                      |                      |                      |                      |
|--------------|-------------------------|----------------------|----------------------|----------------------|----------------------|
|              | (1)                     | (2)                  | (3)                  | (4)                  | (5)                  |
| service      | 0.515***<br>(0.035)     | 0.418***<br>(0.035)  | 0.425***<br>(0.035)  | 0.374***<br>(0.034)  | 0.317***<br>(0.038)  |
| Gender       |                         | -0.008**<br>(0.003)  | -0.011***<br>(0.003) | -0.012***<br>(0.003) | -0.012***<br>(0.003) |
| Age          |                         | 0.026***<br>(0.002)  | 0.025***<br>(0.002)  | 0.019***<br>(0.002)  | 0.019***<br>(0.002)  |
| Age2         |                         | -0.031***<br>(0.002) | -0.029***<br>(0.002) | -0.025***<br>(0.002) | -0.025***<br>(0.002) |
| Education    |                         | 0.024***<br>(0.001)  | 0.022***<br>(0.001)  | 0.023***<br>(0.001)  | 0.022***<br>(0.001)  |
| Marriage     |                         | 0.101***<br>(0.006)  | 0.101***<br>(0.006)  | 0.098***<br>(0.006)  | 0.098***<br>(0.006)  |
| Homesize     |                         | 0.027***<br>(0.002)  | 0.026***<br>(0.002)  | 0.020***<br>(0.002)  | 0.021***<br>(0.002)  |
| Party        |                         | 0.069***<br>(0.009)  | 0.062***<br>(0.009)  | 0.061***<br>(0.009)  | 0.061***<br>(0.009)  |
| Employ       |                         |                      | 0.127*** (0.007)     | 0.114*** (0.007)     | 0.114*** (0.007)     |
| Occupation   |                         |                      | 0.069*** (0.006)     | 0.068*** (0.006)     | 0.068*** (0.006)     |
| timeyear     |                         |                      |                      | 0.014*** (0.000)     | 0.014*** (0.000)     |
| outflow      |                         |                      |                      | 0.009 (0.020)        | 0.008 (0.020)        |
| GDP          |                         |                      |                      |                      | 0.001<br>(0.005)     |
| Industry     |                         |                      |                      |                      | 0.149*** (0.021)     |
| Prov. dummy  | Yes                     | Yes                  | Yes                  | Yes                  | Yes                  |
| Pseudo R2    | 0.030                   | 0.062                | 0.065                | 0.083                | 0.084                |
| Observations | 87, 659                 | 87, 659              | 87, 659              | 87, 659              | 87, 659              |

Note: BPS refers to “Basic Public Services”, MSI refers to “Migrants’ Settlement Intentions”; \*\*\* represents significance at a 1% significance level; If there is no extra note, then it is the same as following forms.

## 4.2. Robustness Checks

To confirm the dependability of the regression, result in Table 4, this study carries robust tests. This paper looks at the equalization of basic public services on rural-urban migrants ‘settlement intentions using an alternative related response. Furthermore, this paper narrows the range of examples and employs alternative regression methods. The following steps are shown below.

### 4.2.1. Reset the Dependent Variable

To test the robustness of our baseline results, we redefined the dependent variable in three different ways. First, we modified the variable “settle long” by excluding samples that responded with “no opinion” to question Q313 (“If you meet the requirements for settlement, will you settle down permanently?”), retaining only those who answered “willing” or “unwilling”. The results of this adjustment are presented in Column (1) of Table 5. Second, we used the intention to settle in the local area as an explanatory variable, replacing “time migrants willing to settle “with “settlement” instead of “settle long”. Specifically, if respondents answered “settlement” to the question “If you intend to stay in the local area, how long do you expect to stay?”, they were assigned a value of 1, otherwise 0. The results are displayed in Columns (2) and (3) of Table 5. Similarly, we substituted “settle long” with “luohu”, indicating the migrants’ willingness to obtain registered permanent residence. In all

cases, the coefficient estimates of the core explanatory variables remain significantly positive at the 1% level, confirming the robustness of the baseline results presented in Table 4.

