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## Trends in Russian Education Reform in the Predictive Estimates of Demographic Indicators



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**Abstract.** The article presents the findings of a retrospective and forward-looking analysis of transformations and reforms in the Russian education system. It provides predictive estimates of its development, taking into account the demographic indicators of various age groups. The objectives are to analyze the existing trends in education system reform and to design a methodology (mechanism) for assessing the development of, and the demand for, educational services at different levels of instruction. The object of the study is the Russian education system, and the subject is the selected demographic indicators corresponding to the relevant age groups. The research design comprised three stages: first, conducting a retrospective and forward-looking analysis of education reform trends; second, constructing predictive estimates of the development of educational levels by applying the authors' ridge model; and third, visualizing the results obtained for the Russian education system and for several of the country's regions. The information base consisted of data from Rosstat and EMISS. According to the findings, by 2035 student numbers will decline at practically all levels of education in Russia: at the preschool level, the contraction will amount to 10–11%; at the school level, the decline could reach 13.9%; the system of secondary vocational education will “lose” every tenth student, and higher education will contract by 14–15% relative to the 2025 level. The uniqueness and novelty of the methodology lie in its ability to predict, with a certain degree of probability, the demand for various levels of education, taking demographic indicators into account. The approach is universal and can be applied at the regional, oblast, and local levels. Accounting for regional specificities will make it possible to organize the process of managing and reforming the education system more effectively, with a view to training the necessary personnel. The methodology can be applied to assessing the effectiveness of federal national projects. This is unquestionably important for the pursuit of the strategic objectives of the country's socio-economic development and industrial sovereignty. The results of the study can be used by analysts, scholars, and administrators who deal with education issues.

**Key words:** education system, education reform, predictive estimate, demographic indicators, quality of life, socio-economic indicators, labor potential, econometric modeling.

## Introduction

The development of the education system is the basis for the strategic development of any state. Through the development and implementation of the strategy, it is possible to ensure the national security of the country. Russian President V.V. Putin has repeatedly stressed this: “... The future of the state depends on the level of education and technology used, on the ambitions of each person, each region or entire country...”<sup>1</sup>; “In addition to addressing current objectives ... we need to create a reserve of competences for years to come, so that

today's schools, colleges, and universities would be ready to meet future challenges, handle rapid technological changes, and remain in the lead in the global competition even 15–20 years from now<sup>2</sup>”.

A characteristic of the scale of the Russian education system is the fact that this area covers 25% of the population. In 2024, almost 6.4 million people studied at the pre-school level, and 18 million children were enrolled in primary school education. Just over 3.8 million students received

<sup>1</sup> Meeting with Kaliningrad Region university students. Official Internet Resources of the President of Russia. Available at: <http://www.kremlin.ru/events/president/news/73303> (accessed: 05.04.2026).

<sup>2</sup> Meeting of Council for Science and Education. Official Internet Resources of the President of Russia. Available at: <http://www.kremlin.ru/events/president/news/76222> (accessed: 05.04.2026).

secondary vocational education, and there were 4.6 million students in the higher education system at that time. 493.4 thousand educators are involved in the organization of educational activities, more than 1 million teachers in schools, 380 thousand teachers in secondary vocational and higher education<sup>3</sup>. To this number of people should be added parents who are indirectly or directly involved in the educational process.

It is obvious that in today's rapidly changing world, with the ongoing changes in technological patterns (Glazyev, 2023), the emergence of new information and communication technology, and innovative solutions such as artificial intelligence (Makar, Kroshilin, 2025), only those states that have a powerful and effective education system can ensure sovereignty and security, achieve technological breakthroughs, and move to a new level of production. The education system is aimed at training the country's future workforce and should take into account the needs of the labor market, the demands of industry, agriculture and other sectors, meet the needs of the economy and the social development of society.

That is why Russia, taking into account new challenges of an endogenous and exogenous nature, urgently needs a new Strategy for the development of the education system, i.e. a document that should clearly identify the priorities and objectives of strategic development. Currently, the goals and objectives of Russian education are partially reflected in the state program "Development of Education", in the framework of the national projects "Education", "Youth and Children", in the project "Priority 2030" (Kameneva et al., 2023). However, there is still no unified strategy, the government has just begun to develop a Strategy

for the development of education until 2040<sup>4</sup>. Fundamental changes and reforms have been taking place in the Russian education system for more than a third of a century. Some of them are completed, some are prolonged. There is no single assessment of the effectiveness of their implementation. As a rule, reforms begin very actively, and the assessment of the consequences of transformations either fades into the background or is not carried out at all, as a "new" reform takes the place of the "old" reform and the process begins anew.

Recently, a pilot project<sup>5</sup> was launched in Russia (Decree of the President of the Russian Federation "On certain issues of improving the higher education system"<sup>6</sup>), which aims to focus on changing the possibilities of obtaining higher education services, on the one hand, as well as on fulfilling the strategic guidelines of a new technological order, on the other (Makarenko, 2022). These circumstances are compounded by existing trends in demographic indicators (Lokosov, 2025; Shabunova, 2025). To achieve the objectives of the strategic development of education in Russia, it is necessary to use measuring tools to analyze the existing areas of possible modernization, taking into account the impact of birth rates (Shabunova, Rostovskaya, 2022), and the number of students at all levels of education, in order to create a possible scenario for ensuring the country's scientific and technological sovereignty.

<sup>3</sup> Varlamova T.A., Gokhberg L.M., Zorina O.A. et al. (2025). Education in Numbers: Short Stat. Collection. Moscow: ISIEZ HSE. 136 p.

<sup>4</sup> Sergei Kravtsov named the goals of developing an Education Development Strategy until 2040. The Ministry of Education of Russia. Available at: <https://edu.gov.ru/press/9323/sergey-kravcov-nazval-celi-razrabotki-strategii-razvitiya-obrazovaniya-do-2040-goda> (accessed: 01.04.2026).

<sup>5</sup> The Government has defined the rules for conducting a pilot project to change the levels of vocational education. The Russian Government. Available at: <http://government.ru/docs/49271> (accessed: 05.04.2026).

<sup>6</sup> On some issues of improving the higher education system: RF President 343, dated 05/12/2023. Official Internet Resources of the President of Russia. Available at: <http://www.kremlin.ru/acts/bank/49210> (accessed: 05.04.2026).

The aim of this study is to critically evaluate the existing transformations and reforms of the education system over the previous 30 years, taking into account the influence of endogenous and exogenous factors, to carry out an analysis based on mathematical methods and to construct extended variants of the vectors of development of the levels of the national training system.

### **Historical aspects of education reform in the country**

The issues concerning systematic and continuous reform of Russian education have been accompanying the process of obtaining educational services for more than 30 years. The Russian government has been closely engaged in the process of qualitative and quantitative transformation of this sphere since 1992. Regulations changed, the educational process was modernized, new specialties and areas of study were modified and appeared, measures were taken to unite general education schools and universities, a new financing model was introduced (there was a transition to a “per capita” option based on the calculation of performance).

The transformations that began in 1996 predetermined the transition to the Bologna system of personnel training, “turned around” and significantly adjusted the national educational standards that had been built over the years. The desire for consolidation with the European Union, including in the system of training specialists, provoked a premature hasty transition to a two-level training option. As modern realities have shown, these changes have become basic, often “fatal” and fundamental mistakes for many industries and economic spheres of activity. Unfortunately, we can state a certain loss of leadership and effectiveness of Russian education (Klyachko, 2023). During the period of rapid perestroika, underfunding of education and science led to the liquidation of many scientific schools, which moved entire teams and

laboratories to other countries (Korablin, 2018). The drain of the “best minds” and, as a result, a further shortage of highly qualified specialists can be called another mistake made in the country (Kazantsev, Borishpolets, 2013; Tyurina, Klyucharev, 2024). The field of education has always been characterized by significant conservatism and “slowness”, which directly affected the personnel training system, as well as the lack of opportunities for rapid adaptation to the requirements of the labor market. According to A. Kuleshov, rector of the Skolkovo Institute of Science and Technology, “one of the main well-known problems in the country is the huge gap between education and science on the one hand and practice and mass production on the other”<sup>7</sup>.

