The Income Effect of Job Turnover and its Policy Implications among Migrant Workers in Urban China

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Abstract

Scholars have not reached an agreement about the impact of job turnover on wage change, especially about the patterns of job change and the impact of the previous job on wages. The existing studies have taken more account of individual factors such as human capital or social capital, rather than the special labor market structure of a floating population. In this paper, the Heckman model is used to analyze the impact of the characteristics of the previous job and the way of job turnover influences wage change and explore how human capital and social capital work for the mobility of migrant workers in a segmented labor market. Our results show that the higher the previous wage rate, the lower the marginal wage growth when changing jobs, while the impact of social capital on wage growth is insignificant. Wage growth has a significant effect on jobs requiring a college and above education, but its effect is insignificant for jobs without such requirements. These phenomena originate from the "Ceiling Effect" in the wages of the migrant workers in the secondary labor market. Migrant workers have been bound in the labor force structure due to the strong homogeneity of their social relationships. Only the workers who have enough human capital can successfully overcome this barrier.

Keywords: Job turnover, wage rate, migrant workers, labor market segmentation

El efecto de la rotación laboral en los ingresos y sus implicaciones políticas entre los trabajadores migrantes en la China urbana

Resumen

Los académicos no han llegado a un acuerdo sobre el impacto de la rotación laboral en el cambio salarial, especialmente sobre el impacto de la rotación laboral. Los estudios existentes han tomado más en cuenta factores individuales como el capital humano o el

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capital social, en lugar de la estructura especial del mercado laboral de una población flotante. En este artículo, se utiliza el modelo de Heckman para analizar el impacto de las características del trabajo anterior y la forma en que la rotación laboral influye en el cambio salarial y explorar cómo el capital humano y el capital social funcionan para la movilidad de los trabajadores migrantes en un mercado laboral segmentado. Nuestros resultados muestran que cuanto mayor es la tasa salarial anterior, menor es el crecimiento salarial marginal al cambiar de trabajo, mientras que el impacto del capital social en el crecimiento salarial es insignificante. El crecimiento salarial tiene un efecto significativo en los trabajos que requieren una educación universitaria o superior, pero su efecto es insignificante para los trabajos que no requieren tales requisitos. Estos fenómenos se originan a partir del "efecto techo" en los salarios de los trabajadores migrantes en el mercado laboral secundario. Los trabajadores migrantes han estado atados a la estructura de la fuerza laboral debido a la fuerte homogeneidad de sus relaciones sociales. Solo los trabajadores que tienen suficiente capital humano pueden superar con éxito esta barrera.

Palabras clave: Rotación laboral, tasa salarial, trabajadores migrantes, segmentación del mercado laboral

中国城市农民工工作流动的收入效应及其政策启示

摘要

摘要：关于工作变动对工资变化的影响尚不存在学术定论，尤其是关于农民工作变动方式及前一份工作对收入的影响。现有研究更多考虑了人力资本或社会资本等个体因素，而较少考虑流动人口的特殊劳动力市场结构。本文利用Heckman模型来分析前一份工作的特征和工作变动方式对工资变化的影响，并探究在分割的劳动力市场中，人力资本和社会资本是如何为农民工的流动发挥作用的。研究结果表明，前一份工作的工资率越高，工作变动时的边际工资增长越低，而社会资本对工资增长的影响并不显著。工资增长对要求大学及以上学历的工作有显著影响，而对没有这种要求的工作影响不显著。这些现象源于农民工在二级劳动力市场工资的"天花板效应"。农民工由于社会关系的同质性较强而被束缚在劳动力结构中。只有拥有足够人力资本的工人才能成功突破这一障碍。

关键词：工作流动，工资率，农民工，劳动力市场分割

1. Introduction

As a driving force of China's urbanization, the number of rural-urban migrant workers has continuously increased since the early 1990s. By 2021, the total number of migrant workers was 29.56 million, accounting for 39.60% of China's total employment.[1] However, it is difficult for migrant workers to be fully integrated into urban societies due to a variety of institutional barriers, and their careers are generally associated with low income and frequent job turnovers.[2-5] From a macro perspective, there is obvious income inequality in China, especially urban-rural income inequality and east-west income inequality. Urban-rural income inequality prevents rural migrant workers from enjoying the same public resources, educational resources, and social benefits as urban employees. Migrant workers usually have fewer opportunities than urban employees for income growth or promotion without turnovers.[6] Income inequality between the East and the West makes migrant workers in the East have better development platforms, more development opportunities and more available positions than those in the Central and Western regions, and their possibilities for promotion are much greater than those in the Central and Western regions.[7] Studies have verified that migrant workers tend to change their jobs due to low wages or little skill enhancement in their previous jobs.[8, 9]

Research on whether job turnover can increase the wages of migrant workers is far from conclusive. Empirical studies found both positive[10, 11] and insignificant or even negative impacts.[12-14] Most existing research tends to explain these findings from the perspective of human capital or social capital without considering China's special labor market structure. A well-developed market environment is critical to the function of human capital and social capital. In a split labor market, the function of those factors is weakened. In addition, studies usually ignore the effects of the characteristics of workers' former jobs and their way of changing jobs on income. On the one hand, workers' decision to change jobs should be based on the trade-offs between the last job and the next job by comparing their wage rate, duration, occupation types, etc. On the other hand, workers' experience in their former jobs is one of the guiding factors for their employers. Research on these issues can provide insights for improving labor market policies and enhancing the income of migrant workers.

