The Urban Integration of the New Generation of Migrant Workers from the Perspective of Internet

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Abstract: This paper comprehensively analyzes the urban integration of the new generation of migrant workers from a novel perspective of Internet. In order to quantify the degree of urban integration we construct an urban integration index model for the new generation of migrant workers. Based on the model, this paper conducts multi-dimensional crossover analysis of different industries and cities. The results show that the Internet is an important factor affecting the new generation of migrant workers' integration into cities no matter what industry and what type of city they are in. Then we prove empirically that the Internet has a significantly positive promoting effect on the new generation of migrant workers' urban integration.

1. Introduction

With the passage of time, the new generation of migrant workers gradually become the main body of migrant workers. This new group can neither live in a comfortable place nor work happily like the old generation. They have difficulties in integrating into cities. How to make the new generation of migrant workers better adapt to the city life is a urban social problem.

Here are some important concepts to define.

The new generation of migrant workers: It refers to the agricultural household registration population who were born after 1980 and engaged in non-agricultural work in other places. They live in cities and are new age industrial workers.

Urban integration: Urbanization rate is an important symbol of economic development of a country or region. It is calculated by registered population, which implies the urbanization rate of resident population. However, "urban integration" is more than "urbanization": the urbanization rate of both permanent residents and registered residents only considers objective economic facts, but ignores people's subjective feelings. Generally speaking, "urban integration" has a broader connotation including good feeling, cognition and behavior referring to culture and lifestyle. Therefore, starting from the essence of "people-oriented", "urban integration" should be the concept deserving more attention.

In order to better study the urban integration of the new generation of migrant workers and understand this new group, we visited the offline distribution center of an Internet blue-collar employment platform in Kunshan, Jiangsu province and the local community of the migrant workers. We found an interesting phenomenon: the new generation of migrant workers can obtain a sense of belonging in the Internet, so as to get spiritual sustenance. In the era of digital economy, the development of the Internet has affected people's lives, and the new generation of migrant workers is no exception. They are a unique group of Internet users, with lives closely related to the Internet.

Therefore, we choose the Internet as the entry point to study the relationship between the Internet and the new generation of migrant workers' urban integration, which will be of great help to promote their urban integration.

2. Related work

2.1. Domestic Research Status

At present, few domestic scholars combine the new generation of migrant workers with the Internet for research. There are researches on Internet use and employment, entrepreneurship and vocational training of the new generation of migrant workers. Ge Huinan and Lan Qiaoyi (2018) studied the employment problems of the new generation of migrant workers in Liaoning province and put forward suggestions to increase job opportunities via Internet. There are also researches on the connection between Internet use and the new generation of migrant workers from the perspective of life. Gan Mantang (2018) and Wang Liang's investigate and analyze the Internet use and leisure life of migrant workers in Fujian province. However, these papers only aimed at the new generation of migrant workers and the Internet in a single wat, without comprehensive analysis on the Internet and the new generation of migrant workers. Or the sample size and the coverage scope is too small, not enough to make their conclusion convinced. Some even stays in the stage of questionnaire analysis of little practice.

2.2. Foreign research Status

Most relevant studies abroad are about immigrants from abroad. In EBSCO, we use "migrant workers" and "new generation" as the key words to search and screen works after 2015. There are only about 15 about China. Various scholars have conducted multi-dimensional research on the urban integration of the new generation of migrant workers. Zhang Xiaoheng and Li Xiao (2018) concluded that "Individual characteristics have a significant impact on the working conditions and education cost of new generation migrant workers"by studying the mobile network education needs of the new generation of migrant workers. It provides a way to study the new generation of migrant workers and Internet education. Siu-ming To and hau-lin Tam (2016) demonstrated the important influence of psychological factors on the new generation of migrant workers' integration into cities by studying their work and psychological satisfaction in Guangzhou. However, these studies rarely link the new generation of migrant workers to the Internet, and the research scope is generally limited to a certain province or city in China.