To overcome all kinds of crises (economic, geopolitical and others), S.V. Novikov suggests implementing a model of interaction between education, science and production, as well as transforming management mechanisms “based on adaptive management tools” (Novikov, 2023). Today we are faced with the fact that from 50 to 70% of graduates with higher education (depending on the field of study) do not work in their specialty (Gaifullin, 2022; Bairamov, Postnikov, 2024). The situation on the labor market (the demand for some specialties and the withdrawal from the market of others), changing technological patterns, social and demographic processes (Ketova, 2025; Medvedeva, Kroshilin, 2022), problems of urbanization, population migration require different approaches and assessments to organize an effective training system.

On April 21, 2026, D. Proskurin, Rector of Voronezh State Technical University, noted in an interview: “The educational paradigm needs to be reviewed, all competencies, Federal State Educa-

<sup>7</sup> “The Vow of Initiative” (interview with Aleksander Kuleshov, Rector of the Skolkovo Institute of Science and Technology). The Rector says! Available at: <https://rectorspeaking.ru/obetnachinaniya> (accessed: 21.04.2026).

tional Standards, and the answer to the question “What should a student really know?” should be formulated anew”<sup>8</sup>.

It is worth noting that many negative problems and trends are minimized, and their impact does not become dominant for the development of the personnel training system. For example, in 2025, the government supported the initiative of the relevant ministry on the need to regulate not only the cost of tuition in paid specialties, but also the total number of places for admission. Modern standards of education, periods of knowledge acquisition (the number of years in various specialties and fields), including options for further employment (modernization of “targeted education” in universities) have also been adjusted.

If we trace all the stages of education reform in Russia, then this process can be very clearly represented in the form of a graph, which at the top of the OX axis (the period from 1991 to the present) reflects various reforms regulated by decrees and legislative acts, and under the OX axis – the names of crucial events and procedures for the country’s education system (*Fig. 1*).

The first law in the field of education in Russia was the Law “On Education” 3266-1<sup>9</sup>, adopted and entered into force in 1992. It was he who predetermined the beginning of all reforms and, as a result, an avalanche-like development and an increase in the number of training areas, the emergence of specialties that had not been implemented in the country until that moment, became possible. Minister of Education E. Dneprov

<sup>8</sup> Today, the main question for universities is: “What can you do?” (interview with Rector of Voronezh State Technical University Dmitrii Proskurin). The Rector says! Available at: [https://rectorspeaking.ru/segodnya-glavnyj-vopros-k-universitetam-chto-vy-umeete?utm\\_source=Sendsay&utm\\_medium=email&utm\\_campaign=14.04\\_rg\\_szgm\\_u\\_mechnikova](https://rectorspeaking.ru/segodnya-glavnyj-vopros-k-universitetam-chto-vy-umeete?utm_source=Sendsay&utm_medium=email&utm_campaign=14.04_rg_szgm_u_mechnikova) (accessed: 21.04.2026).

<sup>9</sup> About education: The Law of the Russian Federation 3266-1, dated 07/10/1992 (last edition). Consultant Plus. Available at: [https://www.consultant.ru/document/cons\\_doc\\_LAW\\_1888](https://www.consultant.ru/document/cons_doc_LAW_1888) (accessed: 15.04.2026).

declared the following in 1993: “It is necessary to destroy the totalitarian education system, which was an instrument of enslavement of the individual... The school should become an institution of civil society”<sup>10</sup>.

Another consequence of the adoption of the law was the introduction of a Unified Tariff Scale (UTS) of payment for work for employees of the budgetary system<sup>11</sup>. It included 18 grades and corresponding coefficients that could reflect the teacher’s qualifications, seniority, and other characteristics. The first-class rate was determined by the government.

In 1996, a law was passed according to which “new” levels of higher education – bachelor’s and master’s degrees – officially appeared and consolidated in the country. It is worth noting that their appearance in the legislative field did not oblige all universities to definitely switch to this training option, but the trend of the appearance of other levels and terms of Higher Education along with specialization was predetermined. At the same time, a new concept was “fixed” – “educational service”<sup>12</sup>. It has been applied to a greater extent to the regulation of paid educational services, but up to this point, no one has characterized the possibility of obtaining education on a fee-based basis.

The next step in reforming the education system was the implementation of the experiment with the Unified State Exam (USE). This innovation

<sup>10</sup> The teacher’s newspaper. I-VI N. 1-26 /1993. State Public Historical Library. Available at: [https://rusneb.ru/catalog/000202\\_000005\\_430513](https://rusneb.ru/catalog/000202_000005_430513) (accessed: 15.04.2026).

<sup>11</sup> On differentiation in the levels of remuneration of public sector employees based on a Single tariff scale: Government Decree of the Russian Federation 785, dated 14.10.1992 (as amended on 20.12.2003). Consultant Plus. Available at: [https://www.consultant.ru/document/cons\\_doc\\_LAW\\_1040](https://www.consultant.ru/document/cons_doc_LAW_1040) (accessed: 15.04.2026).

<sup>12</sup> The Civil Code of the Russian Federation (Part Two) 14-FZ, dated January 26, 1996 (revised at 06/24/2025, as amended on 12/16/2025). Consultant Plus. Available at: [https://www.consultant.ru/document/cons\\_doc\\_LAW\\_9027/dcd3f582c1637141ba49e1333bff73186d6301](https://www.consultant.ru/document/cons_doc_LAW_9027/dcd3f582c1637141ba49e1333bff73186d6301) (accessed: 15.04.2026).

**Timeline of Russian Education Reform (1991-2030)**

- 1991:** Liquidation of the USSR
- 1992:** Adoption of the Law on Education (3266-1); Beginning of active implementation of Western models
- 1996:** Adoption of the Law on Higher and postgraduate professional education
- 1997:** Introduction of State educational standards
- 2000:** Introduction of State educational standards
- 2001:** Beginning of the USE implementation
- 2002:** Emergence of the concept of "Paid ES"
- 2003:** The "ZUN" has been replaced by "Competencies"
- 2006:** The Ministry of Education and Science issued an order on the establishment of the first Federal University (Siberian)
- 2007:** Adoption of a two-tier system of HE
- 2008:** Entry into force of the Law "On Amendments to Certain Legislative Acts of the Russian Federation (in Terms of HVP) (232-FZ)"
- 2009:** Law on compulsory passing of the USE (17-FZ)
- 2010:** The project "5-100" adaptation of universities to world standards has been launched
- 2011:** Accession of Crimea to Russia
- 2012:** WorldSkills Professional Community and Workforce Development Agency has been established
- 2013:** Abolition of the PVE system
- 2014:** Education = service
- 2015:** Educational relations arise in connection with the realization of the right to education, the provision of educational services ...\* (Art. 2, 273-FZ)
- 2016:** New standards for basic and specialized HE
- 2017:** Transition to a new education system in HE
- 2018:** Division of the Ministry of Education and Science into the Ministry of Science and HE and the Ministry of Education
- 2019:** The National Education Project has been launched
- 2020:** "Legal recognition of distance work"
- 2021:** Introduction of self-isolation (COVID-19)
- 2022:** "Compulsory USE for everyone"
- 2023:** Exclusion of Russia from PISA, TALIS, PIAAC
- 2024:** Beginning of the HE reform (Project until 2030)
- 2025:** Amendments have been made to the Law on Education (298-FZ) to reduce the burden on teachers
- 2026:** ABANDONING the two-tier system HE
- 2027:** Transition to a new education system in HE
- 2028:** Presidential Decree (343) on a pilot project to update the education system
- 2029:** New standards for basic and specialized HE
- 2030:** The Ministry of Education and Science declares the transition to the new system in 2028/27 academic year

Source: own compilation.

was launched on February 16, 2001<sup>13</sup>. Initially, 5 regions participated in the experiment, and later the coverage increased, and in 2009 the Unified State Exam became mandatory for all 11th grade graduates in Russia<sup>14</sup>.

The implementation of the process of passing the unified state exam as providing opportunities for the realization of mental, creative and other abilities of students was supported by the statements of many heads of relevant departments. For example, V. Bolotov, head of the Federal Service for Supervision of Education and Science (Rosobrnadzor), noted: “The Unified State Exam is not just an exam, it is a mechanism for ensuring equal opportunities for all children, regardless of their place of residence. It’s a social elevator<sup>15</sup>”. However, even then there were other points of view. V. Sadovnichii, academician and rector of Moscow State University, called the Unified State Exam a “profanity of pedagogy” that “... kills a child’s ability to think logically and analyze, replacing it with guessing”<sup>16</sup>.

