

Research on Inclination of Migrant workers For Urbanization in China from 1989 to 2010¹

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Abstract

Between 1989 and 2010, a period of more than two decades the researchers were very actively studying the Rural “Migrant” Workers’ urbanization phenomena as this period was the most active period in history of Chinese urbanization. In this paper, the researchers analyze the main factors that motivating Chinese migrant workers for urbanization based on a logistic model, in this model the authors have explored the specific roles of the main influencing factors during this period. The research shows that: 1.The willingness for urbanization was associated with the level of education. The higher the educational level one has, the more likely that this person will have more willingness for urbanization. 2. Despite the fact that the big gap in the income between the urban and the rural, the registered residency was not transferred at the same time which reflects the status of migrant workers in China. 3. The automation of the agriculture production was and still is gradually replacing the labor forces, this has a big impact on decreasing the needs of labor and accordingly pushing farmers to migrate to a more urbanized areas. 4 The existing gap in the social welfare and social security benefits between urban residents and migrant workers hinders the process of migrant workers' urbanization. 5. The burgeoning of non-agricultural industry and private enterprises triggering an enormous demand for labor, which is the main strength for cities to attract migrant workers.

Keywords: Logistic Model, Urbanization of Migrant Workers, Willingness Analysis

1 Introduction

In China, the definition of “migrant workers” is used to describe those who migrated from rural areas for a purpose of work in cities but without a city census register. In essence, migrant workers’ urbanization contains two aspects, industrial and space transfer of agriculture labor. Differing from industrialized countries that have already completed the two transfers, migrant workers in China also have to cross the barrier of household registration to become real urban residents; this is as a result of the household registration system constrains and also is a result of special institutional arrangements which have a social economic environment background. Therefore, the characteristics of migrant workers’ urbanization in China have attracted the attention

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of many scholars at home and abroad.

The influencing factors that have impacted on the migrant worker's urbanization phenomena in China were subject to various studies. Cai Fang has related this phenomena to financial factors i.e. the income of one or family which may influence the migrant workers decision whether to transfer the registration to urban settings or not (Fan, 2005; Cai Fang, 2003), while Du yang was in favor of individual trait factors such as age, sex, education, family (Du Yang, 1999; Cai Fang, 2001; Chen Yuguang, 2007). However, most of the researcher have supported the view that social institutions have a great impact on urbanization “household registration system and social security system” (Cai Fang, 2001; Jiang Zuopei, 2003; Huang Zuhui and Mao Yingchun, 2004; Xu Jianling, 2008), stating that the traditional development strategy and the household registration system arrangement are limiting factors on the potential urbanization of the migrant workers, and that the system obstacles is a hindering factor on the free movement of labor. Recently, a large number of migrant workers have completed the transfer of region and profession; however, they didn't achieve the identity conversion, which is a “semi-urbanization” status, impelling the transformation of China's development pattern (Gu Shengzu and Li Hua, 2011).

Overall, different researcher had different opinion. However, none has considered studying the whole influencing factors on the migrant workers' urbanization phenomena. In this paper, in the perspective of inclination of migrant workers' urbanization, the authors aimed to analyze the whole influencing factors on the basis on other scholars' research result. Between 1989 and 2010, a period of more than two decades the researchers were very actively studying the Migrant Workers' urbanization phenomena as this period was the most active period in history of Chinese urbanization. For this reason, the researchers have selected relevant statistical data of the *China Statistical Yearbook* for the period from 1989 to 2010, using logistic model and Eviews7.0 software to analyze the main influencing factors of the inclination of the Chinese migrant workers' for urbanization, and to explore the main factors influencing this phenomenon.

2 Index selection and model construction

2.1 Index set

There were many considerable factors affecting the process of urbanization. Based on three principal aspects (economic development, the migrant workers' quality and policy-oriented), we conducted an empirical analysis on the effect of migrant worker's urbanization by selecting some representative factors to be quantified. There were some indexed which were as follows: (1) Non-agricultural employment (ten thousand people) indicated the absolute volume of flow of labor from agriculture to other industries. (2) Proportion of non-agricultural employment (%) showed the relative volume of flow of labor from agriculture to other industries. (3) Urbanization rate (%) reflected the situation of transfer's census register from rural to urban. (4) The level of education (year) decided migrant worker's preference to settle in urban or rural. (5) Income gap between the urban and rural (Yuan) played an important role on migrant workers' urbanization. (6) Total power of agricultural machinery (ten thousand kw) which represented the scale effect of mechanization reduced the demand

of labor. (7) Urban residents' per capita social security (Yuan) mean the “five insurance policies and a social security policy”. Although it has been integrated into urban life, migrant workers' basic social welfare guarantees were not the same as city residents'. (8) Non-agricultural industry output value (hundred million) reflected that non-agricultural industries have a rapid development and can provide a lot of jobs to migrant workers. It was just like a reservoir to absorb migrant worker's employment. (9) Gross output value of private enterprises (hundred million) could reflect the role that private enterprises played on migrant workers' urbanization, as compared with large and medium-sized enterprises and the state-owned enterprises, private enterprises have poorer standard and a relatively high employment elasticity.

