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ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

A peer-reviewed scientific journal that covers issues of analysis and forecast of changes in the economy and social spheres in various countries, regions, and local territories.

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In 2017 the socio-economic research was supplemented by agricultural issues. ISED T RAS was joined by the Northwestern Dairy and Grassland Farming Research Institute, and was reorganized into the Vologda Research Center of the Russian Academy of Sciences.

In 2019 the Center continued expanding having launched the Laboratory of Bioeconomics and Sustainable Development within the framework of the national project “Science”. The Laboratory is engaged in scientific research aimed at introducing biotechnologies into the practice of agriculture.

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2012 – Cooperation agreement is signed with Center for Social Research at the Dortmund Technical University (Germany, 2012).

2013 – Memorandum of understanding is signed with Jiangxi Academy of Social Sciences (China, 2013). July 2013 – The application for research performance by international consortium involving ISED T RAS within the 7th Framework Programme of European Community.

2014 – Cooperation agreement is signed with Center for System Analysis and Strategic Research of the National Academy of Sciences of Belarus (Belarus, 2014). Memoranda of understanding are signed with Jiangxi Academy of Social Sciences (Mao Zhiyong, China, 2014), National Institute for Oriental Studies INALCO (Julien Vercueil, France, 2014).

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On Psychological Factors in Historical Processes



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Abstract. One of the key driving forces behind history and the development of its subjects – peoples, social strata, and individual actors – is the functioning and evolution of their individual and collective mental systems. Psychological factors exert a profound influence on economic processes (whether the prevailing orientation is toward increasing or reducing consumption or armaments, the willingness to take risks, etc.), on the structuring of society, and so forth. Yet in historical research, and especially in Russian historical scholarship, this factor is generally given insufficient attention. The reason lies in the underdeveloped state of many problems in social psychology, as well as the limited familiarity of the academic community with this field. For several decades now, a scholarly direction known as psychohistory has been developing in Western countries, dedicated to studying the interplay between historical processes and the development of the individual and collective psyche. The article demonstrates the role of such factors as psychological attitudes and types, in particular the types of passionaries, innovators, and conservatives. It examines the capacity to concentrate and subordinate most of the states and functions of the psyche to a single center, a higher meaning-bearing principle, a dominant attitude – a capacity that lies at the foundation of religions and other ideological movements. The article explores the mutual influence of psychological attitudes and “general historical” systems (productive-technological, socio-economic, institutional, and moral) across the eras of Christianity, modernity, and the present day. The differences between Western and Russian civilizations are examined on the basis of the distinctive features of their respective psychological systems. Psychohistorical research has significance that goes beyond theory alone. It can and must become an important tool in the elaboration of strategic plans and forecasts in such areas as the socio-economic sphere, education, defense, and geopolitics.

Key words: power, war, innovators, conservatives, passionaries, dominant attitude, the Modern era, ideology of superiority, productive-technological progress, humaneness.

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Introduction (the general course of history and psychological factors)

Approaches to structuring history in time and space – to describing processes and events in the general terms of an abstract model – are, as a rule, confined to socio-economic and production-technological processes and concepts, to relations of rights and duties, and to the institutions of power and governance. The concepts and system of categories developed by psychology are rarely used and are employed only sparingly, even though all the above-mentioned systems of knowledge are of interest primarily from the standpoint of human perception, evaluation, and reaction – that is, from the standpoint of the individual and collective psyche. The obstacles to employing psychology in historical research are the underdeveloped state of social psychology and the academic community's limited familiarity with this subject.

A significant contribution to overcoming these barriers was made by L. Gumilev, who introduced the psychological type of the passionary into historical research and systematically took it into account. In the United States and Western Europe, this role is performed by scholars working in the field of psychohistory (for more detail, see the subsequent sections of the article). The obstacles just described mean that the first part of this article is obliged to set out the psychological factors that interact with the forces of historical development in considerably more detail than would otherwise be necessary.

Contemporary individuals approach their life activity as a goal-oriented process in which achievement is understood as the expansion of human and communal capabilities, assessed in relation to their needs. Our understanding of history is shaped primarily by a multitude of historical subjects interacting with one another and by the processes of their existence – their emergence, development, and decline. These historical subjects are communities that create their own culture; their own spiritual-ideological (value-semantic), economic, political, and military systems; they are countries, peoples, and civilizations. Processes and

factors that remain independent or only weakly dependent on the decisions and actions of the governing systems of these subjects include natural processes and geographical factors, scientific-technological and cultural development, the growth of production, and shifts in sectoral structure – all of which create the material conditions of life and other dimensions of emerging situations.

In this article, we specifically focus on those factors that constitute the psychological system of individuals and collectives. These are the factors that ensure social cohesion, account for the causes of societal rifts and other historical processes, and include the attitudes of a society's collective consciousness, or those of its active strata, or the consciousness of charismatic leaders. In the works of historians, the behavior of individuals and communities is often depicted solely as rationally deliberate action, whereas psychologists are well aware that the psychological system whose functioning determines human behavior is far more complex than the subsystem we call consciousness. The governing systems of historical subjects respond to existing and anticipated situations with their own decisions and actions.

The outcome of all these processes may be termed the general course of history (or macro-historical processes). Within it, psychological factors appear to constitute only a small part of the overall picture. Yet, in my view, this representation underestimates the significance of this dimension of historical processes, as it encompasses all the value-based, meaning-laden, and informational aspects of human activity, as well as all the motivations underlying human behavior. The reason for this underestimation lies in the insufficient interaction between two scientific fields – theoretical psychology and historiography – coupled with a broader societal lack of interest in psychology. Meanwhile, expanding and deepening such interaction is essential not only for the advancement of these academic disciplines. Knowledge of the mutual influence between history and psychology must play a critical role in the formulation of economic and political forecasts and strategies, and in addressing

problems of upbringing and education, among others. The aim of this study is to contribute to the development of theory and to the understanding of the essence and significance of the mutual impact of historical and psychological processes – an area that remains clearly underdeveloped at present, yet plays a crucial role in grasping the mechanisms of historical development, as well as political, economic, and social events unfolding both globally and nationally. In Western countries, a scholarly direction called psychohistory emerged long ago (although it does not cover a number of important aspects of the problem at hand).

In the United States and Western Europe, *there was a period when a new scientific discipline – psychohistory – took shape and developed rapidly on the basis of studying the mutual influence of historical and psychological processes*. In the four decades from the late 1930s to the late 1970s, the number of scholarly articles and defended dissertations on the subject increased tens of times over. Scholarly societies emerged, regularly published journals appeared, and the Institute for Psychohistory (headed by Lloyd deMause) was established at Boston University. From the 1980s onward, however, the growth of this field has been waning.

Russian scholarship has not experienced anything comparable to the flourishing of psychohistory, although prominent scholars (such as A.G. Asmolov, S.V. Grigoriev, A.I. Fursov, and others) have certainly explored the mutual influence of history and psychology.

The focus of psychohistorians has been directed primarily at the formation of human behavior under the influence of factors investigated by history, sociology, and other social sciences. The main areas of research include:

- the impact of childhood living conditions, child-rearing systems, and parenting styles;
- the study of biographies of individuals from different cultures, social strata, and historical periods;
- the influence of the group and the larger community to which an individual belongs.

In the work of psychohistorians, methods of Freudian psychoanalysis are frequently applied, while categories of psychological types and attitudes are employed only rarely. Our article also considers other factors, with greater attention directed toward historical processes and trends whose causes lie in the functioning of the collective psychological system.

This paper examines the toolkit available to modern science for identifying a set of psychological factors that exert a significant influence on historical processes within specific communities at specific stages of their development.

The most visible part of the picture – or model – of history resembles the Darwinian model of the evolution of biological species, genera, and families. This is reflected in theories and models of ethnogenesis and the development of civilizations (N. Danilevsky, A. Toynbee). In the spiritual-intellectual sphere, the emergence and development of an ethnos or civilization corresponds to the evolution of cultural phenomena, the value-normative system – including national and patriotic life-sustaining incentives, and distinctive features of mentality – in short, everything that provides a sense of unity among individuals who identify themselves with that community and distinguish themselves from other communities.

The process of ethnogenesis often involves the mutual penetration and blending of cultures of neighboring ethnic groups, the convergence of their institutional systems, and ultimately, their merger and consolidation. Super-ethnoses are thus formed. Over the past century, the principal factor shaping the defining features of history has been the confrontation, or rivalry – at times escalating into hot wars – between a super-ethnos realized in the countries of the Collective West, united by an ideology of global hegemony led by the United States, and an association of countries ready to oppose this Western orientation and coalescing into a coalition underpinned by the ideology of a multipolar world. We shall refer to this as a *civilizational confrontation*.

