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## Current State, Tendencies and Peculiarities of Development in Higher Education: The Case of Russia

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**Abstract:**

*The main aim of this article is to identify the reasons for the reduction in the number of higher education institutions, changes in the structure of the university network, reducing the number of students, the growth of the cost of training and overproduction of specialists.*

*The authors identified the regions with the highest concentration of universities. The analysis of the structure and dynamics of higher education expenditure allowed assessing the contribution of the consolidated budget, households and business structures to the development of higher education.*

*The study analyzed the areas of training in terms of the demand among graduates and applicants. At the end of the study, the authors analyzed the changes in the average cost of training in the Russian Federation.*

**Keywords:** *Higher education, competitiveness, market structure, cost of education, development of the educational system.*

**JEL Classification:** *O10, O14, O31, O35.*

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## 1. Introduction

The current state of the market of educational services of higher education is characterized by a general decrease in the number of students (by 15% over the past two years), a reduction in the number of educational institutions of higher education (by 14% over the past two years) and structural changes associated with the changes in demand and optimization of the university network.

The high volatility of the market of higher education services leads to an increased competition and determines the institutions' need to consider the entropy of economic relations in the activities of educational institutions, create non-copied competitive advantages, gain a leading position and improve their own competitiveness in the global economy.

The task of improving the competitiveness of educational institutions of higher education involves the study of the interaction of participants in the market of educational services, the definition of its peculiarities and development trends in order to substantiate the management decisions aimed at the implementation of the program to improve the competitiveness of the universities.

## 2. Materials and Methods

The basis of the study is the analysis of the data published in the official publications of the Federal State Statistics Service of the Russian Federation. These data were used as the basis for compiling Figures 1-5 (Education in the Russian Federation, 2000; 2005; 2012; 2014; Russian Statistical Yearbook, 2000; 2005; 2010; 2015; 2016; Indicators of Education, 2007; 2008; 2010; 2011; 2013; 2016; 2017; Education in numbers, 2013- 2017; Education in Russia, 2017 (Voloshin, 2017).

Information on the number and needs of organizations for workers by professional groups as of October 31, 2016, 2017 (Gorina, 2016; Avdeeva *et. al.*, 2017; Sazhin and Saraikin, 2016). The data regularly published by universities in the framework of self-assessment reports are of great importance for the analysis and allows the analysis to be based on a group of generally accepted homogeneous indicators, assessing not only the structure but also the dynamics of the data.

The authors of the paper paid enough attention to various studies and rankings in the field of higher education, which were conducted by other authors and organizations. As an example, there are several projects of Higher School of Economics (especially "Monitoring of admission to universities" and "Monitoring of education economy") and university rankings provided by RA "Expert", Quacquarelli Symonds, Times Higher Education and others.

## 3. Results

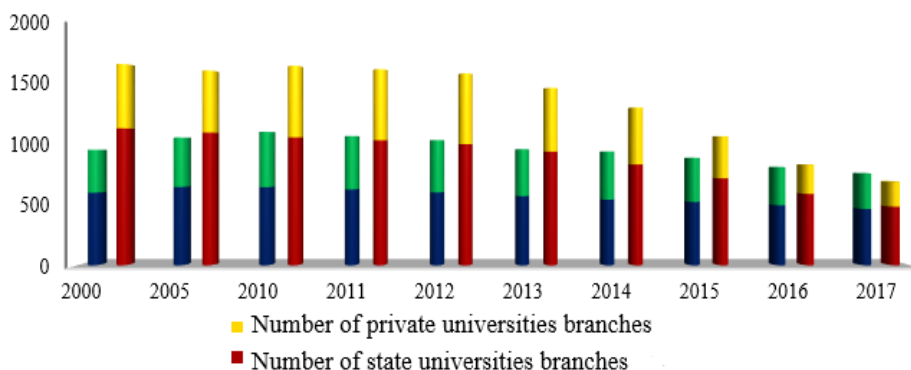
The gross value added created by educational organizations in 2017 is more than 14 times higher than the value of the same indicator in 2000, which indicates a significant increase in the volume of educational services. Meanwhile, the share of educational services in the GDP of the Russian Federation remains sufficiently stable and has increased by only 0.32% over the same period, which confirms the hypothesis of proportional growth of the educational services market.

