Factors Affecting University Students’ Employment Intention in Wuhan—An Empirical Analysis Based on Survey of College Students in Ten Universities

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Abstract. This research focuses on the pain point of brain drain in Wuhan. Based on the questionnaires of ten colleges in Wuhan, the collected data were analyzed by SPSS statistical software. With Chi-square test, obtained three control variables: student gender, school type and birthplace. Using factor analysis, got four common factors: development factor, talent policy factor, living environment factor, life stress factor. Through binary logistic regression, getting the influence of control variables and common factors on local university students’ employment intention in Wuhan.

1 Introduction

Talent resources are the core and driving force of urban innovation and development, as an important strategic resource, its role and status in regional development are further highlighted. Although in the context of the frequent introduction of preferential employment policies, the brain drain of Wuhan in the graduation season is extremely severe. The employment location option of high-level talents are economic developed areas or their birthplaces. Wuhan has trained a large number of highly educated talents but can't retain them. The low rate of talent training investment return, which has brought many adverse effects, has become an urgent problem restricts the development of Wuhan.

Thus, this research integrates development factor, talent policy factor, living environment factor, life stress factor, through questionnaire and empirical analysis, concluded the impact of various indicators on local college students’ employment intention, providing ideas for Wuhan to improve its talent strategy. To enable Wuhan not only to “attracts” talents, but also to “retain” talents and maximize the value of talents.

2 Research Status

Liu Zi-lian (2016) analyzes the influence factors of employment location option from individual decision-making, comprehensively considers life and environmental factors in the construction of index system. By using discrete choice model analysis, find out the relationship between decision-making and talent flow [1]. He Zhong-yu and Zhai Guo-fang (2014) using individual survey data from college students, indicates that Chinese college graduates are domestic and economic well-being oriented in terms of employment migration, which is in line with the assumption of economic opportunity theory [2]. Ma Li-ping and Pan Kun-feng (2013) found that in the case of controlling regional and individual basic characteristic variables, students’ university locations will increase the possibility of remaining in local to work when they graduate. Due to individual’s different types of colleges, degree level, and majors, the labor market environment faced by graduates is very different, it also causes different choices of employment sites [3].

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According to the existing results, the research on integrating various factors into the index system to analyze local college students’ employment selection has yet to be improved. Therefore, this study sets up integrative index system including talent policy index, city development index, career development index, living index, and environmental index, establishes a mathematical model for influencing factors of college students' employment intention through empirical research. Use data analyze the attractiveness of each index to students directly.

3 Index System

This research holds that when college students choosing whether to work in Wuhan, they will consider various factors comprehensively to maximize their own interests. Design index system as shown in table 1.

| First Grade Indexes          | Second Grade Index                     | Index Explanation                                                                 |
|-----------------------------|----------------------------------------|-----------------------------------------------------------------------------------|
| Talent Policy Index [4]     | Household registration policy          | Local university graduates under 40, with their diploma, can apply for registration |
|                             | Housing security policy                | Incorporate local college graduates who work in Wuhan into the city's basic housing |
|                             | College students’ theme community      | Young apartment for local college graduates                                       |
|                             | Internship positions and subsidies     | Provide employment training and subsidies for college graduates                    |
|                             | Oriented recruitment of grassroots     | Graduates work at the grassroots can be recruited as regular employees directly    |
|                             | social service college students        | after the expiration of the service period                                         |
|                             | Innovation and entrepreneurship        | Support the construction of entrepreneurial parks and entrepreneurial colleges      |
|                             | training                                |                                                                                   |
|                             | College student venture project funding| Guarantee personal loan for college graduates starting a business                  |
| City Development Index      | Development level of Wuhan             | GDP, Industrial foundation                                                        |
|                             | Development potential of Wuhan         | As a new first-tier city, Wuhan’s development potential                            |
| Career Development Index    | Employment opportunity                 | Employment market demand in Wuhan                                                 |
|                             | Relearning opportunity                 | Possibility of learning after entering the job                                    |
|                             | Promotion space                       | Possibility and space of promotion                                                |
|                             | Industry prospect                      | Whether the employment industry is a sunrise industry or not                       |
| Life Index                  | Price level                            | Living cost in Wuhan                                                             |
|                             | Housing price level                    | Buying house cost in Wuhan                                                        |
|                             | Infrastructure support                 | Municipal facilities such as public transportation, water and power supply,        |
|                             | Transport convenience                  | commercial services and health services                                           |
|                             | Residential environment suitability     | Climate and living environment in Wuhan                                            |
| Environmental Index         | Public leisure equipment availability  | Urban leisure landscape belt construction, urban free park construction, etc.       |

4 Research Data

Among 86 universities in Wuhan, selected 10 representative ones to issue questionnaires. The scope of the survey covers two “Project 985” universities, two “Project 211” universities, there ordinary universities and three junior colleges. Here “Project 211” universities not include “Project 985” universities. Survey sample can highly represent the population.

