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## **Analysis of the Relevance of Educational Programs for Applicants and the Labor Market**

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**Abstract:**

*The article is devoted to the analysis of the specialties and directions of training realized by Russian higher education institutions, the quality of admitted students, the identification of popularity among applicants and the demand in the labor market.*

*The purpose of the article is to investigate the correspondence of the training directions to the real needs of the labor market for qualified specialists, to analyze the quality of training of the entrants for the training directions funded from the federal budget.*

*The practical importance of the article is connected with the possibility of applying its results by higher education institutions when developing the basic professional educational programs for the necessary profiles in the labor market, compiling a directory of popular and promising professions with further state funding for training the most demanded specialties.*

*The article will be useful to a wide range of readers who are faced with the choice of profession and the direction of training, advanced training or retraining.*

**Keywords:** *average score at the Unified State Examination, enlarged directions of training, directions of training with a high score of the Unified State Examination, popular directions of training, high-demand professions, shortage in the labor market.*

**JEL Classification:** *I20, I21, I28, I29*

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## **1. Introduction**

The Russian labor market is characterized by high mobility. The professions demanded today lose their popularity after a while. The situation in the labor market is complicated by the fact that the professions that are popular are related to leadership positions or require professional experience. The graduates of higher education institutions do not have the necessary length of service in the profession and do not have the necessary skills. Higher education institutions continue to admit and train students in the economic, legal and managerial areas, although there is a clear overabundance of economists, lawyers and managers (Krukova *et. al.*, 2016; Medvedeva, Kazantseva, Mineeva, Karpukova and Daricheva, 2015).

Russian higher education institutions provide training in various specialties and directions, which they determine independently based on the popularity of certain professions in the labor market. When opening specialties and directions of training, higher education institutions draw on the current data, without taking into account the fact that the duration of training of specialists is five years (Ilyina, 2015), and thus the situation in the labor market may change; therefore, the education system does not have time to offer for the market the specialists of the demanded qualification with the necessary set of knowledge and skills.

State support for training (in the form of state-financed openings in higher education institutions) does not fully reflect the need for qualified specialists of certain professions, as evidenced by the constant shortage of workers and engineering professions in the labor market and the overabundance of specialists in economic and legal areas of training (Makeeva *et. al.*, 2016; Sultanova and Chechina, 2016).

## **2. Methods**

The purpose of this study is to analyze the correspondence of the directions of training carried out by Russian universities to the needs of the labor market. The analysis used the data on the quality of admitted students, popularity among applicants, the demand on the part of employers, and the need in the labor market (Ilina *et. al.*, 2016; Sazhin and Saraikin, 2016).

The task of this study is to confirm or disprove the following hypotheses:

1. A high score of the Unified State Examination (USE), as well as the number of medal winners, testify to the high competition, and consequently to the considerable popularity of the direction of training among the applicants.
2. A large number of the enrolled with payment of the cost of training emphasizes the importance of the direction for the applicants.
3. The higher the share of the employer-sponsored openings, the more demanded is the direction of training among employers.
4. The share of the privileged applicants.

5. The demand for training directions among applicants should correlate with the directions of training with a high score of the USE.
  6. The directions with a high score of the USE and popularity among applicants are highly paid in the labor market.
  7. The situation in the labor market is characterized by a deficit of IT specialists, doctors and sales specialists and an abundance of lawyers and economists.
- The collection of methods of this scientific research is determined by the initial concept of work, its goals and objectives.

The analysis of the quality of admission to Russian higher education institutions is based on the data of the Higher School of Economics (National Research University "Higher School of Economics", 2016), "Social Navigator" of the International Information Agency "Russia Today" (The Quality of Admission to Public Institutions of Higher Education in the Russian Federation in 2016, 2016) and the Federal Portal "Russian Education" (The Average Admission Score to the Higher Education Institutions by Specialties and Directions, 2016), which were consolidated into a single Excel table, including information on the average points of the USE of the people admitted to the state-financed openings and positions with payment of the cost of training, with the division with respect to the areas of training in the years 2011–2016. Thus, analyzing this information, it is possible to single out the directions of training according to the level of the average USE score, as well as the number of trainees, and to identify the changing trends.

The analysis of high-demand professions in the labor market was carried out on the basis of monitoring of the sites of the personnel and recruiting agencies (HeadHunter (Labor Market: The Main News for January, 2017), and Superjob (Jobs of the Future – on Superjob today, 2016).

