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G.S. Mukina¹, Z.Kh. Sultanova², D.Z. Aiguzhinova¹, A.Kh. Amerxanova¹, Zh.B. Kenzhin²

¹Non-Profitable Joint-Stock Company Toraigrov University, Pavlodar, Kazakhstan;

²Western-Kazakhstan Agricultural and Technical University named after Zhangir Khan, Uralsk, Kazakhstan.

E-mail: jaksat_22@mail.ru

PREDICTIVE ASSESSMENT OF THE NECESSITY FOR HUMAN RESOURCES IN THE REGIONS

Abstract. The role of human resources in the process of forming the region's competitiveness is quite important. In the modern post-industrial economy, the main criterion for the region's competitiveness is the human resources as the key to the development of each territory. Analyzing the competitiveness of the territory, the assessment of human resources is the necessary component. In the conditions of innovative economic development, human resources are the basis of socio-economic development of the territories. Their comprehensive assessment allows us to identify the strengths and weaknesses of the region in terms of free competition. An objective assessment of human resources in different periods makes it possible to track the dynamics of their development, allow assessing additional competitive advantages, which has the favorable impact not only on the region, but also on the country as a whole. The relevance of the research is the importance of a comprehensive assessment of human resources to improve the competitiveness of the region in the modern economy. Thus, effective human resource management requires rapid forecasting of demand and supply for them. In order to meet the human resource needs of the West Kazakhstan region, it is necessary to eliminate their projected deficit.

Key words: human resources, guidelines for innovative socio-economic development, deficit, surplus, demand, supply, regional authorities, needs, security forecast, regions.

The relevance of the topic. It is well-known, that in order to build the model for predicting the development of the socio-economic system, it is necessary to assess the degree of influence of each parameter (factor, circumstance) on the final result, to identify the relationship between the components and the achieved goal.

Figure 1 shows the process of building the forecasting model, in accordance with the task.

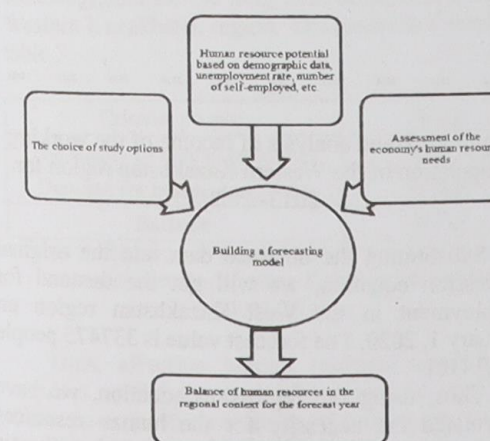


Figure 1. The process of building forecasting models

In order to obtain the prediction model, you must enter the mathematical values of the selected parameters for the study into the regression equation. The accuracy of the forecast directly depends on the correct selection of the analyzed variables and the selected scheme. Based on the assessment of the validity of the forecasting model, the key parameter of the model under study demands for the economy the human resources [1, P.27].

Industry, qualification and regional components serve as the characteristics of the human resources. Please, don't forget about the level of education of the different candidates. The experience of performing the similar work functions has independent significance. An important criterion is the level of wages [2, P.111]. Despite the fact that this parameter is almost impossible to formalize, it is possible to distinguish industry and regional clusters with high and low levels of the remuneration.

Figure 2 shows the algorithm of estimating the forecast demand for the human resources in the Republic of Kazakhstan.

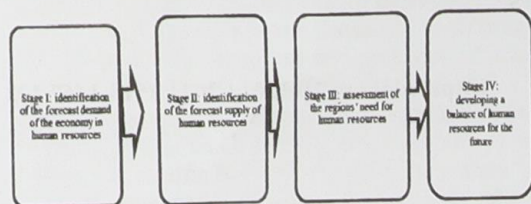


Figure 2. Algorithm of estimating the forecast demand of Kazakhstan for human resources

Analytical calculations, based on regression equations, are used to forecast the demand of the regional economy for the total number of human resources and their demand by industry.

In the study we will use the following type of regression equation:

$$Z = k + k_1 \cdot \text{VRP} + k_2 \cdot \text{Dr} + k_3 \cdot \text{I}$$

where

k, k_1, k_2, k_3 - coefficients;

VRP - gross regional product, billion euros;

Q - volume of industrial production, in billions euro;

I - investments in fixed assets, euros.

Using the program "Microsoft Excel", the values of coefficients k, k_1, k_2, k_3 were determined and the initial equations for each region were developed. The value of the coefficients and the equation for the West Kazakhstan region are presented in table 1.

