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Original Paper

A Study of the Impact of Free Compulsory Education on the Urban Mobility of Migrant Workers

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Abstract

This study examines the impact of China's free compulsory education policy on the urban mobility of migrant workers. With the acceleration of urbanization, migrant workers have become an important force in China's urbanization and industrialization, but face barriers to urban integration. The report emphasized the promotion of migrant workers' citizenship, in which improving their education level is key. Since 2006, China has fully implemented free compulsory education and included rural compulsory education in the scope of public finance guarantee, which has had a positive impact on the education of migrant workers and their children, and a heterogeneity analysis reveals the existence of marital and educational heterogeneity. This policy is expected to enhance the willingness of rural migrant workers to reside in cities, promote urban-rural integration and development, and provide strong support for rural migrant worker citizenship.

Keywords

Free Compulsory Education, Urban Mobility, DID model

1. Introduction

China's urbanization process is advancing at an unprecedented pace, rapidly climbing from an urbanization rate of 13.26% in 1953 to 65.22% in 2022. In the midst of this dramatic social change, hundreds of millions of rural laborers have poured into cities, becoming an important force driving China's urbanization and industrialization. However, this large-scale labor transfer has also brought about a unique social phenomenon - the issue of migrant workers. According to statistics, the total number of migrant workers in China has reached a staggering 295.62 million in 2022, accounting for 20.9% of the country's total population. Although this large group of people work and live in cities, they are often unable to enjoy the same rights and benefits as urban residents due to the restrictions of the household registration system. This institutional divide between urban and rural areas makes migrant workers face great obstacles in integrating into urban society. In addition, rural migrant workers face many challenges in terms of employment. Although the implementation of a series of

stable job support and job expansion incentives has made it possible to effectively safeguard the employment of rural migrant workers, their career development and income level are still subject to many restrictions. According to statistics, the per capita wage of rural migrant workers in 2023 was 4,730 yuan, which is a 3.6% increase from the previous year, but this income level is still relatively low, making it difficult for them to meet their living needs in the city.

The report clearly puts forward the strategic plan of "promoting a new type of urbanization centered on human beings and accelerating the urbanization of the agricultural transfer population". This important initiative is not only of great significance in promoting the comprehensive development of rural migrant workers, but also a key link in promoting the sustainable and healthy development of China's economy and society. First of all, citizenship of rural migrant workers is a major initiative to protect the immediate interests of hundreds of millions of rural migrant workers. For a long time, rural migrant workers have made great contributions to China's urbanization process, however, due to institutional barriers and social cognitive limitations, they are often marginalized and cannot enjoy the same rights and benefits as urban residents. Citizenship of rural migrant workers means that they will be integrated into the urban social management system and enjoy more comprehensive public services such as social security, education and medical care, which will greatly improve their quality of life and sense of well-being. Secondly, citizenship of migrant workers is an important way to stimulate the growth potential of domestic demand and optimize the economic structure. China's economy is in a critical period of transformation and upgrading, facing complex and changing situations and challenges at home and abroad. Accelerating the citizenship of rural migrant workers will help unleash huge consumer demand and promote industrial upgrading and transformation of the mode of economic development. As the process of migrant workers' citizenship advances, population mobility will become more orderly and urban-rural regional development will become more coordinated, which will inject new momentum into the high-quality development of China's economy. In addition, the citizenship of rural migrant workers will help improve the overall competitiveness and sustainable development of cities. With the advancement of migrant workers' citizenship, the labor force structure of cities will be optimized and the quality of the population will be improved, which will provide strong support for the innovative development of cities. At the same time, the civicization of rural migrant workers will also promote the integrated development of urban and rural areas and the equalization of basic public services in urban and rural areas, laying a solid foundation for the construction of a new type of urban-rural relationship and the realization of the strategy of rural revitalization.

In the process of promoting the urbanization of rural migrant workers, a central and urgent issue is how to sustainably raise the level of education of rural migrant workers so as to enhance their willingness to stay in cities. In fact, the idea that an individual's education level plays a pivotal role in the process of population migration and urbanization has been supported by a large number of facts and literature. In the early stages of urbanization in China, i.e., the transition from farmers to migrant workers, education

has been a key factor driving this transition (De Brauw & Rozelle, 2008; Lee & Malin, 2013; Xing Chunbing et al., n.d.).