In 2003, Russia joined the Bologna System, which assumed the existence of a level-based training system in the country, as well as significant changes in the training of graduate students. There have been drastic changes in the educational process itself, starting with the elimination of the ZUN model (system of knowledge / skills / abilities), the

emergence of competencies and a competency-based approach, ending with the terms of study in various programs (Toshchenko, 2025).

A significant milestone in the modernization of Russia’s educational system was the introduction of the Federal State Educational Standards (FSSES)<sup>17</sup>. For instance, the FSSES for primary general education were adopted in 2009<sup>18</sup>, for basic general education in 2010<sup>19</sup>, while the compulsory implementation of the FSSES for first-grade classes across all educational institutions in the Russian Federation began in the 2011–2012 academic year.

Another landmark decision in the Russian educational system was the abolition of the IVE (initial vocational education) level. The new Federal Law “On Education”, adopted and signed on December 29, 2012<sup>20</sup>, ushered in a new wave of changes. Its enactment was followed by territorial restructuring, the modernization of many new educational areas, and the introduction of professional skills standards (e.g., the implementation of the WorldSkills project).

Drastic changes were recorded in the management of this area in 2018: if previously the activities of educational organizations were supervised by one ministry, now the division of functions has taken place and the Ministry of Science and Higher Education and the Ministry of Education have been formed.

<sup>13</sup> On the organization of an experiment on the introduction of a unified state exam: Government Decree of the Russian Federation 119, dated 02/16/2001. Garant. Available at: <https://base.garant.ru/182981> (accessed: 15.04.2026).

<sup>14</sup> On Amendments to the Law of the Russian Federation “On Education” and the Federal Law “On Higher and Postgraduate Professional Education” regarding the Unified State Exam: Federal Law 17-FZ, dated 09.02.2007. Official Website of the President of Russia. Available at: <http://www.kremlin.ru/acts/bank/24994> (accessed: 15.04.2026).

<sup>15</sup> Agranovich M. (2023). Russian exam levels are needed and will there be any practical tasks? Professor Viktor Bolotov – about the future of the Unified State Exam. Rossiyskaya Gazeta. Available at: [https://rg.ru/2023/05/29/ege-vstalna-uroven.html?utm\\_referrer=https%3A%2F%2Fmedia.foxford.ru%2F](https://rg.ru/2023/05/29/ege-vstalna-uroven.html?utm_referrer=https%3A%2F%2Fmedia.foxford.ru%2F) (accessed: 16.04.2026).

<sup>16</sup> Rector of Moscow State University: I was and still am an opponent of the Unified State Exam. Rossiyskaya Gazeta. Available at: <https://rg.ru/2007/01/23/sadovnichij.html> (accessed: 15.04.2026).

<sup>17</sup> On the introduction of the Federal State educational standard of general education: Letter of the Ministry of Education and Science of the Russian Federation 03-255, dated April 19, 2011. Garant. Available at: <https://www.garant.ru/products/ipo/prime/doc/55071359> (accessed: 16.04.2026).

<sup>18</sup> On the approval and implementation of the Federal State educational standard of primary general education: Order of the Ministry of Education and Science of the Russian Federation 373, dated October 6, 2009 (with amendments and additions). Garant. Available at: <https://base.garant.ru/197127> (accessed: 16.04.2026).

<sup>19</sup> On approval of the Federal State educational standard of basic general education: Order of the Ministry of Education and Science of the Russian Federation 1897, dated December 17, 2010. Garant. Available at: <https://www.garant.ru/products/ipo/prime/doc/55070507> (accessed: 16.04.2026).

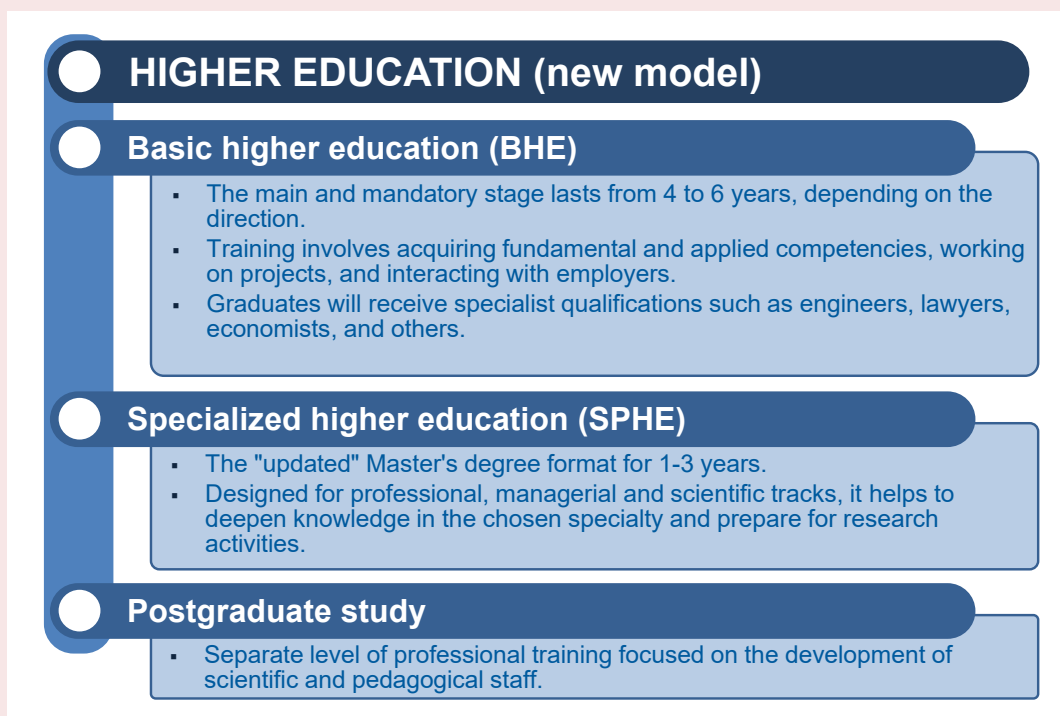
<sup>20</sup> On Education in the Russian Federation: Federal Law 273-FZ of December 29, 2012. Garant. Available at: <https://www.garant.ru/products/ipo/prime/doc/70191362> (accessed: 16.04.2026).

This option of delegation and division of powers is aimed at more thorough coordination and control of the implementation of all initiatives and legislative norms implemented by the Government of the country. This was a kind of turning point in the reform process. In 2018, the national project “Education” was defined and accepted for execution. It is advisable to consider Russia’s exclusion from the Bologna process in 2022 as an opportunity to competently restructure the process to solve the strategic tasks of the state. In the same year, Federal Law 298<sup>21</sup> was adopted, aimed at reducing the burden on teachers, which was very relevant and timely for making the necessary

adjustments. It is also worth highlighting promising areas of activity in the field under consideration. For instance, a renewed higher education structure comprising three levels is being tested in Russia practically in real time. The Bologna model (bachelor’s degree, master’s degree, postgraduate degree) is gradually being transformed into a national system (*Fig. 2*).

The pilot project is already being implemented at six universities. In January 2026, V.V. Putin extended the project until 2030 and included 11 more universities in it. The mass transition of all universities in the country to the new system is planned for the 2027–2028 academic year. What

Figure 2. New model for reforming higher education levels in Russia



According to: Falkov: 2025 will be dedicated to the transition to a new model of higher education. TASS. Available at: <https://tass.ru/obschestvo/22697675> (accessed: 15.04.2026); Rozanova A. Education in Russia 2026: the truth about the reform of universities, the abolition of bachelor's degrees and what will happen to diplomas. Life. Available at: <https://life.ru/p/1837169> (accessed: 15.04.2026); Galaida-Perera E. Without bachelors, but with graduate students: In 2026, Russian universities will completely switch to a new education system. National News Service. Available at: <https://nsn.fm/society/bez-bakalavrov-no-s-aspirantami-v-2026-godu-vuzy-rf-polnostu-pereidut-na-novuu-sistemu-obrazovaniya> (accessed: 15.04.2026).

<sup>21</sup> On Amendments to the Federal Law “On Education in the Russian Federation”: Federal Law 298-FZ, dated July 14, 2022. Garant. Available at: <https://www.garant.ru/products/ipo/prime/doc/404893831/> (accessed: 16.04.2026).

will happen next? The answer to this question clearly lies in finding the optimal implementation option for innovations that should fully cover the strategic guidelines for the development of the state, taking into account economic, social, demographic and other indicators, in order to make it possible to assess the existing needs of all subjects of these relations and obtain an economically developed and modern state.