Table 1. The value of the coefficients and the equation for the Western Kazakhstan region

Criterion	K	k1	k2	k3
Coefficients	275653,5	-0,00363	0,09192	0,07554
General equation	$Z = 275653,5 - 0,00363 \cdot \text{VRP} + 0,09192 \cdot \text{Dr} + 0,07554 \cdot \text{I}$			
Regressions				

Based on the table, regression graph is constructed for the WKO for the period 2013 - 2018 with a forecast (Figure 3).

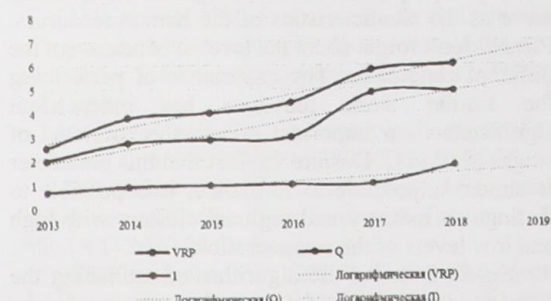


Figure 3. Regression analysis for the WKO for the period 2013-2018 with forecast for 2019

We will calculate the parameters of the regional demand forecasting model for human resources by entering numerical data on the gross regional product,

income of the working population and investment in fixed assets into the resulting regression equation. We almost used the "Regional Development Program until 2020" as an information base.

The basis for calculating the forecast GRP is the actual GRP values for the period from 2013-2018 also expected value of the indicator for 2019. With the help of the modern software, it was calculated on 01.01.2020 in the West Kazakhstan region, the forecast GRP is 6286.84 million euros [3].

Figure 4 shows the dynamics of investment in fixed assets in the West Kazakhstan region for 2013-2019.

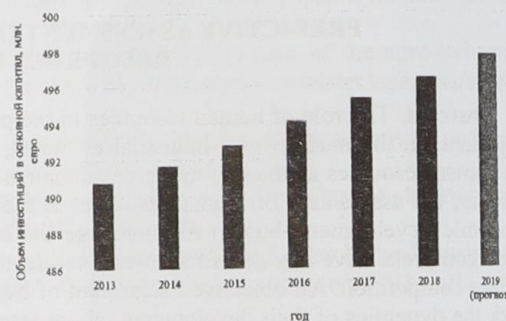


Fig. 4. Dynamics of investments in fixed assets for 2013-2019.

Figure 4 has calculated the forecast value of investments in fixed assets for 01.01.2020 is 497.73 million euros.

Figure 5 shows the values of the amount of cash income of the working population.

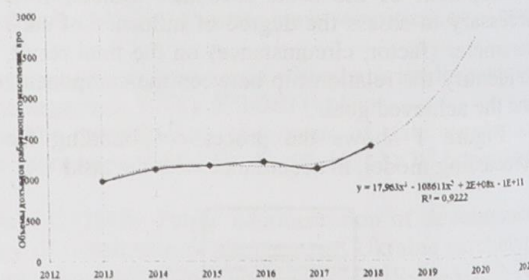


Figure 5. Trend analysis of income of the working population of the Western Kazakhstan region for 2013-2020.

Substituting the obtained data into the original regression equation, we will get the demand for employment in the West Kazakhstan region on January 1, 2020. The forecast value is 337475 people [4, P.410].

Thus, using the regression equation, we have calculated the necessity for the human resources in the Western Kazakhstan region. This value is necessary for modeling the balance between the

demand for human resources and their supply in the regional labor market.

The multiple correlation coefficients (K_k) characterize the relationship between the dependent variable z and the number of independent variables q (z is the region's demand for HR. Independent variables: GRP, income of the working population, investment in fixed assets).

$$K_k = \sqrt{\frac{\sum \left(\frac{(z - \bar{z})^2}{n} \right) - \sqrt{\sum \left(\frac{(z - \bar{z}(q))^2}{n} \right)}}{\sum \left(\frac{(z - \bar{z})^2}{n} \right)}}$$

where

$$\sum \frac{z^2}{n} = \sum \left(\frac{(z - \bar{z})^2}{n} \right) - \text{variance of the dependent}$$

variable z , calculated from the total constant mean $\bar{z}$;

$$\sum \frac{z^2}{n} = \sum \left(\frac{(z - \bar{z}(q))^2}{n} \right) - \text{variance of the dependent}$$

variable z , calculated from the general variable average $\bar{z}(q)$.