Next, we assessed the robustness of the baseline results by recalculating the basic public service equalization index. This involved adjusting the threshold for the proportion of access to basic public services, increasing the upper limit from 0.3 to 0.4 and then to 0.5. The results are shown in Columns (4) and (5) of Table 5. We found that, with the thresholds set at 0.4 and 0.5, the significance of the coefficients remains positive and slightly larger than in the original specification, indicating that the baseline results are robust.

**Table 5.** Robustness Test by Changing Definitions of Variables

| Variables         |                       |                     |                     |                     |                  |
|-------------------|-----------------------|---------------------|---------------------|---------------------|------------------|
|                   | (1)<br>Drop uncertain | (2)<br>Settlement   | (3)<br>Luohu        | (4)<br>k=0.4        | (5)<br>k=0.5     |
| serve_citya       | 0.299***<br>(0.043)   | 0.111***<br>(0.034) | 0.275***<br>(0.038) |                     |                  |
| service_cityb     |                       |                     |                     | 0.329***<br>(0.033) |                  |
| service_cityc     |                       |                     |                     |                     | 0.497*** (0.035) |
| Control Variables | Yes                   | Yes                 | Yes                 | Yes                 | Yes              |
| Prov. dummy       | Yes                   | Yes                 | Yes                 | Yes                 | Yes              |
| PseudoR2          | 0.081                 | 0.093               | 0.079               | 0.084               | 0.085            |
| Observations      | 74, 169               | 87, 659             | 87, 659             | 87, 659             | 87, 659          |

#### 4.2.2. Minimize Range of Examples

To lessen the impact of outliers due to small sample sizes in certain cities, we removed samples with fewer than 50 or 100 individuals. The outcomes of this adjustment are displayed in Columns (1) and (2) of Table 6. After reducing the sample range, the coefficient of the core explanatory variable remains significantly positive at the 1% level, further validating the robustness of the empirical findings.

#### 4.2.3. Changing Estimation Models

We further tested the robustness of our results by varying the estimation models. Specifically, in Column (3) of Table 6, we present results using a logit model in place of the original probit model to assess the impact of basic public services on migrants' settlement intentions. Column (4) presents results using a linear probability model (LPM) instead of the probit model. In both cases, the results remain significantly positive, reaffirming the robustness of the empirical findings.

**Table 6.** Robustness Test by Narrowing Range and Changing Estimation Models

| Variables         | (1)<br>Drop n<50    | (2)<br>Drop n<100  | logit               | LPM                 |
|-------------------|---------------------|--------------------|---------------------|---------------------|
| service_citya     | 0.135***<br>(0.035) | 0.183***<br>(0.40) | 0.518***<br>(0.036) | 0.506***<br>(0.034) |
| Control Variables | Yes                 | Yes                | Yes                 | Yes                 |
| Prov.dummy        | Yes                 | Yes                | Yes                 | Yes                 |
| Observations      | 82,801              | 82,801             | 87,659              | 87,659              |
| PseudoR2/ R2      | 0.094               | 0.095              | 0.084               | 0.0396              |

Note: Column4 reported R2 value, the rest reported PseudoR2 value.

#### 4.2.4. Endogeneity Discussion

The effect of basic public service equalization on migrants' settlement intentions may be subject to endogeneity issues, such as reverse causality and omitted variables. On the one hand, a stronger intention to settle could lead individuals to seek more basic public services, leading to reverse causality. On the other hand, omitted variables, such as individual capabilities and city inclusiveness,

may influence both public service equalization and settlement intentions, complicating control efforts. To address these endogeneity concerns, we employed the variable of “Whether Municipal Party Secretary or Mayor serves in the place of origin” as an instrumental variable. This choice is based on the assumption that local officials, concerned about their reputation, are likely to enhance basic public service equalization in their original areas, thus satisfying the relevance condition. Furthermore, the appointment of local officials does not directly affect migrants’ settlement intentions, meeting the exogeneity condition for instrumental variables. The data on Municipal Party Secretaries and Mayors are sourced from Peking University’s “CCER Officials Dataset”, with missing data supplemented through manual collection by the author.