In 1986, China formally implemented the Compulsory Education Law, which clarified that the State would implement a nine-year compulsory education system, providing legal safeguards for children and young people of school age to receive compulsory education. However, due to the country's economic strength and financial situation at the time, compulsory education was not completely free, and in 2006 China amended the Compulsory Education Law, explicitly proposing the implementation of free compulsory education and the full inclusion of compulsory education funding in the scope of State financial security. The introduction of this policy signaled that compulsory education in China had entered an entirely new stage of development. The State Council promulgated the Circular of the State Council on Deepening the Reform of the Mechanism for Guaranteeing Funding for Compulsory Education in Rural Areas, which clearly states that "compulsory education in rural areas will gradually be included in the scope of public financial guarantee" and that "all miscellaneous fees for students at the compulsory education stage in rural areas will be exempted", as well as a specific annual and regional implementation plan for the implementation of free compulsory education. Detailed arrangements have been made for the implementation of the program by year and by region. The specific implementation schedule and provinces are shown in Table 1:

Table 1. Timing of the Implementation of Free Compulsory Schooling in Rural Areas and Provinces

timing	provinces
March 2006	Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Shaanxi, Gansu, Inner Mongolia, Qinghai, Ningxia, Beijing, Tianjin, Shanghai, Fujian
September 2006	Guangdong, Zhejiang, Jiangsu
March 2007	Heilongjiang, Liaoning, Jilin, Hebei, Shanxi, Anhui, Jiangxi, Henan, Hunan, Hubei, Shandong

However, as the process of urbanization continues to deepen, we naturally wonder: in the new stage of migrant workers' citizenship, i.e., the second stage of China's urbanization, does the level of education of migrant workers continue to have a significant impact on their willingness to reside in urban areas? If such an effect does exist, what is its mechanism of action? And how can we effectively promote migrant workers' citizenship in order to enhance the quality of China's urbanization and the potential growth rate of the economy?

Based on this, this paper utilizes the exogenous shock event of the free compulsory education policy

and empirically tests the impact and mechanism of education on migrant workers' willingness to reside in urban areas using the cohort double-difference method. It is found that the free compulsory education policy significantly enhances migrant workers' willingness to stay in cities. Further mechanism tests show that the free compulsory education policy improves the employment status of migrant workers in the inflow cities by increasing their years of education, raising their income level, and then enhancing their willingness to stay in the cities. The heterogeneity test shows that the free compulsory education policy mainly enhances the willingness to stay of migrant workers in large cities and small and medium-sized cities, and has no significant effect on the willingness to stay of migrant workers in mega-mega-cities; the free compulsory education policy has a greater effect on the willingness to stay of migrant workers who cross the counties within the city.

Based on the above thesis, this paper empirically examines the impact of education on migrant workers' willingness to reside in urban areas and its mechanism by utilizing the free compulsory education policy, an exogenous shock event, and using the cohort double-difference method. The findings show that the implementation of the free compulsory education policy significantly enhances the urban residence intention of migrant workers. This finding not only confirms the key role of education in the process of migrant workers' citizenship, but also provides a strong basis for policy makers to suggest that migrant workers' willingness to stay in urban areas can be effectively promoted by improving their education level. Further mechanism tests reveal that the free compulsory education policy improves the employment situation of migrant workers in the inflowing cities and raises their income level by increasing their years of education. The increased education level makes migrant workers more competitive in the job market and enables them to obtain better job opportunities and higher salaries, thus enhancing their economic basis and quality of life for staying in the cities. The test of heterogeneity shows that the free compulsory education policy has a differentiated impact on the willingness of migrant workers to stay in different types and regions. Specifically, the policy mainly enhances the willingness to stay of migrant workers in large cities and small and medium-sized cities, while the effect on the willingness to stay of migrant workers in mega- and mega-cities is not significant. This may be related to factors such as competitive pressure and cost of living in mega mega cities, which make the impact of education on migrant workers' willingness to stay relatively limited. In addition, the free compulsory education policy has a more significant effect on the willingness to stay of migrant workers who move across counties within cities, probably because such migrant workers face more challenges and opportunities in education and employment, and the implementation of the policy provides them with better opportunities for development.