Distributed 850 questionnaires in ten universities totally. After eliminating invalid questionnaires, 779 valid questionnaires were collected into database. Among them, “Project 985” university has 127 questionnaires, “Project 211” university has 200 questionnaires, ordinary university has 270 questionnaires, junior colleges have 182 questionnaires, questionnaire efficiency is 91.64%.
5 Data Analysis

5.1 Descriptive Statistics

Among 779 valid samples, boys accounted for 48.7% and girls accounted for 51.3%. The proportion of freshmen to graduate students was 30.4%, 34.3%, 16.4%, 9.9%, and 9.0%, respectively. Among the surveyed school types, “Project 985” universities accounted for 16.3%, “Project 211” universities for 25.3%, ordinary universities for 34.9%, and junior colleges for 23.5%. The percentage of students who expressed their willingness to work in Wuhan was 51.3%, while 48.7% did not.

The sample distribution indicates that it can effectively represent the population. While in the grade distribution, freshman and sophomore accounted for the majority. Subsequent chi-square test found that the “grade” variable was not statistically significant for this study. That is, employment willingness of students in different grades have no significant difference.

Univariate descriptive analysis of the 19 indicators in the questionnaire shown in Table 2. The top three ranking indicators students considered when choosing whether to work in Wuhan are industry prospects, promotion space and employment opportunities. The standard deviations of these three indicators are small, indicates the data have less fluctuations and more centralized distribution. The three indicators reflect the quality of employment and the difficulty of entering individual ideal industry, indicates that college students in Wuhan mainly consider the future development when they faced with career choices.

Due to the lack of publicity, most respondents’ feedback of “college students’ theme community” is “know little” or “haven’t heard of it”. “Directed recruitment of grassroots social service college students” and “innovation and entrepreneurship training” have narrower beneficiaries, mainly serving for specific students. Therefore, when college students thinking whether to work in Wuhan, these indicators are basically with no consideration.

| Table 2. Univariate Descriptive Analysis. |
|------------------------------------------|
| **Mean**  | **Standard Deviation** |
| Household registration policy            | 3.553               | 1.1520    |
| Housing security policy                  | 3.746               | 1.1164    |
| College students' theme community        | 3.022               | 1.1100    |
| Internship positions and subsidies       | 3.770               | 1.0671    |
| Oriented recruitment of grassroots social service college students | 3.329             | 1.1084    |
| Innovation and entrepreneurship training | 3.478               | 1.1508    |
| College student venture project funding  | 3.730               | 1.1503    |
| Development level of Wuhan               | 4.087               | .9949     |
| Development potential of Wuhan           | 4.160               | .9680     |
| Employment opportunity                   | 4.245               | .9336     |
| Relearning opportunity                   | 4.103               | .9361     |
| Promotion space                          | 4.253               | .9385     |
| Industry prospect                        | 4.268               | .9355     |
| Price level                              | 3.911               | 1.0019    |
| Housing price level                      | 4.026               | 1.0400    |
| Infrastructure support                   | 4.015               | .9659     |
| Transportation convenience               | 4.114               | .9666     |
| Residential environment suitability       | 4.141               | .9448     |
| Public leisure equipment availability    | 3.879               | 1.0183    |
5.2 Reliability Analysis and Validity Analysis

5.2.1 Reliability Analysis

Reliability analysis uses the Cronbach's α coefficient, determining whether there is a high correlation between forms. If the Cronbach's α coefficient is greater than 0.7, the scale meets the requirements. The data collected by the questionnaire was analyzed by SPSS 22.0. The Reliability Statistics is shown in Table 3. The overall Cronbach's α coefficient is 0.871, greater than 0.8, proved that the questionnaire results were reliable. The Cronbach's α coefficients of the five index layers are all greater than 0.7, means the reliability of the scale is high and the internal consistency is well.

| Talent policy index | Cronbach's Alpha | N of Items |
|---------------------|------------------|------------|
| City development index | .818 | 2 |
| Career development index | .829 | 4 |
| Life index | .811 | 4 |
| Environmental index | .763 | 2 |
| Total | .871 | 19 |

5.2.2 Validity Analysis

Use the KMO and Bartlett's test to measure the questionnaire’s validity. The results are shown in Table 4. The KMO value is between 0 and 1. The closer to 1, the stronger correlation between the indicators, the more suitable for factor analysis. According to SPSS 22.0 analysis, the KMO of the survey is 0.9, proved that the questionnaire has good validity. At the same time, the significance of Bartlett's spherical test is 0.00, less than 0.05, which is significant, indicating that the correlation coefficient matrix is not a unit matrix, and the variables are not independent. The data is suitable for factor analysis.

