A study on the spatial characteristics and correlation of migrant workers' urban integration and well-being: A case study of Xi’an (China)

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Abstract. This paper used SPSS and ARCGIS to measure the urban integration degree and well-being index, spatial features, and their correlation. This results show: (1) The space differentiation of migrant workers’ urban integration degree in Xi’an distinct: The northern great site protection zone area is low, eastern military area is peak and the western electronic district and southwest high-tech zone are second peak areas. (2) Migrant workers’ well-being index has differentiation spatial distribution: eastern military area is significantly higher than other regions, northern economic zone shows low-lying shape, southern cultural and educational area is higher than northern economic development zone, and central business district is higher than the surrounding. (3) As the result of correlation analysis in SPSS 19.0, it is shown that there is certain positive correlation between urban integration degree and well-being index of migrant workers in main urban districts of Xi’an. Economic integration and social integration have positive prediction to well-being.

1. Introduction

Migrant workers are special social product of urbanization in China. In 2016, China’s urbanization rate has reached 57.35%, and the number of migrant workers reached 281.11 million, of which 169.34 million rural workers employed outside their hometowns. China’s urbanization is inseparable from the great contribution of migrant workers [1]; they are divorced from the edge of rural and urban social system, which is passive urbanization, pseudo-urbanization, incomplete urbanization [2]. The function of the city gradually changed from “economic orientation” to “well-being orientation”. Welfare, health care [3], efficiency and fairness become new problems of new economic geography [4, 5].

The integration measurement of urban migrant workers did not form a unified standard, which is generally believed that urban integration includes four dimensions: social, cultural, economic and political integration [6], involving economic, social and psychological subjective and objective multidimensional [7, 8]. Empirical studies have shown that degree of integration of migrant workers in northern China is higher than that in the southern cities [9] and as for the western region of migrant workers into the city, there is also spatial differentiation [10].
The theory of “Maslow’s hierarchy of needs” argues that human needs include physical, security, social acceptance, esteem, and self-actualization: our desires to live up to our unique potentials and our needs for self-fulfillment [11]. The well-being of migrant workers is based on the individual's own value standards to make a holistic assessment of the quality of life [12]. The Positive social integration brings strong subjective well-being to immigrants [13, 14]; social integration is conducive to the promotion of migrants' physical health and mental health [15]. Social support [16], satisfaction of relatives and friends [17-19], dwelling environments [20], the subjective well-being of immigrants have a significant positive correlation. Social capital and social participation exactly play a decisive role in the well-being of immigrants [21]. On the contrary, it will weaken the level of well-being [22]. Foreign scholars believe that social support in social integration has a positive effect on the well-being of immigrants, and will buffer the negative impact of adverse events. More extensive research in this area has certain reference to domestic research inspiration.

Social integration and economic integration have a significant impact on the willingness of migrant workers' development. Psychological integration and cultural integration have significant effects on the mental health of migrant workers [23]. Empirical studies show that high degree of integration of migrant workers feel that society is more equitable [24, 25]. Social capital and social relations clearly affect subjective well-being [26, 27]. The academic community has studied the sense of well-being from the factors influencing the urban integration factors such as working hours and social capital, but few studies have made a comprehensive analysis of the well-being of migrant workers in the dimensions of urban integration.

2. Data and methodology

The metropolis can provide more jobs, but migrant workers in the city's housing, schooling, health care and other costs are very high. Coupling with a short period of time cannot solve the city's urban disease but hinder the citizenization of migrant workers [28]. The number of migrant workers in Xi'an is more than one million, and has been increasing year by year. Migrant workers into the city after the identity change, identity reconstruction, social network reconstruction, entertainment and other dilemmas with the corresponding spatial response to the performance of economic space, social space, cultural space, psychological space, recreational space reconstruction. This paper refers to migrant workers in the geographical space, from rural areas into the city area, in the household, the household registration of migrant workers without city, from the primary sector to secondary sector or tertiary sector space, and living in the city with low income, no benefits, and no guarantee of belonging to vulnerable groups in the city. The sense of well-being of migrant workers refers to the overall perception and evaluation of urban social life by the way of subjective and objective conditions in a certain social and economic environment.

