

## Measurement Research on Industrial Workers in China

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**Abstract:** The paper studied the factors that made the new generation of migrant workers transform in to the industrial workers by the questionnaire for them in china. On the basis of analyzing the characteristics of the new generation of migrant worker groups, the implementation approaches of their industrialization has been researched from the following four aspects: their on quality, psychological identity, economic base and social environment with the help of structural equation modle. Measures that transformed the new generation of migrant workers into industrial workers had been proposed according to the result of this study.

**Keywords:** Industrial workers industrialization, the new generation of migrant workers, structural equation model

### INTRODUCTION

Previously, the study of generation migrant workers' industrially was generally attributed to the research of their urbanization. Wang (2011) divided generation migrant workers' demands into Existence requirement, Relatedness requirement and Growth needs, according to the ERG theory of needs. In her opinion, to urbanization for new generation migrant workers can meet their needs and she has analyzed the implementation path about their urbanization. Zhou (2011) has analyzed the new generation migrant workers' urbanization from the point of static and dynamic sides. In the static perspective, he studied the influence for their urbanization by human capital, social capital and the their coupling relationship. On the dynamic views, he analyzed the influence in urbanization though evolutionary stable strategy by the game between new-age migrant workers and government. And compared with the previous, he analyzed their urbanization requirement, measured the degree of inhibition and the degree of public suppression though the Biprobit Model which is identifiable for needs. Zhong (2011) in-depth analyzed the social organization' capital functions for the trust, participation and norms, with the social capital theory as a framework and studied inhabitant route from the perspective of social organization development. Zhang *et al.* (2011) constructed Transformational Index System from the external environment and their own circumstances, quantitatively analyzed the characteristics of their inhabitant evolution and finally found out the spatial differentiation characteristics in that evolution. Jin (2011) analyzed the transformational influence of human capital health status, education, labor skills from the perspective of human capital.

Huang (2012) made a survey in Guangdong Province and found that economic demands, protection of life, equity expression are the comprehensive requirements for labor power reproduction. Zhong and Chen (2012) analyzed many problems which migrant workers is facing and put forward to implement their urbanization with consummating household registration system, rural land transfer system, the employment system, a place to live system for migrant workers in cities, the social security system, labor training system and urban public service system. He (2012) analyzed the intergenerational differences about integrated and its determinants between the first generation migrant workers and the news and showed that the determinates is education, income, social capital, migrant purpose and so on.

In the study, through designing questionnaire for industrial workers, survival status of those works had been mastered. This study aims to classify and extract the factors that affect the generation migrant workers becoming industrial workers, to find out the main factors by structural equation modeling, to study the main factors which affect the satisfaction to become industrial workers. Finally measures and counter measures that how to transform to industrial the new generation migrant workers had been proposed according to the result of this analysis.

### THE PROPOSITION OF VARIABLE DESCRIPTION AND THEORETICAL MODEL

**Variable description:** The dependent variable in this research is the workingman degree of New Generation Migrant Workers, specifically through a "whether New Generation Migrant Workers are willing to become industrial workers" to measure. We extract variables

Table 1: Measurement scales for new generation migrant workers to industry workers

Measurement scales for new generation migrant workers to industry workers	Internal factors	Self-quantity	Health state (B1) Education levels (B2) Professional skills (B3) Working (B4)
		Psychological identification	Urban value notion (C1) Lifestyle (C2) Evaluation on the urban people (C3)
	External factors	Economics base	Career choice (D1) Labor intensity (D2) Living environment (D3)
		Social environment	Interpersonal communication (E1) Social activities (E2) Social policies (E3)

from questionnaire. B1 represents the physical health of New Generation Migrant Workers; B2 represents the education level of the New Generation Migrant Workers; B3 represents the mastery state of professional skills of New Generation Migrant Workers; B1 represents that how many years the migrant works are working outside. Thus, the variables above can be grouped into their own quality. C1 represents the urban value notion of New Generation Migrant Workers in the city; C2 represents the lifestyle of the New Generation Migrant Workers; C3 represents the evaluation on urban people given by New Generation Migrant Workers, the above variables can be classified as a psychological identity. D1 was to point the choice of career of the New Generation Migrant Workers; D2 was New-age Peasant Worker's labor intensity; D3 was the income gap of the New Generation Migrant Workers; D4 was the New Generation Migrant Workers' living environment.