2. Literature Review

With the accelerating pace of urbanization in China, the floating population plays an increasingly important role in urban development. The decision of migrant population to move is not only related to the future growth and development of individuals, but also has a profound impact on the reshaping of

the social structure of the city, the enhancement of economic vitality and the rationality of population distribution. Among the many factors affecting the migration decision of migrants, education undoubtedly plays an important role. In recent years, China has vigorously implemented the policy of free compulsory education, which has played a significant role in promoting the fair distribution of educational resources and upgrading the level of education for all. Under this macro background, an in-depth study of the impact of the free and compulsory education policy on the migrant population's urban migration behavior not only has profound theoretical connotations, but also has great significance in guiding the real practice.

Education explains part, but not all, of an individual's social mobility, with the social status of parents and personal skills also having a significant impact. The level of education of the migrant population is an important factor influencing their mobility decisions. The education level of China's migrant population has been rising steadily. According to the Migrant Worker Monitoring Survey Report, the proportion of migrant workers with college education or above has reached 13.8%, while the proportion of local migrant workers has reached 8.1%. The increase in educational attainment gives the migrant population an advantage in receiving information, and they are more likely to find matching jobs in big cities, thus obtaining relatively higher earnings (Dahl, 2002). Conclusions on the relationship between educational attainment and mobility distance have diverged among different researchers. Since mobile populations with different levels of education face different costs and benefits in the process of inter-regional mobility, they also show differences in their mobility decisions (Yan Yingen, 2020). Based on the data of the 2017 Mobility Population Survey, it is concluded that the relationship between education level and mobility distance is in the shape of "U", and those with college and bachelor's degree prefer intra-provincial cross-city mobility, and the increase in their proportion promotes the increase in the proportion of intra-provincial cross-city mobility. The level of education not only affects the psychological cost and the amount of information that migrants can obtain, but also has a significant impact on their location decision. Hu and Wang (2008) found that there is an inverted "U" shaped relationship between education level and the probability of inter-provincial mobility, and in general, mobile populations with higher education levels are more inclined to choose long-distance migration (Li Qiang, 2003). In general, more educated migrants are more likely to choose long-distance migration (Li, 2003). While Guo Li et al. (2011) pointed out that the willingness of migrant workers with elementary school education or below to migrate across provinces is lower, but there is no significant difference in the willingness of migrant workers with junior high school education or above to migrate across provinces.

The impact of the compulsory education policy is also crucial. The free and compulsory education policy has not only raised the overall education level of the nation, but also positively affected social class mobility. Liu Shuai and Lei Pengfei (2023) conducted an empirical study based on CGSS data and found that the probability and magnitude of social class enhancement for individuals affected by the free and compulsory education policy are significantly higher than those of the unaffected group. In

the wave of China's education reform, compulsory education reform is undoubtedly an important component, which has received close attention and in-depth research from a wide range of scholars. Among them, Fang and other scholars conducted an in-depth evaluation of the policy effects of China's Compulsory Education Law, which was implemented in 1986, and found that the implementation of the law played a significant role in raising the overall level of education of Chinese nationals, with per capita years of education rising by 0.8 years, and the return on education increasing by 20% on average. This finding not only highlights the positive impact of the Compulsory Education Law, but also provides valuable experience and inspiration for subsequent education reform. Meanwhile, some scholars have also conducted comparative studies between the Compulsory Education Law and the college expansion policy, and they have found that these two policies have different effects in promoting educational mobility. Specifically, for children from urban families with low educational attainment, both policies have played a positive role in promoting upward mobility. However, the effect is not obvious in rural families, which reveals the problem of unbalanced distribution of educational resources and regional development in China (Guo et al., 2019). Liu Jinfeng et al. (2023) explored the impact of the free compulsory education policy on the process of migrant workers' urbanization from the perspective of "semi-urbanization" to "urbanization". The study found that the free compulsory education policy significantly increased migrant workers' willingness to stay in cities. In addition, Liu Shenglong and other scholars have conducted an in-depth study on the changes in the rate of return to education after the implementation of the Compulsory Education Law by utilizing micro-survey data. Their findings show that the implementation of the Act not only increased the overall education level of nationals, but also significantly raised the rate of return to education, with individual years of education and the rate of return to education increasing by 0.4 years and 12.8%, respectively. This finding further affirms the important role of the Compulsory Education Law in promoting educational reform and development. It is worth mentioning that scholars have also conducted in-depth discussions on the "age of enrollment" stipulated in the Compulsory Education Law. They found that due to the age limit, some school-age children may be delayed in enrolling in school, which in turn affects their educational trajectory (Liu Shenglong et al., 2016). This "opportunity cost disadvantage" may reduce their probability of entering high school and even affect their future career development (Lin Wenlian & Li Changhong, 2020). This phenomenon has aroused deep concern among scholars. This phenomenon has aroused deep thoughts among scholars, and also provides useful reference for us to further improve the compulsory education policy.