On the basis of the above-described techniques the analysis of the functional dependence of the number of employed in Western Kazakhstan region during the period revealed the regression equation, coefficient of multiple correlations. The results are shown in table 2.

Criterion	Characteristic
Type of equation function	Polynomial of degree IV
Regression equation	$y = 83,053z^3 - 1883,9z^2 + 14136z + 281045$
Value of the multiple correlation coefficient (K_k^2)	0,999

Table 2. Results of regression analysis on the example of the Western Kazakhstan region

Based on the forecast data on the supply and demand for human resources, we will form the balance model for the long-term development of the Western Kazakhstan region. The results are shown in table 3.

Criteria, people	Value
The supply of human resources	480058
Demand for human resources	496822
Balance	16764

Table 3. Balance of supply and demand for human resources in the Western Kazakhstan region 01.01.2020

Thus, effective human resource management requires rapid forecasting of demand and supply for them. In order to meet the human resource needs of the Western Kazakhstan region, it is necessary to eliminate their projected deficit [5, P.310].

Materials and methods of research. The research methodology is based on the dialectical method, free from materialistic or idealistic monism and based on the pluralistic, multilinear interdependence of all social phenomena. We also used the method of dialectical interdependence and interaction of methods: theoretical and empirical, historical and logical, induction and deduction in the study of the formation and development of human resources in our country. The theoretical basis is based on existing theoretical and empirical publications on human resources and human capital. The study was comprehensive and based on available sources of information on the adaptation and integration of human resources. The paper uses descriptive-analytical and historical research methods, the method of observations and analysis of the documents.

Research results. Managing human resources is becoming increasingly important for the Kazakh companies and the specialty of HR among the local university graduates [6, P.1521]. Eight or nine years ago, there were few specialists in this sphere in the country and they knew each other personally. However, now we have a lot of HR specialists [7, P.16]. The experts specialized in the wide range of issues and consulate in this sphere. There are also "middle-tier personnel" with three to five years of experience and very young specialists, who have just started to learn the profession. The attitude to this job has also changed in Kazakhstan. HR is now perceived not as something fashionable, but as the special management task and an important intangible asset of the company [8, P.18]. Of course, the positive impact on the necessity of this profession has the Kazakh labor market. The situation in this sphere is mainly defined by the country's economic development and the rapid growth in the number of enterprises [9, P.68]. National business has now arrived at the understanding and solving the "human resources" problem in the country. As the result, medium-sized companies, operated for seven to ten years, have their business reputation, show the great interest in employing HR specialists [10, P.145]. However, small businesses cannot afford the "luxury" employing even one HR manager.

Conclusion. In the conclusion, we would like to say that the results also proved that in practice HR managers "managed human resources" formally in many local companies and their functions were limited to paperwork and letters of appointment and dismissal. However, mainly medium-tier managers use HR managers' services. For example, 86% of respondents spend their time mainly on paperwork and 61% on recruitment. This means that HR specialists' mission, except for rare cases, is limited to "paperwork-recruitment-organizational" activities. As for HR's functions the adaptation of staff members and their motivation and developing corporate culture not used their full potential in Kazakh companies. However, corporate culture is the backbone of HR, because creating the positive emotional atmosphere, building intra-corporate communications, good system for new staff members' adaptation and developing help the company to be creative and successful.

Г.С. Мукина¹, З.Х. Султанова², Д.З. Айгужинова¹, А.Х. Амерханова¹, Ж.Б. Кенжин²

¹КЕАҚ Торайғыров университеті, Павлодар, Қазақстан;

²Жәңгір хан атындағы Батыс Қазақстан аграрлық-техникалық университеті, Орал, Қазақстан.