The life of every Russian, their social status, economic status, and quality of life depend on the education received. That is why all implemented reforms should correlate with the long-term demands of the state, society and each individual.

### **Materials and methods**

In essence, a “trend”<sup>22</sup> predetermines sustainable development in a particular area of activity – in our case, in the country’s education system. It indicates the direction of development, and today it is crucial for Russia’s personnel training system to “capture” this trend and understand the demand for new competencies and knowledge. As already noted, the national education system is in a state of constant change. Reform itself is a process of purposeful transformation of the existing structure, order, principles, and applied practices. The state seeks to improve the national education system in line with current political, socio-economic, and technological needs, as well as to optimize financial expenditure. Society, in turn, expects to receive a well-organized educational process and the necessary (future-oriented) knowledge and competencies at all levels of education, which requires finding a certain balance. In this respect, improving education is a complex process that must take into account the full range of factors requiring a comprehensive analytical approach.

It is quite rare to find an assessment of the ongoing reforms in Russian analytics. As a rule, the consequences of the transformations carried out are assessed after a certain time lag, and given that

the process of education itself is “stretched” over time, knowledge and competencies are constantly changing, it is even more difficult to assess this effect. In addition, both qualitative and quantitative assessment methods should be applied to make objective, balanced and effective decisions.

Theoretically, there are quite a few approaches to assessing quantitative indicators of the development of the education system. It can be unequivocally stated that demographic processes and educational trends influence each other and their interaction is used to predict and analyze the socio-economic processes taking place in society. Demographic indicators can be used to determine the main quantitative parameters and structure of educational institutions, the target enrollment figures, and the number of educational institutions for each level of education. For example, in order to eliminate the consequences of depopulation in the regions, it is advisable to improve the quality of labor resources, “improve training opportunities” and modernize the qualifications of employees – only this guarantees the possibility of further sustainable development of the region. However, to implement these tasks, an analysis is needed that will be based on various research methods, for example, the analysis of demographic databases and the results of population censuses, APC analysis<sup>23</sup> to study cohort effects (Burch, 2018), decomposition methods in demographic analysis<sup>24</sup>. Foreign scientists often use multistate models to model the development of the educational system (Poli, 2018), where the status of the level of education makes it possible to increase accuracy and take into account the dynamics of

<sup>23</sup> APC analysis (eng. A – Age, P – Period, C – Cohort) is a data analysis method that allows you to separate the influence of three time dimensions on the phenomenon under study: age, period, and cohort. This approach helps to identify how each of these factors affects the dynamics of the process under study.

<sup>24</sup> Vocational education and training in Europe, 1995–2035: Scenarios for European vocational education and training in the 21st century. Cedefop reference series. No. 114. Luxembourg: Publications Office of the European Union. DOI: 10.2801/794471

<sup>22</sup> “Tendency” or “direction”.

the educational potential of territories (Schoen, 2016), as well as scenario methods (Bradfield, 2005; Bishop et al., 2007; Saussois, 2006). Statistical and mathematical methods (analysis of the main demographic indicators and their dynamics) are used to adjust demographic models. In Russia, taking into account the peculiarities of uneven population distribution by region, fertility rates, as well as under the influence of migration processes, it is necessary to use similar experience in terms of analyzing and assessing the workload of training levels. Thus, demographic processes in Russia pose a number of challenges to the education system, requiring an integrated approach to adapting infrastructure, educational programs, and government support.

In connection with the above, there is an objective need to develop new methods/approaches that could be applied in assessing the effectiveness of the Russian education system. The levels are largely related to the needs of the population and the number of children in age groups who start education in a particular region. The qualitative and quantitative composition of the groups determines the availability of educational places and the number of educational organizations. Based on this, 15 years ago, the team of authors led by RAS Academician N.M. Rimashevskaya proposed a ridge model of the age structure of children and youth (Rimashevskaya et al., 2016; Medvedeva, Kroshilin, 2022) to build predictive estimates of workload at all educational levels of training (hereinafter referred to as the Ridge Model). This approach allows answering the main question: how many training places and at what level will be needed, taking into account the emerging demographic trends.

The approach to constructing the Ridge Model is as follows.

1. It is necessary to obtain an array of data – regional demographic indicators by age group. The source may be statistical data (from individual federal districts, regions, or districts). On their

basis, separate age cohorts of the number of students are formed. For convenience, they are designated as follows: “Birth” – children under the age of 1 year, “Nursery” (age 1 year), “PSE” – preschool education / kindergartens (3 years), “GE” – general education / school (7 years), “SVE” – secondary vocational education (16 years old), HVE – higher vocational education (18 years old). The research used data from Rosstat (including the “Showcase of Statistical Data”<sup>25</sup>), as well as EMISS<sup>26</sup>. The indicator “Population size by gender and age as of January 1”<sup>27</sup> is allocated for calculations. The essence of data selection is to select groups of students who were born in a certain year and “passed” all levels of education. For example, those who were born in 1990 are considered as potentially applying for places in the nursery in 1993. They turned 1 year old in 1991, and this will be the basis for the first group of extended analysis. Then they come to school at the age of 7 (1997), and at the age of 16 (2006) they either go to high school or “leave” for vocational education. At the age of 18, this cohort of children graduates from school and potentially “claims” to enter a university (2008). Then, the next ridge of those born in 1991, then in 1992, and so on is formed in a similar way. As a result, the analysis is performed with the same cohort, their number is monitored at each level of education.

2. Econometric modeling methods are used. Based on the information system “Ridge Model of the Age Structure of Children and Youth (Ridge Model ver. 1.0)”<sup>28</sup> (hereinafter referred to as

<sup>25</sup> Showcase of statistical data. Rosstat. Available at: <https://showdata.rosstat.gov.ru/finder> (accessed: 22.03.2026).

<sup>26</sup> Unified interdepartmental information and statistical system. Available at: <https://fedstat.ru> (accessed: 22.03.2026).

<sup>27</sup> Demographic Yearbook of Russia. 2023: Statistical collection. Rosstat. Available at: [https://rosstat.gov.ru/storage/mediabank/Demogr\\_ejegod\\_2023.pdf](https://rosstat.gov.ru/storage/mediabank/Demogr_ejegod_2023.pdf) (accessed: 22.03.2026).

<sup>28</sup> Certificate of State Registration of the Computer Program 2018613095, Russian Federation. “Ridge Model of the Age Structure of Children and Youth ver. 1.0”: 2018610529: applied for on January 16, 2018; published on March 2, 2018. S.V. Kroshilin, E.I. Medvedeva.

the software for calculating the Ridge Model), the Ridge Model is constructed for all levels of education. For each group of children, a specific relationship is established (selected) by analyzing lagged endogenous and exogenous variables. As a result of the calculations, functions are obtained for each of the analyzed groups.

The size of age cohorts for different levels of education was estimated based on exponential smoothing of time series (Aivazyan et al., 2019; Mirzanov, 2018), reflecting demographic indicators for a certain age cohort (see formula 1):

$$D_n(t) = \alpha \cdot Y_{n-1}(t) + (1 - \alpha) \cdot D_{n-1}(t), \quad (1)$$

where  $D_n(t)$  – predicted value of the upcoming period at the time of observation of the parameter with the number  $n$  at time  $t$ ;

$D_{n-1}(t)$  – predicted value of the parameter for the current year at the time  $t$ ;

$\alpha$  – smoothing coefficient that takes into account the parameters of the current observation  $n$ ,

$Y_{n-1}(t)$  – actual value of the parameter of the current observation at time  $t$ .

To visualize the results obtained, we used a trend method, which is based on calculations of the trend function: a polynomial approximation of the fourth degree. This is due to the fact that demographic values in the analyzed time series increase and decrease, therefore, to optimize the coefficient of determination, a value equal to 4 was chosen. Extrapolation of trends identified in previous observation periods is used (see formula 2) (Revunova, 2019; Heydari et al., 2019):

$$F_n(t) = \varphi_0 + \varphi_1 t + \varphi_2 t^2 + \varphi_3 t^3 + \varphi_4 t^4, \quad (2)$$

where  $F_n(t)$  – estimated function / trend line at time  $t$ ,  $\varphi_i$  – constants, the degree of the polynomial is 4 (according to the requirements of  $n \leq 6$ ).