In recent decades, concepts exploring the mechanisms of development and interaction among countries and other large communities have been developing intensively. An overarching framework is provided by the theory of strategic advantages, which determine the development and regularities governing these mechanisms. Its most advanced and comprehensive version is reflected in the articles by E.V. Balatsky (Balatsky, 2021b; Balatsky, 2024). These works also offer a detailed review and critical exposition of preceding concepts. Strategic advantages include such readily measurable parameters as a country's population size, the extent of its territory, and its level of economic development (GDP volume and GDP per capita). Beyond these, however, the possibility and necessity of accounting for such hard-to-measure factors as the level of scientific and technological development, military potential, and others have also been demonstrated¹. The study (Ekimova, Gaganov, 2024) establishes that state sovereignty and the capacity to participate in and forge geopolitical alliances also play a crucial role in modern history. This line of research constitutes the study of the object referred to above as the general course of history.

We conclude this section with an illustration of the significance of psychological factors, whose impact on history is comparable to that of economic and political forces. Let us compare two Russian revolutions (or coups) – those of 1917 and 1991. In the first, the main driving forces were economic: the peasantry (80% of the population), possessing a deep-seated psychological attitude (both conscious and unconscious) toward land ownership for running their own farms, and the proletariat, demanding improved social conditions. An ideology was also present – Marxism and Lenin's theory of the alliance between the working class and the peasantry. This was an ideology that accurately reflected the role of economic factors but, more importantly, was capable of shaping collective psychological attitudes and behavior.

¹ The set of strategic advantages of countries and peoples must, of course, also include socio-psychological factors.

In Gorbachev's Perestroika and Yeltsin's reforms, the leading role was played by political and ideological factors linked to the psychology of a narrow stratum of the party-state elite, as well as to the socio-psychological attitudes of poorly organized mass protests. Russian public figures lacked a theory that accounted for psychological problems and was suitable for guiding these processes (people often understand the external world far better than they understand their own psyche). Yet such a theory already existed in the West—Gene Sharp's theory of nonviolent resistance, which laid the groundwork for all the “color revolutions.” Hence, it is essential to study social psychology! Instead, between 1985 and 1991 in the USSR, a segment of the ruling elite, convinced that the country could peacefully join Western civilization (which seemed so attractive!), preoccupied itself not with social but with individual psychology. The Yakovlev group sought (and found) ways to reinforce Gorbachev's belief in the “unity and indivisibility of the world” (East and West). The well-known historian E. Spitsyn recounts how this group psychologically primed the senior Politburo member A. Gromyko and cultivated ties with Central Committee members to secure Gorbachev's election as General Secretary. Once elected, the Yakovlev group endeavored to make Gorbachev's psyche increasingly “malleable” so that he would dare to adopt the plan for perestroika².

The capacity for the concentration of the psyche. The dominant attitude

Among the psychological factors that influence the course of history, one of the most significant is the need and the capacity of the human psyche to subordinate most of its functions and states to a particular attitude, a single center, a higher value- and meaning-bearing principle. When it comes to the collective psyche of a society, we shall refer to this center or principle as the social *psychological dominant*. This property is manifested to differing degrees in different individuals and in the structures of the collective psyche of various communities.

² Spitsyn E.Yu. (2025). The “Gorbachev” project: How the “foremen” of perestroika seized power in the USSR: Interview with the newspaper Zavtra. Zavtra, no. 14.

For the individual psyche, such an attitude or principle may consist of personal interests that are unconnected to the problems of society. But if a substantial share of a community's members experience a concentration of the psyche around a shared – or at least closely related – supra-personal center (a dominant principle or idea), this creates a powerful potential for ensuring the community's unity, development, strengthening, and activation. We shall refer to this state of society as subjecthood.

A state of collective concentration in any people, as a rule, emerges and spreads throughout the entire society during periods of war or other dangers to the community. A psychological state of mobilization arises; patriotism and devotion to the motherland – to its national traditions, culture, and customs – become the semantic summit, the dominant. The psychological attitude that is dominant in a society exerts an influence on historical processes not only, of course, during periods of wars and revolutions. The features of a subject's mental system may include attitudes toward another people – attitudes of stable empathy or hostility – and an orientation toward territorial expansion or toward superiority in the economic-technological and military spheres.

The subordination of consciousness to a single principle requires that principle to rest on a more or less stable set of ideas and attitudes – that is, on a picture of the world and a value- and meaning-bearing system with a clearly defined “summit”. These phenomena are, as a rule, present in the collective culture and collective psychology of a sufficiently large community and constitute the content of its ideology, which becomes the psychological dominant. We shall use the concept of ideology in a broad sense, including religious teachings in it as well. At the same time, the foundations of the dominant system of attitudes and principles are often rooted in the collective unconscious and remain unrecognized by the majority of the society's members (while the system of dominant principles frequently proves to be contradictory and irrational from the standpoint

of the society's interests). An important feature of the socio-psychological system of religions and ideologies is the presence of a group of people who are the bearers of this supra-personal attitude and for whom its value- and meaning-bearing significance proves to be higher than the interests and needs of their own personality, of their own ego. This group constitutes the society's elite, or a part of that elite.

The dominant attitudes that exert the most profound and, more importantly, the most long-term influence on history are world religions and other spiritual movements (ideologies) that designate entire epochs. To denote the state of concentration of the collective psyche in communities where the dominant attitude is an ideology or a religion, we shall replace the category of subjecthood with the terms spirituality or ideological commitment. It should be noted that, for a great many people, the embrace of a supra-personal attitude that expresses the community's subjecthood is a pressing need – often even stronger than their biological needs. This is confirmed, in particular, by L. Gumilev in his descriptions of passionary personalities.

In the study (Volkonsky, 2025a), ideology (including religion) is presented as a dual structure. The complex of functions and states of the psyche of adherents to a given ideological doctrine (believers) – functions connected in one way or another to that doctrine, not fully conscious, and possessing varying degrees of influence on the behavior of members of society and groups – is termed *deep ideology* (DI). For the formulation of state policy and for the upbringing of future generations, an intellectually formalized system of concepts, rules of thought and conduct, and value-semantic attitudes is required. The state (or other ruling groupings) develops an *intellectually formalized ideology* (IFI). The IFI belongs largely to the sphere of consciousness, whereas DI belongs predominantly to the sphere of the unconscious.

The book (Todd, 2024) presents the cycle of the development of ideological commitment as consisting of three phases or stages (using the

examples of Protestantism, nationalism, and other historical phenomena): an active phase, an inert phase, and a phase of “zeroing out, a spiritual vacuum”. What takes place is the fragmentation and the disintegration of the society’s unity. Ideological commitment can exert a serious influence on the state of society not only during the active stage but also during the inert stage. Examples include the Reformation in Western Europe and the Cultural Revolution in Maoist China (Todd, 2024).

The primary forms of ideology were the monotheistic religions, which created the conditions for a deep and long-term faith. The principal distinction between religion and the modern non-religious ideologies consists in the isolation of a portion of the psyche – together with the external objects and rituals associated with it – and its endowment with a special quality of the supernatural and the sacred. This quality serves to protect and preserve the established religions over the long term.

The historical significance of all the great religions lies, first and foremost, in the formulation and pursuit of the task of transforming the human psyche, the entire set of its attitudes and drives, and of creating internal, subjective drives and attitudes in accordance with the rules of an ideological worldview and behavior. The cycles of a religion’s development broaden and strengthen the role of the introverted psychological type in society (this applies, to the fullest extent, to many of the Protestant sects). Yet it may, perhaps, be necessary to speak of the existence of an independent psychological type – people who are predisposed toward ideological commitment.

It should be noted that the extraverted type, with its adherence to the empirical perception of reality, is endowed with the capacity for religious faith and for subordinating its psyche to a higher meaning-bearing attitude to no lesser degree than introverts. C. Jung writes: “The empiricist replaces the lack of reverence for ‘eternal’ ideas with what amounts to a religious faith in the actual fact” (Jung, 1997, p. 382). In all peoples, one can identify long ancestral, hereditarily linked chains (dynasties) of clergymen

that, without interruption, pass through many generations and across epochs in which various religious systems have been dominant in society. During anti-religious periods, the representatives of such dynasties shift to other forms of mental activity that require similar psychological qualities. These facts allow one to hypothesize that the need to subordinate the psyche to a higher meaning-bearing attitude and the capacity for religious faith distinguish a specific psychological type.