Thus, the above-mentioned variables can be grouped into economic foundation. E1 was the New Generation Migrant Workers' Situation of Interpersonal Communication; E2 was the New Generation Migrant Workers' situations of social activities; E3 investigate the Related Social Policies that New Generation Migrant Workers want the Government to unveil. So the variables above can be classified as social environment. Therefore, this article, by small stylebook test, cancels some questions of lower reliability and validity. The corrected measurement scale is shown in Table 1.

**The proposition of theoretical model:** Whether they can become industry workers has been decided by their own quality, psychological identity, the economic base and the social environment. Among them, the four interrelated factors all have effect on the New Generation Migrant Workers to become industrial workers. Therefore, this article proposes the theoretical model of New Generation Migrant Workers to be industrial workers, as is shown in Fig. 1. Therefore, there propose the following assumptions:

- H1:** The higher quality New Generation Migrant Workers has, the higher degree of psychological identification for the city that they live and work they will have.
- H2:** The higher quality of the New Generation Migrant Workers has, the better the economic foundation of the city life they will have.
- H3:** The higher level of psychological identity the New Generation Migrant Workers have, the better adaptability to the social environment they will have.
- H4:** The better economic foundation New Generation Migrant Workers have, the stronger psychological identity of becoming industrial workers they will have.

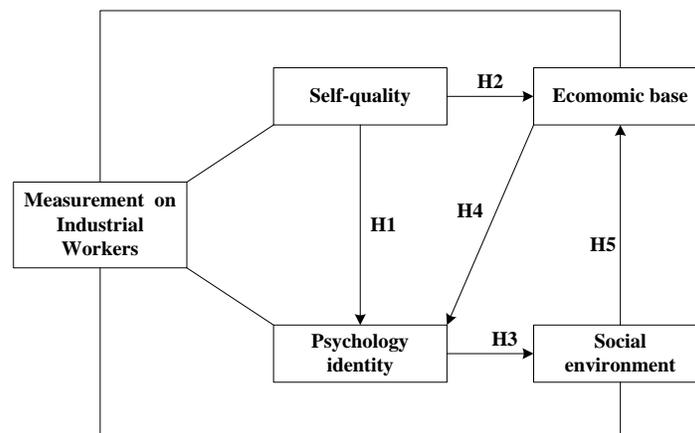


Fig. 1: The theoretical model

Table 2: Analysis results of the reliability

Measure index	Individual factor	Psychological/culture	Economic factor	Social factor
Cronbach's alpha coefficient	0.81	0.84	0.87	0.82

**H5:** The better social environment the New Generation Migrant Workers have, the higher degree of industrial workers the New Generation Migrant Workers will be.

**Empirical analysis:** In this study, confirmatory Factor Analysis (EFA) is used to carry on the analysis of each variable. By Cronbach Alpha test, the validity of variables is inspected. The questionnaire's reliability

will be optimal when the alpha coefficient is more than 0.9; above an alpha coefficient of 0.8, the reliability of the questionnaire is acceptable; more than 0.7, the questionnaire needs correcting; if below 0.7, the questionnaire needs to be redesigned. Table 2 reflects the specific test results.

The reliability of the variables is tested by Cronbach's alpha coefficient. In general, the reliability will be high when the alpha value is between 0.7 and 0.8; if alpha value is less than 0.35, it will be refused. The variables' reliability is shown in Table 3. The alpha value of each variable is bigger than 0.7, which indicates that the variables have high reliability.