By combing and analyzing the relevant literature, it can be seen that the free compulsory education policy has a significant impact on the urban mobility of the migrant population. Educational attainment is an important factor influencing the mobility decision of the floating population, and the free compulsory education policy promotes social class mobility and the process of migrant workers' civilization by improving educational attainment and cognitive ability. These studies not only reveal the positive effects of the free and compulsory education policy, but also provide useful references for

policy making and academic research. However, there are still some shortcomings in the current research. First, further in-depth research is needed on the specific implementation effects and long-term impact of the free compulsory education policy. Second, there may be differences in the implementation of the policy in different regions, and future research can further focus on inter-regional comparison and difference analysis. In addition, as society continues to develop and change, the characteristics and mobility patterns of the floating population may also change, so it is necessary to continue to pay attention to and update the relevant research.

3. Research Design and Empirical Analysis

3.1 Data Sources

The data on the floating population used in this paper comes from the CMDS2017 Floating Population Dynamic Monitoring Data, a questionnaire covering the survival and development status of the floating population, the trend and characteristics of mobile migration and the utilization of public health services, which maps out the migratory flow patterns of the floating population and explores the impact of cross-border inflows on a healthy China in the new era. According to the needs of health and family planning service management and policy research of the migrant population, sample points were taken in 31 provinces (autonomous regions and municipalities) where these populations are more concentrated in the inflow area in accordance with the principle of randomization, and sample surveys were carried out. The research problem of this paper is the settlement of migrant workers, so only the samples whose hukou of labor and business is agriculture are retained in the data processing. In addition, the household registration districts and counties with only one sample were excluded, and the data for the provinces were taken from the China Statistical Yearbook.

3.2 Build a Model

Reference to existing literature (Liu Jinfeng et al., 2023). This paper adopts a multi-temporal double difference model to test the impact of free compulsory education policy on migrant workers' urban residence intention. In constructing the core explanatory variables, according to the commonly used setting of years of education and related literature (Yang Jun & Li Xuesong, 2007) In this way, the number of years of education is taken as 0 for those who do not know how to read or write or have very little literacy, 6 for those who have elementary school education, 9 for those who have junior high school education, 12 for those who have senior high school education, and 16 for those who have post-secondary school education and above. Therefore, the average educational attainment of the rural population aged 6 and above in each province is calculated in this way, and then the gap between the average number of years of education of the rural population and 9 years of compulsory education in each province in 2005 is calculated, which is used as the core explanatory variable in different provinces to estimate the size of the collection policy shock.

The specific model settings are as follows:

$$residence_{i,j} = \beta_0 + \beta_1 edu_{2005} \times old_{i,j} + \beta_2 Contral_1 + \beta_3 Contral_2 \times old_{i,j} + \gamma_b + \delta_j + \varepsilon_{i,j}$$

