Research on the Measurement Model of Human Resource Flow Scheduling under the New Normal Economy

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Abstract: Human resources are an important resource for social development, and the interactive relationship between human resource flow and economic development has a profound impact on national and regional economic development. Research on the optimization model of human resource allocation is of great significance for maintaining a reasonable flow of human resources and promoting economic development. Therefore, this paper draws on the research results of relevant scholars to build a coordination model between human resource flow and economic development, and deeply analyses the measurement methods of human resource flow scheduling. According to the operating results of the model, countermeasures and suggestions are put forward, to promote the coordinated development of human resources flow and economy. In order to the development of regional economy will be promoted, while human resources flow reasonably.

1. Introduction

1.1 Literature Review

After the reform and opening up, domestic scholars began to systematically study human resources, pointing out that the continuous development of the economy, the impact on human resources can not be ignored. Concurrently, the quality of human resources would have an very important impact on economic and social development had been pointed out. The high-quality human resources will play an important part in promoting economic and social development. On the contrary, low-quality human resources have hindered social development.

During this period, there are some scholars used different methods of economic growth to study the relationship between human resources and social developing. They pointed out that the key issue of national and regional economic development is human resources development and utilization. Handling of the relationship between those two correctly appropriately, can not only promote the rapid of economic developing, but also promote the developing of human resources.[1] Rational mobility. There are also scholars who study human resources from external and internal factors. Among them, external non-prosecution affecting human resources mainly includes regional economic development, educational level, natural factors, and population policy. The internal structure of human resources mainly includes gender, age, education level and marital status, which all have an impact on human resource flow. Among them, the flow of human resources from the macro level, mainly refers to the process of rural population to urban population transfer. In the process of population transfer, it presents distinct characteristics, which are embodied in the coastal areas from the Midwest to the east. From the micro point of view, human resource flow mainly distributes in the urban-rural areas, and then forms the urban villages. Based on the above research literature, this paper deeply understands the measurement of human resource flow scheduling under the new economic normal.

1.2 Purpose of Research

With the continuous expansion of the scale of human resources flow, human resources flow presents distinct regional characteristics. In addition, the "Report on China's Population and Labor Issues" which published in 2006 pointed out that the scale of population flow in China has reached a new high level, and the scale of human resource flow has exceeded 200 million people. At the

same time, China's economy has also developed rapidly in recent years, and more and more studies show that there is a certain internal relationship between economic development and human resources flow. Among them, human resources, as one of the main ways of social production, have its own particularity. Therefore, starting from the flow of human resources, in-depth study of human resources flow in different regions can break the previous thinking of regional economic development and make a deep understanding of human resources flow. At the same time, China and other developing countries are at different historical stages, and there are some differences in economy and knowledge. Based on this, an in-depth study of the flow of human resources under the new normal has been continued.

2. Basic Concepts

Human resources mainly refer to a region, with the development of economy, the progress of science and technology, as well as the continuous progress of social wheel, the total of all the working population. Among them, the human resources note should include the adult employment population, the minor employment population, and the elderly population. Considering the availability of data, this paper involves the use of the number of human resources to replace the number of employed people in the region. Simultaneously, human resources play an irreplaceable role in the process of economic development. With the acceleration of the frequency of human resource flow, advanced technology will flow in different regions, and the advanced technology level in economically developed areas will be brought to backward areas. The technology flow driven by population mobility can provide technical support for the rapid economic development, which is conducive to improving social productivity and accelerating the speed of social development. At the same time, with the continuous expansion of the scale of human resources flow, the specific phenomenon of human resources flow is in place. Static flow and dynamic flow together constitute human resource flow. The static human resources flow mainly refers to the stock of human resources and industrial distribution. Dynamic human resource flow mainly refers to the total amount of human resource flow.