According to the field survey of the main urban area of Xi'an, the specific investigation sites are small living village, cultural road, Yuhua village, Zhangjiapu, Taihua South Road, Dizhai and Tumen. The concentration of migrant workers in these areas is high, space coverage is wide and the type of research site is diversified. The research areas represent the migrant workers’ suburbs, the self-managed labor market, the self-diversified labor market and the government's labor market. A total of 550 questionnaires were distributed and 475 were collected. Excluding incomplete questionnaires, we received a total of 446 valid questionnaires, and the effective utilization of the questionnaire was 89.2%. The proportion of agricultural household registration accounted for 99.55% of the effective questionnaire in line with the identity of the study. After statistical analysis, the reliability and validity of the samples reached the requirements.

Based on the purpose of the study and the relevant information collected, the urbanization and well-being of migrant workers were selected from five dimensions respectively and 15 individual indicators to construct the index system. SPSS software was used for statistical analysis to verify the existence of migrant workers' urbanization and well-being index correlation.

3. Analysis of the results
By principal component analysis, we selected the factor which eigenvalues greater than 1, according to principal component score coefficient, and the proportion of each of the principal components of the total variance, calculated degree of migrant workers' urban integration and well-being index comprehensive score, respectively. The spatial location data (geographical coordinates) of the individual migrant workers are acquired by the survey which is associated with the comprehensive score. We used ArcGIS10.1 spatial statistical analysis to map the degree of integration of migrant workers' cities and the attributes of well-being index.

![Figure 1](image1.jpg)  ![Figure 2](image2.jpg)

**Figure 1.** Spatial pattern of migrant workers’ urban integration degree.  **Figure 2.** Spatial pattern of migrant workers’ well-being index.

Figure 1 means that the degree of spatial integration of migrant workers in Xi'an is obviously different: The eastern part of the military sites belongs to the low value area, the eastern military city belongs to the high value area and the western suburbs electronic city, the southwest high-tech zone belongs to the secondary high value area. Figure 2 shows that the spatial distribution of migrant workers' well-being index in Xi'an is non-uniform; the well-being index of migrant workers in the eastern military city of Xi'an is obviously higher than that in other regions, and the well-being index of migrant workers in the northern economic development zone is low. The well-being index of migrant workers in the southern cultural and educational district is higher than that in the northern economic development zone, and the well-being index of the central business district is higher than that of the surrounding area.

SPSS 19.0 software was used to analyze the correlation between the total value of the migrant workers' urban and the total value of well-being by the Pearson correlation coefficient. The concrete results are shown in table 1.

|                  | Urban integration score | Well-being score |
|------------------|-------------------------|------------------|
| Urban integration score | Pearson Correlation 1 | .311**          |
|                  | Sig.(2-tailed) N 446    | .000            |
| Well-being score | Pearson Correlation .311** | 1               |
|                  | Sig.(2-tailed) N 446    | .000            |
|                  |                         | 446             |

The significant score of the total score of urban integration and the gross score of well-being is 0.000 and the correlation coefficient is 0.311, which indicates that there is a positive correlation.
between urban integration and well-being, which proves that the hypothesis of the article has positive correlation.

**Table 2.** The correlation between five dimension and well-being.

| Dimensions                | Economic integration | Social integration | Political integration | Cultural integration | Psychological integration |
|---------------------------|----------------------|--------------------|-----------------------|----------------------|---------------------------|
| well-being                | Pearson Correlation  | Sig.(2-tailed)     | N                     |
|                           | .423*                | .000               | 446                   |
|                           | .167*                | .000               | 446                   |
|                           | .138**               | .003               | 446                   |
|                           | .004                 | .933               | 446                   |
|                           | .035                 | .456               | 446                   |

As shown in table 2, the significant value between the dimensions of economy and society with well-being is 0.000, which is less than the significance level of 0.01, demonstrating that the integration dimensions of economy and society is correlated with well-being. Correlation coefficients are 0.423, 0.167, respectively, which indicate that dimensions of economy, society integration have positively relationship with well-being. Among them, the economy integration dimension has the highest correlation following by the society integration. Dimensions of politics, culture, and psychology integration have not significant linear correlation relationship with well-being.

The sense of well-being of migrant workers is the microcosmic individual comprehensive perception of diverse demand satisfaction, the degree of factors affecting importance is different. The economy dimension has most influence on migrant workers' well-being, which is due to the economic demands, and is the primary reason for migrant workers getting into urban. Migrant workers work in cities all the year round, so most of them take city dwellers as reference. Only when migrant workers have perceived the improvement of employment, housing, income level, which can improve their quality of life in city, can they enjoy the same results of urbanization with urban residents, thereby promoting their well-being.