where the explanatory variable $residence_{i,j}$, denotes the willingness of j migrant workers in province i to stay. In this paper, we are utilizing the 2017 CMDS questionnaire's "If you intend to stay in the local area, how long do you expect you will stay in the local area?" The answer to the questionnaire for settlement is taken as 1. Meanwhile, in order to exclude other factors, according to the questionnaire, "In the next period of time, do you intend to stay in the local area?" The core explanatory variable is the cross-multiplier term of $edu_{2005} \times old_{i,j}$ The core explanatory variable is the cross-multiplier term of edu_{2005} is the gap between the average years of education of the rural population in 2005 and the 9-year compulsory education in the province of migrant workers' household registration. $old_{i,j}$ denotes the year when compulsory education was implemented. Migrant workers in the provinces where the Ministry of Education implemented the free compulsory education policy in 2006: Beijing, Tianjin, Inner Mongolia, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Guangdong, Guangxi, Hainan, Chongqing, Sichuan, Guizhou, Yunnan, Shaanxi, Gansu, Qinghai, Ningxia, where rural migrant workers aged between 8 and 15 years old were in the stage of compulsory education at that time, will be affected by the free compulsory education policy. compulsory education policy, which takes the value of one; or in the provinces where the Ministry of Education implemented the free compulsory education policy in 2007: Hebei, Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Shandong, Henan, Hubei, and Hunan, where migrant workers aged 8 to 15 at the time would be affected by the free compulsory education policy, which takes the value of one, and otherwise takes the value of zero. Of the control variables $Contral_1$are control variables for individual migrant workers, and $Contral_2$ is the control variable for the province where the migrant workers are γ_b and δ_j are the individual and province fixed effects, respectively. $\varepsilon_{i,j}$ is the random disturbance term.

Residence is defined as the respondent's answer to the question "Do you intend to stay in the local area for some time in the future?" in the CMDS questionnaire, with a value of 1 for those who anticipate settling in the local area, and 0 for those who don't and those who haven't thought about it. Compulsory education policy is defined as the interaction between the education gap in rural areas in the province of domicile and the age of 8 to 15 years old, the age group that is not affected by the compulsory education policy interaction between rural education gap in the province of domicile and whether the respondent is between the ages of 8 and 15, the age group that is not affected by the compulsory education policy. The provincial education gap (edu) is the average number of years of schooling of the rural population in each province in 2005. Gender (gender) is male taking the value of 1 and female taking the value of 0. Nationality (nation) is Han Chinese taking the value of 1 and ethnic minorities taking the value of 0. Provincial level of development (lnpergdp) is the logarithm of per capita gross domestic product of each province in 2005. Provincial rural household income (lnrincome) is the logarithm of the per capita net income of rural households in each province in 2005. Provincial education expenditure (lnedufiscal) is the logarithm of education expenditure in each province in 2005. The descriptive statistics of each variable are shown in Table 2. Among the willingness to stay, 11,588, or 55.39% of the total sample, are willing to settle, and 44.61% are unwilling to settle. In addition,

49.99% of the sample were male and 89.19% were Han Chinese.

Table 2. Descriptive Statistical Analysis

variant	observed value	average value	(statistics) standard deviation	minimum value	maximum values
Residence	20920	0.554	.497	0	1
Compulsory education policy	20920	.712	1.163	0	5.76
Provincial education gap (edu)	20920	2.309	.686	.76	5.76
Sex (gender)	20920	.5	.5	0	1
Nationality (nation)	20920	.892	.311	0	1
Provincial level of development (lnpergdp)	20920	9.351	.372	8.528	10.724
Provincial rural household income (lnrincome)	20920	7.987	.264	7.537	8.902
Provincial expenditure on education (lnedufiscal)	20920	13.95	.555	12.182	15.007

3.3 Benchmark Regression Results

This paper is based on the multi-temporal double-difference model of the formula (1) to test the impact of free compulsory education policy on migrant workers' willingness to stay in urban areas, and the benchmark regression results are shown in Table 3. Among them, column (1) does not add any control variables, column (2) adds control variables of personal characteristics, but there is no significant effect, column (3) adds control variables of personal characteristics, and then adds control variables of provincial characteristics, and the results find that the free compulsory education policy has a significant positive effect on the willingness to reside of rural migrant workers, and the coefficient of the compulsory education policy is 0.036 and is significant at the 1% level of significance. The coefficient of compulsory education policy is 0.036 and positive at 1% level of significance, indicating that the compulsory education policy significantly increases the willingness of migrant workers to stay in cities by 3.6 percentage points.

Table 3. Benchmark Regression Results

	(1) Residence	(2) Residence	(3) Residence
policy	0.006	0.006	0.036***
	(0.008)	(0.008)	(0.011)
gender		-0.073***	-0.073***
		(0.007)	(0.007)
nation		-0.017	-0.015
		(0.016)	(0.016)

lnpergdpb			0.149***
			(0.049)
lnrincomeb			-0.189***
			(0.068)
lnedufiscalb			-0.001
			(0.016)
_cons	0.550***	0.602***	0.617***
	(0.006)	(0.016)	(0.017)
N	20612	20612	20612
r2	0.226	0.231	0.232
F	0.649	37.430	21.926

Note. *, **, *** denote significant at the 10%, 5%, and 1% levels, respectively, and robust standard errors for clustering to census tracts are in parentheses. Same table below.