3. The Construction of New Generation of Migrant Workers Urban integration Index

Urban integration degree is a concept with broad connotation, and there is no direct correlation between it and the existing statistical indicators. Therefore, it is necessary to establish a comprehensive evaluation system that takes the factors affecting the degree of urban integration into account, so as to make empirical analysis by relevant statistical and mathematical methods.

3.1. Establishment of index system

We select five secondary indicators, namely, psychology, education, employment, political participation and housing, and found through field research the new generation of migrant workers: (1) Most live in accommodation provided by company (2) Almost no political participation. (3) The company rarely pays for their insurance. Finally, we incorporate eight indicators related to psychology, education and employment into the index system. See table 1.

Table 1 the index system

II	III	Explanation
Employment	Income Level x_1	Measured by the average monthly income in yuan
	Average Daily Working Time x_2	Measured in hours
	Frequency of Changing Job x_3	"no change", "1-2 times", "3-4 times", "5-6 times" and "more than 6 times", past six months, on a scale of 1-5
Education	Education Cognition x_4	On a scale of 1-5, from strongly disagree to strongly agree
Psychology	Living Environment Satisfaction x_5	On a scale of 1-5, from very dissatisfied to very satisfied
	Employment Environment Satisfaction x_6	On a scale of 1-5, from very dissatisfied to very satisfied
	Sense of Belonging x_7	On a scale of 1 to 5, from not feeling belonging at all to very strong
	Sense of Integration x_8	On a scale of 1 to 5, from not integrating in at all to completely integrating

3.2. Interpretation and Specification of Indicators

Income level: Income directly affects their lifestyle and living standard: the higher the income level, the higher the living standard.

Average Daily working time: The average working time of urban residents is about 8 hours. The shorter the working time of the new generation of migrant workers is, the closer they are to urban residents and the higher the degree of urban integration.

Frequency of changing job: If the migrant workers want to integrate into the city, time must be a basic requirement. The longer they stay, the more likely they are to integrate.

Educational cognition: Knowledge has become necessary for the new generation of migrant workers. Knowledge they have is conducive to improving the degree of urban integration.

The four indicators, life environment satisfaction, employment environment satisfaction, sense of belonging and sense of integration reflect the psychological level. The higher the score is, the easier it is for the new generation of migrant workers to get the happiness, which helps to promote urban integration.

3.2.1. Data Sources

A field research was conducted in January 2019, and then questionnaires were distributed through the Internet blue-collar employment platform (hereinafter referred to as "employment platform") and Internet local service platform (hereinafter referred to as "service platform") in March 2019. A total of 4, 951 copies of questionnaires were distributed with 4093 valid. Among them, there were 448 "employment platforms" with an effective rate of 88. 8%, and 4503 "service platforms" with an effective rate of 88. 3%, covering 117 cities in 32 provinces except Tibet and Taiwan.

$$y_{ij} = \frac{x_{ij} - minx_i}{maxx_i - minx_i} \quad (1 \leq i \leq m, 1 \leq j \leq n) \tag{1}$$

For the negative indicator:

$$y_{ij} = \frac{maxx_i - x_{ij}}{maxx_i - minx_i} \quad (1 \leq i \leq m, 1 \leq j \leq n) \tag{2}$$

After normalization, a new evaluation matrix $Y = (y_{ij})_{m \times n}$ is obtained.

Weighting by Entropy Method.

Entropy is the quantity that measures the uncertainty of a system in information theory. The more the information, the smaller the uncertainty and the smaller the entropy. Steps of the entropy method are as follows:

Normalize the normalized matrix $Y = (y_{ij})_{m \times n}$:

$$p_{ij} = \frac{y_{ij}}{\sum_{i=1}^{m} y_{ij}} \quad (1 \leq i \leq m, 1 \leq j \leq n) \tag{3}$$

Calculate the entropy value of the j index:

$$e_j = -k \times \sum_{i=1}^{m} p_{ij} \ln p_{ij} \quad (1 \leq i \leq m, 1 \leq j \leq n) \tag{4}$$

k is related to the sample number m, and k is generally set to be $\frac{1}{\ln m}$,