2.2 Model construction

In this article, we intended to assess the main impacts of the influencing factors on the migrant workers' urbanization through a logistic regression model. The linear logarithm model was as follows:

$$\ln Y_j = \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \dots + \alpha_6 \ln X_6 + \varepsilon_j \quad j = 1, 2, 3$$

Y_1 represents non-agricultural employment, Y_2 represents proportion of non-agricultural employment, Y_3 represents urbanization rate. X_1 represents the level of education, X_2 represents income gap between the urban and rural, X_3 represents total power of agricultural machinery, X_4 represents urban residents' per capita social security, X_5 represents non-agricultural industry output value, X_6 represents gross output value of private enterprises.

As the time series data often exists many problems, such as multicollinearity, heteroscedasticity and autocorrelation, which will affect the effectiveness of the estimate, therefore, we wanted to eliminate the multicollinearity, so stepwise regression needed to be done in this paper. In order to eliminate the influence of residual autocorrelation item, this article used the Cochrane - Orcutt method to adjustment. The new model after iterated was as follows:

$$\ln Y_j = \alpha_1 \ln X_1 + \dots + \alpha_6 \ln X_6 + \rho_{i,1}AR(1) + \dots + \rho_{i,\lambda}AR(\lambda) + \dots + \rho_{i,k}AR(k) + u_{i,t}$$

In the equation, $AR(\lambda)$ is the λ order autocorrelation of the random order. $\rho_{i,\lambda}$, $\lambda=1,2,3\dots k$, $\rho_{i,\lambda}$ is the coefficient of the random disturbance item.

3 Data

3.1 Data source

The source of data for this article was extracted from “China Statistical Yearbook”, “The Peasant Household Survey Statistical Yearbook” and “Human Resources and Social Security Development Statistics Bulletin” in 2011. Need to mention that, on the one hand the concept of migrant workers' urbanization was proposed relatively late, on the other hand the relevant research and the progress of migrant workers' urbanization was more active in recent years, this paper selected a sample period of empirical data between 1989 and 2010 to guarantee statistical requirements and data availability. In this paper, the source of figures:

Income gap between the urban and rural X_2 , total power of agricultural machinery X_3 , non-agricultural industry output value X_5 , gross output value of private

enterprises X_6 , non-agricultural employment Y_1 , proportion of non-agricultural employment Y_2 and urbanization rate Y_3 was selected from “China Statistical Yearbook”; per capita social security X_4 was selected from the aggregation of the per capita expenditure in “five risks” which was shown in “Human resources and social security development statistics bulletin”; the level of education X_1 was selected from “The peasant household survey statistical yearbook”.

3.2 Data processing

Although the data in this paper was time series, the statistical calibers were different, so the researchers have processed these data considering 1989 as the base year. Each variable data was divided by its respective base in order to achieve unified statistical calibers. The data have been tested before and after the processing. The entire variable’s descriptive statistics was displayed in table 1.

Table 1 The descriptive statistics of each variable’s original data

Definition	Minimum	Maximm	Average	Standard deviation
Y_1 (ten thousand people)	18,887.71	48,174.00	35,235.69	8,360.80
Y_2 (%)	36.64	63.3	50.23	7.39
Y_3 (%)	26.21	49.95	36.22	7.92
X_1 (year)	6.04	8.36	7.44	0.69
X_2 (Yuan)	659.20	13,190.40	5,027.91	3,758.94
X_3 (ten thousand kw)	28,067.00	9,278.50	52,865.54	20,467.12
X_4 (Yuan)	825.44	5,447.89	2,448.33	1,378.05
X_5 (hundred million)	12,726.40	360,668.4	114,689.8	101,387.0
X_6 (hundred million)	52.72	213,338.5	36,950.10	60,916.28

Data source: According to China statistical yearbook, The peasant household survey statistical yearbook, and Human resources and social security development statistics bulletin

4 The empirical analysis

In this paper, we used “eviews7.0” data analysis software to analyze the collected data, and we estimated the econometric model which is about the affecting factors of migrant worker’s urbanization. The last results were displayed in the table 2.