### **3. Results**

#### **3.1. Analysis of the enlarged groups of training directions according to the quality of admitted students (based on the USE scores)**

Stably high average points of the USE (more than 80) are demonstrated each year by the following groups of training directions:

- Theory of arts (the average score of the USE according to the results of the 2016 admission campaign is 85.3);
- Oriental studies and African studies (85.3);
- International relations (83.4);
- Journalism and creative writing (82);
- Linguistics and foreign languages (81.7);
- Political science (81.2);
- Jurisprudence (80.4).

Moreover, the average USE score for the state-financed openings for the "International Relations" for all periods of observation has been more than 82. During the last two years, there has been a tendency of a slight decrease of this indicator (from 86.4 in 2013 to 83.4 in 2016) with an increase in the number of enrolled in the state-financed openings in 2016 by 21% compared with the year 2015. An increase in the average score of the USE is demonstrated by "Theory of arts" (from 77.2 in 2011 to 85.3 in 2016), "Oriental studies and African studies" (from 79.8 in 2011 to 85.3 in 2016) and "Jurisprudence"(from 75.5 in 2011 to 80.4 in 2016).

In 2016, for 27 out of 67 enlarged directions of training, the average score for state-financed openings exceeded 70. In addition to the above-mentioned leading directions, it is necessary to indicate the directions demonstrating the trend of increasing of the average score (an increase of more than 5 points over the period 2011-2016):

- Economics (from 70.9 in 2011 to 79.9 in 2016);
- Advertising and public relations (from 74.3 in 2011 to 79.2 in 2016);
- Design (from 68.7 in 2011 to 78.3 in 2016);
- Publishing (from 72.5 in 2011 to 77.5 in 2016);
- Philology (from 69.1 in 2011 to 76.3 in 2016);
- Nuclear physics and technology (from 67.8 in 2011 to 75.7 in 2016);
- State and municipal administration (from 67.5 in 2011 to 74.8 in 2016);
- Management (from 68.8 in 2011 to 74.4 in 2016);
- Architecture and construction (from 69.0 in 2011 to 74.3 in 2016).

Stably high score is observed for the "Healthcare" direction of training: 74.7 in 2015 and 2016, with the maximum number of state-financed openings.

Stably low average USE scores (less than 60 points) is observed for 11 enlarged directions out of 67:

- Printing and packaging (59.9 in 2016);
- Ecology (59.8);
- Mechanical engineering (59.1);
- Water transport management (57.6);
- Food technologies (57.3);
- Means of transport (57.2);
- Technologies of consumer goods industry (56.7);
- Marine engineering (55.1);
- Metallurgy (55.0);
- Forestry (54.5);
- Agriculture and fisheries (54.3).

The above data indicate that among the areas of training with funding from the state budget, there are areas with a weak level of quality of secondary education of applicants (Krukova *et. al.*, 2016). The applicants enter these areas of training not because of genuine interest to the education received, but in order to obtain the higher education status or to get postponement of military service (Novikova, 2015; Gorina 2016).

### **3.2. Analysis of groups of training areas with the largest and smallest number of the enrolled for the positions with the tuition fees**

Among the directions with a large number of contract students (the share of state-financed openings is less than 30%), there are the following ones:

- Economics;
- Jurisprudence;
- State and municipal direction;
- International relations;
- Advertising and public relations.

The preferential categories of applicants apply to the same areas of training; the share of these applicants among the enrolled ones exceeds 7%. Unconditional leaders in the number of contract positions are "Economics" (more than 27 thousand positions) and "Jurisprudence" (more than 16 thousand positions). Thus, the demand for economic and legal directions of training among the applicants remains.

The average score of USE for the applicants admitted on the payment basis much lower than for the ones for the state-financed openings. In the areas of "Economics" and "Jurisprudence", the USE score of the budget admission exceeds 69 points, while the USE score is in the range of 50-55 points for the contract-based admission. That is, the quality of the state-financed admission is much higher than the paid one. Let us analyze the directions of training, for which the number of state-financed openings significantly exceeds the contract-based student positions. A low level of contract students may indicate a low demand for these directions among the applicants. The list of directions with a share of state-financed openings of more than 95% consists of 14 groups of directions. It should be noted that a significant number of state-financed openings (more than 15 thousand and more than 9 thousand, respectively) have been allocated to the directions "Agriculture and Fisheries" and "Electronic Equipment, Radio Engineering and Communication", which indicates the state support of these directions. There is a completely unclaimed group of directions either from the state, or from applicants: "Technologies of consumer goods industry", "Printing and Packaging" and "Soil Science". With a small number of state-financed openings, the share of contract students is less than 3%. For the above directions it is characteristic that the average score of USE is below 60.