Table 7 displays the estimation results from the IV-Probit model. The first-stage regression shows that the coefficient for the appointment of the Municipal Party Secretary or Mayor is significantly positive at the 1% level, showing a strong correlation with the explanatory variable. The F-value of the first stage is 2575.94, which addresses the issue of weak instruments. The second-stage results demonstrate that enhancements to the equality of fundamental public service significantly enhance migrants’ settlement intentions, thereby validating the robustness of the empirical results even after accounting for potential endogeneity issues.

**Table 7.** IV-probit Estimation

| Variables              | (1)<br>First<br>stage | (2)<br>Second<br>stage | (3)<br>Second<br>stage | (4)<br>Second<br>stage |
|------------------------|-----------------------|------------------------|------------------------|------------------------|
| Matcha                 | 0.033*** (0.001)      |                        |                        |                        |
| service_citya          |                       | 1.138***<br>(0.165)    | 3.811***<br>(0.574)    | 1.126***<br>(0.170)    |
| Control Variables      | Yes                   | Yes                    | Yes                    | Yes                    |
| Prov.dummy             | Yes                   | Yes                    | Yes                    | Yes                    |
| F-value of First stage | 2575.9                |                        |                        |                        |
| PseudoR2 /R2           | 0.611                 | 0.088                  | 0.670                  | 0.093                  |
| Observations           | 87,659                | 87,659                 | 87,659                 | 87,659                 |

Notes: ① the second stage reports three outcomes, which are validated through cross-verification using three estimation models: Linear Probability Model (LPM), IV-Probit without margins, and IV-Probit with margins. The corresponding Stata commands used include “ivreg2”, “ivprobit”, and “divprobit”. Since that “ivprobit” command cannot estimate margin(column3), the “divprobit” command is employed to estimate the margins for the probit model. ② Column 1 and 2 reported R2 value, while Columns 3 and 4 report PseudoR2 value.

## 5. Discussion

### 5.1. Heterogeneity Discussion

#### 5.1.1. Generational Differences

Does the impact of basic public service equalization on immigrants’ settlement intentions vary across generations? To test this hypothesis, the sample was split into two groups based on whether respondents were born before or after 1980: the older generation and the younger generation. Regression outcomes are displayed in Columns (1) and (2) of Table 8. The coefficients for the core explanatory variables are significantly positive at the 1% level for both groups, suggesting that basic public service equalization positively affects both younger and older migrants. However, the Fisher’s test p-value for between-group differences is 0.05, indicating that the impact on the older generation is significantly larger than on the younger generation. This suggests that the effect of public service equalization is relatively greater for the older generation compared to the younger generation.

### 5.1.2. Education Level Differences

The skill level of migrants is crucial for their settlement intentions. We categorized migrants into two sub-samples based on educational attainment: high education and low education. A migrant's level of education was classified as high if they had completed more than 9 years of school, and low if they had completed 9 years or less. Regression results are shown in Columns (1) and (2) of Table 8. The coefficients for both groups are significantly positive at the 1% level, indicating that enhanced equalization of basic public services increases settlement intentions for both high and low education groups. The p-value from Fisher's test is 0.4, suggesting no significant difference in the coefficients between the high education and low education sub-samples. Thus, the effect of public service equalization on settlement intentions is consistent across different education levels.

**Table 8.** Heterogeneity Discussion on Ages and Education

| Variables                           | (1)<br>Birth<1980   | (2)<br>Birth>1980   | (3)<br>Education<br>level<9<br>or =9 | (4)<br>Education<br>level>9 |
|-------------------------------------|---------------------|---------------------|--------------------------------------|-----------------------------|
| Service_citya                       | 0.381***<br>(0.054) | 0.252***<br>(0.052) | 0.313***<br>(0.044)                  | 0.312***<br>(0.071)         |
| Control Variables                   | Yes                 | Yes                 | Yes                                  | Yes                         |
| Prov.dummy                          | Yes                 | Yes                 | Yes                                  | Yes                         |
| PseudoR2                            | 0.105               | 0.068               | 0.106                                | 0.068                       |
| Observation                         | 47,752              | 39,907              | 28,664                               | 58,995                      |
| Fisher's test of Column (1) and (2) |                     | 0.05                |                                      |                             |
| Fisher's test of Column (3) and (4) |                     | 0.4                 |                                      |                             |

