Conceptual Approaches to Forecast Recruitment Needs at the Regional Level

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ABSTRACT

The article deals with the current state of the labor market, which is characterized by such problems as: The structural imbalance of the labor market; lack of skilled workforce; the aging of workforce; youth unemployment; the low rate of productive jobs; employers' non-compliance with applicants' qualification. The education system, prevailing in our country and now passing through a systemic and structural adjustment, does not fully comply with the changes in the economy. The existing and currently applied regulation systems of interaction between the labor market and employers cannot adequately meet the needs of our society. One of the possible methods to regulate the labor market, taking into account employers' needs, the possibilities of the education system, the interests of the population in the regulatory impact of the state, can be a scientifically substantiated recruitment forecast in the long and medium term, which allows you in a balanced manner calculate recruitment requirements of the economy in the strategic and operational mode. The need for recruitment forecasts is usually based on the assumption that the discrepancy between supply and demand does not lead to a restructuring of the labor market. Regulation of recruitment requirements at the regional level is necessary to meet the requirements of the territory economy for skilled labor on the basis of the regional and federal state order to institutions of vocational education. Since there is no a single federal regulatory model of demand and supply for skilled labor, as well as taking into account the diversity of geographical and economic parameters of economic regions in Russia, it is justified to have and implement various models of human resource forecast in the Russian Federation. Using an example of the Samara area the authors suggest calculating multifunctional dependence control on demand and supply for skilled labor on the basis of deterministic or stochastic factor of economic and mathematical models. Application of economic and mathematical modeling can be useful for better understanding of the required structure of labor potential, quantitative parameters of the aggregated qualified and professional groups.

Keywords: HR Forecast, Labor Market, Employers, Balance of the Labor Market, Employment Potential, Education, Field of Study, Graduates
JEL Classifications: J40, J48

1. INTRODUCTION

The current state of the economy is driven by the influence of divergent economic, technological, cultural and political processes that have a direct impact on the development trend of social and labor relations, the employment structure, and the prospects for regression of professions. With rapid development of information technology a gradual transformation of the labor process, the importance of training, competences and qualifications corresponding to the level of development and advanced manufacturing are increasing. Education is becoming a direct productive force of society, helps to coordinate different interests and to design strategic development of economic and production systems. The current state of the economy and prospects for economic growth, in which all sectors of our society, the state and business structures are greatly interest in, depend on development, depth and scope of the education system.

At the same time the labor market today is characterized by such problems as: The structural imbalance; lack of skilled workforce; the aging population; youth unemployment; the low rate of productive jobs; employers' non-compliance with applicants' qualification and so on, which indicate the existing problems, including in the education system. These international problems are common to many countries, including Russia. Short-term labor market programs do not always produce the desired effect, and it leads to a reduction in demand and to a rise in unemployment (International Institute for Labour Studies, 2011). The policy with an emphasis on creation of effective jobs and real investments in the economy will stimulate increased employers' demand for skilled labor. Market forces should work to create jobs and to meet people's needs. In international practice, many researchers have proposed a variety of programs to harmonize labor supply and employers' vacancies (Nakajima, 2012), which allow implementing alternative scenarios of labor demand and supply, and the structure of employment by sex and age (Bruni, 2007).

The situation on the Russian labor market is characterized by common problems for many countries, and it has its own national specificity, which requires development of relevant proposals for their solution (Vasiliev et al., 2007). The education system, prevailing in our country and now passing through a systemic and structural adjustment, does not fully comply with the changes in the economy (Zabelina and Pilipchuk, 2013). The society is interested in the qualitative changes in the process of qualified personnel education and needs versatile and effective instruments to control the interaction between government, business and education, allowing taking into account strategic goals of the state and the tactical requirements of economic activity. Existing approaches, which regulate interaction between the labor market and employers, cannot adequately meet the requirements of society. There are more and more contradictions in the targeted attitudes and interests of different social and economic groups, which often do not achieve the necessary consensus and, apparently, the obvious goal and, as a result, there is the resistance to changes, populism, sabotaging of making-decisions and so on. The practice shows that even the legislation adoption in many cases is not enough to solve problematic situations in recruitment matters. It is necessary to make balanced economic decisions, taking into account all the possible interests of participating groups and organizations.