To select the optimal value of the degree of the polynomial, the “selection” of the largest value of the calculated indicator R2 (coefficient of deter-

mination) was used. A fourth degree polynomial was chosen, which allows selecting the best approximation for the analyzed time series parameters (Marshalko, Trufanova, 2022; Zhang, Tian, 2023) with real indicators. Alternatively, ARMA and ARIMA methods were used.

3. Visualization of simulation results for all constructed Ridge models. To obtain graphs and perform additional calculations, MS Excel was used with the add-ons “Data analysis” and “Solution search”.

Thus, the Ridge Model made it possible, with known values of the regional demographic indicator “birth rate”, to obtain predictive estimates of the number of students at all levels of the system. This is especially relevant now, given the complex (dynamically changing) demographic situation in the Russian regions.

The author’s approach has been tested many times, and also has a software implementation in the form of registered software for calculating the Ridge Model. The program implements the construction of predictive estimates based on econometric analysis methods. The method of constructing the Ridge model is described in detail in a number of publications (Rimashevskaya et al., 2016; Medvedeva, Kroshilin, 2022). This approach is aimed at obtaining a fairly accurate predictive assessment and building a trend line.

### Construction of the Ridge Model (forecasting)

Based on the data of the State Statistics Service (Rosstat), the necessary information arrays of demographic indicators for several regions were formed. The following regions were identified as the studied regions: the Russian Federation (as a whole), the Moscow and Vologda regions, and Moscow. For example, the formed array for the Russian Federation is presented in the form of *Table 1*. The approach to the formation of a “crest” (wave) in the table for each age cohort (year of birth) is highlighted in its own color: dark green for 1990, green for 1991, light green for 1992, etc.

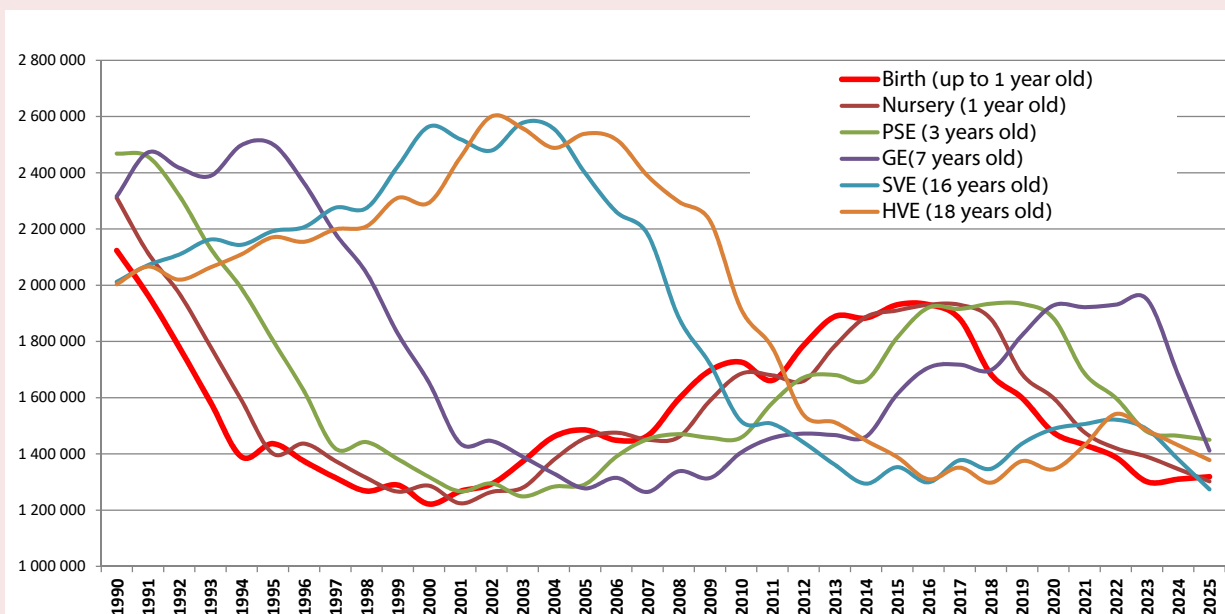
Figure 3 shows the visualization of the selected data for the Russian Federation for building the Ridge Model, which presents the number of students in each age cohort of levels of the education system in the Russian Federation. Arrays for the remaining selected regions are formed in the same way.

Table 1. Array of data for building the Ridge Model, the Russian Federation as a whole; 1990–2025, people

| Indicator / Year         | 1990    | 1991    | 1992    | 1993    | 1994    | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    | 2002    | 2003    | 2004    | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    | 2015    | 2016    | 2017    | 2018    | 2019    | 2020    | 2021    | 2022    | 2023    | 2024    | 2025    |         |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Birth (under 1 year old) | 2123530 | 1964547 | 1780031 | 1584813 | 1389192 | 1436350 | 1374042 | 1315450 | 1267765 | 1289086 | 1221452 | 1266627 | 1292461 | 1372458 | 1460997 | 1485054 | 1448509 | 1464203 | 1595212 | 1696313 | 1726549 | 1661526 | 1786173 | 1888640 | 1883389 | 1930593 | 1931054 | 1880216 | 1683430 | 1598669 | 1476347 | 1431935 | 1387940 | 1300801 | 1309782 | 1318763 |         |
| Nursery (1 year old)     | 2310881 | 2115235 | 1971236 | 1782259 | 1590312 | 1401284 | 1436543 | 1375356 | 1314605 | 1265782 | 1286936 | 1224258 | 1264598 | 1279629 | 1378953 | 1455321 | 1475587 | 1450867 | 1459980 | 1589155 | 1685419 | 1679633 | 1659811 | 1784532 | 1887170 | 1910448 | 1930684 | 1930605 | 1880058 | 1683458 | 1599323 | 1476583 | 1420506 | 1389778 | 1346051 | 1302324 |         |
| GE (3 years old)         | 2468247 | 2456950 | 2319153 | 2131622 | 1987787 | 1804237 | 1623164 | 1419635 | 1314913 | 1281634 | 1318173 | 1266951 | 1224598 | 1248767 | 1283546 | 1291750 | 1390063 | 1452220 | 1470100 | 1457191 | 1458288 | 1581173 | 1671614 | 1680743 | 1661385 | 1887170 | 1920333 | 1915514 | 1933405 | 1883092 | 1686340 | 1599066 | 1478805 | 1464491 | 1450178 |         |         |
| PSE (7 years old)        | 2316112 | 2472154 | 2417757 | 2388680 | 2498773 | 2501517 | 2363247 | 2184251 | 2042991 | 1828245 | 1653730 | 1437546 | 1445897 | 1389916 | 1329915 | 1277118 | 1314524 | 1264282 | 1337877 | 1313935 | 1404954 | 1456379 | 1471934 | 1466402 | 1461315 | 1612321 | 1706443 | 1717268 | 1697980 | 1934443 | 1822386 | 1927854 | 1921877 | 1930623 | 1949393 | 1680403 | 1411412 |
| SVE (16 years old)       | 2011907 | 2071294 | 2108898 | 2162458 | 2143675 | 2192109 | 2206579 | 2275416 | 2274627 | 2422250 | 2564121 | 2519316 | 2478764 | 2577485 | 2556072 | 2398867 | 2260995 | 2182342 | 1885616 | 1720314 | 1516555 | 1507135 | 1441146 | 1361615 | 1294293 | 1352968 | 1299133 | 1377491 | 1347357 | 1436871 | 1488943 | 1506393 | 1522149 | 1487613 | 1380875 | 1274137 |         |
| HVE (18 years old)       | 2003243 | 2066259 | 2019517 | 2063193 | 2110206 | 2170536 | 2154439 | 2198545 | 2209266 | 2310407 | 2293132 | 2453479 | 2600168 | 2558235 | 2488489 | 2538705 | 2518194 | 2389360 | 2297055 | 2229623 | 1914537 | 1777762 | 1538650 | 1511903 | 1447082 | 1388578 | 1309521 | 1351041 | 1297346 | 1374352 | 1345006 | 1430217 | 1541813 | 1483597 | 1430695 | 1377794 |         |