2. Literature Review

In the academic world, there have been many studies analyzing the impact of job changes on wage rates, with different results obtained by different scholars in different countries. Based on the analysis using the American National Longitudinal Survey data for young employees between 1979 and 2004, Munasinghe and Sigman found that workers with fewer job changes earned higher wages, and the impact of changing jobs became more significant after workers accumulated more work

experience.[15] Gottschalk and Moffitt found that job change could not bring wages up for American workers during the 1980s and the mid-1990s.[16] Light and McGarry showed that job change is negatively associated with wage rates, and workers with stable jobs usually earn more money.[17] With regard to the conditions of job change, Mattila argued that unemployment could be an important factor that determined the impact of job change on wage levels.[18] A worker's wage rate would increase significantly if he/she already had a job, while his/her return of job change would become insignificant if he/she had no job when taking a new job. A job change caused by economic and personal factors raises the wage rate, while a job change due to family factors has little impact on the wage rate, and a job dismissal has a negative impact on the wage rate.[19] Age should also be taken into account when explaining the effect of job change on wages. Young workers have wages increased after a job change, while such an effect diminishes for older workers.[20, 21]

Research on labor markets in Germany and the United Kingdom has found that job changes can lead to wage increases for low-income earners, with little change in income for middle- and high-income earners.[22] Research on EU countries found that occupational mobility is strongly associated with earnings mobility, and occupation movers are more likely than job movers to experience a downward rather than an upward earnings transition; by contrast, changing occupation voluntarily is more often followed by an upward wage transition.[23]

In China, some studies verified that the initial job change from agriculture to urban sectors could bring a remarkable income increase, but the following job changes among the urban sectors could not make significant changes.[5, 13] Moreover, an individual's job change frequency could be negatively related to the wage rates of migrant workers.[12] Other studies have found that job changes could contribute to higher wage rates.[9-10] Huang Qian found that an intra-sector job change has a positive effect on low-income workers, but a negative effect on high-income ones.[24] An inter-sector job change has a negative effect on wage rate among all groups. Wu and Cheng showed that the average wage of workers who resign from their former jobs is higher than that of the workers who are fired.[25] From the perspective of gender, Lv and Yao found that an initial job change of male migrant workers due to professional or family reasons could raise the wage rate in their new positions, while the wage change of female workers was much less in comparison with their male peers.[26]

Furthermore, some studies found that migrant workers with higher job stability earn more than those with lower job stability.[11] According to Li and Tian, job stability is beneficial to wage increases for migrant workers, but the benefits vary by workers' initial income level.[27] The marginal effect of job stability is diminishing for low and high-income workers but increasing for middle-income workers.[28]

With the continuous advancement

of market-oriented reform, China's labor market structure has gradually changed into a dual labor market structure, mainly manifested as the dual division of the urban labor market and the dual opposition of urban and rural areas.[29] According to different standards, the labor market can be divided into different sectors, such as public employment sector and private employment sector, skilled employment sector and unskilled employment sector, and urban household employment sector and foreign population employment sector.[30-31] A number of studies have analyzed the earnings of workers in this context. By analyzing the longitudinal survey data of the China Family Panel Studies (CFPS) between 2014 and 2020, Ma found that the wages of informal workers are generally lower than those of regular workers, and the discrimination against informal workers in the private sector is more serious than that in the public sector, which will lead to an increasing wage gap between informal workers and regular workers.[32] Wang found that China's labor market has regional differences and is segmented by industry, which hinders the process of labor market integration and is not conducive to the increase of migrant workers' income.[33] Cai argued that the household registration system hinders labor mobility and migration. At the same time, the government has relaxed the control on labor flow related to the rural household registration system.[34]

To date, there is no consensus on the impact of job changes on income. This is due to, on the one hand, the differing characteristics of labor markets, which result in variations in the income effects of job changes and a lack of comparability between different labor markets. On the other hand, previous studies have not fully considered the impact of the characteristics of the previous job on income changes, nor have they adequately addressed the influence of different ways of job changing on income variations. Taking migrant workers in urban China as an example, this study examines the impact of job changes and different ways of job change on income variations in China's unique dual labor market. Since wage changes include both changes in the wage itself and changes in the magnitude of wage increases, the study in this paper consists of the following two parts: This paper first uses the Mincer wage determination model[35] to analyze the impact of job changes on wages, and then applies the Heckman two-step model[36, 37] to analyze the impact of ways of job change and the characteristics of the previous job on the magnitude of wage change. Finally, policy recommendations are proposed based on the characteristics of the Chinese urban labor market.