One of the possible methods to regulate the labor market, taking into account employers' requirements, the possibilities of the education system, and the interests of the population in the regulatory impact of the state can be a scientifically substantiated recruitment forecast in the long and medium term, allowing calculating recruitment requirements of the economy in the strategic and operational mode. The need for recruitment forecasts is usually based on the assumption that the discrepancy between supply and demand does not lead to a restructuring of the labor market (Borghans and Heijke, 2007). Economic projection in recent years shows a low efficiency and quality of predictive models that was clearly demonstrated during the Great Recession of 2008. It has made many economists revise macro-economic theory to find reliable alternative models based on the general

equilibrium, which is currently used by most economists. Not without interest is the use of predictive models using models IBS+, which is based on the analysis of balance sheets of key economic sectors (Wayne, 2015). Such forecast is used to determine the quality of university activities. The model includes the demand equation, vocational education and labor market variables; the equation to predict the labor market variables that affect demand; and procedures to calculate the statistical confidence intervals in the forecast registration (Hoenack and Weiler, 2007). The forecasting of the labor market should be done taking into account the need to maintain a correlation between hours worked, labor productivity and real wages, which has a wave-like nature (Ravn and Simonelli, 2008).

On the basis of recruitment forecast it can be adjusted both quantitative and qualitative components of the educational process which is the basis for realization of the Russian national system of competences and qualifications, and it determines the relevance of forecasting recruitment requirements at the regional and federal levels. The Russian national system of competences and qualifications should be a regulator that will coordinate the divergent goals of professional groups, communities and individual structures of the population in global interests to increase their competitiveness at the federal level. Prediction of new required competencies and qualifications will optimize the structure of the education system to improve the quality of education, which now focuses not only on employers' requirements but on applicants' requirements as well, who do not have a clear idea about employers' requirements. Dynamic changes in vocational structure of employment defines the need for regular training and profiles correction for the subsequent demand for graduates who are trained for not <4 years. Hence, forecast of recruitment requirements is necessary, at least, for that period. The state, which is funding education in the form of funds allocation from budgets at different levels, is also interested in a more precise determination of qualitative and quantitative requirements for the medium and long term in order to optimize the distribution of admission quotas in areas of training and specialized programs.

However, prediction of the recruitment situation in our country is facing serious challenges. The Russian practice of recent years shows that even large business structures are not able to predict development of the internal recruitment situation for a period from 3 to 5 years, not to mention the longer term. Sometimes small businesses are not ready for a long-term forecast and effective operational management of personnel activity due to lack of proper education and understanding of the need for its implementation. The education system, even with the formal declaration of competency approach implementation, continues to generate training, the results of which are primarily focused on itself, so it is built on the principle to meet the requirements of regulatory agencies. In this situation, the connection of vaguely formulated immediate and disparate business requirements cannot be a basis for development of advanced educational programs, the duration of which, in addition to further education, starts from 4 years, and it is longer than the planning horizon at the federal and corporate levels. However, for the breakthrough development of innovative technologies we require massive demand for new competences that

have not been declared in the business yet, but the country needs them to increase its economic growth. It seems that a national system of competences and qualifications can contribute to the creation of federal, industrial, corporate competency platforms that consolidate competences obtained in the education system, the family, and in production into a single system and can set the vector of perspective development, primarily in the high-tech and emerging industries.

The Russian national system of competences and qualifications is in its infancy and an important element of its formation is a regional component, as at the regional level it is possible to coordinate the employers' demand for employees' certain competencies and relevant educational programs, and to create unique regional environment for investment in professional education. The problem of regional structure compliance with vocational training requirements for the economy is one of the most difficult because of the large number of variable and difficult-to-forecast factors. Nevertheless, it is possible and necessary to develop optimum economic models that can help with research-based methods and using modern economic and mathematical tools to develop the situation in the medium and long term, taking into account possible changes of set parameters.