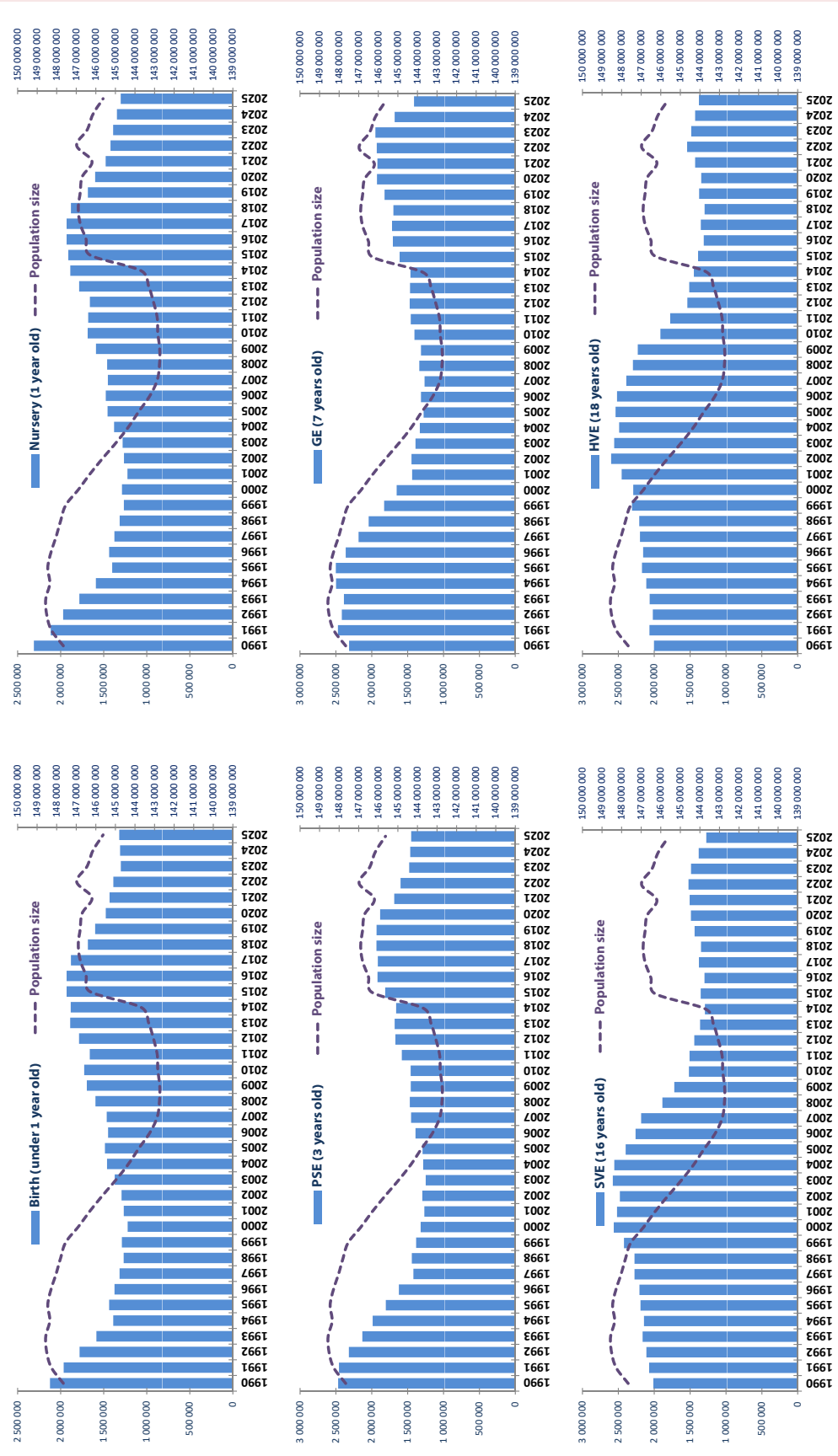
According to: Rosstat Statistical Data Showcase and EMISS data.

Figure 3. Data for constructing the Ridge Model in the Russian Federation, 1990–2025, people



Source: own compilation on the basis of the generated data array.

Figure 4. Comparison of demographic data by cohort groups with the population in the Russian Federation, 1990–2025, people



Source: own compilation on the basis of the generated data array.

The obtained arrays were loaded into the software for calculating the Ridge Model, which made it possible, based on the use of econometric modeling, to present Ridge model for each group of students (Fig. 4).

A visual comparison of demographic data for selected groups with the total population makes it possible to assess the dynamics of changes in indicators depending on each other. This also affects the identification of models when estimating unknown parameters. As a result of calculations, functional dependencies (polynomials of the fourth degree (2)) were obtained. Here are the results of the indicators for the Russian Federation (3):

$$\begin{aligned} Y_{\text{Birth (up to 1 year old)}}^{RF} &= 6,4544 \cdot x^4 - 734,77 \cdot x^3 + 25773 \cdot x^2 - 312799 \cdot x + 2 \cdot 10^6 (R^2 = 0,9042); \\ Y_{\text{Nursery (1 year old)}}^{RF} &= 2,8692 \cdot x^4 - 496,3 \cdot x^3 + 21546 \cdot x^2 - 307406 \cdot x + 3 \cdot 10^6 (R^2 = 0,9333); \\ Y_{\text{PSE (3 years old)}}^{RF} &= -5,0057 \cdot x^4 + 97,285 \cdot x^3 + 8250,2 \cdot x^2 - 232599 \cdot x + 3 \cdot 10^6 (R^2 = 0,9525); \\ Y_{\text{GE (7 years old)}}^{RF} &= -22,946 \cdot x^4 + 1631,9 \cdot x^3 - 34205 \cdot x^2 + 165393 \cdot x + 2 \cdot 10^6 (R^2 = 0,9536); \\ Y_{\text{SVE (16 years old)}}^{RF} &= 1,1721 \cdot x^4 + 149,19 \cdot x^3 - 11991 \cdot x^2 + 180921 \cdot x + 2 \cdot 10^6 (R^2 = 0,8631); \\ Y_{\text{HVE (18 years old)}}^{RF} &= 13,169 \cdot x^4 - 768,04 \cdot x^3 + 10207 \cdot x^2 + 6351,6 \cdot x + 2 \cdot 10^6 (R^2 = 0,9121). \end{aligned} \quad (3)$$

In this case, a fourth-degree polynomial approximation and smoothing are used, since all demographic parameters (time series) tend to change significantly non-linearly. Based on

the calculated trend functions and exponential smoothing of time series (1), the forecast values of the analyzed demographic indicators with a time lag of 5 years (for 2030 and 2035; Fig. 5) are obtained.

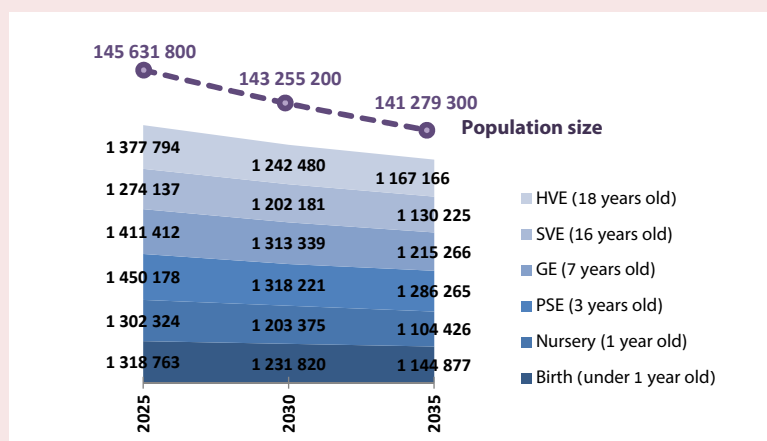
At the final stage of calculations, taking into account the functional dependencies (3), the Ridge Model for the Russian Federation was obtained for the period from 1990 to 2025 and the forecast values for 2030 and 2035. (Fig. 6).

We should note that all the estimates given are probabilistic in nature, as they are obtained as a result of the application of econometric forecasting methods using official statistics data. Nevertheless, predictive assessments accurately reflect existing trends and can be used in strategic planning for the modernization of the education system levels both in the country as a whole and in particular regions.