3. Theoretical Analysis and Hypothesis Setting

Human capital theory provides the most powerful explanation of the relationship between a job change and wage rates, even though some studies have considerably different findings. Human capital theory shows that job turnover reduces the return of specific human capital, and

workers seldom obtain the same level of earnings after a job change, while the return of general human capital might be higher after a job change, as general human capital is not affected by job change. Therefore, the overall effects depend on concrete conditions.[38, 39] However, both job-search theory[40, 41] and job-matching theory[42, 43] indicate the positive impact of a job change on wage rates. When searching for new jobs, workers usually look for better positions, which may return higher productivity based on their own human capital. Even without any general human capital investment, a worker's wage in the new position can increase due to his/her working experience and a better searching strategy from familiarity with the labor market.

Specifically, the work experience accumulated by workers in their original jobs can help them better understand the supply and demand of the labor market and clearly know their positioning and advantages in the labor market, so as to find the next higher-paying position more efficiently and accurately. As for the channels of job hunting, they can obtain information through social networks, offline job fairs, industry forums, etc., and they can also strive for recommendations through the contacts they have accumulated in their previous jobs. In addition, job matching theory focuses on the fit between workers and jobs. In order to give full play to their knowledge, skills and advantages, workers are more inclined to find jobs that match their human capital.[42, 43] New employers also tend to pay these highly qualified people more to make them willing to stay at the company. Therefore, this paper puts forward hypothesis 1.

H1: Job changes have a significant positive impact on the wage rate.

Human capital theory also focuses on the relationship between education and wages, emphasizing the important role that education plays in increasing human capital.[44] The theory argues that educational attainment enhances workers' knowledge and skills, increasing their human capital and adapting them to the demands of different jobs. On the one hand, highly educated people have a deeper specialized knowledge base. Their knowledge system allows them to adapt to jobs with high comprehensive thresholds, which usually pay higher salaries. On the other hand, people with higher education have better learning and information-processing ability. After job-hopping, they can master new knowledge and skills faster and adapt to the new environment more quickly. They will also get promoted faster and get higher salaries because of their educational advantage.[45] Therefore, this paper puts forward hypothesis 2.

H2: Education level has a significant positive impact on income after job-hopping.

When it comes to how the characteristics of the former job affect income, there are two well-known theories: bad jobs theory and entry port theory.[28] Bad jobs theory shows that precarious employment not only has immediate implications for individual incomes and

working conditions, but is also related to poor prospects for workers' future.[46] Entry port theory emphasizes that "bad jobs," while bringing some economic disadvantage in the short run, may constitute a route out of unemployment in the long term.[47, 48]

The characteristics of the previous job mainly include the wage of the previous job, the age of the worker at the time of job change and the duration of the last job.[49] Whether the salary of the previous job has reached the psychological expectation of the worker can affect the willingness of the worker to change jobs. And the higher the salary in the previous job, the more difficult it is for workers to get higher pay when they move within the industry, and the less likely there is to be a change in wages. The age of the worker at the time of job change reflects the status of the worker, such as whether he is married, whether he has children and the strength of labor output. Companies are more willing to invest in young workers because of their strong learning ability and high potential. Older workers have more experience, but also face problems such as lack of energy, and companies will be more cautious in setting wages. The duration of the previous job, i.e., the current working years. The longer this period, the more experience workers have accumulated in the field, and the higher the loyalty of workers to their positions. This makes it easy for them to gain recognition with new employers.

For job change patterns, Addison and Portugal referred to the main ones mentioned in the quarterly Labour Force Survey(s): open advertisement, referral by friends, relatives or local friends, and self-employment.[50] These modes are mainly divided into external mode and internal mode. The former includes social networks and workers' networks, while the latter refers to the spontaneous movement of workers. The survey shows that different ways of moving jobs affect workers' wages. Therefore, this paper puts forward hypothesis 3.

H3: The characteristics of the previous job and job change patterns have a significant effect on wage changes.

4. Data and Methodology

4.1. Data

Data were obtained from a national survey among migrant workers in nine cities (Table 1). A total of 2,448 questionnaires were collected from June 2010 to September 2012. After removing the records with missing values, there were 2,271 observations left. The survey defined migrant workers as the population whose hukou (a household registration and residence permit in China, codified in 1958) is in a rural area, but has worked in the city for six months or more. Due to the high mobility of this group, it was challenging to select and finalize the sample. To make the sample more representative, we included both city communities and industrial zones (i.e., Industrial Parks as well as Economic and Technological Development Zones) at a ratio of 2:1, respec-

tively.* Although the reasons for these migrant workers flowing into the city from the countryside are more than job changes, they have a high reference value because they have worked in the city for six months or more. When conducting the survey, a stratified random sampling approach was designed based on the distribution of migrant population in different cities, which was recorded by the Population Census in 2005.

