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## On the Employment States of Three Major Industries in Each Region of Harbin in China in 2010

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**Abstract:** The employment is a more complex economic and social phenomenon. It can be the basic premise of government austerity to make a real and objective analysis and judgment on the employment states and to resolve to expand employment channels and measures. The adjustment and upgrading of industrial structure was the key factors which directly impact on the employment states in Harbin. Therefore, the study applied the statistical method, factor analysis, to analyze and evaluate the employment states of three major industries deeply and summed up the personality characteristics and the causes of employment states, based on the sixth census data of bureau statistics in Harbin in 2010. The results could provide the scientific basis to develop and implement employment policies for government decision.

**Key words:** Employment, three major industries, evaluation, factor analysis

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### INTRODUCTION

In the process of China economic development, economic and social effects on labor relations have been an important research topic in a long time. Due to China specific national conditions, the coexist phenomenon in economic development process, lack of labor supply and unemployment, is difficult to find a ready-made lessons in other countries. China population is concentrated continuously in the process of industrial replacement. In view of the population growth trend, the labor supply and demand have a tremendous impact on the planned economy, based on the labor policy of government macro-control and the objective economic environment. For the path dependence, the interest pattern in the economic reform touched on the hard core, the vested interests, which was aroused strong dissatisfaction. To this end, it is particularly important on China economic development to how to properly treat the labor employment State and its future development, to how to correctly evaluate the economic and social effects in this changing relationship.

Cai *et al.* (2011) and Li *et al.* (2011) used the method of factor analysis and regression analysis to analyze the employment of college graduates. Xiao *et al.* (2010) and Xie *et al.* (2012) applied the VAR model to analyze China employment qualitatively. Qin (2007) applied the method of quantitative analysis to research the impact of three industries on employment in China. Chen and Huang (2009), Zhang *et al.* (2012) used principal component analysis and econometric models to study the

employment of peasant-workers. Qiu (2004) and Liu (2009) applied the method of co-integration analysis to conduct empirical analysis on employment structure and employment elasticity of three major industries in China. At present, domestic and foreign researchers mostly researched on the employment states from the social perspective, inadequately from the industry perspective. It is that the study analyzed the employment states of the residents from the industrial perspective, so that it could provide a scientific basis to develop and implement employment policies for government decision.

### BASIC METHOD AND INDICATORS DATA

**Basic method:** Based on, the theory of domestic and international employment and the states of labor resources in Harbin, we applied the sixth census data of Harbin City to create a theoretical model of labor resources regional mobility, deeply explored the structural characteristics of labor market, then analyzed the employment states of the three major industries, which can provide a theoretical basis for the positive interaction of labor market supply and demand.

To enable the conclusions more scientific and persuasive, we used the research methods, factor analysis. Generally, factor analysis is from the article scores on intelligence tests for statistical analysis, published by Spearman (1904). He proposed that this method is one of the statistical analysis methods, is used to solve scores on intelligence tests. Factor analysis can reduce dimensions and simplify data, which is to explore

the basic structure of observational data by studying the numerous interdependencies between variables, using a few abstract variables to represent the basic data structure.

**Indicators data:** The data of the study was from the sixth census table (10% of the sample) in Harbin in 2010, focused on the employment states of the economically active population in different district and the resident population of the county for statistical analysis. Harbin include eight districts and ten counties, Nangang District, Daoli District, Daowai District, Xiangfang District, Song North District, Cottage District, Hulan District, Acheng District, Bin County, Founder County, Yilan County, Bayan County, Mulan County, Yanshou County, Tonghe County, Shuangcheng City, Shangzhi City and Wuchang City.

The study selected the following indicator variables for statistical analysis.

First, employment population, that is over a certain age, engaged in a certain social labor and business activities and obtained payment for labor or operating income.

The second, unemployment population, that is over a certain age, be ability to work within a certain time but not work and looking for work in some way.

The third, primary industry is that products extract natural products sectors directly. In our country, it is the agriculture, including farming, forestry, animal husbandry and fisheries.

The fourth, secondary industry is re-processing of primary products sector. In our country, it includes

industries, extractive industries, manufacturing, electricity, gas and water production and supply industry, building industry and so on.

The last, tertiary industry is department which provides various services for the production and consumption in the process of reproduction, including all the other industries except for primary and secondary industries.

