

# Research on Influencing Factors of Urban People's Re-employment under Social Assistance System based on Data Mining

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## Abstract

With the wide application of information technology in the labor market and social security management, a large number of data on labor employment, unemployment, job search and recruitment have been accumulated in the labor security systems of various places. These data are massive and incomplete, but also very useful. Data mining technology can effectively analyze and sort these data, and provide timely and useful information for data users. This paper discusses how data mining technology can be applied to analyze the influencing factors of re employment. Then, it uses the binomial model Logit to analyze the impact of welfare supply factors and anti welfare dependence factors on the re employment of urban and rural unemployed poor people, and draws relevant conclusions. The results show that multiple welfare supply factors, such as the minimum living allowance years, the proportion of personal social assistance income and the proportion of family social assistance income, have significant negative effects on the reemployment behavior and willingness of urban and rural unemployed and poor people. Anti-welfare dependence factors have dual effects. Finally, some suggestions are given based on the relevant conclusions.

## Keywords

Data Mining; Re-employment; Social Assistance.

## 1. Introduction

Unemployment is caused by the imbalance between labor supply and labor demand in the total amount and structure. Unemployment refers to the state that workers with labor ability and employment desire are not in employment. As an objective economic phenomenon in modern society, unemployment is the inevitable result of the optimal allocation of resources in the process of market economy. So how to solve the problem of re employment has become an important topic in economics. Unemployment is a waste of human resources. The problems it causes are multifaceted, such as social instability, intensified contradictions, rising crime rate, and a vicious circle in the economy. Employment and reemployment have been a focus of work in China in recent years. The emergence of the social assistance system has greatly improved the reemployment situation of urban people.

The social assistance system based on the minimum living security system has played the anti-poverty function, but also produced a series of problems. In the past, the research on re-employment mostly focused on the social security system, ignoring the research on micro-application. Starting with the research on the theory and development of employment and unemployment at home and abroad, the characteristics, present situation, existing problems and solutions of employment and unemployment in China, this paper makes an in-depth study on the outstanding problems of unemployment and re-employment in China, such as supply and demand of unemployed labor force, unemployment rate and re-employment difficulties. The application of data mining technology has made an attempt in two aspects: forecasting the

labor demand of the industry and analyzing the categories of unemployed people. It provides prospective data support for optimizing re-employment resource allocation, formulating and implementing re-employment policies.

## 2. What is Data Mining

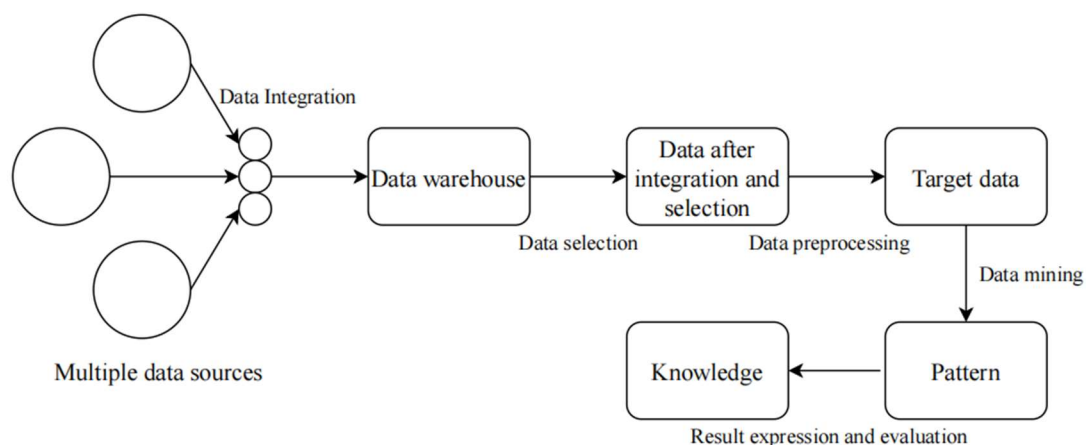
### 2.1. Overview of Data Mining

With the extensive application of computers and the rapid development of database technology, database management systems are widely used in all walks of life, producing various data, such as numbers, figures, words, tables, sounds, etc. More and more data are accumulated, forming a data ocean. There is an urgent need to find valuable information in massive data and transform it into useful information and knowledge, so we need to rely on some methods of data processing for mining. So data mining was born, which appeared in the late 1900s. It is a new field with great application value in database research, and it is an interdisciplinary subject, integrating theories and technologies in many fields such as artificial intelligence, database technology, pattern recognition, machine learning, statistics and data visualization. It promotes people from simple and low-level data query application to mining useful knowledge from data and using this knowledge to provide decision support.