3.4 Robustness Tests

3.4.1 Parallel Trend Test

One of the most important prerequisites for purchasing a double difference model, the treatment and control groups should have no significant differential service before the policy is implemented, i.e., the parallel trend test is satisfied. For this reason, this paper proceeds to the test of parallel trends. According to the age requirement of the Compulsory Education Law, "All children who have reached the age of six, their parents or other legal guardians shall send them to school to receive and complete compulsory education; children in areas where the conditions are not available can be delayed to the age of seven", so when the free compulsory education policy was implemented, the migrant workers who were 8 to 15 years old were in the stage of compulsory education and would be affected by the free compulsory education policy. Therefore, when the free compulsory education policy was implemented, the migrant workers aged 8 to 15 were in the stage of compulsory education and would be affected by the free compulsory education policy; the migrant workers aged 16 to 23 had already completed their compulsory education and would not be affected by the policy. Therefore, this paper takes the 16-year-old migrant workers as the base period, the migrant workers in the stage of 16 to 23 years old are not affected by the policy as the control group, and the 8 to 15 years old are affected by the policy as the treatment group. Therefore, this paper cross-multiplies the dummy variables of migrant workers aged 8 to 15 and 17 to 23 with the provincial education level gap variable and then conducts a parallel trend test according to equation (2).

$$residence_{i,j} = \alpha_0 + \sum_{n=7}^{t=1} \alpha_t Before_t + \alpha_8 Current + \sum_{n=8}^{t=1} \alpha_{t+8} After_t + \varphi_1 Contral_1 + \varphi_2 Contral_2 \times Contral_2 + \gamma_b + \delta_j + \varepsilon_{i,j}$$

Among them, the time dummy variables Before_n, Current and After_n correspond to migrant workers

of each age, Before1 means 23-year-old migrant workers, Before2 means 22-year-old migrant workers, and so on. Current means 16-year-old migrant workers, After1 means 15-year-old migrant workers, After2 means 14-year-old migrant workers, and so on. Current denotes farmworkers aged 15, After denotes farmworkers aged 14, and so on. The other variables are the same as in Equation 1. The regression results are shown in Table 3 and Figure 1. There is no significant difference between the control group and the experimental group before the base period of 16, and the policies are not significantly different until after the age of 16, which satisfies the parallel trend hypothesis.

Table 3. Parallel Trend Test Table

	(1)
(a person's) age	Willingness to stay
23 ($Before_1$)	-0.011
	(0.022)
22 ($Before_2$)	-0.008
	(0.018)
21 ($Before_3$)	-0.016
	(0.016)
20 ($Before_4$)	-0.013
	(0.014)
19 ($Before_5$)	-0.007
	(0.013)
18 ($Before_6$)	-0.001
	(0.011)
17 ($Before_7$)	0.001
	(0.009)
16 (current)	0.000
	(.)
15 ($After_1$)	0.045**
	(0.022)
14 ($After_2$)	0.028
	(0.018)
13 ($After_3$)	0.030*
	(0.016)
12 ($After_4$)	0.036**
	(0.017)
11 ($After_5$)	0.024

	(0.017)
10 ($After_6$)	0.037**
	(0.017)
9 ($After_7$)	0.034*
	(0.019)
8 ($After_8$)	0.025
	(0.019)
gender	-0.073***
	(0.007)
nation	-0.015
	(0.016)
lnpergdpb	0.164***
	(0.051)
lnrincomeb	-0.208***
	(0.070)
lnedufiscalb	-0.002
	(0.016)
_cons	0.637***
	(0.026)
N	20612
r2	0.232
F	7.135