2. METHODS

Regulation of recruitment requirements at the regional level is necessary to meet the requirements of the territory economy for skilled workforce on the basis of the regional and federal state order to institutions of professional education. Years of market reforms in the country showed that the hopes for a natural regulation of markets that existed in the first post-perestroika years were not justified and eliminated the graduation distribution system, and this system has not been replaced by another, more modern system of interaction between the labor market and the education system. The elimination of the Soviet distribution system on the background of new economic relations has resulted in significant structural quantitative and qualitative distortions in professions and specialties in demand. For a long time the education system was left alone and it did not get enough financing, counseling, targets from the state and business, which led to a reorientation of all levels of education to meet the requirements of new customers of education - they were mainly the country's population.

The logical chain "population - education - production" was broken and skewed toward obtaining formal education in the form of a diploma. Taking into account the duration and magnitude of these changes, the situation is quite complex and requires development of system tools needed to restore balance. In the absence of a single federal regulatory model of skilled labor demand and supply, as well as taking into account the diversity of geographical and economic parameters of the economic regions in Russia, it is justified to have and implement various models of human resource forecast in the Russian Federation. Almost every region develops and applied its own method of determining recruitment requirements for the economy in the medium and long term.

However, this variation has not only got positive effects in the form of unique and valuable development but it also complicates and prolongs the transition to a new system of cooperation between the education system and employers.

There are examples of the Petrozavodsk, Kaliningrad, Tver, Krasnoyarsk (Vasilieva et al., 2008), Samara and other regions, applying their own, original methods of recruitment forecasts. For example, the basis of the existing personnel forecast for the Samara region is the method adopted as a basis by the Center for Professional Education of the Samara region (Alasheev et al., 2002). This method focuses on comparison of the structure of jobs and professions and specialties classification existing in the region. Since such data is not collected by statistical agencies, it was suggested conducting their own research through direct appeal to consumers of the education system - to employers. Information, collected through direct survey, has been projected onto the structure of the regional economy and it is adjusted in accordance with the profiles of education. These so-called "sociological" methods or "from below" methods provide data on specific companies and industries that are not reflected in official statistics. The advantages of the proposed method include the relevance and the need to obtain information in the course of surveys to identify actual situation at specific enterprises and employees' future recruitment requirements and the structure of jobs. However, we must note the significant limitations imposed on the forecast quality by the applied method:

- Limited results according to employers' data: Direct surveys cover only the part of employers that actually exists in the region at the moment and does not include investment projects under development and implementation;
- The responses do not reflect the actual structure of employers by industry and type of activity: Voluntary employers' response to raised questions significantly decreases the results that are quantified in the framework of statistically valid results, but really by quality they mostly cover budget organizations. They fill the obtained questionnaire by virtue of subordinate regional bodies of the education system, which send these questionnaires. Of course, these structures also belong to employers, but the achieved result is skewed in the direction of the budget component, and it distorts the structure of the data on which the forecast is based on;
- The filled data in questionnaires may contain inaccurate information: Questionnaires are filled by ordinary performers because of a large volume of the requested data, sometimes diverse and multifaceted, when some information is simply not available at the enterprise, as it is not mandatory to be calculated and recorded, and it makes employers' response unrealistic;
- The lack of long-term recruitment planning at enterprises: The planning horizon is limited at majority of enterprises ranging from 6 months to a year, which in modern conditions is the norm. The strategic planning that can answer the question about the structure and number of personnel for the period up to 4 years, as it is suggested in the method, depending on the period of study, is carried out only at some enterprises in the region and there is no certainty that they will answer all questionnaire questions.