When analyzing the employer-sponsored admission, the following basic professions supported by employers can be identified: doctors, engineers- technicians, teachers, lawyers, and transport specialists. The groups of directions for which admission to the employer-sponsored positions exceeds 15% of the total number of enrolled are the following:

- Health care;
- Aviation systems and rocket-and-space technology;
- Armament;
- Means of transport;
- Electronic equipment, radio engineering and communications;
- Jurisprudence;
- Pedagogical education;
- Oil and gas engineering;
- Mechanical engineering;
- Marine equipment.

The largest number of employer-sponsored positions is in the areas of "Health Care" (more than 50%) and "Aeronautical and Rocket-and-Space Technology" (more than 44%).

### **3.3. Analysis of the demand for training directions among applicants**

Having analyzed the popularity of the training directions according to the average USE scores, the number of contract positions and benefit recipients, we now conduct an analysis of the training directions on the basis of queries (on the basis of queries of the users of themoeobrazovanie.ru portal (The Rating of Specialties and the Training Directions of Higher Education Institutions, n.d.)). When calculating the rating, users' search queries were taken into account.

The most popular training directions are:

- State and municipal administration(100);
- Management (98.7);
- Economy (77.3);
- Business Informatics (72.6);
- Jurisprudence (71);
- Advertising and public relations (68.5);
- International relations (68.3);
- Personnel management (66.3);
- Informatics and computer science (63.7);
- Economic security (61.7).

The percentage of queries of the portal users in these directions (specialties) exceeds 60%. In general, as expected in the hypothesis, these directions have a rather high score of the USE for the state-financed openings (more than 74). Only for the "Computer science and computer technology" direction, the average score is lower and equals to 68.4. Among popular queries there are no training directions with a low USE score. However, there are training directions with high average points of the USE (more than 75), but with a moderate popularity according to queries:

- Design (51.4%, 78.3);
- Linguistics (51.2%, 81.7);
- Publishing (45.4%, 77.5);
- Journalism (44.6%, 82);
- Political science (40.6%, 81.2);
- Philology (40.3%, 76.3);
- Oriental studies and African studies (39.6%, 85.3);
- History (38.6%, 75.7%);
- Nuclear physics and technology (34.8%, 75.7%);
- Theory and history of arts (32.3%, 85.3).

A high score of the USE with a low level of queries for the directions "Theory and History of Arts", "Oriental studies and African studies", "Political Science", a small number of state-financed openings can explain "Publishing". For other areas of training, a low level of queries and a high score of the USE can speak of the complexity of training, low demand in the labor market, and small pay. The following enlarged directions of training demonstrate the lowest level of queries and a low score of the USE:

- Mechanical engineering (the percentage of queries is 35.35%, the USE score is 59.7);
- Agriculture, forestry and fisheries (35.16%, 54.5%);
- Ground transport equipment and technologies (33.06%, 57.2%);
- Materials technologies (32.5%, 55);
- Equipment and technologies of shipbuilding and water transport (31.44%, 56.35).

It should be noted that a significant number of state-financed openings are allocated annually for these training areas, that is, they are important from the point of view of the state. However, the admission quality is low for these direction, the applicants are accepted with satisfactory results in the USE.

### **3.4. Analysis of the popularity of professions in the labor market**

The analysis of demanded professions in the labor market was carried out based on monitoring of sites of personnel and recruiting agencies (Head Hunter, Superjob).

The Russian labor market is volatile and very much depends on the economic situation, the political situation and a number of other factors. It is difficult to predict which areas and specialties will be in demand in 5-10 years. However, we can distinguish several groups of professions, for which there is a shortage in the labor market, and with certainty it can be said that this trend will continue for some time (Egorova *et. al.*, 2015; Borovin, Krylova and Shlyapin, 2015). At the same time, it should be noted that the deficit can be explained not only by the lack of necessary qualifications or work experience among applicants, but also by the low level of wages in the profession.

Specialists in the field of information technology (IT specialists) are very popular in the labor market. This trend will continue for a long time, which is associated with scientific and technological progress and the introduction of information technologies into the activities of virtually any company. The development of the industry can lead to the emergence of new professions in this field. Already, along with the known system administrators, 1C programmers and content managers, there have appeared web-designers and programmers, HTML layout designer, SEOoptimizers and software testers. The level of wages of these professionals is quite high. However, according to the results of the analysis of the average score of the USE and queries, the "Computer science and computer technology" direction of training is much inferior to managers, economists and lawyers.