Social integration dimension takes second place in influencing migrant workers’ well-being. The original acquaintance social network is gradually being broken after the migrant workers enter into the city, only after the system of social network is rebuilt, can they get social support. The more contacts with local residents, the more social support they felt. On the contrary, the greater gap between social distance, the stronger sense of being marginalized and discriminated, weakens migrant workers’ satisfaction of the quality of urban social space, hindering their urban integration, which will affect their perception of well-being.

As for political integration dimension, migrant workers are lack of consciousness of political participation, lack of enough attention for social security, and lack of knowledge of the rights and interests protection ways. The human capital of migrant workers is low, the instability of work, the lack of legal knowledge, the deprivation of the employment unit, make them lack of contract and insurance protection. Migrant workers have not discovered their political rights and social security consciousness, so political integration effect on well-being does not have explicit linear correlation.

Psychological integration is the deep dimension of urban integration, and it has not significant linear impact on well-being. Migrant workers enter into city to seek long-term development, facing all sorts of difficulties, but they have certain psychological preparation. They are lack of sense of security, identity, and they are not sensitive to psychological distance and discrimination awareness, leading to their psychological perception level has no obvious impact on well-being.

Cultural integration dimension reflects the sense of comfort and identity of the city for the migrant workers. Cities are bound to provide more life convenience and high level of service quality than rural. Generally, migrant workers are yearning for city life, and they have the same urban cultural tradition with urban dwellers, so cultural integration does not have significant linear effect on well-being.

Use the R value to test the degree of independence of the independent variable and the dependent variable, and the range of values is between 0-1, the closer to 1, the more closely linked. Table 3 shows that the fitting model of urban integration and well-being which is preferable.
Table 3. Model Summary.

| Model | R   | R Square | Adjusted R Square | Sed. Error of the Estimate |
|-------|-----|----------|-------------------|----------------------------|
| 1     | .472* | .223    | .214             | .526622754360832          |

*Predictors: (constant), Economic integration, Social integration, Cultural integration, Political integration, Psychological integration.

By means of variance analysis to verify whether the regression equation is established. If the probability of significance (Sig) <0.05, the equation is established, otherwise invalid. Table 4 shows that the equation is established.

Table 4. Anova.

| Sum of Squares | DF  | Mean Square | F       | Sig.  |
|----------------|-----|-------------|---------|-------|
| Between groups | 34.932 | 5 | 6.986 | 25.192 | .000a |
| Within groups  | 122.026 | 440 | .277 |
| total          | 156.958 | 445 |

* Dependent Variable: Well-being score

Table 5. Coefficient.

| Model                  | Unstandardized Coefficient | Standardized Coefficient | t     | Sig.  |
|------------------------|----------------------------|--------------------------|-------|-------|
| (Constant)             | 2.088E-7                   | .025                     | 0.00  | 1.000 |
| Economic integration   | .252                       | .025                     | .425  | 9.952 | .000  |
| Social integration     | .105                       | .025                     | .177  | 4.165 | .000  |
| Political integration  | .046                       | .025                     | .078  | 1.828 | .068  |
| Cultural integration   | .006                       | .025                     | .011  | .250  | .803  |
| Psychological integration | .041                    | .025                     | .069  | 1.632 | .103  |

* Dependent Variable: Well-being score

Table 5 shows the coefficient of the regression model, in which the value of the standard coefficient indicates the influence of the each independent variable on the dependent variable. The Sig values of economic integration and social inclusion are both 0.000 and below 0.05, indicating a predictive effect on the well-being of migrant workers. The regression coefficients are 0.252 and 0.105 respectively, indicating that economic integration and social integration are well-being Sense has a positive predictive effect. And the coefficient Sig of the constant term is 1> 0.05, which is not verified by significance test. The standard regression equation of migrant workers' well-being is:

Migrant workers well-being = 0.425 *economic integration + 0.177 * social integration + error

The results show that the economic integration and social integration of migrant workers in Xi'an are the main factors influencing the well-being, and the urban integration has positive predictive effect on well-being.
4. Conclusion
The degree of spatial integration of migrant workers in Xi'an is obviously different: The eastern part of the military sites belongs to the low value area; the eastern military city belongs to the high value area; the western suburbs electronic city, the southwest high-tech zone belongs to the secondary high value area;

The spatial distribution of migrant workers' well-being index in Xi'an is non-uniform; the well-being index of migrant workers in the eastern military city of Xi'an is obviously higher than that in other regions, and the well-being index of migrant workers in the northern economic development zone is low. The well-being index of migrant workers in the southern cultural and educational district is higher than that in the northern economic development zone, and the well-being index of the central business district is higher than that of the surrounding area.

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