The importance of psychological dominants for history is confirmed by the fact that cultures and super-ethnoses, as well as the long epochs of their development, take as their name the designation of the psychological attitudes that are dominant within them: the civilizations of liberalism or of statehood, the epoch of capital accumulation, the epoch of colonialism. Our knowledge of history makes it possible to structure it “in space” and in time – that is, to divide the multitude of the subjects of history into groups according to sets of characteristic features. The most productive approach at present is to group the subjects of history into civilizations. This constitutes a structuring “in space”. The time of the development of each subject (a country, a civilization) is divided into qualitatively distinct periods and stages of development. This is a structuring in time. When investigating different historical problems, periods of the most varied duration may, quite naturally, be considered.

No analogous, structured picture of the mental world of Man yet exists. Its creation can, however, be regarded as an important problem toward which scholarship is advancing. *Several approaches (models, typologies) have been developed for structuring and grouping the features, or properties, of the psyche. As a rule, the subject of research in psychological science is the psyche of the individual, the personality. The properties of the collective psyche of communities that live and act over extended periods of time have been studied considerably less.*

Directions in psychology necessary for the development of psychohistory

One approach to classifying the needs, capacities, and functions of the psyche is based

on the role they play in a person's life. Such a classification was already presented by I. Kant in his "Critique of Pure Reason" (1790). The results of this sort of identification of psychological factors and of their significance for human life activity are presented in a deeply elaborated form, for example, in the works (Leontiev, 1983; Kostin, Golikov, 2017). The authors distinguish three functions of the psyche: the cognitive (perceptual) function; the relative function, which evaluates the information that has been perceived (as positive, neutral, or negative); and the regulative function, which initiates and organizes the subject's activity.

In essence, the foundations of theoretical psychology were laid by C. Gustav Jung. He described the phenomenon of the collective unconscious and investigated psychological types and attitudes, thereby creating the prerequisites for studying the groups of people who are the bearers of the corresponding features of the psyche and their role in historical processes (Jung, 1997, Sections X, XI). One of his most important discoveries is the theory of the collective unconscious and of archetypes (Jung, 1967).

Jung devoted a great deal of attention to the state of the psyche that has come to be termed the attitude. An attitude is the readiness of the psyche (a predisposition, an inclination) to perceive and interpret the signals it receives in a particular direction and to act in accordance with this perception. An attitude may be conscious or unconscious, or both simultaneously. One can speak of the attitude of an individual person. For historical research, however, the attitudes that characterize large communities are usually more important. An example is the capitalist attitude, which requires entrepreneurs to choose actions and to direct their efforts toward the constant augmentation of capital. A set of collective attitudes is generated by the ideology that is dominant in the society. The most widespread and stable attitudes — ones that are, essentially, inherent in every person — include the capacity to relate to, and to identify oneself with, a large community, above all with a people, a nation, or a state.

Perhaps the most crucial step in comprehending the psyche as a system — and in advancing the socio-psychological approach — is distinguishing between the conscious and unconscious psychological factors that drive the behavior of individuals and communities, along with recognizing the vital role played by the unconscious functions and states of the psyche. The dominance of the meaning system of the capitalist era has conditioned us to explain the actions of historical figures and communities in terms of their interests (primarily economic ones). Most of the historically significant actions people take — whether the decisions of leaders or participation in collective processes, whether organized or chaotic — are linked to the conscious functions of the psyche. This, however, is far from always being the case. Whether the challenges and perceived signals that give rise to action reach consciousness is largely determined by previously accumulated experience, which is stored in the unconscious. Research on problems in social psychology has demonstrated that the unconscious plays a critical role — both as a cause and as a director of conscious behavior — in the development of culture, morality, and institutional systems.

This, however, is only a part of the unconscious and of its functioning — in particular, its functioning as a repository of accumulated experience, of memory. The memory of historical events and processes is recorded and preserved in the products of social consciousness, mainly in objects that are external to the living, individual psychological system: in tales, legends, songs, and material objects such as manuscripts, books, paintings, and architecture. Within the living, individual psyche, memory is preserved in the reservoirs of the unconscious. Moreover, according to Jung's conception, these reservoirs may store structures that arose both during the prehistoric evolution of our ancestors and in historical times³.

³ The content of the unconscious in the individual psyche is profoundly shaped by experiences acquired in childhood and, correspondingly, by the system and style of upbringing. The effects of this influence often determine an individual's psychological traits for a lifetime. As noted earlier, the factor of childhood upbringing is one of the central research problems for psychohistorians.

The protracted nature of severe wars and the emergence of enduring hatred between ethnic groups demonstrate that the causes of historical events are often *supra-personal*, collective socio-psychological states rooted in the collective unconscious (see also the section on innovators and conservatives). A similar influence of entrenched attitudes within the collective unconscious can be observed in the persistence of traditional economic ties between the populations of neighboring states, even in the face of radical shifts in political relations between those states.

The phenomenon of the collective unconscious and archetypes has become more accessible to non-specialist understanding thanks to extensive research into the system of instincts. In most animals, instincts almost entirely determine behavior; in humans, they play a smaller yet still significant role, influencing both actions and other psychological processes. Instincts and unconditioned reflexes govern not only individual behavior but also the collective, “supra-individual coordinated behavior” (Gumilev, 1993, p. 514) of animal communities (packs, colonies, herds, and species). These are pack or herd instincts. The works of the renowned animal behavior specialist K. Lorenz are devoted to the study of instinctual systems in animals and humans, and to their comparison⁴.

A great variety of *theories of needs and motivation* exists today (see, e.g., Leontiev, 1971). Yet scholars almost invariably reference the seminal work of the American psychologist A. Maslow, “Motivation and Personality” (published in New York in 1954), which arguably offered the first exceptionally detailed study of needs and introduced their hierarchy. Lower, or basic, needs typically take

shape in the unconscious regions of the psyche; they are then consciously recognized and give rise to goal-directed activity. Higher-order needs can emerge from the awareness of individual or collective experience (beginning with childhood upbringing) and subsequently become entrenched in various compartments of the unconscious.

The works of E. Todd (Todd, 2025) and E.V. Balatsky (Balatsky, 2024) propose a model of the stage-by-stage development of a society’s institutional system – first during the rise, and then during the subsequent decline, of its social and economic activity. In this context, a paradoxical relationship emerges between indicators of socio-economic activity (specifically, rates of economic growth) and the level of social production and welfare. A positive correlation between socio-economic activity and the level of production and welfare would appear natural: a higher level of welfare implies greater opportunities for an increasing number of society’s members to find productive employment, obtain a quality education, and so forth. The paradox, however, lies in the fact that in most developed countries, once a certain level of welfare is attained, the welfare level continues to rise, yet the rate of growth of social activity steadily declines. This phenomenon is corroborated by extensive statistical evidence (Balatsky, 2025).

It is quite natural to explain the rise in societal activity as a response of the collective psyche to unmet needs, and the decline in activity as the result of their increasing satisfaction. The question arises: is it really the case that economic and technological progress must inevitably lead society toward a decline in activity? This question pertains to psychology, to economics, and, in essence, to all the humanities. The first step lies in recognizing that the growth of welfare leads to the satisfaction of needs lower down on Maslow’s hierarchy. Higher-order needs, however, are by no means necessarily satisfied. The study of these higher-order needs and their interconnections with societal activity undoubtedly remains a vital direction in the development of psychology and all the social sciences.

⁴ I recommend his book “Tak nazyvaemoe zlo. K estestvennoi istorii agressii” [So-Called Evil: Towards a Natural History of Aggression], which is devoted to intraspecific aggression. Lorenz draws the following conclusions: “Aggression can make a mistake and thereby destroy life. But its purpose in the great unfolding of the organic world is to do good”. “The excessive aggressiveness that is in our blood, us humans, ... is the result of intraspecific selection that acted upon our ancestors for tens of thousands of years” (Lorenz, 2008).

To date, psychology has amassed a considerable array of tools capable of describing the individual psyche through a small set of concepts, yet with far greater detail and specificity than is possible with Jungian categories. One such approach is personality typology — research aimed at identifying (and describing) a limited number of personality types that account for the majority of the population. A closely related line of inquiry seeks to isolate a small set of basic psychological traits whose combination yields a universal personality model, one that can be used to characterize any existing type. This second approach is known as the Big Five, reflecting the number of core traits it identifies. The theory is presented, for instance, in the work (Pervin, John, 2000). In what follows, we will illustrate with examples how the personality types and basic psychological traits studied by psychologists can serve as factors that shape the unfolding of historical processes. Regrettably, the objectives typically pursued in these fields remain largely confined to psychological science and to medical or industrial practice, and are seldom connected with the problems of history or philosophy.

In the work of E. Spranger, a personality type termed the “political man” is introduced, characterized by a need for power, dominance, and a capacity to influence others (Spranger, 1921). The degree and forms of expression of this psychological property vary sharply across different individuals, national cultures, and civilizations. It is generally associated with a readiness to submit — with the need to belong to a power grouping that wields considerable influence in society.