The number of higher education institutions clearly shows a decline. In 2016, compared to 2010, the number of universities decreased by 298, including 151 in the public sector and 147 in the private sector, i.e., 23.12% and 31.81%, respectively (Figure 1). The described trend continues. According to the data posted on the official website of the Federal State Statistics Service (Rosstat), at the beginning of 2018 766 universities carry out the educational activities in the Russian Federation, which is 130 universities less than in 2015, in relative terms, the reduction was 14.5%.

Commercialization of higher education and the need to ensure the daily activities of universities led to a significant development of the branch network in the period from 1995 to 2005. The number of university branches having reached its maximum in 2010, began to gradually decline and by 2013 amounted to 1462 units, while by 2015 the number of university branches decreased by another 435 organizations, this trend continues today.

Since 2000, the Russian Federation has been implementing a consistent policy to improve the competitiveness of the Russian higher education system, which was manifested in the formation of federal, national research and supporting universities. The purpose of these reforms is to concentrate resources, improve the efficiency of their use, create conditions for the formation of innovative potential, improve the efficiency of research activities and increase the competitiveness of Russian universities.

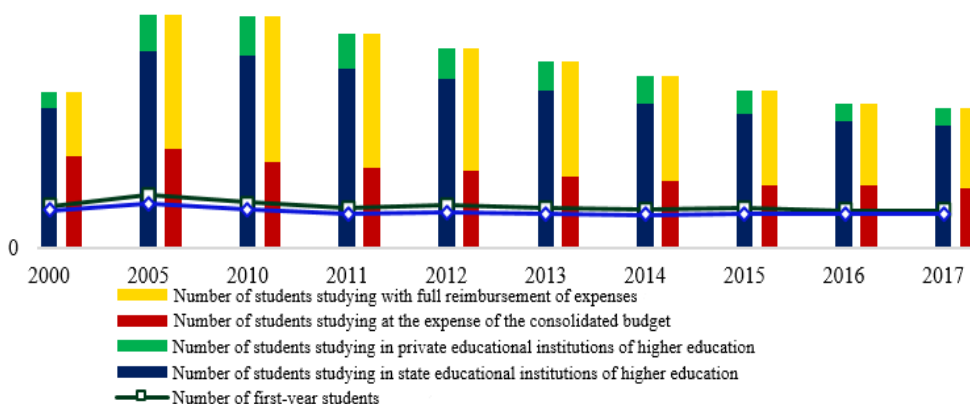
**Figure 1:** *Number of higher education institutions and their branches in the Russian Federation in 2000–2017, units*



The distribution of universities by affiliation allows us to estimate the share of federal universities in the total number of state universities in 2018 as 1.99%; national research universities 5.77%; supporting universities, which appeared only in 2016 2.19%. The change was not only in the formation of new educational structures but also in the significant transformation of the existing network of sectoral and departmental higher education institutions. A significant reduction in the number of humanitarian universities, as well as technical, socio-economic, pedagogical institutions in favor of consolidation, reflects the state policy aimed at eliminating the duplication and adapting the university network to the needs of the national economy.

The negative trend is also demonstrated by the number of students of higher education institutions (Figure 2), as opposed to a significant increase in the period from the mid-1990s to 2010. The decrease in the number of students in 2017 compared to 2010 is 2,940 thousand people (or 40.9%). At the same time, the structure of the contingent (Figure 2) of students proves the high trust of the customers of educational services to the state universities.