Table 1. Summary of the Sample Characteristics

Variables			Observations	Share (%)
Location	East	Beijing	307	13.52
		Wenzhou	260	11.45
		Dongguan	280	12.33
		Qingdao	376	16.56
		Wuxi	227	10.00
		Shenyang	193	8.50
	Middle	Changsha	214	9.42
		Zhengzhou	221	9.73
		Wuhan	193	8.50
Gender	Male		1377	60.63
	Female		894	39.37
Education level	Elementary school and below		271	11.93
	Junior high school		850	37.43
	Senior high school or vocational training		644	28.36
	College education and above		506	22.28
Marriage status	Single		1118	49.23
	Married and others		1153	50.77
Type of source regions	City		208	9.16
	County town and small town		810	35.69
	Village		1252	55.15
Job change	Never changed		696	31.18
	Changed once		685	31.75
	Changed twice		508	21.58
	Changed for three times		229	9.20
	Changed for over three times		153	6.29
	Mean		Min	Max
Age	30.20		14	69
Working experience (years)	7.34		0.33	35.66

* According to National Bureau of Statistics of China (2014), 35.5% of migrant workers in urban area worked and lived in the Industrial Zones, and the rest worked and lived in the other regions of an urban area, which is referred to as "city communities." To be consistent with this distribution pattern, we sampled migrant workers from city communities and specialized industrial zones at a ratio of 2:1, respectively. In city communities, survey conductors randomly selected and visited residential addresses. If migrant workers were present at the selected addresses, they were asked to fill out the survey questionnaire. In Industrial Zones, enterprises were randomly selected. Survey conductors then visited the selected enterprises and recruited survey participants.

Migrant workers have the highest mobility among all the labor groups in China [5]. In our sample, 68.82% of migrant workers had changed jobs one or more times after moving to the urban sector, among whom 31.75% had changed once, 21.58% twice, and 15.49% three or more times. When the migrant workers were asked about the reasons for changing their last job, over a third (35.8%) of the respondents attributed it to unattractive income. One-fifth wanted to change their working environment (18.86%).

Nearly a quarter (25.41%) of the migrant workers intended to change their current jobs, and 41.77% of them had job change experience due to a higher expectation for their wage. Unattractive income is obviously the major cause of frequent job changes among migrant workers. So, whether job change significantly raises their wages is a valid research question.

Table 2. Frequency of the reasons for job change

	Reason for changing the previous job		**Reason for the intention of job change**	
	n	**%**	**n**	**%**
Completion of the project or unemployment	414	13.46	28	4.85
Current wage lower than expectation	1101	35.8	241	41.77
Learn new knowledge and skills	187	6.08	72	12.48
Change an environment	580	18.86	101	17.5
Unstable or laborious job	298	9.69	87	15.08
No social security	13	0.42	1	0.18
Family and children's education	225	7.32	20	3.46
Interpersonal relationship	56	1.82	5	0.87
Others	201	6.54	22	3.81

4.2. The Impact of Job Change

We use the ordinary least square (OLS) regression model to examine the factors that affect the wage rate of migrant workers, especially the job change factor. Control variables related to job change are added to the model in order to rule out the effects of job change patterns. Following the Mincerian wage function,[35] we divided the control variables into four groups – demographic characteristics, social capital characteristics, firm attributes, and geographical variables. A dummy variable, indicating whether the migrant worker has changed his/her job before, was also included in the model. The model is shown as follows:

$$\ln W_i = \alpha + \beta T_i + \gamma X_i + \delta_i \quad (1)$$

In this equation, $\ln W_i$ is the logarithm of the monthly wage of worker i. T_1 is a dummy variable indicating whether worker i has changed his/her job before. β is the frequency of job change or times of change in a given period. Xi is a vector of control variables affecting wage rate. The demographic variables such as gender, age, marital status, and education level are controlled. The variables related to social capital include the number of local friends in the host city, ways of obtaining a current job, and year of entry. Firm attributes include industry type, occupation, and pension participation. There are also three geographical variables, i.e., the characteristics of the origin city (Type – rural or urban area, and regional character – Eastern China, Western China or Middle China) and destination city (size and regional character), the size of the in-flow city, and the nature of the source, including the region of hometown and the urban-rural characteristics.

These control variables reflect the multisectoral structure of the labor market. Demographic variables and social capital variables account for the basic information and status of the floating population. Firm attributes reflect whether migrants belong to the public sector or the private sector and whether they belong to the technical sector or the non-technical sector. Geographical variables reflect whether the floating population belongs to the urban household sector or the foreign population sector.

4.3. The Impact of Method of Job Change

This study explores how the wage rate is affected by the type of last job and the way job changes are done by using the Heckman model. The Heckman selection model is mainly used to solve the problem of biased conclusions due to the non-randomness of the sample selection and is suitable for cases in which part of the sample is unobservable due to the survey design. In this study, not all of the respondents in our survey sample have experienced job change, which means there exists non-randomness in sample selection. For those having job change experience, the frequency of job change also varies. Our analysis could be biased if the observations were excluded without job change experience, since that worker's job changes do not happen randomly, but are triggered by various factors. Meanwhile, the Heckman model is used for regression where the explanatory variables are binary variables. The explanatory variables in this study contain two subsets, i.e., workers' demographic characteristics and other control variables, which meet the conditions of applicability. Thus, we used the Two-stage Sample Selection Estimator[36, 37] to solve the incidental truncation problem. The first stage is to employ the Probit model (Type II Tobit) to predict workers' job change and then use the Inverse Mills Ratio (IMR) of the predicted value from the first stage to examine how the type of last job and the way of job change affect workers' wage rate.