Another personality type, the “economic man”, is characterized by Spranger in a manner analogous to the description of the basic trait of “agreeableness” in the Big Five model. What is highlighted is a propensity to create a businesslike atmosphere in interpersonal relations, marked by mutual trust and cooperation, with the aim of activity being the attainment of utility. An increase in the share of members of society, or of the active elite, who possess these psychological qualities should be

regarded as an important factor in the development of market relations.

Passionaries

A model analysis of the interaction between historical and psychological processes is provided by L. Gumilev’s introduction into historical research of a socio-psychological factor: the passionary type of person (Gumilev, 1993). The question of the origin of passionaries remains a subject of debate, as does the question of the hereditary transmission of the psychological traits of this personality type. Yet the historical role of this multitude of individuals has been investigated in detail by Gumilev as one of the principal factors in ethnogenesis. Passionaries are distinguished by their surplus of energy and by their need to take part in the formulation of socially significant goals and in their realization.

Theories and models of the evolution of civilizations and of ethnogenesis effectively capture the structure of historical development on timescales commensurate with the life phases of an ethnos — spanning several centuries or even millennia. The modern world, however, is developing at a far greater speed than before. Profound changes in its economic-technological, political-ideological, and institutional structures occur every fifty years, if not every single decade. These changes sweep up both the narrow strata of ruling elites, leading to a “reshuffling of cadres”, and the broad masses. It is difficult to imagine such transformations without the leading role played by passionary groups. All of this indicates that their role and its variability warrant closer examination.

According to Hegelian dialectics, a community, a social stratum, is defined by its juxtaposition with its alternative. L. Gumilev describes such an alternative as people of the harmonious type, the “energy-balanced”. These are people who adapt well to the conditions of life that have taken shape, to the political, economic, and institutional situation in society. As a rule, they do not display an inclination toward heightened, goal-directed social activity. Passionaries constitute the active part of society; harmonious people form the passive part.

Gumilev and other historians, observing periods of heightened social activity in ethnic and other collectives, link this rise to an increase in the number of passionaries and to the growth of their migratory, environment-transforming, military, economic, and other activities (passionary tension). Critics of Gumilev have called into question the theory that passionary individuals emerge as a result of fluctuations in cosmic fields or other factors unrelated to human agency. As an alternative concept, one may postulate the existence of a constant proportion of individuals genetically capable of passionary activity, the majority of whom, owing to an unfavorable historical situation, were unable to realize their abilities and aspirations (potential passionaries). Gumilev provides examples of shifts in people's mood and behavior in the presence of even a small number of passionary personalities, who transmit to those around them their behavioral attitudes, heightened activity, and enthusiasm, triggering a surge in passionary tension. Gumilev uses the term "passionary induction" for this effect. It may well be that the phenomenon lies not in the *emergence* of new passionaries, but in their *manifestation* (awakening).

Another variation of the concept suggests that a period of "passionary tension" arises not from an increase in the number of passionaries, but rather because the passive masses, under the influence of induction, adopt the aspirations and behavioral attitudes of the passionaries (induction here refers to the influence of passionary personalities on those around them, a term introduced by L. Gumilev). During wars, passionary commanders, leading a small group of patriots, frequently managed to rally troops composed primarily of harmonious personalities. Many of these individuals go on to become true passionaries.

Innovators and conservatives

I have drawn attention to numerous examples that clearly distinguish periods marked by a high volume of historically significant transformations from periods of resilience and stability (Volkonsky, 2025b). In my work, these are referred to as epochs

of change and epochs of stability⁵. I propose a hypothesis regarding the existence of two psychological types – or groups of people – characterized by relatively stable psychological attitudes: one is "charged" toward deep, multifaceted transformation of society and the social order – these are the innovators; the other consists of people whose primary attitude and goal is the resilience of society and the stability of the social order – these are the conservatives.

That article contains an error: the term "innovators" was replaced with "passionaries". Referring to a period of change as an epoch of passionaries is correct, but applying this substitution to the group of innovators is unacceptable. Not only innovators but also conservatives may require passionaries – with their powerful energy – to realize their societal goals. In such situations, passionaries can include individuals with either an innovator or a conservative orientation. During an epoch of change, a struggle for dominance and power often unfolds between innovators and conservatives. A case in point is the current period of change in the United States in 2024–2025 – the coming to power of Donald Trump and his battle against the "deep state". Trump and his team's orientation toward restoring America to the traditional principles of social order attests to his and his supporters' conservative character. The ideology and policies of the Democrats during the presidencies of Obama and Biden represent an orientation toward creating an entire "cancel culture", discarding most "outdated" ideological values and moral and legal norms and constraints in the name of a "New" world order. This elite split (and likely that of the whole society) clearly demonstrates the utility of employing the psychological types of conservatives and innovators for the psychohistorical approach.

The category of innovators includes revolu-

⁵ After completing this article, I learned of the book by E. Todd (Todd, 2024) and discovered his identification of analogous periods as stages in the changing effectiveness of religious faith in society: a stage of activity and a stage of inertia.

tionaries and reformers, as well as scholars and cultural figures whose work is connected with the search for new problems and directions that open up new possibilities for humanity. In the foreign policy and military spheres, the activity of innovators is offensive rather than defensive in character. The dominance of the innovator psychological type in society, or in particular sectors of it, tends to initiate and sustain progressive historical trends. At the same time, this category also encompasses representatives of communities charged (or infected) with the ideology of an anti-system (Gumilev, 1993, Part II), in particular that of a chimera. In his article “Russophobia”, I.R. Shafarevich examines in detail a type of anti-system highly relevant to present-day conditions, which he terms the “Small People” (Shafarevich, 1991).

After the catastrophe of World War II and the threat of nuclear apocalypse, and following the collapse of the USSR as a global ideological power, the participation of the conservative psychological type – an alternative to the innovator type – became a tangible and significant force in historical processes. These are by no means passive individuals; they are people whose primary orientation is toward the resilience and stability of the social order. Not only innovators, but also conservatives may require passionaries with their powerful energy to realize their societal goals. The article (Volkonsky, 2025b) discusses an issue that is highly relevant for present-day Russia: ensuring high economic growth rates in an epoch of conservatives.

The categories of an innovators’ epoch and a conservatives’ epoch can be employed to structure psycho-historical processes as the dominant orientations of ruling elites. This is vividly apparent at the present moment, when the waning of the innovators’ epoch and the growing influence of the conservatives are unfolding before our very eyes in the United States and occurred quite recently in Russia. (Such a turning point in two world powers is justifiably regarded as a turning point in global history.) In the Soviet Union, under the influence of the proximity of the wealthy Western civilization and its effective propaganda, the elite

split into Westernizing dissidents (innovators) and supporters of preserving the political-ideological course – who still held faith in the possibility of its renewal in the future (conservatives). The Westernizers won. But not for long: Vladimir Putin’s speech at the Munich Security Conference in 2007 demonstrated that Russia was returning to a position of state sovereignty. The conservatives’ epoch was beginning.

In the United States, the ideology of globalism – the establishment of a New Order across the entire planet under U.S. hegemony – can be regarded as the orientation of the innovators. However, the initiation of numerous cold and hot wars and “color revolutions”, against the backdrop of the rapid rise of China and India and the restoration of Russia’s sovereignty, only led to the steady erosion of America’s standing as a global leader. This, in turn, drove the expansion and strengthening of the conservative orientation within the American elite – an orientation toward a return to the bygone days of steady growth coupled with a stable societal order. The dominant grouping of innovators, in order to rally their supporters and realize their innovating essence, began to lend support to all manner of innovations: the rejection of the nation-state, of the family, of human nature itself, and more.

Trump came to power at a time when new civilizational poles and their coalitions were emerging and gaining strength. He declared that he would prevent America from losing its standing as a global leader. A large segment of the American public expects him to restore and preserve the country’s position as the world’s hegemon. To this end, Trump seeks to redirect society’s attention toward domestic issues and to ensure the resilience and independence of the economy by reviving manufacturing industries at home. Another task he must accomplish in order to protect the country against the destabilization of its social and moral order is the expulsion of illegal migrants – a task he has practically completed. Trump’s orientation toward ending wars around the world is necessary not only to halt American participation in conflicts

that impede the recovery of its economy. Trump is prepared to become the voice of a collective need shared by the majority of nations (with the possible exception of a group of Western European countries) – weary of hot and cold wars – for stability and resilience. The countries that have embraced the ideology of a multipolar world, like a large part of America itself, are waiting for the onset of a conservatives' epoch.

Unfortunately, it is often impossible to unambiguously determine the dominance of innovators or conservatives for a given period. The difficulty lies in the fact that different strata of society may hold sharply diverging attitudes and values, and even within a single social stratum, attitudes may differ with respect to various issues.