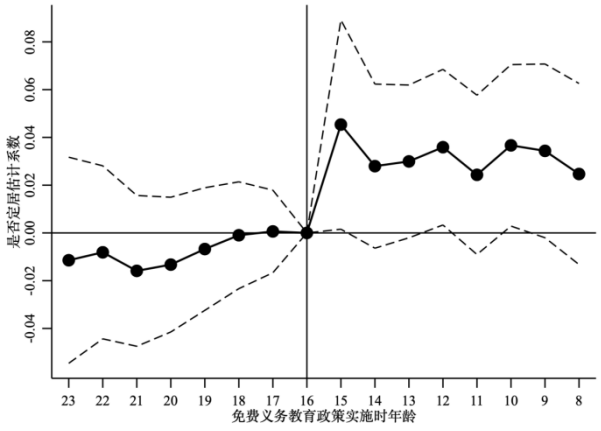

Figure 1. Parallel Trend Test Plot

3.4.2 Placebo Test

There may be some random factors interfering with the willingness of migrant workers to stay, for this reason, this paper advances the time of policy occurrence and conducts a placebo test. The specific operation is to utilize the birth cohort from 1983 to 1990, which is not affected by the policy, to conduct the placebo test, and exclude the birth cohort from 1991 to 1996, which is affected by the policy, in order to avoid the real free compulsory education policy effect from being confused with it. Assuming that the tuition fee reduction occurred in 2003 for all provinces, the results are shown in Table 4, which shows that the free compulsory education occurred in 2003 and did not have a significant effect on the willingness of migrant workers to stay, and the placebo test is passed.

Table 4. Placebo Test

	(1) Willingness to stay
policy_1	0.005
	(0.017)
gender	-0.069***
	(0.009)
nation	-0.019
	(0.021)
lnpergdpb2	-0.090
	(0.059)
lnrincomeb2	0.156*
	(0.081)
lnedufiscalb2	-0.027
	(0.020)
_cons	0.652***
	(0.145)
N	13449
r2	0.218
F	11.272

3.5 Heterogeneity Analysis

3.5.1 Heterogeneity of Marital Status

As far as the family concept of the mobile population is concerned, the unmarried life status is dominated by one person and the married life status is dominated by the family, so unmarried and married people will have many aspects of difference, so here is a comparative study of the effect of

marital status on the willingness to stay in the long term, the regression results are shown in Table 5, the degree of obligation of the hetero-married mobility population does not have a significant effect on the willingness to stay, while the unmarried mobility population's degree of environmental pollution has a significant positive effect on willingness to stay. The coefficient of compulsory education policy among the migrant workers' mobile population is 0.036 and positive at the 5% significance level, indicating that compulsory education policy significantly increases the willingness of migrant workers to stay in cities by 3.6 percentage points.

3.5.2 Heterogeneity in Educational Attainment

The overall sample of migrant workers' floating population is divided into two categories according to their education level, the first category being the education level of uneducated, primary and junior high school education, i.e., the education level of the national legal compulsory education, and the second category being the education level of senior high school (middle school), university (college) and postgraduate education, i.e., the education level higher than the compulsory education level. The regression results, as shown in Table 5, show that the effect of high school and above education is not significant, and the effect of junior high school and below education is significantly positive at the 10% level. Compared to the well-educated migrants, the uneducated migrants are more responsive to the compulsory education policy and take this factor into account more when staying in the area. This may be due to the fact that well-educated migrants have higher knowledge levels and can only choose to work in big cities in order to get better-paid jobs, whereas migrants with a lower level of education are less likely to find well-paid and well-treated jobs in big cities, so they may give more consideration to the factor of settlement.

Table 5. Heterogeneity Analysis

	(1)	(2)	(3)	(4)
	unmarried	married	Above compulsory education	Below compulsory education
policy	0.036**	0.013	0.036*	0.020
	(0.014)	(0.021)	(0.019)	(0.017)
gender	-0.058***	-0.083***	-0.061***	-0.055***
	(0.011)	(0.009)	(0.014)	(0.009)
nation	0.020	-0.064**	-0.007	-0.014
	(0.022)	(0.026)	(0.031)	(0.021)
lnpergdpb	0.112	0.147*	0.065	0.178**
	(0.070)	(0.077)	(0.098)	(0.074)
lnrincomeb	-0.159	-0.104	-0.177	-0.266***
	(0.100)	(0.105)	(0.135)	(0.102)
lnedufiscalb	0.009	-0.043*	0.051*	0.027