### ANALYSIS ON THE EMPLOYMENT STATES OF THREE MAJOR INDUSTRIE

During 12th Five-Year period, Harbin continues to promote the optimization and upgrading of industrial structure actively and develop secondary and tertiary industries vigorously. In accordance with the requirements of the current changes, consolidate primary industry enhances the secondary industry and makes the tertiary industry bigger at the same time, then efforts to build a modern industrial system and promotes three industries which can lead each other and develop coordinated. Especially, the secondary industries and tertiary industries become the main direction of the employment in Harbin. Specific employment states were shown in Fig. 1 and Table 1.

The development state of three industries in different regions is not exactly the same, so employment tendency of people is also inconsistent. It can be seen from Table 1, the major urban areas such as Daoli District, Nangang District, Xiangfang District, Song North District, Cottage District where employed persons are mainly engaged in the secondary and tertiary industries. So the

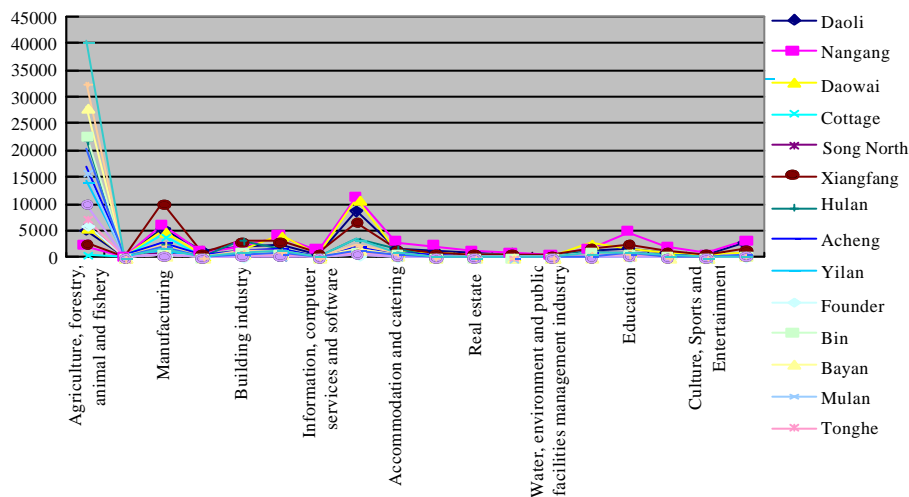


Fig. 1: Employment states of each region and industry in Harbin

Table 1: Employment states of three major industries in each region in Harbin

| Region              | Industry |           |          |
|---------------------|----------|-----------|----------|
|                     | Primary  | Secondary | Tertiary |
| Daoli District      | 5050     | 8452      | 23615    |
| Nangang district    | 1908     | 8456      | 36874    |
| Daowai district     | 5805     | 8460      | 25351    |
| Cottage district    | 609      | 8464      | 2433     |
| Song north district | 6045     | 8468      | 2822     |
| Xiangfang district  | 2582     | 8472      | 22144    |
| Hulan district      | 22002    | 8476      | 10290    |
| Acheng district     | 16913    | 8480      | 8245     |
| Yilan county        | 14215    | 8484      | 5011     |
| Founder county      | 6034     | 8488      | 2297     |
| Bin county          | 22882    | 8492      | 4369     |
| Bayan county        | 28227    | 8496      | 5081     |
| Mulan county        | 15949    | 8500      | 2372     |
| Tonghe county       | 7280     | 8504      | 3593     |
| Yanshou county      | 9883     | 8508      | 1703     |
| Shuangcheng city    | 32571    | 8512      | 7141     |
| Shangzhi city       | 20320    | 8516      | 5091     |
| Wuchang city        | 40310    | 8520      | 8893     |

Table 2: The comprehensive evaluation of the employment states of three major industries