In closing this section, let us offer a conjecture about the role of passionaries in the unleashing of wars. In the article (Volkonsky, 2025b), it was suggested that one of the causes of war is the passionaries' need to find an outlet for their excessive energy when such an outlet is otherwise unavailable. Most often, this outlet can be found in the stoking of hostility toward a neighboring people, escalating it to the level of a cold war and then, potentially, to a hot one (see, for example, Blattman, 2024). This thesis should be refined with the aid of the socio-psychological categories discussed above.

First, fully conscious, rational factors alone are almost always insufficient to explain the outbreak of war. The losses incurred in wars frequently exceed by many times over the possible gains and advantages that states initiating and waging a protracted war might hope to secure. At the same time, the levels of culture and the value systems of the communities involved in the conflict are entirely sufficient to allow for finding a mutually beneficial resolution to the contradiction that sparked the conflict. It often seems that the problem lies solely in a lack of information on the part of one or the other participant – that, instead of war, the parties could be persuaded that the losses from war far outweigh the gains of an anticipated victory. War is simply not profitable! In reality, the cause of a

protracted conflict is most often not a deficiency of information or an inability to think rationally, but rather the fact that the people involved in the conflict between communities are different – only the differences are difficult to detect. The point is that they differ not in their physiological characteristics, nor even in their formalized ideologies, but in the depths of the unconscious.

Second, the initiators or supporters of the unleashing of a war may be not only passionaries but also (and perhaps even more often) innovators. It is easier for passionaries to find a worthy application for their capacities and attitudes than it is for innovators, for whom the search for, and the choice of, their place in social activity is concentrated precisely on change. War satisfies this condition. But to find, or to create, the idea of a profound social change under the conditions of a peaceful life is far from being always possible.

It is worth noting that historical processes linked to shifts in the organization of society and in international relations are sometimes explained in terms of the needs for rivalry and for belonging to a large, influential community (accompanied by estrangement from other communities). In my view, an explanation that draws on the categories of innovators and conservatives often proves more compelling.

The sections that follow will examine processes of world history, highlighting the influence that psychological factors have exerted upon them.

Christianity and the formation of Western civilization

The collective Christian ethos played a decisive role not only in the development of the countries of the Middle East and Europe but also in shaping the new contours of world history as a whole. Christianity brought a new dominant attitude into the world. Its defining feature was the demand that every individual be active – that they strive “upward”, toward a new human nature. This drive for activation became one of the principal traits of the dominant mindset that, in the era of capitalism and the Industrial Revolution, provided an unprecedented impetus to economic and

technological progress, as well as to all other spheres of human activity.

The drive for activation manifested itself earlier in the countries of Western Europe than elsewhere and exerted its most widespread influence there. O. Spengler identified constant activity, the overcoming of all limits, as the defining feature of Western civilization. “Life is important insofar as it is activity”; “Every Western European person demands something of others. The words ‘you must’ are spoken with the full conviction that it is, indeed, possible and necessary to change, shape, and order something in a general sense” (Spengler, 1998, pp. 541, 495).

In the 14th century, the cultural movement of the Renaissance began, leading to the elevation of the significance of the human individual, into whom God Himself had placed a particle of the divine essence. The development of individualism within the socio-economic structures of Western countries, combined with the drive for maximum activity, became a major reason why the psychic energy of passionaries was channeled into the advancement of culture. An orientation toward the emancipation of the creative personality – toward its comprehensive Liberation – took shape. A contradiction between individualism and collective ideational commitment began to ripen. These shifts in deep ideology (DI) were accompanied by a decline in the influence of introverts and a corresponding rise in the influence of the intellectual psychological type.

In the 16th century, a new confession (a transformation of the IFI) emerged within Christianity itself – Protestantism, exerting a transformative impact on history comparable to that of Christianity itself. Previously, it was the Church that had helped to elevate religious faith to the highest level of the meaning hierarchy, thereby liberating the believer from all earthly constraints. The Church served as an intermediary in the relationship between the human being and God. Now, it came to be perceived as a restrictor of the freedom of that relationship. Henceforth, each person was to define this relationship alone, without intermediaries, in direct communion with his or

her Creator. This relationship became the highest value. The individual could and must now make free choices and bear responsibility for his or her own thoughts and deeds. Thus was born the ideational commitment to individualism and liberalism – yet another feature of the psychological dominant, the driving force behind the economic-technological and macro-historical breakthrough of the Modern era.

E. Todd identifies three major outcomes of the impact of Protestant ideational commitment on history.

1. The historically rapid spread of mass literacy (every believer had to be able to read the Holy Scriptures for themselves).

2. The explanation (and justification!) of real inequality among people and the often negative attitudes they hold toward one another, at times escalating into hatred and violence. The basis for this is the doctrine of the predestination of each individual to salvation or damnation, which cannot be altered by deeds or thoughts. This doctrine contributed to a “paradoxical” state of the collective psyche of the West – one that prizes the achievements of progress above all else, yet simultaneously permits ideologies and societal arrangements such as racism, the genocide of nations, and Nazism.

3. The activation of the idea of the nation, since the Holy Scriptures were translated into local languages (Todd, 2024).

The most important outcome, however, was undoubtedly the emergence of the thesis that a person’s success in life and business should be understood as a sign of divine favor. This thesis – identified as a product of Protestantism by M. Weber – became the foundation for a drive toward capital accumulation, a drive that elevates entrepreneurial activity to the pinnacle of the hierarchy of values and meanings.

Thus, the era of Modernity dawned in Western Europe. It was characterized by a new outlook on human development, its goals, and its meaning. At the summit of the meaning hierarchy stood the drive for infinite development and perfection, originally instilled by Christianity – only now the

focus was no longer on the introvert's deep qualities of faith and morality, but on discoveries in science and technology that expanded the capabilities and power of human organization, and on the rational-cognitive abilities of the empiricist-extravert. A psychological dominant was taking shape for the socio-economic transformation of society – for the transition to the capitalist formation.

European ideologists began to search for and study the goal and direction of this development, which came to be known as civilization. Initially, the term referred to a particular condition of society – its highest stage, following savagery and barbarism. A civilized society was understood as one possessing state structures, social stratification, urbanization, a developed writing system, and so forth. Subsequently, civilization came to be viewed as the direction of a process. In his work “The Philosophy of Civilization” (1923), A. Schweitzer pointed out the necessity of regarding spiritual and ethical development as the most essential element of civilization.

In his classic scholarly work, first published in 1974, D. Baker draws on a vast body of historical evidence to demonstrate that the most important achievements of human communities lie in their capacity to create and develop civilizations. A substantial section of the book (Chapter 27) is devoted to a discussion of the concept of civilizations and the factors behind their emergence and development. The category of intellect, along with cognitive (knowing) ability as one of its components, is examined in detail (Baker, 2015).

The question of how to define the concept of civilization – one of the most critical in the discipline of history – remains a subject of debate to this day. The breadth of the divergence in definitions has been demonstrated in the work of S.D. Baranov⁶ (Baranov, 2024). His studies examine in detail seven approaches to defining Russian (or Eastern European) civilization, as presented

in the works of various authors. We shall employ the categories of Western civilization and Eastern civilization, keeping in mind their respective origins in the Catholic-Protestant and Orthodox branches of Christianity, as well as the distinction between the Western European and Eurasian groups of countries.

In the conventional sense, the category of civilization is understood as the accumulation of spiritual and moral values resulting from societal development. The transition in the countries of Western Europe from feudal society to the society of Modernity, the age of geographical discoveries, capitalism, and colonialism, led to the replacement of Christianity's dominant orientations with the supreme value of power, an ideology of supremacy, and an abandonment of the path of accumulating civilizational riches. In Russia, by contrast, the original Orthodox teaching of Christianity was preserved, along with many other features of a mentality distinct from that of the West. Over the course of the twentieth century, the divergence between Western and Eastern civilizations evolved into a political-ideological confrontation, oscillating between relatively peaceful and overtly hostile forms.

Colonialism, the ideology of superiority, racism

Works on historical materialism provide numerous examples of how a society's deep-seated attitudes and worldview have been shaped and reshaped under the influence of economic-technological and political events and processes. Let us highlight several lines of such influence. During the 16th through 19th centuries, the British colonial empire was taking shape. Within it, earlier than in other countries, changes occurred that were bound up with the transition from the feudal Middle Ages to modernity and capitalism. In key indicators, Britain became the leader among European nations.