In the first step of the model, using "job change" as an explanatory variable in a Probit equation:

$$P_{k,i} = 1\left[a_k Z_i + \mu_{k,i} > 0\right] \quad (2)$$

In the function, $P_{k,i}$ is the dummy variable indicating whether the worker i has experienced the kth job change or not. 1[ ] is an indicator function and Z_i is a set of explanation variables. $\mu_{k,i}$ is the error term. Z_i includes two subsets of variables. One subset is the demographic characteristics of the workers, including gender (female = 1), age (six dummy variables are used – 25-30 years old, 30-35 years old, 35-40 years old, 40-45 years old, 45-50 years old, 50 years old or above), marital status (married = 1), education (three dummy variables are used – middle school, high school, and college and above), and residential register type (rural = 1). The other subset is the other control variables such as income, working years from leaving hometown, and hierarchy of the destination city (includes two dummy variables – province capital and prefectural cities, using Municipality as the control group). In addition, the dummy variables indicating the location of the destination city are also added in the first stage, including Middle China and Western China, and the dummy variables indicating the attribute of the origin city, including county, town, and rural area, using city as the control group, are added in the subset of other control variables, too.

The model of the first stage is shown below:

In the second stage, the Inverse Mills Ratio is calculated based on the predicted values of the first stage and then plugged in the second stage function (function 3 and 4) as the independent variable.

$$\Delta w_i = w_{i,1} - w_{i,0} = \alpha + \beta_1 X_I + \beta_2 X_2 + \gamma X_3 + \varphi\lambda_i + \mu_i \quad (3)$$

$$\mathrm{g}w_i = {}^{(w_{i,1} - w_{i,0})}/_{w_{i,0}} = \alpha + \beta_1 X_I + \beta_2 X_2 + \gamma X_3 + \varphi\lambda_i + \mu_i \quad (4)$$

The dependent variable in equation (3) is the amount of wage growth and that in equation (4) is the growth of wages. X_1 is a set of variables describing the characteristics of a worker's last job, such as wage and working duration, and both of them are continuous variables. X_2 is a set of variables indicating the way their job changes, such as the age at the point of job change, mean of job change, and whether they change their positions and sectors. If the job change is inter-sector, the dummy variable equals 1, while the dummy variable is 0 if it is an intra-sector job change. Change of position is classified into three categories – promotion, unchanged, and demotion, and we set the demotion as a control group. Ways of job change[50] include open advertisement, referral by friends, relatives or local friends, and self-employment. We set the open advertisement as the control group. X_3 is a set of control vari-

ables, including gender, age, education attainment, hukou status, years of job change, and the characteristics of their hometown.

The characteristics of the last job, including salary levels and duration of work, are continuous variables. Change of industry has two values – inter-industrial shift and Intra-industrial shift, and the latter is defined as 0. Change of occupation is divided into three categories: declining, unchanged and rising according to the occupational status given by Li,[51] and declining is set as 0. Means of job change include open recruitment, introduction by intermediary organizations, referral by friends, relatives, or local friends, individual entrepreneurship and others, among which the open recruitment is set as 0. is the Inverse Mills Ratio calculated from equation (2).

5. Results

5.1. The impact of job change on the wage rate

Based on our analysis, the monthly wage rate of Chinese migrant workers was 2,712.94 CNY. Those who have never experienced a job change had the lowest wage rate (2,456.26 CNY), while those who have changed their job twice had a wage rate of 3,185.76 CNY per month. For those having changed jobs at least three times, their wage rate was slightly lower than the former group but still higher than those having changed once or never changed. For those who have changed their jobs several times, their average wage increased with each job change (Table 3).

Table 3. Average monthly wage by the frequency of job change (yuan)

	All	Never changed	Once	Twice	Three times	Four times	Over four times
Current job	2712.94	2456.26	2619.10	3185.76	2732.11	2729.41	2925.00
First previous job	1739.04		1556.15	1816.34	1832.06	2034.71	2592.24
Second previous job	1369.22			1200.66	1464.79	1643.53	2043.97
Third previous job	1172.62				980.14	1271.65	1761.55
Fourth previous job	1167.90					1041.41	1353.28
Fifth previous job	920.63						920.63

According to the regression results in Table 4, Adj. R-squared is 0.2938, and Prob>F=0, meaning the fitting effect is ideal. Demographic and human capital variables generally have significant impacts on migrant workers' current

wage rate. The wage rate of males is higher than that of females. Taking the age group of 20 years old or younger as the reference group, we found that the impact of age is positive up to 35, then it becomes insignificant, and finally it turns negative after 50. The overall impact of age resembles an inverted "U" curve.