A well-known method of Petrozavodsk State University is the prediction from "top," so-called "technological" method, which involves a regulatory approach on the basis of determining the amount of labor required to produce a unit of output in accordance with the macroeconomic forecast indicators of economic development (Gurtov et al., 2006). Mathematical modeling, used in the method, allows you to perform a retrospective analysis of the volume of planned investment, programs of fixed assets renovation. The main parameters, recorded in the system, are the planned increase in output, investment, productivity, and personnel dynamics. Targeting of these calculations is aimed at achieving dynamic equilibrium of the labor market, which implies equality of such parameters as additional demand and additional supply. When there are undoubted advantages of the model, which allows you on the basis of the universal technique to apply it to different regions, taking into account the features of regional development, it is necessary to bear in mind a number of difficulties encountered in practical use:

- The difficulty in calculating the coefficients that characterize the structure of the economy and employment in the region;
- The subjective nature of expert judgment;
- The inadequate statistical forms and reporting systems used in the basis of the method;
- The difficulty in correlating economic activities and areas of training in vocational and higher education;
- Check-sum admission quotas to budget places, obtained from the forecast results, do not take into account many subjective factors, such as graduates' free choice in employment, further possible labor movements in other positions and professions, and so on.

The accuracy of the forecast determines the capabilities of state recruitment regulation of the education system both at the federal and regional level; however regulation at the regional level has a potential for a more flexible policy that takes into account local characteristics. One of the most effective ways to meet employers' requirements for skilled labor is to train students in the education system of trades and professions that are in demand in the labor market at the expense of federal and regional budgets. This training is based on the fact that young people are educated, employed by training and thus the economic requirements and demands for specialists with required training will be fully satisfied. However, graduates who have been trained at the expense of budget funds and received actual and desired knowledge, are not always employed by their training, and even employment by training does not guarantee this young specialist his/her career development, as it has been forecast. In this situation, the professional activity of personnel services at enterprises of all forms of ownership and activities is becoming more and more important. Personnel services should establish links with schools, inform graduates about quantity and quality of their training, develop a program of young specialists' adaptation in manufacture, develop career, and develop a system of personnel development. While only some large enterprises have been carrying out such work, mainly based on personal contacts between the institutions of the education system and employers.

Possible means of influencing this situation are in the area of state activity, as well as public and professional associations:

- Improve the quality of services, human resource management at enterprises, and adopt the state program for giving special status and authority to activities of personnel services;
- Targeted development of students' skills during their studies in institutions of secondary vocational and higher education that can interest employers;
- Proactive preparation of graduates' behavior to the labor market and employment;
- In line with modern realities of career guidance reformate promotion activities to the public and school children;
- Develop a regional system on evaluation of competences and qualifications through certification centers;
- Develop a system of employers' incentives on personnel certification introducing requirements for personnel quality in organizations involved to perform government contracts, lend under government programs, insure implementation of government projects, etc.

These circumstances dictate the need for changes and additions to the existing methods of human resource forecasting.

3. RESULTS

The situation on the use of labor resources and the balance of the labor market can be considered using an example of the Samara region. The Samara region is a region with a developed economy, characterized by a significant share of industrial production in the structure and with the educational system that is capable to support not only the regional requirements for skilled workers, but it is also quite highly rated at the federal level. According to the site "Working in Russia" the Samara region refers to the priority regions of employees' employment (Website "Working in Russia," 2015). HR forecast developed by the Center for Professional Education of the Samara region, is a basis for determining admission quotas in institutions of vocational education in recent years. It is assumed that the training system, built on this principle, must fully meet economic requirements of the Samara region for skilled workers. Dynamics of data on the share of the unemployed with secondary and primary education in the total unemployed shows stable higher positions, compared with the share of the unemployed with higher education (Table 1).

These data shows that employers strongly need specialists with higher education and it can be attributed to the increased requirements for qualification, improvement of jobs quality. This is especially noticeable if you compare the proportion of the unemployed with higher education to the total number of the unemployed with the secondary and initial levels of vocational education. Distribution of the unemployed by age groups shows the largest group of the unemployed in the range of 20-25% at the age of 20-24 years old, and then with increasing age the number of unemployed people in each age group is reduced, and it indicates the advanced training of workers and their greater demand. The number of young people looking for work and having no working experience, after contacting the employment agency of employed, tends to increase, and by 2013 it was about 85%. This is a fairly high rate, i.e., the vast majority of graduates find employment after their graduation, while the number of young professionals