An important instrument in the struggle for spiritual and socio-political leadership has always been an ideology of superiority over other peoples. This ideology rests on the needs and capacities of the human psyche – above all, on the needs and capacities for rivalry and for power. It is hardly surprising, then, that in colonial Britain, with

⁶ Baranov S.D. (2025). Axial civilization. Part one. The foundations of Russian identity. *Zavtra*, no. 22; Baranov S.D. (2025). Axial civilization. Part two. The contours of the Russian world. *Zavtra*, no. 23.

its extensive experience of contact with peoples and tribes at a far lower level of development, the elaboration of an intellectually formalized ideology of superiority took the path of racism. Racial theory, Social Darwinism, and eugenics all emerged (both in theory and in practice) earlier in the Anglo-Saxon states than elsewhere. The German racial theory, “racial hygiene” (eugenics), and the ideology of Aryan supremacy that became the ideological foundation of German Nazism drew, to a considerable degree, on the theoretical and experimental work of English and American scholars – as well as on their social-policy recommendations, already tested in practice⁷.

More unexpected, however, is the use by the Anglo-Saxon elite and the U.S. ruling stratum of a long-standing concept – one that appeared no fewer than four centuries ago – that traces the origin of the Anglo-Saxons (an elite group of peoples inhabiting the British Isles) back to the people of Israel. The Anglo-Saxons genuinely believed in this doctrine of “British Israelism”: it compensated for a deficit of the ancient archetypes essential to the resilience of a deep ideology. The leader of the 17th-century bourgeois revolution, O. Cromwell, referred to the English as “God’s people” and to Britain as the “New Israel”. This concept fully serves the interests of the Anglo-Saxon elite in the United States, where the spiritual space remains fragmented owing to the presence of numerous sects and diverse cultural stereotypes. Among the most influential and active national-confessional groupings are adherents of the Zionist creed. Securing an “indissoluble” bond between the United States and Israel also aligns with the geopolitical interests of the American ruling elite, since Israel serves as a permanent instrument (or weapon) for the U.S. in a region as critical and volatile as the Middle East.

The concept of “British Israelism” provides a telling example of how contemporary ruling elites exploit the features and attitudes of the collective consciousness and the collective unconscious in the service of their own policies.

⁷ See, for example: Katasonov V.Yu. (2025). The Anglo-Saxons and German Nazism. *Otechestvennye zapiski*, no. 12, 13.

The ability to influence the collective consciousness and the collective unconscious is actively exploited by ruling groups, including state structures, through the use of propaganda (soft power). These are groups that possess the capacity to control the mass media and other information flows. A wide range of techniques have now been developed and deployed which, by shaping conscious attitudes, also affect those unconscious functions of the psyche that are not subject to critical reflection – emotions, fear, submission to a super-idea, and the like. The methods and mechanisms of soft power are employed to serve various political and ideological ends: for instance, to destabilize and fracture the societal unity of an adversary or to destroy its national identity; to dehumanize its authoritative leaders; to cultivate anti-social groups and a counter-elite; to instill in the adversary a new value system, a new “correct” ideology, and new institutions; and to construct an image of the enemy (the adversary) in the consciousness of one’s own society.

As a result of the monopoly control exercised over all major media outlets – and, in effect, over the entire information space – by a single ideological center, the media manipulation of public consciousness has become the most critical weapon of hybrid warfare.

The transition to a world of information, with its capacity for virtually instantaneous dissemination to any point on the globe, along with the development of technologies for influencing public consciousness, has transformed the picture of how macro-historical processes interact with processes of change in the collective psyche. Let us note one consequence of this transformation. In the past, the collective consciousness and the collective unconscious of the masses possessed a relatively high degree of stability, so that the political elite was compelled to adapt itself to this “constant”. Today, the properties and attitudes of the collective psyche of the masses have, to a significant degree, become a “dependent variable” – one that hinges on the current goals and capabilities of the elite.

People have grown accustomed to the idea that such features of a nation's collective psyche as feelings of empathy or antipathy toward neighboring peoples take shape and change only over long periods of interaction or through bloody wars. It has therefore come as a great surprise to witness the spread (literally within the space of a few years!) across many Western European countries of Russophobia, of credulity toward fake news, and of reports alleging Russia's intention to attack Western nations, to the point of abandoning common sense altogether.

A major consequence of the shifts taking place in the life of society is a change in the very nature of war and in its meaning. Today, the greater part of a military conflict (that is, a major war) is waged in the ideological sphere. The most important objective of war has become not the seizure of the enemy's territory, nor the destruction of its army's manpower, but the enemy's acknowledgment – and the demonstration to the entire world – of its moral and ideological defeat, its inability to resist, and its readiness to submit. In other words, the goals and outcomes of war now encompass changes not only to the political, socio-economic, and institutional structure of the adversary's society, but also to its collective psyche.

The similarity and the difference between the psychological profiles of Western and Eastern civilizations

Both Marxism and the concept of escaping the “Malthusian trap” (see, for example, Popov, 2012) show how the class and institutional structure of a society changes during the transition from feudalism to the capitalist system.

In the 16th century, the dominant role in the economy was played by such branches of production as agriculture and crafts, along with fairly free market relations. Under these conditions, the greatest success accrued to individual (family) farms in the hands of an active proprietor. Obstacles to the development of the individual farm included the communal structure of the economy and the state and Christian ideational commitment that sustained it (which was, at that time, in a phase of

conservative inertia, as Todd might put it). The rise of the new ruling class of the bourgeoisie and of the system of market relations in the economy was facilitated by the growing influence of the innovator psychological type (A.G. Dugin: “Modernity is the negation of Tradition” (Dugin, 2020, p. 151)) and of the drive toward rivalry and competition. The ideational commitment of the New Era came to incorporate the value of individualism.

Since the individual becomes the highest value, what moral or spiritual norms and prohibitions can limit their striving for Liberation, for the expansion of their capabilities? Individualism engenders liberalism. In Western Europe, individualistic liberalism becomes the attitude of the innovators. A new psychological dominant is taking shape.

In Russia, Christianity is preserved in its original form of Orthodoxy. Despite the powerful influence of Western civilization, the psychological dominant invariably remains statehood, which rests on a pronounced need to identify oneself with a strong community. Epochs of conservative dominance alternate with epochs of innovators, marking radical turning points in Russian history – the reign of Peter I and the creation and development of the first socialist state, the USSR⁸.

The development of Western and Eastern civilizations can be traced across various spheres of life and through different groups of factors. Perhaps the most thoroughly studied is the set of economic, institutional, and political-ideological factors that feature in the Marxist model of the successive replacement of socio-economic formations. The article (Volkonsky, 2025a) proposes a synthesis of the model of changing formations and the concept of interaction between the two civilizations. Within the framework of feudalism in Western civilization, conditions gradually ripened for the emergence of a new, more efficient formation – the capitalist one. The principal features of the capitalist system – such as the dependence of an actor's power and influence on their wealth, the spread of market

⁸ For further detail, see the works (Popov, 2012; Volkonsky, 2024; Volkonsky, 2025a).

relations, and competition – readily proliferated throughout the countries of Western Europe. In Russia, however, they were perceived as a negative path of development, as a challenge emanating from the West. One reason for this can be seen in the incompatibility of the capitalist system – and the accompanying dominant of individualistic liberalism – with Russia's dominant of statehood and the orientation toward identification with the community. In Russia, interest in socialist ideology and in the creation of a society and economy of a new, socialist formation intensified. The central component of socialist ideology is the social state – that is, a state whose purpose is to ensure the welfare of the people. This idea fully accords with the psychological dominant of statehood.

The socialist movement in Russia can be interpreted as the East's response to the challenge posed by the West – along the lines of A. Toynbee's "challenge–response" scheme. The West's answer to the spread of socialism was an intensification of the ideology of superiority – both racial and civilizational – and a policy dominated by the drive to construct a unipolar world under U.S. global hegemony. The expansion of the unipolar-world "formation" probably reached its peak of success by the early 2000s, with the destruction of the Soviet Union and the weakening of Russia. Yet the law of "challenge–response" continues to operate. In the 21st century, countries outside the Collective West system are gaining the opportunity to create a coalition capable of resisting Western expansion economically, politically, and ideologically – a multipolar world (MPW). From the moment the socialist state was established in Russia, the divergence of social orders in the two civilizations turned into a persistent confrontation that continues to the present day. Relations between the civilizations exhibit an oscillating character: a phase of convergence and growing similarity is succeeded by a phase of divergence and repulsion.

Each civilization, in its own way, obtains and utilizes the achievements and features of the opposing side's social order that contribute to its effectiveness. Thus, socialist Russia initially sought to dispense with

market relations between economic organizations. Yet it proved necessary to employ elements of the market system for planning, for price formation, and for the incentive system. After the catastrophe of the 1990s, a system was created that can be defined as a combination of market mechanisms and the social state (the most essential component of the socialist system). As early as the mid-20th century, following the USSR's victory in the Second World War and the successes of the socialist countries, the Western nations were forced to borrow from the East the principle of the social state (as an ideological and institutional principle). The institutional and administrative structures of the countries of the East and the West are now very close to one another, and their production and technological levels are rapidly converging. Whence, then, arise the initiatives that replace the phase of rapprochement with a phase of estrangement and hostility?