3. Measurement Model of Human Resource Flow Scheduling under the New Normal Economy

3.1 Model Construction

In order to accurately study the specific influencing factors of human resource flow, a special model was built. As we all known, the important role of human resources in economic development can not be ignored. Therefore, the level of economic development is further taken into account in the construction of human resource flow forecasting model. Moreover, human resource flow is a process of dynamic and static integration, so the state of dynamic and static integration should also be taken into account when building the model. Among them, the static mode of human resource flow refers to the coordinated relationship between human resource flow and economic development at a specific driving point.[2] The dynamic mode of human resources mainly refers to the long-term coordinated development of human resource flow and economic development.[3] Therefore, when constructing the human resource flow model, this paper firstly takes into account the economic development factors, secondly, based on the static and dynamic models, constructs the human resource flow prediction model, as shown in Figure 1.

In Figure 1, a coordinated dispatching model will be proposed based on Grey Theory and these theories.[4] In the static model, human resource flow system cannot be analyzed and evaluated. Therefore, it is necessary to measure the stock of human resource flow, the distribution of human resource industry, human resource capacity and the net flow of human resource with the dynamic model.
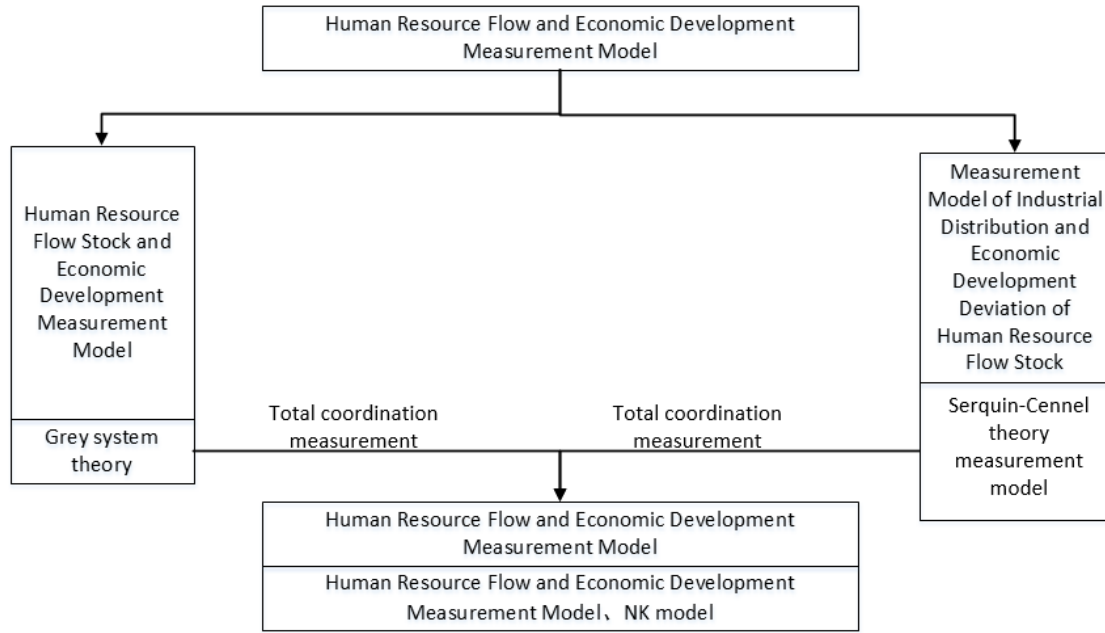
Fig.1 Human Resource Flow Scheduling Measurement Model

3.2 Grey Theory

Grey system theory mainly predicts unknown events with known events, while the influencing factors of human resource flow are divided into known and unknown events, so it is necessary to use known attributes to predict unknown factors. Therefore, the grey system theory plays an important role in the research of human resource flow. It contains known information, uncertain information and small sample unknown information. Through the development and mining of known information by using grey theory, the unknown information is predicted in order to accurately predict the flow law of human resources. At present, human resource flow mainly includes four elements: stock, distribution, capacity and net flow.[5] In reality, human resource flow also contains a lot of data, elements and indicators. Among them, there are many unknown areas in the uncertain knowledge human resource flow system between elements and indicators. Human resource flow is a typical grey system with existing and unknown elements. Through the analysis and measurement of known information, the correct measurement and evaluation of human resource flow scheduling prediction model can be achieved.