Engineers remain a high-demand profession, both now and in the future. Due to the high popularity of economic and legal areas of training in the last 20 years, it was not prestigious to receive the profession of engineer. As a result, an acute shortage of specialist engineers has been formed.

The introduction of new technologies for diagnosing diseases, applying new methods of treatment, taking care of health make the sphere of medicine and public health a popular direction. Dentists, gynecologists, urologists, nutritionists, cosmetologists and surgeons have long been among the most demanded and highly paid professions. At the same time, therapists, pediatricians, dermatologists, neurologists, psychiatrists and endocrinologists are no less in demand in the market; however, the level of wages makes them less popular among applicants. This direction of preparation is most balanced in terms of the demand for the profession in the labor market, popularity among applicants, state support, expressed in a significant number of state-financed openings, high share of employer-sponsored education and a large value of USE points.

One of the most popular in 2016 was the sphere of marketing, promotion and sales. It is very difficult to forecast the popularity of professions in this sphere for the future. During the next 5 years, the profession of sales manager, brand manager, customer service manager, strategic development manager, and marketing manager will remain popular, since there are few qualified specialists in this field yet. The difficulty lies in the fact that for employers, when applying for jobs in these



professions, an important criterion is the availability of work experience, which the university graduates do not have (Novikova, 2016).

For many people, higher education has become associated with the guarantee of a stable and highly paid work (Mukhomorova, 2009). However, among the popular professions, there is a large list of professions that do not require higher education (Egorova, 2016). The secondary specialized education, obtained in colleges and vocational schools after 9 classes, is enough. There is an acute shortage among the working specialties, and this trend will continue in the labor market for a long time. To compensate for the shortage of gas electric welders, fitters, repairmen, carpenters, concrete workers, bricklayers, plasterers, car mechanics, the management of Russian companies employs migrants.

#### **4. Discussion**

The problems of providing the labor market with personnel of appropriate qualifications and improving the quality of education are topical and have been repeatedly discussed at international scientific and practical conferences and congresses with the participation of representatives of employers, recruiting agencies and the education sector (Mukhomorova, 2008).

The Russian labor market is characterized by a large number of unemployed people with higher education, which indicates the saturation with licentiates. At the same time, there remains a need for skilled workers. The Ministry of Labor has prepared a directory of new and promising occupations that are in demand in the labor market (The Ministry of Labor of Russia Has Developed a Draft Handbook of Professions That Are in Demand in the Labor Market, New Promising Occupations and Specialties, 2015). More than a third of the professions included in the directory do not require higher education, the specialists are trained in the system of secondary vocational education. The problems and special features of modern Russian unemployment were discussed in December 2016 within the framework of the XXVth International Christmas Educational Readings "1917-2017: Lessons of the Century" and in the Russian State Social University at the conference "Problems of Education and Upbringing in the Period from 1917 to 2017".

The quality of education, the level of training of applicants in various fields of study, as well as the popularity of professions among the entrants were actively discussed at the round table "The Quality of the Personnel of Social Service Organizations: The Customer Satisfaction" as a part of the XVIth International Social Congress "Evaluation of the Quality of Social Services for Citizens: Experience, Problems, Results", held in November 2016. A great concern is the areas of training with a low level of secondary education of the applicants, admission to which is financed from the federal budget (Kryukova *et. al.*, 2016). One can expect that the quality of higher education of these graduates will be low.

## **5. Conclusion**

Because of the conducted analysis, the following conclusions can be made. Especially popular among applicants are the following enlarged directions of training: "Economics" and "Jurisprudence", as evidenced by the USE scores for the state-financed openings, the number of privileged applicants, a high percentage of queries at the portal "My education", and the number of places with tuition fees. These directions attract by prestige and high wages in the market. Few of the entrants take into account the fact that the high pay of specialists is due not to the received higher education, but to the work experience. Given the oversaturation of the labor market by the specialists of this profession, the state should reduce the number of state-financed openings in these directions.

Among the direction of training with funding from the state budget, there are the directions with a low level of quality of secondary education of entrants. These areas of training are important for the state and for the labor market, but the level of training of future specialists– the mediocre students– is of particular concern. It is necessary to approach the problem globally. First, it is necessary to promote the popularity of these training areas among schoolchildren, ensure the availability of jobs after graduation, and an important factor is the level of remuneration or forms of state non-monetary incentives.

Among the considered training areas, only two enlarged groups are the most balanced from the point of view of the demand for the profession in the labor market, popularity among applicants, state support, expressed by a significant number of state-financed openings, a high proportion of employer-sponsored training and a high score of USE: "Informatics and Computer Engineering" and "Health and Medical Sciences".

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