	(0.023)	(0.025)	(0.031)	(0.021)
_cons	0.465***	0.761***	0.401***	0.683***
	(0.023)	(0.027)	(0.045)	(0.020)
N	9427	10450	5619	14257
r2	0.278	0.288	0.332	0.211
F	6.355	15.455	4.248	8.055

4. Conclusions and Policy Implications

"Urbanization" is an important process in China's development, in which promoting the citizenship of the agricultural transfer population is a core task. In this process, the willingness of migrant workers to stay in urban areas has become a key factor, which is affected by a variety of factors, especially the education level of migrant workers. To explore this issue in depth, some studies have utilized the free compulsory education policy as an entry point to analyze the specific impact of education on migrant workers' willingness to reside in cities. These studies found that the free and compulsory education policy played a positive role in enhancing migrant workers' willingness to reside in urban areas, and in particular, it promoted migrant workers' willingness to reside in the long term and their willingness to settle down more significantly. Heterogeneity analyses found that, in the heterogeneity of marital status, the effect of the degree of obligation on the willingness to stay was not significant for heterosexual migrant populations, while the effect of the degree of environmental pollution on the willingness to stay was significantly positive for unmarried migrant populations; and, in the heterogeneity of education, the effect of high school education and above was not significant, and the effect of junior high school education and below was significantly positive.

It is important to continue to consolidate the achievements of compulsory education and to focus on improving the quality of compulsory education in rural areas. The implementation of the policy of free compulsory education has significantly reduced the number of rural school-age children dropping out of school because of poverty, and the enrolment and consolidation rates of compulsory education have continued to rise. This policy has been effective in raising the level of rural human capital, promoting the mobility of rural laborers to the cities, and increasing their willingness to settle in the cities. However, rural compulsory education still faces many practical challenges. On the one hand, the infrastructure and quality of education in China's rural areas still need to be improved, and some rural students still choose to drop out of school due to boredom or high opportunity costs. On the other hand, given the shortage of public education resources in urban areas, a large number of children of migrant workers are unable to receive education in urban areas, leading to the phenomenon of "left-behind children" on a large scale. Under the environment of lack of parental care, insufficient emotional communication and lack of academic counseling, the academic performance of some left-behind children has declined in the compulsory education stage. These problems have a direct impact on the

quality of compulsory education, not only on the future development of rural children, but also on the promotion of China's urbanization and future high-quality development. The research in this paper shows that the improvement of education level not only helps to enhance the ability of rural children to find stable employment in cities when they become adults, but also meets the economic and social demand for high-quality labor, thus injecting endogenous power for China's future urbanization and economic growth. Therefore, we need to accelerate the quality and balanced development of urban and rural compulsory education, focus on improving the quality of rural compulsory education, and promote the accumulation of human capital among rural children.

There is a need to systematically train the existing 296 million rural migrant workers through the construction of a diversified, multi-level re-education system, such as on-the-job education and skills training. This will not only enhance their willingness to stay in cities and stabilize urban labor supply, but also expand domestic demand and promote urbanization and high-quality economic development. According to a study by a group from the Development Research Center of the State Council, promoting the citizenship of 10 million rural migrant workers each year can increase economic growth by 1 percentage point. There are currently 296 million migrant workers in China, and their education level is directly related to their ability and willingness to stay. Therefore, it has become an urgent task to further enhance the education level of these 296 million rural migrant workers and thus promote their citizenship. In order to achieve this goal, the State needs to further support vocational colleges and universities, technical colleges and universities, vocational training institutes and enterprise training centers, etc., to carry out targeted, job-specific and order-based training in order to improve the quality of training, and to promote the in-depth integration of the re-education system with the industries in which rural migrant workers are employed. At the same time, we are adopting flexible and diverse forms of training, such as the credit system, distance education and night schools for rural migrant workers, and are implementing the policy of free training for rural migrant workers, the policy of subsidizing the living expenses of poor laborers who participate in training, and the policy of enterprises providing work in lieu of training, in order to attract rural migrant workers to participate in vocational skills training. Through these measures, we can improve the ability of rural migrant workers to adapt to the upgrading and transformation of industries and changes in the demand for jobs, and promote their stable employment in the cities, which will in turn enhance their willingness to stay in the cities. Only in this way can we achieve both "equitable growth" and "efficient growth", truly promote high-quality development, and lay a solid foundation for building a strong modern socialist country.

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