Judging by a mass of facts (including classified materials that have since come to light), these initiatives tend, as a rule, to originate with the ruling elites of the Western countries. One might suppose that their source is an attitude dominant in the collective psyche of those elites. In the countries of Western Europe, part of this psychological attitude is a yearning for revanche – for military defeats and for failures in other attempts to eliminate Russia from the circle of superpowers. But more important is the difference in the psyche of Eastern and Western ruling elites, a difference connected with their origins and with their dominant psychological attitudes. The institutional pyramids, the hierarchies of power in the societies of the East and the West, are very similar. At the apex of the pyramid stands a small number of the largest industrial-technological and financial corporations, together with state bodies that operate in coordination with one another. However, the leaders and employees of these structures who hold real power:

– in the countries of individualistic liberalism, these are people whose supreme attitude is the consolidation of personal power or that of their family clan (many of them are heirs to the wealthiest lineages);

— in the countries of statehood, they are people for whom the highest value is society and the state.

This distinction among elites proves consequential in historical processes.

In the medieval period, the dominant spirituality and the primary psychological factor in development was Christianity. Yet the divergence that would later form the basis of the profound distinction between Western and Eastern civilizations can be traced, as S. Averintsev demonstrates, even to the Church Fathers as a precondition for the schism between Catholicism and Orthodoxy in the 10th century (Averintsev, 2006). It manifests itself both in the conscious part of the psyche — in the intellectually formalized doctrine (IFI) — and in the broader sense of the world, the complex of moral norms, meanings, and traditions accumulated over centuries that are preserved in the unconscious.

With the transition from the Middle Ages to the Modern era, the development of science and technology ascended to the highest level of the meaning hierarchy. This led to an enhanced role within society and education for the thinking and extraverted psychological types (and, most likely, their share of the population was increasing as well). This socio-psychological tendency, noted as early as Jung, must have exerted a reciprocal influence on the structure of processes within the “general course of history”, in particular becoming a prerequisite for the formation of the capitalist system with its overall orientation toward competitive success.

This shift in the structure of psychological types manifested primarily in the evolution of Western European civilization. In the West, a person who achieves wealth sees themselves as chosen by God, and is perceived in the same way by others. No such attitude exists in Russia. In the West, the value of scientific and technological development rises to the highest level in the hierarchy of values and meanings; the very notion of “progress” — a concept narrower than “civilization” — is predominantly tied to this development. For a Russian person, scientific and technological progress also holds great value, yet it cannot be the highest aim — it is, after all, only a means.

The more rapid development of the Western countries compared to those of the East in the fields of science, technology, production, and economics is customarily assessed as their superiority — as an advantage in a universal sense. Yet, by concentrating on the values and goals of technical progress, the individual loses (or diminishes the significance of) another essential part of their needs and capacities. Receding into the background are the abilities to love life and its joys in their everyday manifestations, the attachments and love for those close to the individual — capacities that were, to a considerable degree, sanctified and elevated by the worldview of early Christianity. An important feature of Russian culture is the high psychological significance of such values as one’s “small motherland” — life in immediate closeness to the land, to plants, and to animals. For Russian culture and the psyche, interpersonal relationships hold a greater importance than they do for the Western one.

For a great many people, to be happy means to love those close to them, to be in emotional contact and unity with their immediate world: not only one’s own self, but all the people dear to them must be happy as well. The foundation of such a feeling of emotional togetherness is tradition — the memory of joyful times and, in personal life, of moments of happiness once lived. A person deprived of this feeling cannot be genuinely happy. It was the philosopher and priest Pavel Florensky who wrote about the psychological quality of attachment to the place where one lives, about the meaning and value of family and ancestral ties, and about the bond between generations. And it was in the Russian language that the concept of the “small Motherland” (*malaya rodina*) emerged. S. Shcherbakov has written beautifully about the value and psychological significance of sensing life on the earth, amidst the plant world, and in communion with animals⁹.

⁹ See: Shcherbakov S. (2025). Russian fires: How to preserve the human being in the modern world. *Zavtra*, no. 33. It should be noted, however, that the author draws the conclusion that the peasantry, rather than urban dwellers, have always been the principal custodians of Russian culture. One cannot agree with this.

The divergence in the civilizational codes manifests itself vividly in the nature of interpersonal relations (see, e.g., Kasyanova, 1994). The Western individual treats people outside his or her immediate circle of contact as one would treat any object that either facilitates or obstructs his or her goal-oriented activity. A.S. Panarin employs the term “subject–object” character of relations (Panarin, 2005).

Parallel to the development of individualism, a broader attitude has been taking shape, one that distances the Western person’s mentality from that of the Eastern person and from early (Orthodox) Christianity. The Western individual perceives the world as divided into “mine” and “not-mine” – the alien, the unordered – into which order, “my” law, must be introduced. The Eastern individual, by contrast, places greater trust in the established order, be it traditional or divine. Their primary goal is to establish not their own personal order, but a universal moral law. For the Eastern individual, to “assimilate” that which is alien means to “understand” it and to find a system of relations that is “correct” and “just” from the standpoint of the whole, without destroying the whole in the process (Lossky, 1990).

As the features described above – the ones distinguishing a person of Western civilization (their behavior, inclinations, and customs) from a person of the East, from the Russian – clearly show, these are attitudes of the collective consciousness or, even more often, of the collective unconscious, attitudes that are fairly stable yet insufficiently studied by psychologists to have acquired the status of established categories within psychological science. These differences are identified and described by historians who study civilizations. In this connection, one cannot fail to dwell on the books of O. Spengler.

O. Spengler’s book “The Decline of the West” (published in Russian as “Zakat Evropy” (The Sunset of Europe)) is devoted to the spirituality of Western European civilization, or culture, as compared with other civilizations.

An important feature of the Western civilizational code that Spengler describes is aggressive

expansionism – “the soul’s claim to dominate the alien”. “The identity of space and will finds expression in the deeds of Columbus and Copernicus, just as it does in those of the Hohenstaufens and Napoleon – in both cases, the subjugation of world space. The pure space of the Faustian world-picture is extension as action, as overcoming, as will to power” (Spengler, 1998, p. 449).

In his work (Spengler, 1925), the author highlights another feature of the Western European civilizational code: the determination to achieve important goals “despite everything” – a readiness to discard any moral or legal norms accumulated through civilizational development. Here is what he writes about the struggle between the Germans and the English after the First World War: “There can be no reconciliation here. The spirit of the Vikings and the spirit of the monastic orders will carry the struggle to its end, even if the world emerges from the bloody torrents of this century weary and broken”.

Conclusion

This article has examined the principal theoretical hypotheses and postulates that elucidate, at both the individual and collective levels, the essence of how psychological factors influence historical processes. It has also offered concrete examples of historical events in which the impact of the collective conscious and unconscious played a decisive role. The study demonstrates that the state and functioning of a society’s psychological system are in constant interaction with the economic-technological, political, institutional, and other spheres of societal life. At moments of historical rupture – or when a society is engaged in a struggle for survival (revolutions, coups d’état, wars) – changes in the psychological state of a society or of its elite exert a determining influence on the course of historical processes and on their outcomes.

The most profound influence on historical processes is exerted by the psyche’s need and capacity to concentrate the greater part of its functions, subordinating them to a particular attitude, a supreme value-semantic principle – an idea, a task, a doctrine. This attitude becomes

a psychological dominant; it may be rationally recognized, yet it is also typically rooted, in part, in the unconscious. The doctrine that constitutes the content of the psychological dominant for a large community of its adherents is either a religion or an ideology of a different type.

The persistence of relatively stable living conditions over long periods leaves lasting imprints of historical events and processes in the collective unconscious of society – for example, a positive or negative attitude toward a neighboring people. In recent times, however, the informational environment in which all societies live has undergone a radical transformation, and technologies have been developed that enable ruling elites

to manipulate public consciousness and, to a significant degree, the collective unconscious. As a result, many features of the societal psyche have lost their stability.

Historians and writers often describe civilizational differences as differences in mentality and in the typical character traits of members of a given society – for instance, the person of Western culture versus the person of Russian culture. Yet the features that mark such differences have not yet been studied sufficiently to acquire the status of established categories within psychological science, a fact that underscores the importance of psychohistory for both theory and practical application in geopolitics and economic planning.