| Region              | Industry |           |          | Composite score |
|---------------------|----------|-----------|----------|-----------------|
|                     | Primary  | Secondary | Tertiary |                 |
| Daoli district      | 1.19098  | -0.54711  | 1.0144   | 0.7934          |
| Nangang district    | 1.46012  | -0.28111  | 2.00207  | 1.5508          |
| Daowai district     | 0.12941  | 0.04857   | 1.24715  | 0.9199          |
| Cottage district    | 1.19771  | -0.44053  | -1.11868 | -0.7487         |
| Song north district | 0.65456  | -0.50649  | -1.01575 | -0.7214         |
| Xiangfang district  | 0.62025  | 0.23066   | 1.47151  | 1.1343          |
| Hulan district      | -1.61464 | -0.37558  | 0.84262  | 0.44303         |
| Acheng district     | -0.2456  | 1.97836   | 0.06046  | 0.1612          |
| Yilan county        | 0.13259  | 3.12056   | -0.57447 | -0.1913         |
| Founder county      | 0.71242  | -0.37838  | -1.14723 | -0.8035         |
| Bin county          | -0.76849 | -0.33466  | -0.36132 | -0.34641        |
| Bayan county        | -0.8315  | -0.40215  | -0.38292 | -0.3717         |
| Mulan county        | 0.15679  | -0.50034  | -0.96069 | -0.7203         |
| Tonghe county       | 0.57823  | -0.45292  | -0.99721 | -0.7103         |
| Shuangcheng city    | -1.41728 | -0.3982   | 0.09409  | -0.0711         |
| Shangzhi city       | -0.13068 | -0.41468  | -0.52314 | -0.4191         |
| Wuchang city        | -1.82486 | -0.34601  | 0.34909  | 0.1014          |

employment scale is bigger than the first industrial, while the rest is mainly engaged in the primary industry, employed persons in secondary and tertiary industries are less. For more detailed analysis employment in various industries of Harbin, we use statistical methods to classify and evaluate the employment situation comprehensively. Thus, a clear understanding of overall employment levels in the Harbin City region has important significance for us to understand accurately, evaluate employment orientation in the future and ease the pressure on employment in the city.

**EVALUATION ON THE EMPLOYMENT STATES OF THREE MAJOR INDUSTRIE**

The proportions of three major industries in each region were different in Harbin, the employment tendency

is not exactly the same and we could not judge the employment situation in each region simply by virtue of the amount of total employment. We used factor analysis to evaluate comprehensively the regional employment states. The results can be seen from Table 2.

**CONCLUSION**

By the results from Table 2, we can draw some conclusions of the employment states of the three major industries in each region as following:

- First, Wuchang City, Hulan District, Shuangcheng city on the primary industry is the first, second and third respectively. Primary industry workers in these three areas are in a dominant position more than that in other regions. The primary industry is mainly dominated by agriculture and fishery, forestry and animal are complementary. The main task of developing their economies includes agricultural infrastructure construction, agricultural restructuring and making livestock industry bigger and stronger, promoting the standardization of agricultural vigorously, the large-scale production and the industrial management in these areas. From aggregated data of the sixth census, the primary industry of the region bring more employment opportunities, quantity of employment is far higher than other industries
- The second, Yilan County, A city and Xiangfang District are the top three in the ranking of the secondary industry. Among them, Yilan County is the main mining areas in Harbin where is rich in mineral resources, such as copper, tin, aluminum, gold, magnesium and other metal deposits, non-metallic minerals are quartz, asbestos, graphite, coal, rock crystal, marble, etc. The employment of the mining industry is mainly concentrated in these areas
- The third, Nangang District, Daoli District, Daowai District, Xiangfang District, Hulan District are the top five in the tertiary industry. Nangang and Daoli District are the core areas of Harbin city, are an important financial center and business center. Its comprehensive economic strength keep in the forefront and the scale of the third industrial is large. Thus, employment opportunities which provided in the tertiary industry are more than that in other regions and there are also more competitive. Daowai District, Xiangfang District and Hulan District are along with the Harbin's development strategy forward. Except for traditional manufacturing industry, these areas have a new breakthrough in the industrial restructuring and a new development in the

tertiary industry. In these areas, more employment opportunities can also be provided than before

- The last, Nangang District, Daoli District, Daowai District, Xiangfang District and Wuchang District are the top five in the comprehensive factor ranking, are very similar to the sort of the tertiary industry. It namely says that the secondary and tertiary industries are still the leading industries of Harbin. From the industrial structure, the proportion of primary, secondary and tertiary industries in Harbin adjusts from 11.3, 37.8, 50.9% in 2010 to 10.5, 38.8, 50.7% in 2011 and the proportion of secondary industry continues to keep its upward trend. The rate of three industries contributing to the economic growth are 6.4, 44.2, 49.4%, that spur economic growth 0.8, 5.4, 6.1%, respectively. The rapid development of the secondary and tertiary industries further promotes the quantity of employment, which can ease the employment pressure largely in Harbin

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