In order to verify the effectiveness of the variables further, Confirmatory Factor Analysis (CFA) is used to

Table 3: Confirmatory Factor Analysis (CFA)

Latent variable	Item	Standard load	Standard deviation	T-value	Cronbach's alpha
Self Quality	B11	0.610	0.175	5.125	0.796
	B12	0.611	0.107	5.858	
	B13	0.751	0.192	6.312	
	B21	0.616	0.092	5.373	
	B31	0.632	0.151	4.246	
	B32	0.642	0.230	4.145	
	B33	0.653	0.196	6.468	
	B41	0.604	0.110	5.246	
	B 42	0.514	0.210	5.622	
	Psychology identity	C11	0.674	0.094	
C12		0.668	0.123	6.062	
C13		0.601	0.092	4.056	
C21		0.821	0.161	4.949	
C22		0.679	0.211	6.046	
C23		0.696	0.115	4.818	
C24		0.691	0.239	4.530	
C31		0.752	0.164	5.330	
C32		0.553	0.226	5.965	
C33		0.680	0.132	6.337	
Economic basis	D11	0.763	0.132	6.714	0.759
	D12	0.610	0.191	5.589	
	D13	0.607	0.094	5.174	
	D14	0.611	0.052	5.131	
	D15	0.591	0.109	5.151	
	D21	0.645	0.134	5.874	
	D31	0.679	0.093	5.219	
	D32	0.751	0.122	4.345	
	D33	0.655	0.157	5.549	
	D34	0.672	0.149	5.007	
	D35	0.647	0.142	5.864	
	D41	0.809	0.166	6.500	
	D42	0.607	0.195	4.987	
	D43	0.615	0.103	5.645	
D44	0.742	0.184	5.660		
Social averment	E11	0.620	0.129	6.930	0.781
	E12	0.619	0.197	4.619	
	E13	0.610	0.127	4.511	
	E14	0.711	0.142	4.365	
	E15	0.657	0.139	4.571	
	E16	0.640	0.157	6.962	
	E17	0.826	0.120	4.060	
	E21	0.660	0.120	6.437	
	E22	0.704	0.111	6.363	
	E23	0.632	0.158	5.566	
	E31	0.792	0.169	5.388	
	E32	0.613	0.150	5.290	

Table 4: Entire fitting degree of the structural equation model (N = 164)

	$\chi^2$	df	$\chi^2/df$	RMSEA	RMR	NNFI	IFI	CFI	PNFI
Main fitting index	470.95	230	1.68	0.067	0.05	0.916	0.916	0.902	0.613
Reference value	---	---	<3.0	<0.080	<0.050	>0.900	>0.900	>0.90	>0.5