Calculate the diversity factor of the j indicator. For the j index, the greater the difference in the index value, the greater the effect on the program evaluation, and the smaller the entropy value. The diversity factor is defined as:

$$g_j = 1 - e_j \quad (1 \leq j \leq n) \tag{5}$$

Determine the weight. The weight of the j indicator is:

$$w_j = \frac{g_j}{\sum_{j=1}^{m} g_j} \tag{6}$$

Finally, the urban integration index is:

$$F_i = \sum_{j=1}^{m} w_j y_{ij} \ (1 \le i \le m) \tag{7}$$

Table 2 urban integration index

II	III	Weight
Employment	Income Level x_1	0. 1004876521
	Average Daily Working Time x_2	0. 130775217
	Frequency of Changing Job x_3	0. 031991661
Education	Education Cognition x_4	0. 064713132
Psychology	Living Environment Satisfaction x_5	0. 095281172
	Employment Environment Satisfaction x_6	0. 125890013
	Sense of Belonging x_7	0. 244491352
	Sense of Integration x_8	0. 206370628

According to table 2 urban integration index is calculated as:

$$F_i = 0.1018x_1 + 0.131x_2 + 0.032x_3 + 0.065x_4 + 0.095x_5 + 0.126x_6 + 0.244x_7 + 0.203 \tag{8}$$

3.3. Model Analysis

According to the weight of each indicator, it can be found that the four third-level indicators from the psychological level have a greater impact on the degree of urban integration, consistent with the arguments in many papers.

We average the urban integration index of 4093 migrant workers group by their working time, and found that the longer the migrant workers work outside the city, the higher their urban integration index is.

Group by education level, it is found that the degree of urban integration is positively.

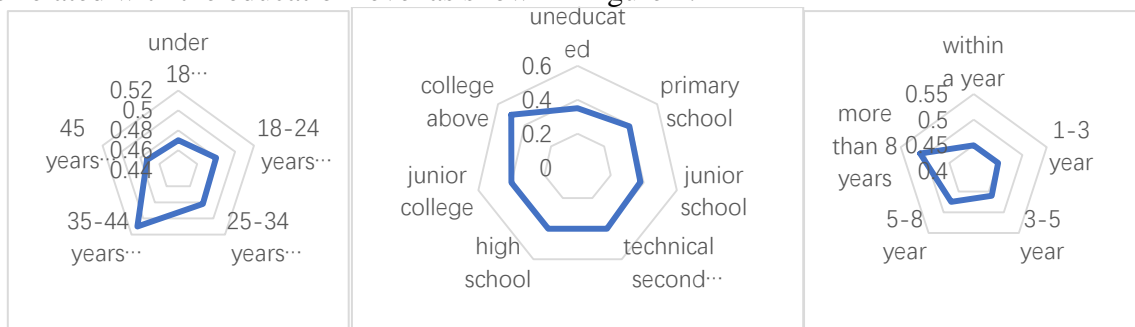Correlated with the education level as shown in figure 1.

Figure 1 correlated with the education level

Group by age, the degree of urban integration is characterized as "high in the middle and low at both ends". Generally speaking, the degree of urban integration of 18-44 years old is higher than that of farmers under 18 years old and farmers over 45 years old. The new generation of migrant workers, who were born in the 1980s, should be exactly between 18 and 39 years old now.

4. Comparative Analysis of Traditional Manufacturing Industry and Emerging Service Industry

Due to the rapid development of industries like express delivery, takeout and "new retail" in recent years, many young people would rather deliver food than go to the factory, which has attracted public attention. We analyze this phenomenon by comparing the emerging service industry represented by takeout industry with the traditional manufacturing industry as shown in table 3.