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .907 |
|-------------------------------------------------|------|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 8139.136 |
| df | 171 |
| Sig. | .000 |

5.3 Crosstabs

Using SPSS 22.0 software, four chi-square tests are conducted on “willingness to work in Wuhan” and “gender”, “grade”, “school type” and “birthplace” to determine whether the four demographic index have statistical significance. The test results are shown in Table 5.

| “willingness to work in Wuhan” and “gender” | Pearson Chi-Square Value | df | Asymp. Sig. (2-sided) |
|-------------------------------------------|--------------------------|----|----------------------|
| “willingness to work in Wuhan” and “grade” | 1.292 | 4 | .863 |
| “willingness to work in Wuhan” and “school type” | 61.924 | 3 | .000 |
| “willingness to work in Wuhan” and “birthplace” | 95.761 | 1 | .000 |

The Sig. of the "willingness to work in the Wuhan" and the "grade" chi-square test is 0.863, greater than 0.05, indicating that the difference in the "grade" of the variable is not statistically significant. There is no significant difference in the willingness of different grade college students.

The Sig. of “gender”, “school type” and “birthplace” are less than 0.05, proved that these index are significantly related to the willingness. That is, gender, school type and birthplace are the factors influence the willingness of college students to work in Wuhan.
After crosstabs, three demographic index “gender”, “school type” and “birthplace” were extracted as control variables. Considering the influence of individual characteristics on the willingness to work in Wuhan, these variables will be entered in the regression analysis as control variables to establish a mathematical model.

5.4 Factor Analysis

Selected principal component analysis to extract common factors. Total variance explained is shown at Table 6. Extracting four common factors with eigenvalues more than one, which contained 19 items and accounted for 65.095% variance. These common factors can reflect and explain 65.095% information volume of the questionnaire.

Table 6. Total Variance Explained.

| Component | Initial Eigenvalues | Extraction Sums of Squared Loadings | Rotation Sums of Squared Loadings |
|-----------|---------------------|-------------------------------------|----------------------------------|
|           | Total               | % of Variance | Cumulative % | Total               | % of Variance | Cumulative % | Total               | % of Variance | Cumulative % |
| 1         | 7.844               | 41.287       | 41.287       | 7.844               | 41.287       | 41.287       | 3.989               | 20.993       | 20.993       |
| 2         | 2.082               | 10.959       | 52.246       | 2.082               | 10.959       | 52.246       | 3.377               | 17.774       | 38.767       |
| 3         | 1.352               | 7.117        | 59.363       | 1.352               | 7.117        | 59.363       | 2.799               | 14.731       | 53.498       |
| 4         | 1.089               | 5.732        | 65.095       | 1.089               | 5.732        | 65.095       | 2.204               | 11.598       | 65.095       |

Rotated the four common factors by Kaiser Normalization, in order to better interpret and name the common factors. Table 7 shows the rotated component matrixa, the four common factors’ loading are greater than 0.5, indicating that the scale has well validity.

Table 7. Rotated Component Matrixa.

| Component | 1   | 2   | 3   | 4   |
|-----------|-----|-----|-----|-----|
| College students’ theme community |     | .692|     |     |
| Internship positions and subsidies |     | .653|     |     |
| Oriented recruitment of grassroots social service college students |     | .756|     |     |
| Innovation and entrepreneurship training |     | .774|     |     |
| College student venture project funding |     | .690|     |     |
| Development level of Wuhan | .757|     |     |     |
| Development potential of Wuhan | .761|     |     |     |
| Employment opportunity | .750|     |     |     |
| Relearning opportunity | .673|     |     |     |
| Promotion space | .770|     |     |     |
| Industry prospect | .697|     |     |     |
| Price level |     | -.693|     |     |
| Housing price level |     | -.737|     |     |
| Household registration policy |     | .538|     |     |
| Housing security policy |     | .563|     |     |
| Infrastructure support |     | .660|     |     |
| Transportation convenience |     | .689|     |     |
| Residential environment suitability |     | .721|     |     |
| Public leisure equipment availability |     | .794|     |     |

The common factor 1 represents the information of development level and potential of Wuhan, employment opportunity, relearning opportunity, promotion space, industry prospect, named as development factor.