According to the grey system theory and the local dynamic coordination measurement index, the measurement of human resource flow scheduling is further studied. The model constructed is as follows:

$$C_{xy} = \frac{x + y}{\sqrt{x^2 + y^2}}$$

Among them, C_{xy} is the dispatch of human resources flow, x is the stock of human resources flow, and y is the speed of economic growth.

3.3 Serquine-Chenery Theory

The flow of human resources will drive other factors of social production to flow, to a certain extent, will drive technological progress, and then enhance the level of economic development of a region. Therefore, we can know that the flow of human resources has a profound impact on economic development. The Serquine-Chenery theory also points out that the elasticity coefficient of the demand for human resources in the industrial sector is relatively low, so the primary purpose of the rural surplus labor force in the flow is the labor-intensive and low-tech industrial sector. At the same time, in the agricultural production sector, labor-intensive operation is the main task, and there is almost no technical content.[6] Thence, this phenomenon can easily lead to a mismatch

between the flow of human resources and the industrial structure. Therefore, relevant scholars put forward the deviation model of coordination between human resources and economic development level, in order to study the impact of human resources flow on economic development level under the deviation state. The specific model is as follows:

The deviation between the stock of human resource flow and industrial structure = the industrial component ratio of GDP / the industrial component ratio of human resource flow stock - 1.

In the formula, the industrial composition ratio of GDP mainly uses the proportion of a certain industry in the total GDP of a certain region in that year. The industrial structure ratio of human resource flow stock mainly refers to the proportion of human resource flow stock of a certain region to all human resources stock of the region.

3.4 Measurement Model of Human Resource Flow Scheduling Based on Fitness Landscape Theory and Nk Model

Fitness landscape is a specific form of landform, which is a rugged landform between valleys and peaks. Landscape fitness is first applied in the research of biological genes. The results show that a combination of genes can correspond to a point in the landscape, which can be regarded as the fitness value of gene rows. The lager the value, the higher the corresponding landscape suitability value, that is, the peak value in the landscape. The lower the appropriate value of genes, the lower the corresponding point in the landscape is, that is, the valley in the landscape. The process of silent evolution is the process of corresponding landscape points from valley area to peak area. Based on the fitness landscape theory, the NK model is further developed. In NK model, fitness landscape is divided into different systems of fitness, that is to say, NK model upgrades and optimizes fitness landscape model. Find more high-quality fitness landscape model in NK model. In the 1990s. Fitness landscape model has been applied in economics and management. Therefore, this paper builds a measurement model of human resource flow scheduling based on fitness landscape, as shown in Figure 2.
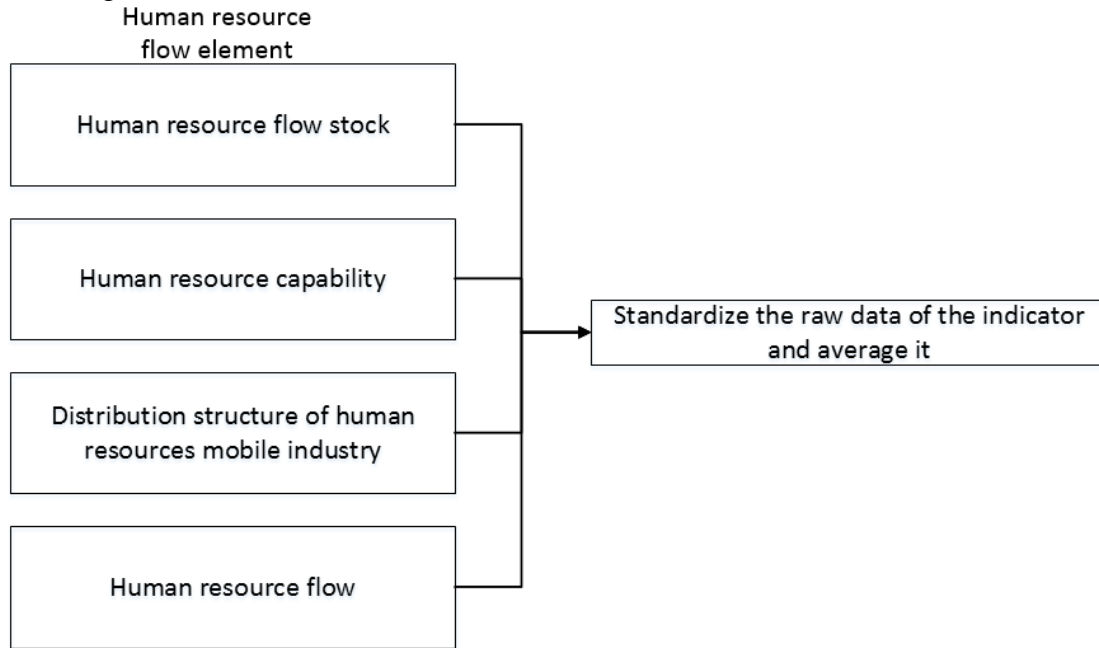