Table 3 Food delivery industry and traditional manufacturing comparison table

Industry	Service Industry	Manufacturing Industry
Urban integration index	0. 5464	0. 4354
Income Level	0. 02	0. 0106
Average Daily Working Time	0. 0733	0. 0469
Frequency of Changing Job	0. 0295	0. 0257
Education Cognition	0. 0504	0. 0488
Living Environment Satisfaction	0. 0614	0. 0534
Employment Environment Satisfaction	0. 0798	0. 0683
Sense of Belonging	0. 1219	0. 0955
Sense of Integration	0. 11	0. 086

4.1. Employment

The income level, labor intensity and job stability of new service industry are better than traditional manufacturing industry.

Income Level: "Service platform" companies have a high market value, which is a good platform for the new generation of migrant workers to earn a good income.

Labor intensity: Deliverymen from "Service platform" works for eight hours a day averagely, and members from the "employment platform"10 hours a day. Number of "employment platform" members who feel relatively tired and very tired is ten percent more than "service platform" deliverymen.

Stability: The period of training skilled workers in traditional manufacturing industry is long, and the excessive frequency of job changes will make it difficult for workers to hone their skills, and enterprises will find it increasingly difficult to recruit high-tech workers.

4.2. Psychology

The emerging service industry has a higher proportion of positive evaluations on living environment, employment environment, sense of belonging and self-integration than the traditional manufacturing industry. Here are reasons:

Spiritual Needs: The mechanical work on the traditional factory assembly line not only hinder their normal life and social contact, but also restrain and suppress their spiritual pursuit. While deliverymen in the emerging service industry can get in touch with more people and things, touch the city more and expand their horizons.

Industry Bias: In our in-depth interviews, we also learned that some of migrant workers have an inherent prejudice against traditional manufacturing industries. The stereotype of migrant workers working too hard for money has gradually changed. The emerging service industry, by contrast, is less taxing on the body and represents the freedom.

5. Comparative Analysis of Cities at Different Development Levels

We, according to the "2018 China Cities Grading List", as shown in figure 2. classify cities covered, into 19 first-tier cities, 29 second-tier cities, 43 third-tier cities, 16 fourth-tier cities and 10 fifth-tier cities.
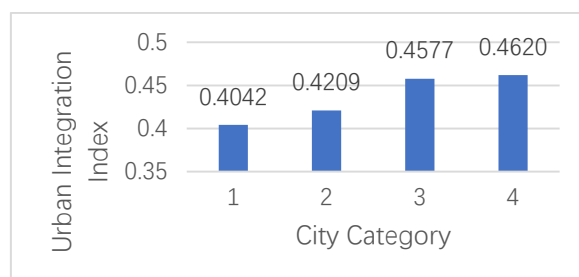

Figure 2 the 2018 China Cities Grading List

Result seems to defy intuition: the urban integration index of the new generation of migrant workers in the first and second-tier cities is significantly lower than that in the third-tier and fourth-tier cities. As shown in figure3. As is known to all, the classification is based on a city's comprehensive strength. So intuitively, people may think that developed cities are more urbanized. It is definitely worth subsequent analysis.
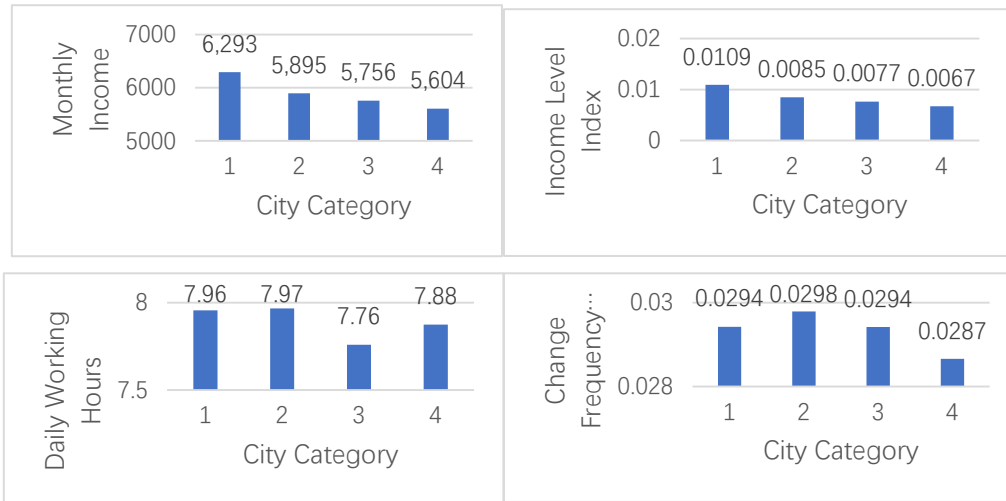