Compared with those having only elementary education or below, junior or senior high school graduates do not earn significantly higher wages, but college and above graduates gain more return from their human capital. Occupation has a significant influence, too. Compared with those general workers, self-employed businessmen, professionals, and managers have higher wages, and their differences are statistically significant. Venders, salesmen, administrative staff, and junior technicians have incomes that are not significantly different from those of general workers. These occupations also reflect professional skills and their returns.

With regard to social capital factors, we found that the flowing variable friendship with local people has a significant impact on the wage rate, but it is statistically significant only when one has nine or more friends. It also showed that social capital has a direct impact on income. This can also be partially confirmed by the way in which the job is obtained. Compared with public information, job referral from an intermediary agency on income has no significant impact, and neither does the job referral by friends or other migrant workers. However, the referral of local friends in the city has a positive impact on workers' income. The highest level of workers' income is achieved through personal entrepreneurship.

Compared with the employees in the manufacturing industry, those working in the traditional service industry (such as the retailing and catering industry) have lower wage rates, and those in the construction industry have higher wages. No significant difference was found between other industries and manufacturing.

With regard to geographical variables, the nature of one's hometown (rural or urban) does not have a significant difference in affecting one's wage rate. However, great variation was found among those from the four regions in China. Compared with those from East China, migrant workers from Central and West China have lower wage rates, while those from the Northeast have similar earnings. Central and Western workers have disadvantages in competing with their Eastern counterparts. Compared with those flowing into the East, migrant workers flowing into the Center have lower wage levels. In addition, no significant wage gap exists between Chinese cities in our sample, except that those working in Beijing have higher incomes.

Table 4 shows that the adjusted R square of Model 1 is 0.3083. Other things being equal, job change has a significant impact on the current wage level. Compared with those without such change, those who have taken other jobs have higher wages. On the other hand, working time at the current job

has a significant influence. While controlling the other variables, the longer time one works, the higher income he or she can get. This raises a question: How would changing jobs be more conducive to the increase in wages?

Table 4. Examine wage rate with selected determinants (Model I)

		Wage rate (logged)	Coef.	Std. Err.
Job change	(No change = 0)	Change	0.08043***	0.024773
Demographic variables and Human capital	Gender (Male=0)	Female	-0.22742***	0.023159
	Age (20 and below=0)	20-25	0.05803	0.042215
		25-30	0.18655***	0.049865
		30-35	0.20890***	0.059113
		35-40	0.12514**	0.062582
		40-45	0.02855	0.064448
		45-50	0.05051	0.067321
		>50	-0.28228***	0.073033
	Marital status (Single=0)	Married	0.05175	0.033665
	Education level (Elementary education or below =0)	Junior high school	0.01486	0.037806
		Senior high school	0.05260	0.041893
		College and above	0.15262***	0.051667
	Occupations (Worker=0)	Vender and trader	0.19946	0.133576
		Salesman	0.14999	0.144847
		Administrative staff	0.20198	0.136396
		Junior technician	0.26744*	0.138690
		Businessman (self-employed)	0.28063**	0.134928
		Professional and technician	0.63139***	0.140330
		Manager	0.61023***	0.143926
		Other	0.82856***	0.174535
Social capital variables	Number of local friends (None=0)	1-2	0.00980	0.031581
		3-5	0.03178	0.030703
		6-8	0.05241	0.041813
		9 and more	0.10136***	0.033556

	Means of obtaining the current job (Public information=0)	Job agency	-0.02850	0.057584
		Introduction by relatives or fellow-townsman	-0.00081	0.027774
		Introduction by local friends	0.08433*	0.047777
		Entrepreneurship	0.17528***	0.051418
		Other 0	0.10061*	0.059168
	Working years of current job		0.00848**	0.003365
Firm attributes	Industry (Manufacturing=0)	Agriculture and mining	0.02067	0.082115
		Construction	-0.14024*	0.084861
		Retail, catering, other service industry	0.02067	0.087526
		Information, finance, and other modern services, education, research, health, etc.	-0.15076*	0.090385
Institutional Factor	Hukou (Agricultural household=0)	Non-agricultural household	-0.04749	0.034050
	Contribution to pension (Yes=0)	Participation in local pension scheme	0.11807***	0.025883
Geographical variables	Original region (East=0)	Middle	-0.07833***	0.026357
		West	-0.03248	0.032817
	Characteristics of origin (City=0)	County Town	-0.07371	0.046850
		Small Town	-0.11301**	0.045975
		Township	-0.11770***	0.044717
	Destination (East=0)	Middle	-0.10138**	0.044587
	City hierarchy (First-tier city=0)	Provincial capital	-0.01826	0.049297
		Prefectural city	-0.14750***	0.035673
Constant			**7.50897**	0.160584

Note: the table does not give statistically insignificant variables (*significance at 0.05 level，**significance at 0.01 level, ***significance at 0.001 level)

5.2. How a job is changed can influence an increase in wages?

After verifying that the workflow is conducive to wage increase, the Heckman model was used to analyze the way that job is changed and the impact of the previous job characteristics on wage change. The regression results are shown in Table 5. The table respectively reports the results of the regression based on the outcome equation and the regression based on the selection equation. The effective condition of the Heckman model is that the λ value is not zero and is statistically significant. The λ values estimated for the two model samples were 0.07693 and 0.04013, respectively, and were significant at the 1% significance level, so the Heckman model was effective. The overall fit statistic of the model. Wald chi2 (35) is equal to 789.14 and is significant at the 1% significance level, indicating that the overall regression effect of the model is still good.