**Figure 2:** Number of students in the Russian Federation in 2000-2017, thousand people



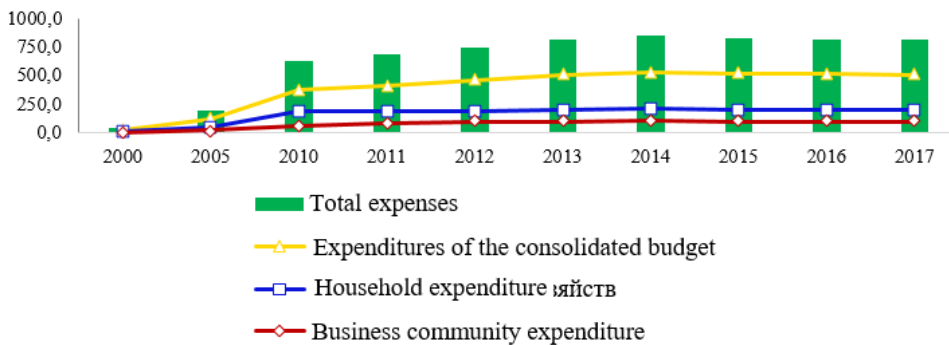
The share of students studying in state universities at the expense of budgetary allocations in 2017 compared to 2000, has not undergone any fundamental changes. About 50% of students in the Russian Federation are still studying at the expense of the consolidated budget, the changes are structural, the manager of the budget funds in the person of the Ministry, directs mainly to the training of specialists in engineering and natural science areas of training.

The dynamics of expenditure on higher education by customers of educational services (Figure 3) demonstrates the key role of the state in the structure of university revenues. Even though only 47% of students study at the expense of the federal and other budgets of the Russian Federation, in the structure of expenditure

on higher education, the state takes 64%, households 24%, and business structures only 12%. At the same time, more than half of graduates of higher education institutions are employed in the private sector of the economy.

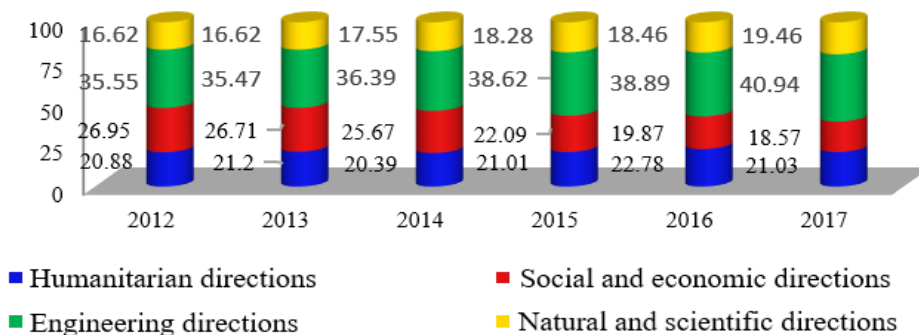
The structure of the federal budget expenditures for state programs in 2015-2018 shows that the main financing of higher education is carried out through the program "Development of Education for 2013-2020". Such a mechanism allows for a clear monitoring of performance indicators and the effectiveness of public spending on higher education.

**Figure 3:** Dynamics of state expenditures on higher education on the part of educational services customers in the Russian Federation in 2000 – 2015, billion rubles in 2000 – 2017



The structure and peculiarities of demand for higher education services are characterized by the structure and dynamics of admission of students to the first year (Figure 4). For the purpose of the provided research, the directions of training of students are divided into engineering, humanitarian, social and economic, and natural and scientific.

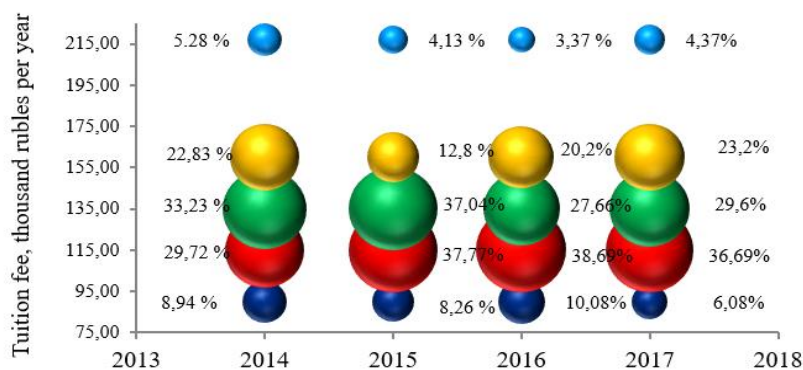
**Figure 4:** Dynamics of distribution of first-year students into groups of training areas in the Russian Federation for 2012-2016, %



The largest number of first-year students (about 40%) choose the engineering areas of training, while the total value of the number of students enrolled in the humanitarian and socio-economic areas reaches 43%, the remaining 17% of the contingent of first-year students fall on the direction of the natural and scientific profile.