Table 1: The unemployment rate by level of education (in percentage of total) (Samarastat Data)

Total	Unemployed-total	People with education						
		Higher education[1]	Incomplete higher education[2]	Secondary vocational education	Initial vocational education	Secondary (complete) education	Basic education	People without basic education
2003	100	7.8	3.2	21.7	9.9	44.9	11.3	1.2
2004	100	14.2	5.7	22.4	16.6	33.1	6.2	1.7
2005	100	13.7	3.2	18.2	20.6	30.1	11.6	2.6
2006	100	14.8	2.9	16.1	21.9	30.0	13.6	0.7
2007	100	7.3	1.1	21.2	18.7	36.0	14.4	1.3
2008	100	9.1	6.7	19.6	19.2	35.2	9.0	1.2
2009	100	22.3	-	27.8	16.9	26.0	6.3	0.8
2010	100	15.5	-	22.0	22.8	30.5	8.3	0.8
2011	100	16.9	-	23.0	20.7	32.9	5.2	1.2
2012	100	17.3	-	23.0	25.6	24.4	8.5	1.2
2013	100	15.3	-	21.4	23.1	29.0	10.2	1.0

who have found work independently, is consistently higher than the number of graduates applied to the employment service. This situation is understandable, if we compare the number of vacancies and the number of the unemployed, especially in large cities in absolute terms without partitioning professional and qualification groups (Table 2).

The highest difference between the number of vacancies and the number of the unemployed people is observed in Samara, Syzran and Novokuibyshevsk, it means that in these cities there are significantly more employers' job offers than the unemployed people, but it is necessary to make allowances for the fact that statistics indicate only those citizens who have registered in Employment Services. However, the dynamics of data in Samara shows the gap narrowing, jobs reducing and increasing of the registered unemployed (Figure 1).

At the same time there is a significant discrepancy between professional staff vacancies and the unemployed, especially in demand for vacancies of highly skilled workers, such as finisher, mason, mason, fitter mechanic, welder, carpenter. There is also a high demand for low-skilled professions, such as horticulturist, nurse, gardener, office worker, courier, conductor and others. As for specialists and employees there is also the excess in the number of vacancies for most items over a number of job offers, except for positions of managers and accountants. In addition to the quantitative shortage of job offers on many items it is marked the structural imbalance of supply and demand, characterized by inconsistency, not only in the specialty, but also in competences and qualifications.

The situation on the labor market can attribute Samara, Togliatti, Syzran, Novokuibyshevsk to the labor shortage regions, and the most rural areas of the Samara region to the labor surplus areas, which largely determine the current policy in the field of employment and education. The reasons for the imbalance on the labor market in the Samara region can be largely attributed to lack of workforce than to forecast shortcomings. However, there is the discrepancy between supply and demand in the labor market there, in spite of formed regional recruitment forecast in the medium term, and it illustrates the need to adjust the existing method.

Table 2: The number of vacancies and registered unemployed citizens in urban employment agencies of the Samara region in August 2015 (Samarastat Site Data, 2015)

Territory	Unemployed, people	Vacancies, number	The unemployment rate relative to working age
Samara	4163	20,211	0.6
Togliatti	5817	7285	1.3
Syzran	591	1152	0.6
Novokuibyshevsk	436	1397	0.7
Chapaevsk	381	721	0.9
Kinel	451	1087	1.3
Zhigulevsk	559	138	1.7
Oktyabrsk	240	145	1.7
Otradnyi	339	208	1.2
Pokhvistnevo	167	66	1.0
Total/cities	13,144	32,410	0.9
Total/regions	5466	3341	1.3
Total (% of economically active population)	18,610	35,751	1.1

The carried out studies show the imbalance of the labor market in the Samara region, which confirms the need to develop science-based definition of the concept of human requirements in the economy of the Samara region. This is due to such factors as:
- Inefficient system of forecasting, planning and monitoring of recruitment requirements by level of education and professional qualification groups;
- Lack of the effective interaction mechanism between government, business and educational institutions for forecasting, planning and recruitment requirements, taking into account different scenarios of economic development in the region;
- Lack of regulatory supply and demand tools in the labor market, both in terms of professional characteristics, and quantitative requirements, which are the basis in formation of admission quotas in educational institutions by level of education and professional qualification groups.