The common factor 2 covers the information of specific policies in “Wuhan College Students’ Employment and Entrepreneurship Project”, named as talent policy factor.
The common factor 3 represents infrastructure support, transportation convenience, residential environment suitability, public leisure equipment availability, named as living environment factor.

The common factor 4 represents price level, housing price level, household registration policy, housing security policy, named as living stress factor. The factor loads of price level and housing price level are negative. In mathematical significance, these two indicators are negatively correlated with the common factor 4. In practical significance, the higher price level of the living cost, the more negative impact on the local college students’ willingness to stay in Wuhan.

5.5 Regression Analysis

The individual’s employment intention, “willing to work in Wuhan” or “unwilling to work in Wuhan”, is a binary variable. Based on the three control variables and four common factors obtained from the above analysis, we can use binary logistic regression analysis to describe college students’ employment intention.

Using SPSS22.0 to analysis, since the control variable “school type” is a multi-categorical variable, set it as a categorical covariate, school type ①, ②, and ③ represent “Project 985” universities, “Project 211” universities end ordinary universities respectively.

Firstly, set development factor, talent policy factor, living environment factor and life stress factor as explanatory variable, with the four control variables, into single factor regression respectively. Elimination the common factors with insignificant regression results. Under α=5% significance level, only the development factor passed the test. Then put it with three control variables into the binary logistic regression. Regression result is shown at the Table 8.

| Variable          | B      | S.E.  | Wald  | df   | Sig.  | Exp(B) |
|-------------------|--------|-------|-------|------|-------|--------|
| Development Factor| .348   | .107  | 10.655| 1    | .001  | 1.416  |
| Birthplace        | 1.208  | .166  | 53.249| 1    | .000  | 3.348  |
| School Type       | 21.790 |       |       | 2    | .000  |        |
| School Type ①     | -1.204 | .270  | 19.923| 1    | .000  | .300   |
| School Type ②     | -0.854 | .243  | 12.370| 1    | .000  | .426   |
| School Type ③     | -0.704 | .219  | 10.284| 1    | .001  | .495   |
| Gender            | -0.232 | .157  | 2.188 | 1    | .139  | .793   |
| Constant          | -0.979 | .547  | 3.197 | 1    | .074  | .376   |

The regression results show that among the demographic variables, Hubei students are more likely to work in Wuhan than others. According to the Exp(B) value, Hubei students are 3.348 times more likely to be work in Wuhan.

The higher of the school level, the weaker willingness to work in Wuhan. Among the “Project 985” university students, students who are willing to work in Wuhan are 0.300 times as many as students who are unwilling to work in Wuhan. Among the “Project 211” university and ordinary university, the multiples are 0.426 and 0.495

After controlling the influence of birthplace, gender and school type, the development factor has a significant impact on the employment intention, and has a positive effect on the college students’ willingness to work in Wuhan.

That is, the higher of Wuhan’s development level and the broader prospects for personal career development, the more graduates tend to work in Wuhan. The students who are willing to work in Wuhan are 1.416 times as many as unwilling to work in Wuhan.

6 Conclusion

Judging from the feedback information obtained from questionnaire survey, some respondents have little knowledge of Wuhan’s talent policy. And the influence of talent policy factors on the
university students’ employment intention is not significant. This is a shortcoming in the implementation process of the existing talent strategy. Therefore, relevant talent policies should strengthen publicity efforts so that more college students can fully understand policy benefits, enhance the attractiveness of talents.

Judging from the regression results, under the same talent policy, higher-level school type talent loss is even more serious. More targeted preferential employment and entrepreneurship policies should be introduced to attract them to retain in Wuhan. Moreover, the development factor’s impact is significant. Explaining that Wuhan should strengthen urban construction, make full use of the strategy of rejuvenating the central region and location advantages. Attracting more emerging industries and advantageous enterprises to enter in, creating more employment opportunities, providing a higher development platform for graduates. Talent strategy should focus not only on attracting talent, but also on its full life cycle, the talent management mechanism should be developed as well, in order to attract more local university students to choose and work in Wuhan.

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