According to various estimates, the need of the labor market for specialists with higher education is about 600 thousand people per year (Data on the number and needs of organizations in workers by professional groups as of October 31, 2016, 2017). At the same time, the release of bachelors, specialists and masters in 2016 amounted to 1161 thousand people, and in 2017 969.5 thousand people, which is 22.68% less than in 2015. Analysis of the ratio of graduation and the need for specialists in groups of professions, performed by one of the authors in the work, allows to establish the presence of a shortage of personnel in groups: metallurgy, mechanical engineering and material processing, and health care; the presence of a relative compliance of output and the need for specialists in groups: chemical industry and biotechnology, transport and service industries.

**Figure 5:** Dynamics of the distribution of the share of first-year students at the average cost of education in the Russian Federation for 2014-2017, %



For other groups of professions, there is a significant group in management, education and pedagogy. An important factor in the formation of demand for educational services of higher education is their cost. Analysis of the cost of training for the period from 2014 to 2017 allows revealing some patterns. In 2014 and 2015, the leaders in the average cost of training were such areas as the theory of arts, cultural studies, political science, oriental studies and African studies. Since 2016, the situation on the market has been changing and leading positions in the cost of training are taken by nuclear physics and technology, soil science, aviation, rocket and space technology, and others. Of course, the changes are not drastic and the listed humanitarian areas are still among the top ten leaders, but the trend towards the growth of the popularity of engineering and natural science training areas is obvious. During the period from 2014 to 2017, the average cost of

educational services has not undergone significant changes, 128 thousand rubles per year (Figure 5). Significant changes in the cost occurred in the areas of training, constituting the top ten of the rating, the increase was 20.68%.

#### **4. Discussion**

The study allows the authors to establish two fundamental reasons for the reduction in the number of higher education institutions. Firstly, the reduction in the number of students is caused by demographic factors, the long-term impact of which leads to a reduction in demand in the market of educational services of higher education and, consequently, to a proportional reduction in supply.

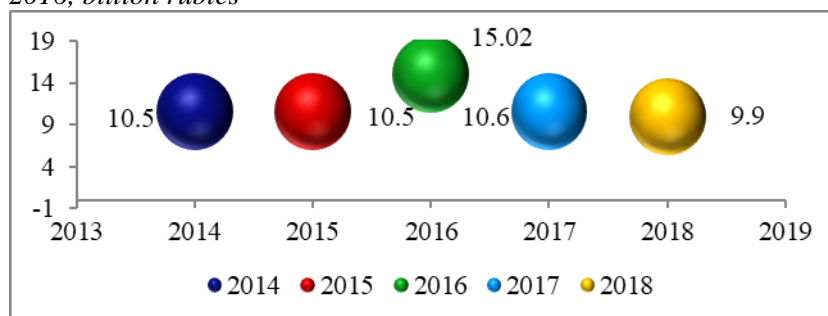
Secondly, the state policy in the field of higher education is aimed at improving the efficiency of the system, ensuring the needs of the national economy and the international competitiveness of domestic universities. The instruments of this policy are: (1) procedure of accreditation of higher education institutions, which allows excluding the issuance of state diplomas by universities that do not meet the requirements of the federal state educational standards; (2) restructuring of the existing network of universities, which allows excluding from the system of higher education inefficient universities that have lost due to various reasons, educational and scientific potential, resource base; (3) creation of new educational structures designed to ensure the concentration of educational, scientific and material resources and direct them to the formation of the potential of innovative development of society and the national economy. Such structures include federal universities, national research and supporting universities; (4) redistribution of the target figures for admission to the first year in favor of the areas of training in which the economy is experiencing a priority need; (5) development of the system of secondary vocational education and the lack of entrance examinations for admission to the relevant educational institutions.