The main objectives of the concept development are:
- Determine ways to improve the system of forecasting recruitment requirements of the economy in the Samara region;

Figure 1: The concept of recruitment forecast development at the regional level
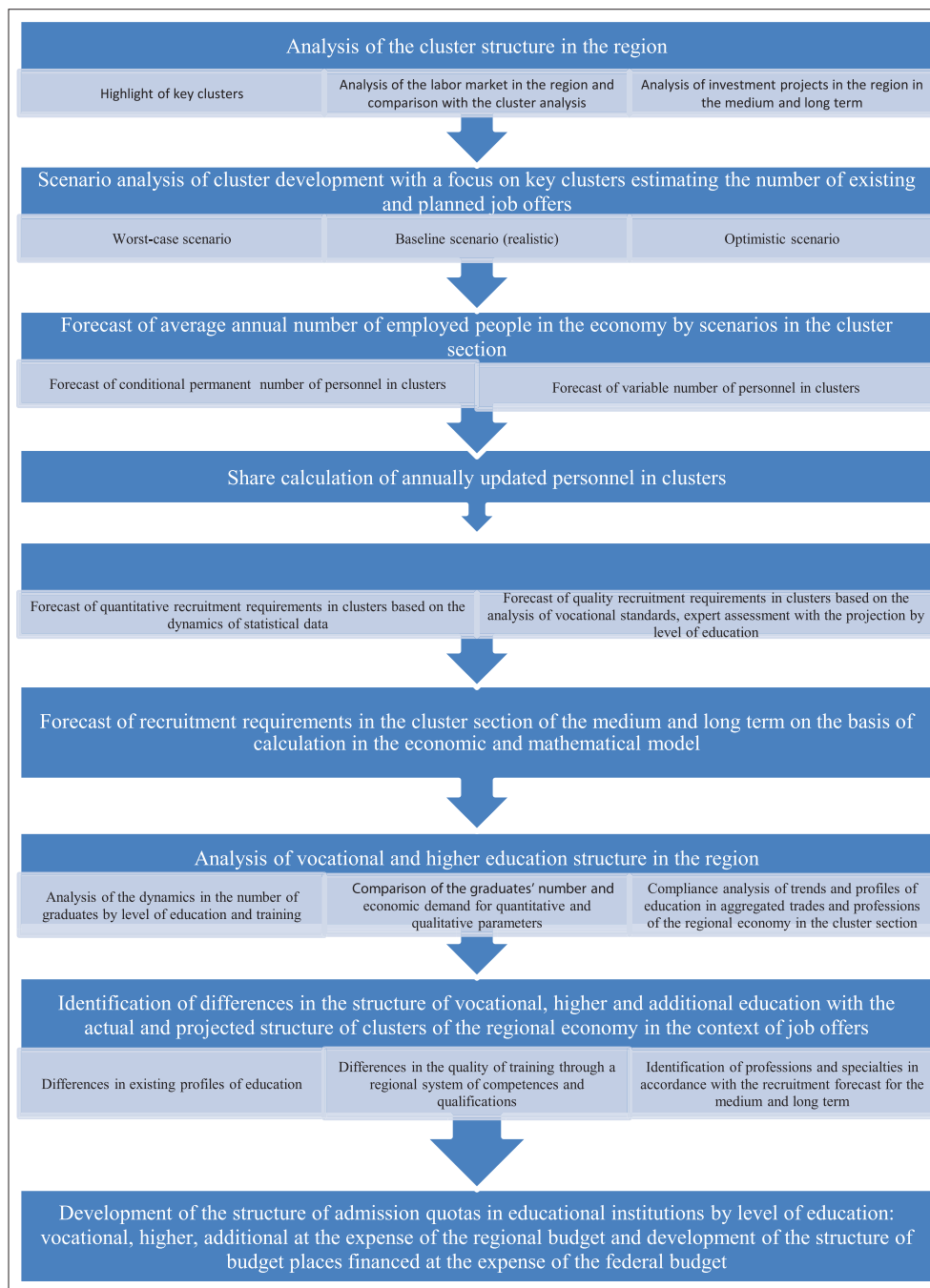
- Develop human resources policy in the region, based on the recruitment forecast and form directions to realize the personnel policy;
- Develop monitoring structures of demand and availability of competences and qualifications on the regional labor market;
- Achieve maximum correspondence between the human resources requirements of the region and opportunities of the education system by level of training and vocational structures.