Data mining is a process of extracting hidden, previously unknown and potentially valuable information and knowledge from a large amount of data in a database. At present, data mining has been able to automate the mining technology, combine data mining with commercial data warehouse, and display the mining results to the business management personnel in an appropriate form. The application of data mining not only depends on good algorithms to build models, but also more importantly, how to integrate data mining technology into today's complex information technology application environment. However, data mining technology does not have the unique experience and intuition of people, and can not distinguish which patterns are meaningful in reality and which are meaningless. Therefore, the participation of data mining analysts is required. The models of data mining can be divided into prediction type and description type, and the tasks to be completed by each type are different.

### 2.2. Basic Methods of Data Mining

The data mining process can be divided into three main stages: data preparation, data mining and result expression and evaluation, as shown in Figure 1.



**Figure 1.** Data mining process.

The basic process and main steps of data mining are as follows:

(1) Determine the business object.

First of all, we should clarify the purpose of data mining, determine the business objects and clearly define the business problems, which is an important step of data mining.

(2) Data preparation

Data preparation mainly includes data selection, data preprocessing and data conversion.

(3) Data mining

The process of data mining is to select an appropriate mining algorithm to mine the converted data.

(4) Result analysis.

The result is to explain and evaluate the models discovered by data mining and evaluate the mining results.

(5) Assimilation of knowledge

The process of knowledge assimilation is to filter out useful knowledge from the analysis and integrate it into business information.

In the organizational structure of the system.

The technical foundation of data mining is artificial intelligence, which makes use of some mature algorithms and technologies in artificial intelligence, such as artificial neural network, genetic algorithm, decision tree, formula discovery, statistical analysis, rough set method, etc., but the complexity and difficulty of its problems are much lower than that of artificial intelligence.

The tools of data mining are also a very important content. Data mining is a process. Only by combining the technology provided by the data mining tools with the business logic and requirements of the enterprise, and constantly running in the process of implementation, can we achieve success. Therefore, when selecting data mining tools, we should consider all aspects of factors.

### **3. Factors Influencing Unemployment and Reemployment**

#### **3.1. Current Situation of Unemployment and Reemployment**

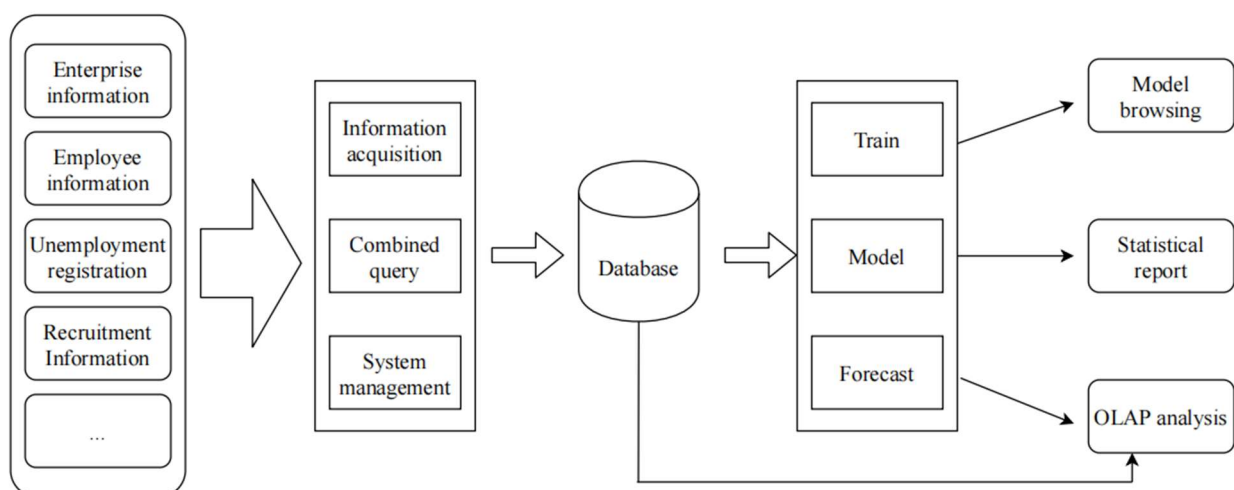
Employment is a social and economic phenomenon caused by wage labor after the industrial revolution, and it is the product of social and economic development to a certain stage. After entering the capitalist society, underemployment has become a common phenomenon, but people's understanding of unemployment has gone through a process of deepening and continuous development with the development of social economy.