Table 2 Estimation results

Independent variable		Model 1	Model 2	Model 3
The level of education	X1	1.155 (0.000)		
Income gap between the urban and rural	X2	0.223 (0.012)	0.0083 (0.110)	-0.079 (0.000)
Total power of agricultural machinery	X3			0.340 (0.000)
Urban residents ' per capita social security	X4	-0.385 (0.000)		
Non-agricultural industry output value	X5	0.171 (0.035)		
Gross output value of private Enterprises	X6		0.0345 (0.080)	0.057 (0.000)
Constant	C	0.029 (0.082)		
AR(1)			1.631 (0.000)	
AR(2)			-0.774 (0.000)	
R^2		0.995	0.993	0.9996
D.W.		1.56	2.08	1.59
Log-likelihood		58.2	63.34	88.6

Note: () represents the p value of t test about the corresponding regression coefficient

In this article, the dependent variables of three models were non-agricultural employment, non-agricultural employment proportion and urbanization rate. They respectively reflected the absolute quantity and the relative amount that the labor force flow from the agricultural to other industries, and the transfer situation of rural registered permanent residence transfer to urban. The estimate showed that the level of education has a significant positive effect on migrant workers' employment in urban areas. The higher the educational level ones has, the more likely that this person will have more willingness for urbanization where he or she has more opportunity to find an employment opportunities in bigger cities or towns.

By analyzing the urban-rural income gap's influence on migrant workers' urbanization, that team has found that it is the very essential force to attract farmers to work in the city. However, this did not mean that the registered permanent residence will transfer at the same time. So it fully reflected the situation of migrant workers in China. Evidence of this conclusion was as follows. X2 coefficient in model 1 and model 2 is positive. It illustrated that the existence and widening urban-rural income gap can strongly attract farmers to work in the city. But X2 coefficient of model 3 is negative, which indicated that rural migrant workers won't like to transfer rural registered permanent residence to urban ones.

The popularity of machinery could promote the transfer of rural migrant workers' registered permanent residence to the urban. With the development of technology, automation will gradually replace human labor in agricultural production and the reduction of the labor demand in agriculture will force farmers to transfer to towns, thus accelerating the urbanization process. The estimate results of urban residents' per capita social security were negative. In other words, the better social security urban residents enjoy, the more obstacles there will be for migrant workers to work in the city. The majority of migrant workers live as the lowest class in the city and they cannot enjoy the same social security policies as the urban residents do. As a result, the current situation damages the interests of the farmers materially and emotionally, which hinder farmers from entering the city. So the further narrowing of this gap is one of these essential factors in urbanization.

Promoting the non-agricultural industry was a reservoir for migrant workers' employment in the city. On the one hand, with the further development of China's reform, since 1995, the restrictions to China's labor force migration was gradually relaxing and the possibility of non-agricultural employment of migrant workers was increasing; On the other hand, urban non-agricultural industries, especially the development of labor-intensive industries also provide many jobs for migrant workers, which, was a reservoir for absorbing migrant workers. The empirical results confirmed the theorem of Petty-Clark and Kuznets, who studied the industrial transfer of the labor force. In short, reforms advancement, policy changes, as well as the development of non-agricultural industries provide a "push force" for migrant workers' urbanization.

Analyzing the private enterprise output, the researchers concluded that the growth of the gross output value of private enterprises can help to improve the non-agricultural employment proportion and the urbanization rate. That is to say, the

private enterprises' development can not only attract farmers to work in a city, but also promote the transformation of the registered residence from rural to urban. Compared with large and medium-sized enterprises and the state-owned enterprises, the private enterprises had a poorer normality and its employment elasticity was relatively higher. It was more attractive for migrant workers as well. So it was the main strength of cities attracting migrant workers. Only if the migrant workers have a stable job in the city are they willing to settle in the city to complete the process of rural migrant workers' urbanization.

5 Conclusions

On the basis of previous studies by other scholars, the author of this paper analyzed the factors influencing migrant workers' urbanization by determining the quantitative index. The researchers have chosen the non-agricultural employment, non-agricultural employment proportion and urbanization rate as dependent variables, and used influence factors as the explanatory variable to construct a measurement model about influence factors of migrant workers' urbanization. Following that, this paper conducted an empirical analysis according to the *China Statistical Yearbook's* time sequence data of the year between 1989 and 2010. The results show that: (1) The level of education a farmer receives has a significantly positive effect on his employment in urban areas. The higher educational level one has and the better he is informed, the more open-minded he will be and the more likely he would like to be employed in a town. (2) Despite the fact that the income gap between urban and rural is the ultimate drive to attract farmers to work in towns, it does not mean that the registered permanent residence will transfer at the same time. So it fully reflects the status of migrant workers in China. (3) The automation will gradually replace the labor force in agricultural production, hence the decrease of agricultural labor demand forces a farmer to migrate to town; (4) The gap, which exists between urban residents and migrant workers in terms of the right to benefit from the social welfare and social security, hinders the process of migrant workers' urbanization, so the further narrowing of this gap is one of these essential factors in urbanization. (5) The burgeoning of non-agricultural industry and private enterprises trigger an enormous demand for labor, which is the main strength for a city to attract migrant workers, and it is where the crux of the realization of migrant workers' urbanization lies.

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