Implementation of the goals set out in the concept is possible in the case of systematic and coordinated work of state bodies, public and non-profit associations, institutions, education systems, so it is necessary to develop a package of documents that reveal the

problem, terms, authority and responsibility to implement the human resources policy at the regional level. One of the urgent problems in development of the effective human resources policy in the region is to organize interaction between employers and the education system, which is still random and unsystematic.

The conceptual basis for determining recruitment requirements of the region's economy is development of vocational and higher education to meet the requirements of the region's economy, regulation of the balance on the labor market in the context of professional qualification. Coordinated development of the economy and the vocational education system does not only meet the current and future employers' demand for labor force on the

criteria of its quantity, quality and requirements, but it will also give the graduates the opportunity to build their career.

The proposed concept of drawing up the recruitment forecast is based on the comprehensive analysis of the regional economy in the cluster section and the structure of the education system, which will create the necessary regional order for specialists' training with financing at the expense of the regional budget and the structure of admission quotas with financing at the expense of the federal budget (Figure 1).

Using the proposed concept the authors attempt to combine the positive elements of the known forecasting methods having connected the cluster analysis with the analysis of the education system in the region and the national system of competences and qualifications. The analysis of the cluster structure of the region's economy requirements highlights the key clusters in the region's labor component, since the analysis of the labor market is traditionally done by economic activity and it does not always correspond to the structure and composition of clusters.

Results application of the regional human resource forecast in the medium and long term is possible in different directions:
- Develop the region's human resources policy for long-term purposeful formation of human resources for economic development;
- Attract investments in the region's economy as a region with the necessary labor potential for their implementation;
- Regulate the balance of the labor market, migration policy, social policy;
- Form the justified admission quotas for budget places in institutions of vocational and higher education in the region, determine the structure and range of additional training and retraining of adults, adjust the profile of programs and areas of study.

Prediction of any processes is associated with a certain degree of assumption and generalization about the nature of upcoming events and processes. When building a predictive model we should consider the following risks:
- Graduates may obtain employment not by their training: The forced labor conditions do not satisfy the applicants, the conscious ones - lead to continuing education in another specialty;
- The possibility of territorial graduates' migration, so that the regional economy will not get the estimated number of labor resources;
- The dismissal of employed young professionals over time for various reasons;
- Development of the protracted economic crisis;
- The lack of systematic changes in the legislation maintaining the national system of competences and qualifications;
- The explosive development of certain areas of high technologies;
- The use of the results of the regional human resource forecast is mainly to control secondary vocational education, as the budget places in higher education are allocated at the federal level.

Such multi-function relationships can be expressed by a deterministic or stochastic factor economic and mathematical model. The dynamic stochastic equilibrium is used in the recruitment models forecast (Edge et al., 2010). The model efficiency is estimated for the long term, providing competitive forecasts. The use of mathematical models for economic forecasts is caused by several reasons. First, these models help to identify and assess interconnections and patterns, which form the projected option. Secondly, these models allow identifying the factors of influence, determining the extent of their impact on forecast indicators of the required number of qualified personnel. Third, using such models it is possible to get qualitative evaluation of the reserves increase in quantity and quality labor resources in the region.