Unemployment is caused by the imbalance between labor supply and labor demand in the total amount and structure. Unemployment refers to the state that workers with labor ability and employment desire are not in employment. As an objective economic phenomenon in modern society, unemployment is the inevitable result of the optimal allocation of resources in the process of market economy. There are many reasons for unemployment. Specific to different countries or different economic development periods of a country, the leading factors are not completely the same. Internationally, unemployment is generally divided into the following categories: frictional unemployment, seasonal unemployment, technical unemployment, structural unemployment and periodic unemployment. Employment is a social and economic phenomenon caused by employment after the industrial revolution. It is the product of social and economic development to a certain stage. After entering the capitalist society, insufficient employment has become a common phenomenon. However, people's understanding of

unemployment has gone through a process of deepening and continuous development with the development of social economy. The discussion on the problems of assistance and employment in the development of social assistance system needs to be based on the in-depth understanding of the current social assistance system. The current social assistance system is a survival type of social assistance system. It has the nature of income remedy, and it is difficult to fundamentally extricate the poor groups from poverty, to cope with the complex changes in social development, and to provide corresponding measures to remedy the different causes of poverty. At present, due to the sustained economic downturn, most western developed countries are also facing serious unemployment problems. However, as China is currently in the transition period to the market economy system, it has its own unique characteristics in the unemployment problem. With the increase of the total number of unemployed or underemployed workers, the supply of highly skilled workers is facing the increasing demand. The employment focus will also change from full employment to diversified, flexible and independent development, and whether it can support the transformation of innovation and entrepreneurship development. Therefore, the planning must grasp the direction and trend of future employment.

### 3.2. Establishment of Employment Management System

This paper is the core research content of re employment influencing factors and data mining system. This system is based on Microsoft database product SQL Server 2005, and is developed with C / S (client / server) structure and the current mainstream language C#. The system architecture mainly includes: entity layer, interface presentation layer, data access layer, database layer and other layers. The framework scheme of "reemployment management system" described in this paper is proposed by taking the current mainstream language C# as the development means, taking advantage of the advantages of SQL Server 2005 in data storage and data mining platform, referring to the current mainstream information management system and combining the actual situation of reemployment service. The architecture scheme is shown in Figure 2.



**Figure 2.** Re-employment management system.

The explained variables in this study are binary variables, and there is a nonlinear relationship between the explained variables and the explained variables, so the binomial Logit model is used for regression analysis. As a probabilistic nonlinear model, it uses the maximum likelihood

method to estimate the parameters of the model. Its principle is to use a group of independent variables to predict the log odds of an individual belonging to a certain category in binary classification. It is the most commonly used binary choice model. Its expression is as follows:

$$\text{Logit}(P) = \ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta\chi_i \quad (1)$$

Among them,  $P$  represents the probability of dependent variables, and  $\chi_i$  represents the  $i$ th independent variable, including basic demographic characteristic variables, subject-related variables and other control variables, and core independent variables such as welfare-giving variables and anti-welfare-dependent variables.  $\beta_0$  is the intercept of the model, and  $\beta_1$  is the coefficient. The explanation of *Logit* is as follows: when other independent variables remain the same, every increase of independent variable  $\chi_i$  will cause *Logit*  $P$  to increase or decrease by  $\beta_1$  units.

We use six binary logistic models and data mining models to discuss the unemployed and poor people in a city.

## 4. Conclusion

Based on data mining, this paper uses binomial *Logit* model and data mining model to empirically analyze the effects of welfare supply factors and anti-welfare dependence factors on the reemployment of urban and rural unemployed and poor people. The results show that:

- (1) The proportion of middle-aged and old people in urban and rural unemployed poverty-stricken population is relatively large, and most of them are self-care; The phenomenon of dependence on subsistence allowances is obvious, and the income from social assistance of individuals and families accounts for a large proportion of the total income.
- (2) We can not rule out the possibility of "welfare dependence" in urban and rural minimum living security assistance. Social assistance welfare has restricted their reemployment behavior and willingness to a certain extent.
- (3) The anti welfare dependence factor has a double effect. The anti welfare dependence variable can play a role in promoting the re employment of the unemployed poor to a certain extent, but at the same time, new welfare dependence problems have emerged.
- (4) Personal characteristics such as age, sex, education level and physical health status have a significant impact on the re employment of urban and rural unemployed poor people. The older the age, the female, the less educated, and the unhealthy unemployed poor people are, the less likely they are to be reemployed.

Based on the above conclusions, the following suggestions are put forward: First, standardize policy propaganda and guide the establishment of a correct welfare view. Second, dynamically monitor and adjust relevant policies, correct anti-welfare policies that may generate new welfare dependence in time, and at the same time strengthen direct employment assistance for unemployed and poor people. Third, improve the linkage mechanism between the subsistence allowance system and employment assistance.

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