Note: Fisher's test on the form reported p-value

### 5.1.3. Differences in Mobility Ranges

Basic public service equalization's impact on migrants' settlement intentions may vary depending on their migration scope. We classified migrants into three categories based on their responses to Q101, which asked about their migration range: inter-county, inter-city, and inter-provincial migration. The estimation results are shown in Columns (1), (2), and (3) of Table 9. All coefficients are significantly positive at the 1% level, indicating that the positive impact of service equalization on settlement intentions is present across all mobility ranges. Fisher's test p-values are 0.3 between Columns (1) and (2), 0.2 between Columns (1) and (3), and 0.1 between Columns (2) and (3), suggesting no significant differences in coefficients across the different mobility ranges. Therefore, regardless of the size of the movement, basic public service equalization consistently affects the intents of rural-urban migrants to settle.

**Table 9.** Heterogeneity Discussion on Transfer Types

| Variables                            | (1)<br>Inter-provincial | (2)<br>Inter-city   | (3)<br>Inter-county |
|--------------------------------------|-------------------------|---------------------|---------------------|
| service_citya                        | 0.311***<br>(0.058)     | 0.253***<br>(0.074) | 0.187**<br>(0.076)  |
| Control Variables                    | Yes                     | Yes                 | Yes                 |
| Prov.dummy                           | Yes                     | Yes                 | Yes                 |
| PseudoR2                             | 0.101                   | 0.083               | 0.064               |
| Observation                          | 44,797                  | 27,932              | 14,930              |
| Fisher's test of columns (1) and (2) |                         | 0.3                 |                     |
| Fisher's test of columns (1) and (3) |                         | 0.2                 |                     |
| Fisher's test of columns (2) and (3) |                         | 0.1                 |                     |

Note: Fisher's test on the form reported p-value

In general, this heterogeneity discussion partially certifies H2, suggesting that the equalization of basic public services only causes difference regarding migrants' generation but has no impact on migrants with different educational background and mobility ranges.

## 5.2. Mechanisms Analysis

As urbanization is a core background in researching the relationship between basic public services and migrants' settlement intentions, it is necessary to examine the impact by exploring migrants' participation in urban social activities and their urban psychological identity [31, 32].

### 5.2.1. Mechanism of Participation in Urban Social Activities

This paper defines participation in urban social activities in two dimensions: "providing constructive suggestions to local authorities" and "participating in volunteer services", based on question Q502 from the CMDS 2017 survey, which inquired whether respondents had engaged in these activities since 2016. Participation was coded as "1" and non-participation as "0".

The estimation results for the mechanisms of participation in urban social activities are presented in Table 10. The coefficients related to basic public service equalization are significantly positive, indicating that enrichments in public service equalization enhance migrants' involvement in both providing constructive suggestions and participating in volunteer services. This suggests that the effect of public service equalization on migrants' settlement intentions is mediated through their increased participation in urban social activities.

**Table 10.** Mechanisms of Participation in Urban Social Activities

| Variables         | (1)<br>Giving suggestion | (2)<br>Participating in volunteers |
|-------------------|--------------------------|------------------------------------|
| service_citya     | 0.031***<br>(0.012)      | 0.143***<br>(0.026)                |
| Control Variables | YES                      | YES                                |
| Prov.dummy        | YES                      | YES                                |
| PseudoR2          | 0.037                    | 0.038                              |
| Observation       | 87,659                   | 87,659                             |

### 5.2.2. Mechanism through Urban Psychological Identity

We further analyzed the effect of basic public service equalization on migrants' settlement intentions from the perspective of their urban psychological identity. Four dimensions are considered based on question Q503 from CMDS2017, which asked respondents to agree or disagree with the following statements: "I like my current city", "I am concerned about changes in my current city", "I am willing to be a part of this city", and "I believe local residents are willing to accept me". Agreement with each statement was coded as "1" and disagreement as "0".