Figure 3 Comparison chart of urban integration index of migrant workers

On one hand, Migrant works from first and second-tier cities undoubtedly have higher level income, change job less frequently, which help to promote process of urban integration. On the other hand, they work longer under tons of pressure, which impedes urban integration as shown in figure4.
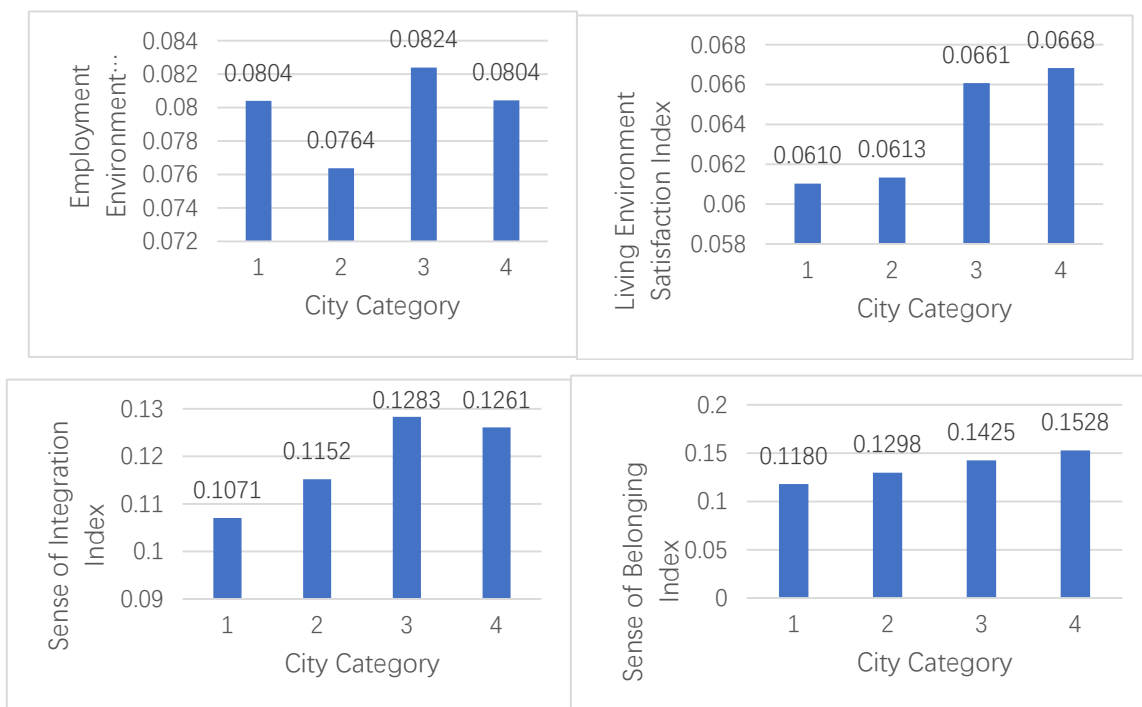

Figure 4 urban integration.

Psychological factors can explain why migrant works from undeveloped cities unexpectedly enjoy a high level of urban integration. Although they don't earn much wage, they needn't enforce themselves to keep up with quick pace of city, struggle for livelihood faced unaffordable housing price, high expense of children's education. The more satisfied they feel, the higher the degree of urban integration.

6. Internet and urban integration

No matter according to the city or the industry, the most influential factor of migrant workers' urban integration is psychology. The following proves empirically that the Internet is a better way to enhance the sense of urban integration.