#### Analysis of the results obtained

The resulting Ridge Model (see Fig. 6) reflects the change in the number of age cohorts at different levels of the education system of the Russian Federation as a whole. With a certain degree of probability, it is possible to predict the future needs and workload for all levels of training. The

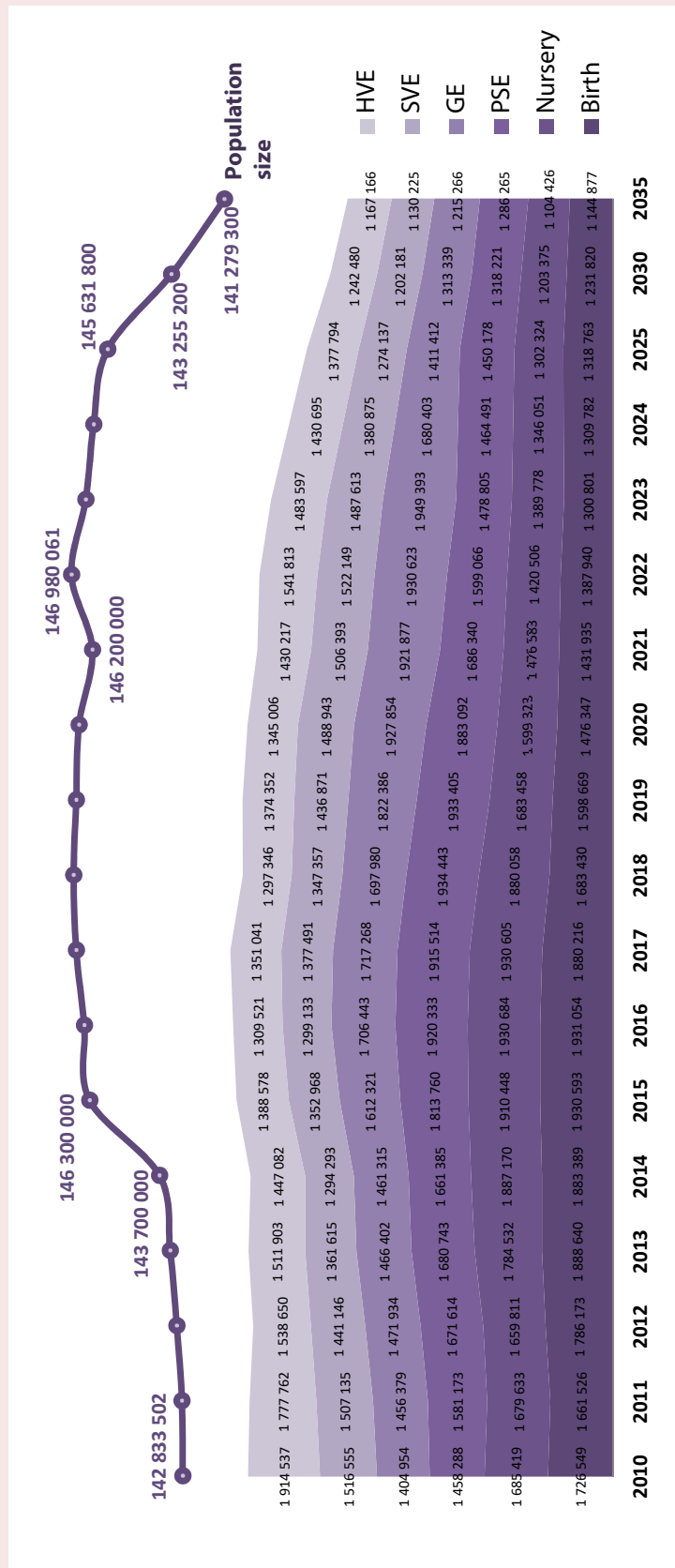
Figure 5. Comparison of predictive estimates of demographic indicators by cohort groups with the population in the Russian Federation (forecast for 2030 and 2035), people



Note: to make a forecast for some types of demographic indicators, the data for 2025 were estimated (forecast), since they were unavailable in official sources at the time of preparation of the material.

Source: own compilation.

Figure 6. Ridge Model of demographic indicators for various levels of education in the Russian Federation with prognostic assessment for 2030 and 2035, people



Source: own compilation.

comparison can be based on the figures for 2020. According to the prognostic assessment, in 2025 there were almost 10% fewer children under the age of 1. If this trend continues, a further 13% decrease can be expected by 2035. In 2025, 18.6% fewer children came to the nursery than in 2020. In the long term, their number will decrease by another 9–10% every 5 years. The number of kindergarten students may decrease by a third by 2035. Compared to 2020, the number of students in 2025 has decreased by almost a third and the rate of decline will only increase. The situation with the level of vocational education is better: the reduction of the contingent in 2035 will “affect” only one in ten students. In 2025, a slight increase of 3% can be observed in the higher education system, but by 2035 there will be a decrease of 15% from the current level.

The results obtained reflect only a general trend, which may be influenced by other components, such as “relaxation” in migration policy, “orientation” toward international students, etc.

Current regional studies on the development of education are insufficient, so it was decided to carry out a prospective assessment for other regions of Russia. In this article, we will present a detailed analysis of the results of the prognostic assessment of the studied indicators only for the Moscow Region (*Fig. 7*).

The Moscow Region is one of the leading regions in terms of the quantity and quality of educational services provided. In addition, the Moscow Region is very attractive for living and “attracts” labor from other regions. This allows demonstrating better demographic indicators compared to other territories. For example, the forecast estimate showed that we can expect a positive growth in the category of “Born” (under 1 year old) of about 2–3%. There is also a positive trend in the coverage of the “nursery”. However, the “PSE” indicator is no longer so optimistic and by the end of 2035 may amount to only 4% increase

from the current level. The growth in schools is observed only in 2025, and by 2030 it will be equal to 0, in 2035 there may be a reduction of 8–9%. In the SVE system, the situation is more complicated: according to age indicators, a reduction can occur by 4–5% every 5 years. By 2035, there will be a significant decrease in the contingent in the HVE – by 17% from 2024.

The application of our approach to the analysis of demographic indicators at various levels of education in the regional aspect and in the country as a whole using the Ridge model has shown that there is a gradation in existing indicators that determine the availability of possible development options. That is why such tools should be used to make balanced, informed decisions, taking into account Russian characteristics, uneven population and regional socio-economic development when developing strategies for the development of the education system.

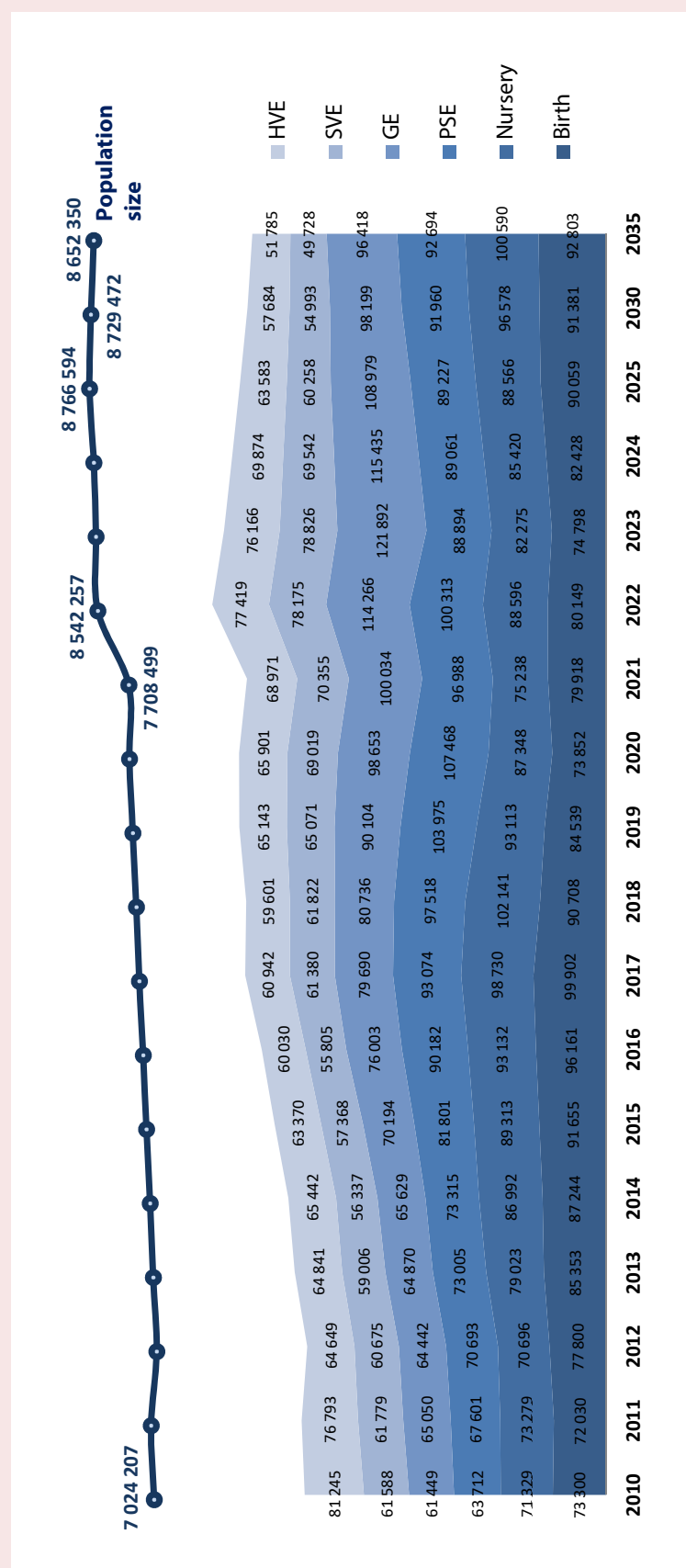
### Discussion

Despite the fact that analysts and scientists have different approaches to the existing assessment of the Russian education system, they all agree that it is the quality of educational services provided that is the main basic factor for all market counterparties. Moreover, at different levels of training / the term “quality” refers to a different set of benefits and tools for implementation and their receipt.