Fig.2 Human Resource Flow Scheduling Measurement

As can be seen from Figure 2, the human resource flow system consists of four elements, each of which has two states. Therefore, according to the combination of human resource flow factors in this region, the dispatching measurement model of human resource flow in this region is obtained by using formula $F_j = \dfrac{1}{N} \sum\limits_{i=1}^{N} X_{ij}, "j = 1,2,L,J \ 1 \le j \le A^N$.

Among them, F_j represents the coordinated value of the combination of human resource flow

system and economic development, J represents the combination state of human resource flow, N represents the number of elements of human resource flow, which can be assigned 1, 2, 3, 4. A denotes the state of human resource flow elements. X_{ij} denotes the contribution of human resource flow elements i in the combined state j of human resource flow system. According to the above formula, the coordinated measurement of human resource flow and economic development can be obtained. Taking Xuzhou city as an example, this paper makes a case study.[7] In this paper, a case study of Xuzhou city is carried out. The results show that the overall coordination degree between population flow and economic development in Xuzhou is low, the relatively degree is 0.129, which is the lowest regardless of the contribution rate of each factor or the value of the overall coordination degree. Based on the test results, this paper puts forward some countermeasures and suggestions to promote the coordinated development of human resource flow and economy.

4. Development Countermeasure of Promoting Human Resource Flow

4.1 Correct Understanding of the Role to Human Resource Mobility

As one of the important resources of social production, human resources play an irreplaceable role in economic development. therefore, the study on human resource flow has a great significance. We must first realize the important role of human resources, when we studying the flow. In reality, many enterprises think that human resource management has no effect in daily production and life, until the human resource flow begins to increase, they realize the importance of human resource flow. Therefore, the enterprise must know the importance of human resources at the beginning of its establishment in order to promote their development.[8] A human resource department should be established to make statistics and forecasts of human resource flows, then analyze the causes of human resource flows, and try to prevent the negative impact of human resource flows on enterprises. At the same time, for enterprises and society, human resource flow can not only be evaluated by good or bad areas, but also be evaluated by enterprises and society. Enterprises and society should obtain important information in the process of human resources flow, and promote the rational flow of human resources, so as to optimize the allocation of human resources, so as to promote economic development. In this process, we need to look at the relationship between human resources and economic development in a dialectical way.