6.1. Specification of Variables

6.1.1. Explanatory Variable

$Netb_1$, $Netb_2$, $Netb_3$: The answers of the new generation of migrant workers to "I can easily find a spiritual and cultural sense of belonging in the network" are scored on a scale of 1-4. We set a set of dummy variables for this with score 1 as the base group.

Similarly, the chat willing (denoted as Chatw) is also performed as above.

6.1.2. Explained Variable

Belong: the belonging index from urban integration indicators.
Into: the integration index from urban integration indicators.

6.2. Econometric Model

$$Belong = \beta_{10} + \beta_{11}Netb_1 + \beta_{12}Netb_2 + \beta_{13}Netb_3 + \mu_1 \tag{9}$$

$$Into = \beta_{30} + \beta_{31}Netb_1 + \beta_{32}Netb_2 + \beta_{33}Netb_3 + \mu_3 \tag{10}$$

$$Belong = \beta_{20} + \beta_{21}Chatw_1 + \beta_{22}Chatw_2 + \beta_{23}Chatw_3 + \mu_2 \tag{11}$$

$$Into = \beta_{30} + \beta_{31}Netb_1 + \beta_{32}Netb_2 + \beta_{33}Netb_3 + \mu_3 \tag{12}$$

If there is collinearity between the explanatory variables, the t statistic of the estimated coefficient will be too large, so we first carry out the collinearity test. The test results show that there is no collinearity among the explained variables.

Under MLR.1-MLR.4, OLS estimators are unbiased. However, If heteroscedasticity exists, the t statistics of OLS estimators does not obey the t distribution. Similarly, the F statistic no longer obey F distribution. Moreover, OLS is no longer the best linear unbiased estimator (BLUE). Result shows there exists heteroscedasticity by Brosch-Pagan test.

Heteroscedasticity - robust regression results are as follows table 4:

Table 4 Heteroscedasticity - robust regression results

	(1)	(2)	(3)	(4)
$Netb_1$	0.025*** (4.77)	0.014*** (2.95)		
$Netb_2$	0.339*** (6.62)	0.022*** (4.85)		
$Netb_3$	0.526*** (9.36)	0.035*** (7.24)		
$Chatw_1$			0.014*** (3.11)	0.011*** (2.80)
$Chatw_2$			0.023*** (5.73)	0.016*** (4.77)
$Chatw_3$			0.037*** (8.05)	0.030*** (7.69)

Take (1) as an example:

$$Belong = 0.08889 + 0.02531Netb_1 + 0.0339257Netb_2 + 0.0525523Netb_3 \tag{13}$$

Since Netb=1 is basic group, the coefficient 0. 02531 indicates that the sense of belonging of the new generation of migrant workers with network belonging level 2 is 2. 531 percentage points higher than that of the new generation of migrant workers with network belonging level 1. This suggests that network belonging can push forward sense of belonging. and we believe that this auxo-action has an increasing marginal effect rather than linear increment. Hypothesis test show as follows:

$$H_0: \beta_{12} = 2\beta_{11}, \beta_{13} = 3\beta_{11} \tag{14}$$

$$H_1: \overline{H_0}$$

The F statistic is used for the joint test:

$$F = \frac{(R_{ur}^2 - R_r^2)/q}{(1 - R_{ur}^2)/df_{ur}} \tag{15}$$

F=4. 05, the null hypothesis can be accepted at the level of significance of 1%. In other words, it is reasonable to believe that the network belonging of level 3 is twice as much as that of level 2 and that of level 4 is three times as much as that of level 2. This provides a theoretical basis for improving the degree of urban integration of the new generation of migrant workers through the Internet.

7. Conclusion

In this paper, we build an urban integration index model to quantify the urban integration. Multi-dimensional crossover analysis shows although traditional industry and first and second-tier cities have a high material level, migrant works from emerging service industry and third and fourth-tier cities live more happily. The empirical test support network can push forward sense of belonging and integration. This auxo-action has an increasing marginal effect rather than linear increment.

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