According to the results of model (3) and (4), in the case of controlling other variables, the characteristics of the previous job and the majority of the variables in the ways of changing jobs have a significant impact on income changes. No matter whether in model (3) or model (4), compared with open recruitment, individual entrepreneurship has the largest positive effect on either absolute wage increase or its relative change. A job change found through one's social network does not necessarily bring more benefits than public recruitment or the introduction of an intermediary agency.

One's occupational change affects his or her wage change, too. Compared with occupational downward mobility, occupational stability has a significant positive impact on one's wage change, and the effect of occupational downward mobility is even stronger. However, no significant differences are found for relative wage change.

One's previous job also affects his or her wage change. For both absolute and relative wage rates, the higher the wage of the previous job, the smaller the wage change due to a job change. The age at the time of replacement work has a significant impact. The lower the age, the greater the benefits of job change, and the job change places older workers at a disadvantage position.

Whether it is for relative income or for absolute income, the duration of the previous job has a significant impact on wage changes. The longer the duration of the last job, the greater the salary increase brought by the job change. The income level of the previous job also has a negative impact on the absolute wage, but no effect on the relative wage changes.

While controlling other variables, females gain less than males from a job change, and so do older workers relative to younger ones. Education level has a significant impact; compared with primary education or below, a college degree or above can substantially increase the wage rate, but a high school diploma does not have the same effect. Those from East China have more opportunities to benefit from a job change than those from Central and West Chi-

na. Compared to workers from cities, workers from the countryside usually experience negative changes in income. This reflects the disadvantages of the population from the western region and from rural areas in the labor market. Finally, the impact of the hukou is not significant.

In addition, the period of job change has a significant impact on both absolute wage change and relative wage change. Compared with job changes after 2009, the benefit of changing jobs has become far more notable, since the year 2008 was the time that the China's economy encountered the global financial crisis. This performance is more pronounced in the absolute income model because the absolute income has changed even more under the same wage growth rate as the overall wage level increases.

Table 5. Regression results of job change and its attributes on wage change.

terms	Independent variables	Model 3		Model 4	
		Coef.	Std. Err.	Coef.	Std. Err.
Ways to change job (Public recruitment=0)	Intermediary agency	0.0209	0.0594	0.4965	0.5118
	Introduction by relatives or fellow townsmen	0.0258	0.0286	0.2445	0.2463
	Introduction by local friends	0.0256	0.0502	0.5829	0.4325
	Individual entrepreneurship	0.3461***	0.0430	2.3019***	0.3686
	Others	0.1906***	0.0620	1.3293**	0.5339
Industrial change (Inter-industrial change=0)	Intra-industrial change	-0.0189	0.0277	-0.4193*	0.2384
Occupational status (downward mobility=0)	Stability	0.0641	0.0393	-0.0393	0.3383
	Ascendency	0.0718*	0.0417	0.3668	0.3582
Wage of the previous job		-0.0002***	9.16E-06	-0.0005***	7.88E-05
Age of job change		-0.0051***	0.0018	-0.0132	0.0156
Duration of the previous job		0.0478***	0.0041	0.2329***	0.0352
Year of job change (After 2009=0)	Before 2003	0.2579***	0.0036	2.3003***	0.4092
	2003-2007	0.0840**	0.0475	0.2139	0.2831
	2008-2009	0.0176	0.0329	0.0151	0.2591
Gender (male=0)	Female	-0.1391***	0.0258	-0.3750*	0.2226

Marriage status (Unmarried=0)	Married	0.0629**	0.0313	-0.3755	0.2694
Education level (Primary school or below=0)	Junior high school	0.0238	0.0390	0.1127	0.3358
	Senior high school	0.0351	0.0427	0.2614	0.3673
	College and above	0.1811***	0.0530	0.1264	0.4564
Hukou (Agricultural household=0)	Non-agricultural household	-0.004	0.0403	0.4721	0.3468
Source region (East=0)	Central	-0.0317	0.0263	-0.0230	0.2264
	West	-0.0710**	0.0344	-0.4912*	0.2963
Urban or Rural (Urban=0)	County city	-0.1103**	0.0563	-0.5917	0.4844
	Township	-0.1521***	0.0555	-0.8823*	0.4772
	Rural	-0.1232**	0.0538	-0.6157	0.4630
_cons		36.0193***	7.1926	430.1615***	61.6850
Results of the Heckman Model					
		Model 3		Model 4	
Gender (male=0)	Female	-0.0791***	0.02538	-0.0798***	0.02537
age		-0.0176***	0.00194	-0.0177***	0.00194
Education level (Primary school or below=0)	Junior high school	0.0296	0.04191	0.0301	0.04189
	Senior high school	0.0527	0.04481	0.0517	0.04479
	College and above	-0.0845	0.05219	-0.0846	0.05217
Hukou (Agricultural household=0)	Non-agricultural household	-0.1100***	0.03465	-0.1097***	0.03464
Working years out of hometown		0.0506***	0.00241	0.0507***	0.00241
Marriage status (Unmarried=0)	Married	0.0129	0.03334	0.0164	0.03331
Municipality level (province level=0)	Provincial capital	-0.1507***	0.03915	-0.1491***	0.03913
	Prefecture-level	-0.0690*	0.03745	-0.0698*	0.03743
	_cons	-0.6644***	0.07964	-0.6606***	0.07961
Mills	Lambda	0.0401	0.07798	0.0769	0.66967
Rho		0.0661		0.0147	
Sigma		0.6075		5.2231	
Wald chi2 (23)		856.1000		228.9500	
Prob > chi2		0		0	