4.2 Improving the Social Environment and Increase the Attractiveness of Human Resources

The relevant elements of human resources flow are optimized, when the optimal path of human resources and economic development. In this process, we need to improve the economic and social environment, use the market mechanism, attract a large number of talents to carry out the region, and improve the net inflow value of human resources in the region. Specifically, it is necessary for government departments to formulate relevant strategies to attract talents, attract talents from all over the country to the region, and enhance the economic strength of the region. On the other side, the level of technology and science and the economic development of a city are the basic factors for the flow of human resources, so if the region wants to promote the flow of human resources, it is necessary to change the social environment and enhance the attraction of human resources. In addition, the region should increase investment in education to further enhance the potential for human resources development.

4.3 Optimizing the Flow of Human Resources and Promoting the Rational Flow of Human Resources

To promote the rational flow of human resources, relevant departments should optimize the flow of existing human resources. First of all, we should improve the talent training plan of the regional talent training institutions, improve the professional and disciplinary settings, and ensure that the trained talents can meet the needs of social development for talents. Secondly, in order to promote the rational flow of human resources, we should establish and improve the human resources flow

mechanism of market economy, encourage and help the relevant personnel to carry out reasonable employment and free employment. At the same time, we should actively guide surplus labor force to enter industries where human resources are relatively scarce, and realize the coordinated development of human resources flow and industrial structure layout.

4.4 Strengthen the Development Power and Improve the Human Resources Ability

In order to tap the greatest potential of human resources, all regions should make greater efforts to develop human resources. Specifically, investment departments jointly funded by the government and enterprises should be established as soon as possible, and training institutions should be set up to improve the skills of surplus labor force. In this process, we should train the relevant practitioners for the scarce jobs in order to make up for the vacancies in social needs. In addition, individuals should take the initiative to learn, improve their skills, promote the flow of social human resources, and contribute to the promotion of economic development.

5. Conclusion

In summary, the human resources flow has significant influence in the development of human resources. This paper first analyzes the basic concepts of human resources and human resources flow, then constructs the coordination degree model of human resources flow and economic development. At last, obtains the indicators of the coordinated development of economic development and human resources. On this basis, according to the actual situation and the results of the model, the relevant countermeasures and suggestions to improve human resource flow are put forward.

References

[1] S.W. Sun and H.Y. Zhang, Research on measurement model of human resource flow and economic development coordination, Western Economic Management Forum, vol.16(3), pp. 61-65, 2015.

[2] Y.H. Meng and L.Q. Zhou, An empirical analysis of the coordinated development of human resources and economy in Guangxi Beibu Gulf Economic Zone--based on the comparison of four cities in Nanning, Beihai, Qinzhou and Fangchenggang, Guangxi Social Sciences, vol. 31(9), pp. 21-25, 2015.

[3] M.W. Liao, Study on the coordination degree of human resources and regional economic development in Guangxi Beibu Gulf based on entropy method, Journal of Guangxi Normal University: Philosophy and Social Sciences, vol. 52(4), pp. 56-67, 2016.

[4] B.X. Wang and Y. Liu, Human resource demand forecasting method based on GREY BP Neural Network Model, Statistics and Decision, vol. 34(16), pp. 181-184, 2018.

[5] X.Q. Lin and H. Ding, Research on the influence mechanism of human resource management intensity on employees' innovative behavior--an intermediary regulation model, Soft Science, vol. 31(12), pp. 60-64, 2017.

[6] Z.Q. Yu, Research on hybrid cloud resource scheduling model and algorithm, Journal of Jiamusi University (Natural Science Edition), vol. 37(01), pp. 64-66, 2019.

[7] H.Y. Zhang and S.W. Sun, An empirical study on the coordination degree between human resource flow and economic development----taking xuzhou city as an example, Journal of Guangzhou Radio & TV University, vol. 15(4), pp. 101-106, 2015.

[8] Y. Ma and H. Wang, Study on the competency model of human resource manager in service industry--based on the conception of human resource management from double perspectives, Commercial Research, vol. 42(2), pp. 83-88, 2018.