At the beginning of 2026, the Russian labor market faced a shortage of personnel, which, according to experts, could range from 3 to 4 million people. “For the first time in modern history, the Russian economy is faced with a shortage of labor... And this is a new reality for the authorities, ... for business”, said E. Nabiullina<sup>29</sup>, head of the Central Bank. The labor market, which has been “overheated” for the past two years, began to cool down at the end of 2025, the number of

<sup>29</sup> Nabiullina: Russia faces labor shortage for the first time. RIA Novosti. Available at: <https://ria.ru/20260416/nabiullina-2087338981.html> (accessed: 15.04.2026).

Figure 7. Ridge Model of demographic indicators for various levels of education in the Moscow Region with predictive assessment for 2030 and 2035, people



Source: own compilation.

offers in certain areas decreased by a quarter, and for some vacancies — by a third. According to the analytical reports of the Ministry of Labor, about 75 million people are currently in active employment in Russia. The department believes that young people aged 18–25 are best suited to “close” human resources needs. According to estimates by the Russian Union of Industrialists and Entrepreneurs (RUIE), the shortage of personnel by 2030 may exceed 3 million people<sup>30</sup>. The Central Bank states that “... the greatest shortage of personnel remains in agricultural enterprises and in the field of manufacturing, energy and water supply”<sup>31</sup>. The Ministry of Labor and labor market analysts, in turn, note the shortage of production staff, service specialists, and technical staff. Working professions, production specialists, sales personnel engaged in transportation remain in demand, there are not enough builders, doctors and teachers. The latter professions are quite knowledge-intensive and require special training conditions. Such trends certainly affect the requirements for the personnel training and retraining system.

On the other hand, the problem of reducing the number of first-grade students has already arisen in the education system itself, which is related both to the overall decrease in the number of children of foreign citizens (in 2025 it decreased by 45.5 thousand people, i.e. almost 3 times<sup>32</sup>), and to the demographic situation (Lokosov, 2025). According

to the Ministry of Education, in the 2025/2026 academic year, there are almost 350 thousand fewer children in primary schools (from first to fourth grade) than in the previous one. This has even affected large metropolitan areas (Moscow and Saint Petersburg). For example, in Moscow in 2025, the number of first grade students was about 100,000 (in 2023, there were 15,000 more). In Saint Petersburg, about 60 thousand fewer people came to the first class compared to 2023. To a certain extent, this has “brought” both capitals closer to the all-Russian demographic trends<sup>33</sup>. The situation of a systematic decrease in the number of students, according to the analysts of the Ministry of Education, will continue until 2040. This will lead to the release of primary school teachers. The number of such teachers can reach up to 17 thousand<sup>34</sup>, which entails the creation of conditions for their retraining for possible employment.

The demographic gap will also affect the number of students in universities. According to D. Afanasyev, Deputy Minister of Science and Higher Education of the Russian Federation: “... Russian universities after 2030 will face a gradual decline in the number of applicants due to the demographic gap ... From 2032, a smooth, gradual, but significant decline will begin”<sup>35</sup>. Based on this situation, universities will fight for every applicant. Thus, it is obvious that demographic factors such as population size, birth rate, and migration activity are among the key factors in organizing the education system. This is especially important to take into account in the

<sup>30</sup> Foreign labor in the Russian labor market: Balancing business, society, and state interests. Russian Union of Industrialists and Entrepreneurs. Available at: <https://rspp.ru/events/news/inostrannaya-rabochaya-sila-na-rynke-trudav-rf-balans-interesov-biznesa-obshchestva-i-gosudarstva-67a1ba6b2a11b/> (accessed: 15.04.2026).

<sup>31</sup> Nabiullina: Russia faces labor shortage for the first time. RIA Novosti. Available at: <https://ria.ru/20260416/nabiullina-2087338981.html> (accessed: 15.04.2026).

<sup>32</sup> Information on the form of federal statistical observation OO-1 “Information about an organization that provides educational services in primary, secondary, and higher education” at the beginning of the 2025/26 academic year. Ministry of Education of the Russian Federation. Available at: <https://docs.edu.gov.ru/document/93f51afcc09b5803b956e2bffe9253ee/> (accessed: 17.04.2026).

<sup>33</sup> A sharp decrease in the number of first-graders in Russia in 2025: Analysis of causes and consequences. Education in Moscow. Available at: [https://obrmos.ru/go/go\\_school/Articles/\\_go\\_school\\_987.html](https://obrmos.ru/go/go_school/Articles/_go_school_987.html) (accessed: 16.04.2026).

<sup>34</sup> Mishina V. School codes: Tens of thousands of teachers may lose their jobs. Izvestia. Available at: <https://iz.ru/1925422/valeriia-mishina/shkolnye-kody-desiatki-tysiach-uchitelei-mogut-ostatsia-bez-raboty> (accessed: 12.04.2026).

<sup>35</sup> Ivanov P. The Ministry of Education and Science has warned universities about a decrease in applicants. The Ministry of Education and Science: Universities will face a decrease in applicants after 2030. Gazeta.ru. Available at: <https://www.gazeta.ru/social/news/2025/06/19/26074190.shtml> (accessed: 12.04.2026).

next round of higher education reform, which was announced by V. Falkov, head of the Ministry of Education and Science of the Russian Federation<sup>36</sup>.

### Conclusion

A retrospective and prospective analysis of the transformations of the Russian education system and the reforms that have already been implemented has shown that these processes are interrelated and correlate with a variety of social, cultural, regional, economic and even political factors. However, regional demographic indicators remain a key factor determining the effectiveness and quality of educational services received, which directly affect the required number of educational places, educational organizations, teachers, teachers, and funding levels.

To build a Strategy for the Russian education system, we proposed an approach that allows, based on the use of the Ridge Model, making predictive estimates of demographic indicators at various levels of the educational system. The scientific approach, incorporated by academician N.M. Rimashevskaya into the developed Ridge Model methodology, basically uses mathematical apparatus, econometric modeling and forecasting methods to correlate demographic dynamics of the population with the opportunities / demand for different levels of education. A logical continuation and development

of our methodology in the framework of the analysis of the identified problems may be the inclusion of new parameters in it, for example, taking into account migration flows and/or labor market needs for professional retraining. This will make it possible to better adapt the methodology to regional specifics and take into account the peculiarities of socio-demographic indicators, as well as expand regional coverage for the implementation of an individual's educational trajectory and the development of their labor potential.

In the conclusion, it is worth emphasizing that the current conditions of the country's development determine the objective need to use such methods in assessing not only the results of reforms and their consequences in the education system, but also the effectiveness of national projects. Such approaches enable modeling and forecasting at the stage of project planning and implementation, and allow us to assess the scale and depth of proposed solutions, which is very important for solving strategic tasks of socio-economic development and industrial sovereignty of the country. Our methodology can be used by analysts, scientists, researchers and administrative staff who deal with the problems of developing and evaluating the effectiveness of regional education systems and the country as a whole.

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<sup>36</sup> Falkov spoke about a draft law for a new model of higher education. RBK. Available at: <https://www.rbc.ru/rbcfreenews/684e2c4c9a79478178014a95> (accessed: 11.04.2026).

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