Note: the table does not give statistically insignificant variables (*significance at 0.05 level, **significance at 0.01 level, ***significance at 0.001 level)

6. Conclusion and Policy implications

This paper confirmed that job change has played a significant role in promoting the wages of the floating population, which is consistent with many other research findings. At the same time, the Heckman model demonstrated that the way in which a job is changed and the characteristics of the previous job have a significant impact on wage change. The effects of control variables such as age, education level, gender, etc., are consistent with the findings in other studies.[19-2226] In addition, the income drop in cross-industry job change indicates the loss of dedicated human capital.[21]

This research also contributes some important findings to the literature. First, compared with open recruitment, the way a job is found and secured through social relations has little effect on the change of income, and the impact of social capital is insignificant. However, a new job obtained by individual entrepreneurs can effectively lift their income level. Second, the higher the income level of the previous job, the lower the wage growth from the job change. Third, the level of education has the most significant positive effect on income after job change. These three results are related to the special labor market in which the floating population is located.

China's labor market is a multi-divisional market. There are clear divisions between public ownership and non-public ownership, non-technical market and professional technology market, urban household labor market, and foreign population labor market.[30-31] The floating population is basically employed in the secondary labor market of non-public and non-technical industries, and it is difficult to break through to the primary labor market. Even within state-owned enterprises and institutions, there are two distinct employment systems and income distribution mechanisms both within and outside the system, using "in-code" and "non-in-code" methods.[52] In labor-intensive industrial sectors or links, state-owned enterprises and institutions often recruit employees from the market in a non-formulated form, or reach employment agreements with labor dispatch companies through labor intermediaries. In such a secondary labor market, there is a "glass ceiling" in the wages of the floating population,[5] and it is difficult to break through after reaching a certain level. This is why the higher the salary level of the previous job, the lower the income growth from a job change. From the perspective of social relations, their influence is not significant because the social relations of the floating population are dominated by strong relationships and have high homogeneity. These relationships are basically in the same or similar classes and are limited to the secondary labor market. It is difficult to obtain a higher level of labor market relations, and it is also not easy to make a breakthrough. From the perspective of human capital, only when it reaches a certain level (up to a college degree or above), the impact is significant, and it can break through

the restrictions of the secondary labor market.

One last important conclusion is that the longer the duration of the previous job, the greater the benefit of the job change. The results seem to be inconsistent with the conclusion that job change has a positive effect on wage income. The actual situation is that on the one hand, when job duration reaches a certain limit, it is difficult for income to increase without promotion. At this time, a job change is conducive to the increase in wages; on the other hand, when a migrant worker has taken a certain job for a long period of time, the accumulated experience and skills are recognized by the next employer, so frequent job change is not ideal for income increase. This also shows that for the floating population, wage growth is sticky within the enterprise. The wages of the floating population will not grow with an increase of work experience in one company. However, through job change, past experience and skills may be recognized by new companies. From this point of view, the job change of the floating population is the result of rational choice. This also explains why some studies believe that the working stability of the floating population has a positive effect on wage growth, and some other studies have concluded that job change will help to increase the income of the floating population.

The policy implications of this study are as follows:

Firstly, promote the integration of the labor market. Accelerate the establishment of a unified human resource market for both urban and rural areas to coordinate urban and rural employment. By leveraging legal governance and competitive mechanisms, we can break down occupational heredity and encourage individuals to achieve career advancement through their own efforts.

Secondly, eliminate obstacles posed by the household registration system. Reform the household registration system to reduce mobility barriers between urban and rural areas, lower the threshold for settling in cities, and facilitate the orderly transition of farmers who have stable employment and reside in towns into urban residents.

Thirdly, improve the social support system. The government and society should provide more vocational training and educational opportunities to help the workforce upgrade their skills and enhance their employment competitiveness. At the same time, the social security system should be improved to ensure that the workforce receives basic living and medical security during their mobility.

Fourthly, enhance the quality of the workforce. With economic development and the upgrading of industrial structures, the demand for highly skilled talents is increasing. Laborers need to continuously upgrade their skill levels and comprehensive qualities to adapt to market changes.

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