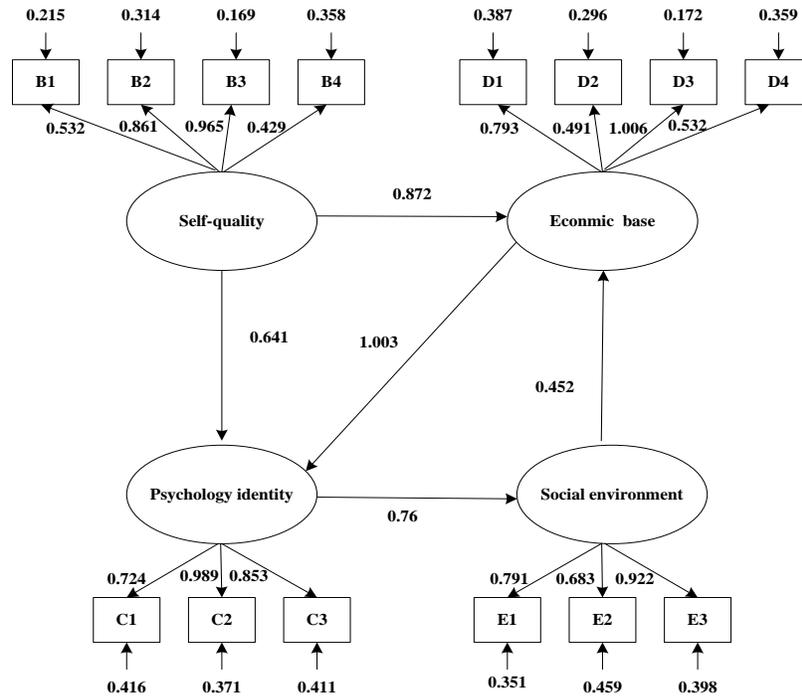


Fig. 2: Structural equation model and its paths

analyze the sample data by using SPSS and Table 3 shows the results. Among them, the degree of freedom is 185; forbidden error root is 0.064; non-normative adapter index is 0.873; chi-square value is 291.63; comparative adapter index is 0.913; residual root mean square is 0.056. The above data show that the results of CFA are acceptable. According to Table 3, we can analyze that all the factor loading of the items are bigger than 0.5 and each item's T value is greater than 2, which indicate that the constructed validity of each variable is good. Therefore, the data in this study can be used for further research work.

Structural equation model can deal with both the latent variables and its indexes. Compared with other traditional methods, structural equation model can process multiple dependent variables simultaneously; permit dependent and independent variables containing measurement error and estimate its frame and factors' relation. The structure of structural equation model includes measurement model and structure model. Measurement model is used to describe the relationship between indexes and latent variables, while structure model can describe the relationship among latent variables. The concrete forms of structural equation model are as follows Structure model is:

$$\eta = B\eta + \Gamma\xi + \zeta \quad (1)$$

Measurement model is:

$$y = \Lambda_y\eta + \varepsilon \quad (2)$$

$$x = \Lambda_x\xi + \delta \quad (3)$$

According to Table 4, the value of  $\chi^2/df$  is 1.68 which is less than the reference value; the value of RMSEA is 0.06 which is less than the acceptable reference value 0.08; the value of RMR is 0.05 which is equal to the reference value; the values of NNFI, IFI and CFI are all bigger than the reference value 0.9; the value of PNFI is 0.613 which is bigger than the acceptable reference value. In conclusion, the indexes of the structural equation model in this study have reached the acceptable level mostly, so the entire fitting degree of this model is excellent.

By using statistical analysis software AMOS7.0 to analyzed the model, the coefficients can be seen in Fig. 2. According to Fig. 2, the 5 assumptions in this study are all supported. Therefore, improving self-quality of the new-age peasant workers, enhancing their

psychological identity (mental acceptance), increasing their economic income to make their life foundation more stable and promoting their social environment are all the efficient paths to drive the new-age peasant workers to the industrial workers.

## CONCLUSION AND COUNTERMEASURES

Strengthen the vocational education training. Many experts and scholars have paid great attention to a problem that the new-age peasant workers have lower-level professional skills. Their own quality is the main factor restricting their career choice and development. The government should improve the investment mechanism of the training funds, increase the skill training for the new-age peasant workers and establish the joint cultivation mechanism of the government, enterprise and training institutions. The industrial structure of the region should be analyzed to grasp the working requirements and demand quantity for peasant workers. The cooperation system between the training institutions and enterprise should be established and stipulate the rights and interests and responsibilities by the order training and output agreement. High quality new-age peasant workers should have proficient skills, strong ability to study the new technology, create higher income for enterprise and make for cities' economic development and stability.

Enhance the psychological identification. Compared with the citizens, the treatment of the new-age peasant workers in the city is not good. They always play the role of "the marginal people" and their whole psychological identity about city's life and working environment is poor. In some sense, becoming industrial workers is the best choice for the new-age peasant workers, which is also the overall trend of our social development.

Improve the labor intensity. Results of the research in this study indicate that the labor intensity of the new-age peasant workers in Chongqing is high which is easy to form occupational disease in the long run and aggravate the burden of family and society. Therefore, the government should advocate the enterprise to make a scientific and rational working plan to improve the labor intensity. Workers can work in rotation when the cases are quite a lot. Taking the appropriate rest time can not only reduce the workers' labor intensity but also weaken their negative mood to improve the work efficiency and reduce the working faults, which are benefit to both enterprise and workers. The operation process and steps also should be improved to reduce the workers' intensity.

Perfect the guarantee measures. The group of the new-age peasant workers was discriminated from the

slickers constantly and their social circle is very narrow. The household registration systems of urban and rural areas lay restraints on the new-age peasant workers to join some social activities and make the social environment not good for their development.

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