The complexity of predicting the need for qualified personnel in the regional economy is related to a large number of uncertain and insufficiently formalized information. For example, uncertain or partially uncertain information that can only be set by describing a range of possible values of random variables without their occurrence probability is information on some stochastically varying characteristics of the social and economic structure of the region's population.

Incomplete and nor well-formalized background information on the quantity and quality of labor resources in the region significantly affects the degree of certainty or reliability of the recruitment requirements forecast. Therefore, application of economic-mathematical modeling can be useful for better understanding of the required structure of labor potential, quantitative parameters of the aggregated trained and professional groups, causes and patterns of its changes. Using, for example, the method of the regression analysis it can be built the multifactor economic-mathematical model of the economy's requirements for personnel with specific skills, which reflects its dependence on the spatial and temporal characteristics of the workforce quality. Implementation of such a model allows you to get projected values of the necessary training for qualified personnel, which become more specific, credible and reliable. Introduction of such data as duration of the job searching into the model is necessary to determine the reaction of the labor market from the impact of technological shocks, restructuring and production modernization (Mumtaz and Zanetti, 2015).

Information about the quantitative indicators, necessary for the regional recruitment forecast, can be collected both by known methods and by specially developed for this type of prediction:
- Statistical information: The labor market and employment, population, education, quality and standard of living, gross regional product, the indicators;
- Estimated information: Labor force forecast, the balance of labor resources, balancing factors of the labor market, etc.;
- Investment programs: A strategy for regional development, forward-looking and in works investment projects of ministries and departments;
- Expert assessment;
- Monitoring data of competences and qualifications on the basis of questionnaires, professional standards, assessment centers of competences and qualifications.

4. DISCUSSION

The proposed conceptual approach of recruitment forecasting and planning in the economy of the Samara region should be the beginning of cooperative development between ministries and departments of the Samara region on formation of the regional human resources policy based on the forecast of scientific recruitment requirements.

The concept is the first necessary step that needs to initiate large-scale work on strategic forecasting and planning recruitment requirements at the regional level. The main result of the proposed concept can be the forecast in three recruitment requirements scenarios on priority key sectors of the economy in the Samara region in the context of aggregated groups of specialties, areas of training, trades and professions.

The practical use of this forecast will determine perspective human resources requirements for any industry sector/priority clusters for each year of the forecast period, based on the data of recruitment requirements by levels of education, calculated under three scenarios and their professional and qualification structure by integration of specialty groups and training areas.

It is seen that the authorities of regional government in the Samara region should be interested in receiving the results of this assessment. Having sound data on human resource requirements of the system will allow organizing a coherent work of various ministries, departments, public, non-profit associations and employers in the region, planning resource providing priority clusters, including resource support of vocational training institutions' activity in the Samara region.

In addition, information on future recruitment requirements of the regional economy is important for universities, because it will determine the direction of their strategic partnership, adjust the structure of training programs and vocational and additional education, and plan personnel policy areas of research and development.

On this basis, the authors of this concept suggest receiving feedback in the form of discussion and debate by scholars and practitioners with different levels of professional education, involved in forecasting recruitment requirements in the regional economy.

5. CONCLUSION

The analysis of existing approaches in Russia and in the world on determining recruitment requirements reveals general and specific features of different methods. Common features include the use of economic and mathematical models of forecasting, statistics, expert interviews. Specific features are determined by regional and national characteristics and can more accurately create the original database. It is also necessary to note that none of these methods is multifunctional and has various limitations that affect the forecast accuracy. The considered approach to forecasting recruitment requirements in the Samara region has

identified significant gaps that do not allow generating a reliable prediction, and, most importantly, on the basis of existing forecast techniques it is impossible to develop a coordinated personnel policy in the region, the systematic implementation of which will form the personnel potential in the long term. The studies suggest a need for a new system of forecasting recruitment requirements, and the authors suggest conceptual approaches to the structure and sequence of human resource forecasting development. This system is based on the cluster approach, and suggests using the developing national system of competences and qualifications as a methodological basis. The carried out analysis and developed concept may be the beginning of great system work which will result in systematic development of human resources in the region and increase region's investment attractiveness.

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