An important aspect of the state regulation of higher education is the financing of "breakthrough" researches in science and technology and the concentration of resources on strategic objectives. The cost structure of the consolidated budget and the share of state funding in the budgets of universities indicate significant efforts of the government to improve the quality of higher education and its competitiveness. An example of this is the program to improve the international competitiveness of leading Russian universities, aimed at increasing the prestige of Russian education and the inclusion of at least five universities from among the project participants in the top 100 universities of three reputable world rankings: Quacquarelli Symonds (QS), Times Higher Education (THE), Academic Ranking of World Universities (ARWU). The dynamics of costs for the "Program 5-100" (Figure 6) allows concluding that their share is about 6% of all expenditure on higher education.

The structure of demand for educational services is undergoing gradual changes caused by the actions of the market regulator. Redistribution of admission control figures in favor of engineering and natural–scientific areas of training led to a market correction and reduction in the number of first-year students in the socio-economic and humanitarian areas of training, primarily in the areas of economics, management and law.

The current state of the market of educational services does not fully reflect the real needs of the national economy in qualified personnel. The shift, though insignificant, of the production structure towards technological and knowledge-based industries has led to a change in the dynamics and structure of the corresponding demand but has not led to the elimination of imbalances in the training of specialists and optimization of the structure of areas and specialties of higher education.

**Figure 6:** Financing of the "Program 5-100" in the Russian Federation for 2014-2016, billion rubles



The expansion of employment opportunities for middle-level specialists and the need to pass the Unified state exam influenced the structure of demand for higher education services and led to the formation of a kind of “deferred demand”: initially, secondary vocational and then higher education are obtained, since for middle-level specialists the conditions for admission to higher education institutions are relatively easier than for school graduates, and the choice of training direction is already more conscious, taking into account the prospects of employment or already obtained profession.

The disproportion between the number of university graduates and the need of the economy for specialists with higher education justifies the need for state regulation of the market of educational services described above. Employment statistics among graduates of 2016, provided by the Ministry of Education and Science, indicates the employment of 90% of graduates, which, given the imbalance in the labor market, indicates their employment is not in the specialty or in positions that do not require higher education.



The analysis of the average cost of training, conducted in the framework of the study, allows concluding that 86.55% of first-year students study in the areas of training with an average cost of training from 100 to 125 thousand rubles per year, which reflects the real possibilities of households to finance the higher education system.

## **5. Conclusion**

Analysis of the market of educational services of higher education in the Russian Federation proves the incomplete conformity of its structure to the needs of the national economy. Such a conclusion is based on the imbalances observed between the demand for educational services and the real need of the economy for specialists in specific areas of training.

The dynamics of the number of educational institutions of higher education reflects the policy of optimizing the university network of the Ministry of Education and Science, which through the liquidation, reorganization and consolidation seeks to bring the structure of higher education institutions in line with the needs of the national economy. Compared to 2010, the number of higher education institutions has significantly decreased, the dynamics of the number of branches of higher education institutions is similar.

The distribution of students according to the types of educational organizations reflects a high degree of trust on their part to state universities, where more than 88% are trained. Contingents of state educational institutions of higher education show that about half of all students are trained at the expense of the federal and other budgets of the Russian Federation. The analysis of higher education costs for customers of educational services demonstrates the key role of the state. In 2016, the share of students of public universities enrolled with full cost recovery was 52.63% and including students of private universities 59.63 %.

The assessment of the structure and dynamics of demand for educational services indicates a high demand for economic and humanitarian training. At the same time, there is a shift in demand from economics, management and law towards engineering and natural science. This is due to the changing needs of the economy (to which the society reacts by reducing the number of inefficient universities and their branches), as well as the awareness of the consumer of the presence of overproduction in these areas.

The current state of the market of educational services of higher education is characterized by the process of transformation aimed at improving the competitiveness of domestic universities, a characteristic feature of which is a high degree of state regulation, due to the interest of the state in the results of reforms and the high importance of higher education as a sphere of public interests.

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