Table 11 presents the results of the mechanism analysis related to urban psychological identity. The coefficients for the equalization of basic public services are significantly positive across all dimensions, indicating that improvements in service equalization increase migrants' urban psychological identity. This includes greater affinity for their current city, increased attention to its changes, a stronger willingness to integrate, and a more positive perception of local acceptance. These findings suggest that the effect of public service equalization on rural-urban migrants' settlement intentions is mediated through their urban psychological identity.

**Table 11.** Mechanisms of Participation of Urban Psychological Identity

| Variables         | Like<br>current city | Focus on changes   | Willing to be apart | Local willing       |
|-------------------|----------------------|--------------------|---------------------|---------------------|
| Ser_citya         | 0.029**<br>(0.013)   | 0.049**<br>(0.023) | 0.166***<br>(0.020) | 0.152***<br>(0.022) |
| Control variables | YES                  | YES                | YES                 | YES                 |
| PseudoR2          | 0.015                | 0.008              | 0.039               | 0.044               |
| Prov.dummy        | YES                  | YES                | YES                 | YES                 |
| Observation       | 87,659               | 87,659             | 87,659              | 87,659              |

Through heterogeneity discussion, this paper tests the robustness of H2, finding a strong relationship between migrants' settlement intentions and the generation variable, while others are weak. Endogeneity strengthens H1 by eliminating the reverse effect, showing a positive relationship between public services equalization and migrants' settlement intentions. Mechanism analysis emphasizes that the effect of public services equalization is more significant through different actions taken by migrants, expanding the original hypothesis that suggested a singular relationship between the two variables.

## 6. Conclusion

### 6.1. Policy Recommendations

Using information from the China Migrant Population Dynamic Survey (CMDS2017), this paper employs the Probit model to analyze the effect of basic public service equalization on the settlement intentions of rural-urban migrants. The findings reveal that the equalization of basic public services significantly enhances the settlement intentions of rural-urban migrants. This result aligns with the recent acceleration of urbanization efforts by the Chinese government, which has focused on improving access to basic public services for migrant workers. These two policy goals appear to be complementary and mutually reinforcing. Additionally, the paper explores the mechanisms through which the basic public service equalization affects migrants' settlement intentions, identifying two key pathways: increased participation in urban activities and enhanced urban psychological identity. The results also reveal heterogeneity in the impact of these policies. Specifically, improvements in public service equalization have a more pronounced effect on the older generation compared to the younger generation, while there are no significant differences observed between various education levels or migration ranges. Based on these findings, several policy recommendations are proposed:

Firstly, enhance basic public service equalization. To attract more rural-urban migrants to settle in cities, local authorities have to concentrate on improving the equalization of basic public services. This includes policies such as more inclusive education for migrant children, an extensive public housing system, and comprehensive social security measures. These improvements are likely to significantly increase migrants' settlement intentions. Thus, if the government aims to retain migrants and meet local labor demands, enhancing the equalization of basic public services is a crucial strategy.

Secondly, encourage participation in social activities. Governments should implement policies that promote rural-urban migrants' involvement in social activities. For example, policies could be designed to include migrants in local policy decisions or to reduce discrimination against them. Such measures will not only improve the quality of social integration but also positively influence migrants' psychological identity, thereby increasing their settlement intentions through better equalization of basic public services.

Thirdly, tailor policies to different groups. The heterogeneity analysis indicates that the older generation benefits more from amelioration in basic public service equalization compared to the younger generation, with no significant differences between education levels or migration ranges. Thus, some policies can be tailored to address the specific needs and circumstances of different groups.

Government efforts can focus more on migrants with higher settlement intentions and timely enhance their willingness to settle through certain policies.

## 6.2. Limitations and Future Research

This paper aims to identify the key determinants of migrants' settlement intentions. For the government, it is crucial to attract high-quality migrants to permanently settle down to fill the vacancy of labor force shortage. For migrants, this study will help the government recognize their needs for basic public services and make timely adjustments. However, due to database limitations, this paper only uses data from CMDS 2017, leading to certain limitations in the conclusions. Also, measurement indicators only focus on individual answers to the survey, while there are other indicators that need to be measured.

In the future, it can be expected to enrich current studies on "how equalization of basic public services impact on migrants' settlement intentions" by using latest database for regression results. The framework of variable can be expanded by qualitative analysis, also using updated theories and methodology to improve the study.

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