E-mail: jaksat_22@mail.ru

АЙМАҚТАРДЫҢ АДАМИ РЕСУРСТАРЫНА ҚАЖЕТТІЛІКТІ БОЛЖАМДЫҚ БАҒАЛАУ

Андатпа. Аймақтың бәсекеге қабілеттілігін қалыптастыру процесінде адам ресурстарының рөлі өте маңызды. Қазіргі постиндустриалды экономикада аймақтың бәсекеге қабілеттілігінің негізгі өлшемі әр аумақтың дамуының кілті ретінде адами ресурстар болып табылады. Аумақтың бәсекеге қабілеттілігін талдай отырып, адам ресурстарын бағалау қажетті компонент болып табылады. Экономиканың инновациялық дамуы жағдайында адам ресурстары аумақтардың әлеуметтік-экономикалық дамуының негізі болып табылады. Оларды кешенді бағалау еркін бәсекелестік жағдайында өмірдің күшті және әлсіз жақтарын анықтауға мүмкіндік береді. Адам ресурстарын әртүрлі кезеңдерде объективті бағалау олардың даму динамикасын бақылауға мүмкіндік береді, қосымша бәсекелестік артықшылықтарды бағалауға мүмкіндік береді. Бұл тек аймаққа ғана емес, жалпы елге де жағымды әсер етеді. Зерттеудің өзектілігі қазіргі экономика жағдайында аймақтың бәсекеге қабілеттілігін арттыру үшін кадрлық әлеуетті жан-жақты бағалаудың маңыздылығы болып табылады. Осылайша, адам ресурстарын тиімді басқару оларға сұраныс пен ұсынысты жедел болжауды талап етеді. Батыс Қазақстан облысының кадрлық қажеттіліктерін қанағаттандыру үшін олардың болжамды тапшылығын жою қажет.

Түйін сөздер: адами ресурстар, инновациялық әлеуметтік-экономикалық дамудың бағыттары, тапшылық, профицит, сұраныс, ұсыныс, аймақтық билік, қажеттіліктер, қауіпсіздік болжамы, аймақтар.

Г.С. Мукина¹, З.Х. Султанова², Д.З. Айгужинова¹, А.Х. Амерханова¹, Ж.Б. Кенжин²

¹НАО Торайғыров университет, Павлодар, Казахстан;

²Западно-Казахстанский аграрно-технический университет им. Жангир хана, Уральск, Казахстан.

E-mail: jaksat_22@mail.ru

ПРОГНОСТИЧЕСКАЯ ОЦЕНКА ПОТРЕБНОСТИ В ЧЕЛОВЕЧЕСКИХ РЕСУРСАХ РЕГИОНОВ

Аннотация. Роль человеческих ресурсов в процессе формирования конкурентоспособности региона весьма важна. В современной постиндустриальной экономике основным критерием конкурентоспособности региона являются человеческие ресурсы как ключ к развитию каждой территории. Анализируя конкурентоспособность территории, оценка человеческих ресурсов является необходимой составляющей. В условиях инновационного развития экономики человеческие ресурсы являются основой социально-экономического развития территорий. Их комплексная оценка позволяет выявить сильные и слабые стороны региона в условиях свободной конкуренции. Объективная оценка человеческих ресурсов в разные периоды позволяет проследить динамику их развития, позволяет оценить дополнительные конкурентные преимущества, что оказывает благоприятное влияние не только на регион, но и на страну в целом. Актуальность исследования заключается в важности комплексной оценки кадрового потенциала для повышения конкурентоспособности региона в условиях современной экономики. Таким образом, эффективное управление человеческими ресурсами требует оперативного прогнозирования спроса и предложения на них. Для удовлетворения кадровых потребностей Западно - Казахстанской области необходимо ликвидировать их прогнозируемый дефицит.

Ключевые слова: человеческие ресурсы, ориентиры инновационного социально-экономического развития, дефицит, профицит, спрос, предложение, региональные органы власти, потребности, прогноз обеспеченности, регионы.

Information about authors:

Mukina G.S. – PhD, Department of Economics and Law, Chair of Economy; Non-Profitable Joint-Stock Company Toraigrov University, Pavlodar, Kazakhstan; gulsara.dyusembekova@mail.ru <https://orcid.org/0000-0002-2451-4984>

Sultanova Z.Kh. – Candidate of Economic Sciences, Department of Economics and Business, Chair of Economics and Management, Western Kazakhstan Agrarian-Technical University named after Zhanqir Khan, Uralsk Kazakhstan; sultanovaz@mail.ru <https://orcid.org/0000-0003-3662-5267>

Aiguzhinova D.Z. – Candidate of Economic Sciences, Professor, Department of Finance and Accounting, Chair of State Management, Business and Law; Non-Profitable Joint-Stock Company Toraigrov University,

Pavlodar, Kazakhstan; dinara.aiguzhinova@mail.ru <https://orcid.org/0000-0002-0067-9442>

Amerxanova A.Kh. – Senior Lecturer, Department of Economics and Law, Chair of Economics; Non-Profitable Joint-Stock Company Toraigrov University, Pavlodar, Kazakhstan; aiga1980@mail.ru <https://orcid.org/0000-0002-8833-2610>

Kenzhin Zh.B. – PhD, Western Kazakhstan Agricultural and Technical University named after Zhanqir Khan, Uralsk, Kazakhstan; jaksat_22@mail.ru <https://orcid.org/0000-0001-6085-8349>

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