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The Dynamics of Sanctions' Impact on the Foreign Trade of the Russian Far East



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Abstract. This study aims to assess the dynamic impact of “local” sanctions on the trade of the Russian Far East. It shows that the “local” sanctions (2014–2021) were comprehensive and open-ended, heightening the risks of bilateral interactions between Russia and both the sanctioning and the sanctioned countries – a pattern that became evident in the Russian Far East. A delayed, increasingly negative impact of sanctions on the region’s trade was identified. The direct restraining effect of foreign sanctions was found to have grown from 38.6% in 2017 to 64.3% in 2021, while the effect of Russian sanctions against foreign countries rose from 50.0% in 2018 to 58.5% in 2021. The globalization effect was found to have mitigated the negative influence of the sanctions on the trade of the macro-region under study. In terms of the tariff equivalent, the stimulating effect of globalization on the Far East’s trade in 2021 proved to be nearly half as strong in the case of the negative impact of Russian sanctions against foreign countries as it was in the opposite case. The globalization effect, however, was unable to reverse the mounting trend of the restraining influence of the sanctions on the macro-region’s trade with the sanctioning and the sanctioned countries. As a result, the overall effect of foreign sanctions against Russia contributed to a 27.4% reduction in the Far East’s trade volume with those economies in 2017 and a 54.0% reduction in 2021, whereas the effect of Russian sanctions against foreign countries produced a reduction of 42.4% in 2018 and 52.1% in 2021. It is suggested that the rise in the positive globalization effect may be accounted for by the specific nature of the Far East’s trade with Japan, which, despite the sanctions, remained a close

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and one of the largest markets for the macro-region, owing to its investment participation in regional projects. The study points to a delayed, disproportionate increase in the risks of trade and economic interactions under the conditions of comprehensive sanctions confrontation between countries, including at the regional level.

Key words: trade, “local” sanctions, counter-sanctions, direct sanction effect, total sanction effect, globalization effect, foreign countries, domestic market, region, macro-region, Russia, Far East.

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Introduction

Over the past two decades, the modern global economy has witnessed not only a growing number of agreements that lower barriers to the exchange of goods, services, and investment between countries, but also a rise in the imposition of bilateral and multilateral sanctions¹. These restrictions have substantially weakened trade and economic interactions between the sanctioned and sanctioning countries (Kwon et al., 2026). Against the backdrop of mounting non-tariff trade and economic barriers worldwide (Wu, 2025), it is the marked increase in the number of sanctions regimes that has come to be reflected in the fragmentation of the global and sub-global economic space, creating the conditions for the formation of economic blocs of countries along geopolitical lines (Gopinath et al., 2025).

Although the strength and the scale of the impact of these restrictions on the sanctioned countries can vary considerably, the existing theoretical and empirical studies of the effects of sanctions in the global economy have identified – all else being equal – the following general regularities. Sanctions have had a negative effect on the participation of the sanctioned country in global value chains (Cipollina, Bianco, 2025). By restricting access to capital and to modern technologies (Wang et al., 2025), sanctions have

on the whole curbed international economic cooperation and have promoted the fragmentation of global markets (Kim et al., 2025). Sanctions have stimulated the diversion of trade by the sanctioned countries toward both the domestic market (Shingal, 2024) and third countries, which have thereby increased their own welfare (Islam et al., 2024). The spillover of the effects of sanctions to third countries has depended on the size of the sanctioned country’s economy (Kwon et al., 2024). The development of mechanisms for circumventing sanctions restrictions by creating alternative means of payment for goods and services is capable of mitigating the risks of a rising debt burden for the sanctioned countries (Apeti, Edoh, 2024). Sanctions have not influenced the dynamics of the global business cycle (Ghironi et al., 2025). Sanctions have noticeably reduced industrial output and real income in small economies (Kim et al., 2023b), even as large economies display a high degree of adaptation (Golovanova, Krekhovets, 2025). Among the large economies that are involved in the sanctions confrontation – both as the object (the sanctioned country) and as the subject (the sanctioning country) – is Russia. The comprehensive sanctions pressure on the Russian economy began in explicit form in 2014, when a number of Western countries imposed “local” sanctions; these, in turn, were succeeded, starting in 2022, by “large-scale,” systemic sanctions restrictions.

¹ Restrictive measures targeting other countries, as well as companies and individuals, with the aim of altering their foreign or domestic policies.

Assessments of the impact of the “local” sanctions on the Russian economy have, on the one hand, found no significant negative effect on the development of domestic business (Gaur et al., 2023) or on the economy as a whole (Gutmann et al., 2024), given the volatility of the global commodity markets (Gurvich, Prilepsky, 2016); the studies have, at the same time, pointed to a certain diversion of Russia’s trade in favor of third countries (Kim et al., 2023a). On the other hand, a negative concomitant effect of such restrictions has been identified, which manifested itself in the migration of foreign firms away from the Russian market as the risks increased (Kohl et al., 2024), in the cessation of imports of a number of product groups (Blin, Hanousek, 2021), in a reduced inflow of foreign direct investment from the sanctioning countries (Besede et al., 2024), and in an indirect constraining effect on Russia’s key macroeconomic indicators (Bali et al., 2024). The assessments offered by scholars have pointed to a negative impact of the “large-scale” sanctions on the Russian economy (Flach et al., 2024). At the same time, given Russia’s large share of the global market for hydrocarbons (Rivera-Alonso, Iglesias, 2024), the diversion of Russia’s foreign trade toward other markets softened the consequences of the sanctions pressure exerted by the Western countries (Ghironi et al., 2024).

The sanctions restrictions imposed on the Russian economy did not have a strict territorial dimension; however, they affected the economies of Russian regions through the disruption of cooperative and logistical chains, as well as through direct limitations on trade and economic interactions with the country as a whole (Zemlyansky et al., 2022). Consequently, the risks associated with sanctions were not evenly distributed across Russia’s regions (Zemtsov, 2024). An analysis of the impact of the “local” sanctions (2014–2021) indicated, on the one hand, that they had

no significant effect on the export diversification of Russian regions (Vasilieva et al., 2022), while on the other, it highlighted the vulnerability of regional economies to the risks of adverse external conditions amid the sanctions restrictions (Kazantsev, 2016). Despite attempts to conduct an indirect analysis of the impact of the “large-scale” sanctions on the economies of Russian regions (Zemlyansky, Chuzhenkova, 2025), the restricted access to Russia’s official customs statistics on exports and imports since 2022 makes it currently impossible to assess the impact of sanctions restrictions on regional foreign trade.

Over the past fifteen years, the federal authorities of Russia have placed particular emphasis on the economic development of the Far Eastern regions – a focus that has become more pronounced since 2014, driven by sanctions restrictions and the ambition to diversify Russia’s export markets in favor of the Asia-Pacific countries (Minakir, 2017). At the same time, under the sanctions imposed between 2014 and 2021, the quality of economic growth in the Russian Far East deteriorated as the region’s commodity specialization intensified (Mikheeva, 2025). Earlier studies focusing on the region (Izotov, 2024; Izotov, 2026) indicated that, in the long run up to 2022, sanctions generally exerted a negative influence on its trade with the foreign countries engaged in the sanctions confrontation with Russia. Yet it remains unclear whether these sanctions generated a delayed restraining effect on the Far East’s trade with those countries during the 2014–2021 period – particularly given the impact of cyclical factors, since 2015–2016 saw volatility in global commodity prices, the very commodities that form the backbone of both the macroregion’s and the entire country’s exports and that, in turn, financed import supplies. Furthermore, given the heterogeneity of the Far Eastern regions’ trade interactions with foreign countries, the trajectory of the sanctions’

impact on the macroregion's foreign trade prior to 2022 is uncertain: either the negative impact was mounting, or the restraining effect of the sanctions was gradually dissipating. Another important aspect is a comparative assessment of the impact that the sanctions initiated by foreign countries against Russia, as well as the retaliatory sanctions (or counter-sanctions) imposed by Russia itself, have had on the foreign trade of the Russian Far East.

Thus, the aim of the study is to assess the dynamics of the impact of "local" sanctions on the trade of the Russian Far East. To achieve this aim, the following objectives were addressed: 1) analyzing the dynamics of the sanctions restrictions in which Russia was involved up to 2022, as well as the specific features of the development of the Far East's foreign trade relations under "local" sanctions; 2) selecting a methodology for the

ex-post assessment of the dynamics of sanctions impact on the macroregion's trade and compiling the relevant dataset; 3) assessing the dynamics of the impact of sanctions on the Far East's trade with foreign countries that sanction Russia and those sanctioned by Russia, respectively. The study covers the period 1999–2021, with the Russian Far East considered within its administrative boundaries of 11 regions².

Foreign trade of the Russian Far East and sanctions

Russia is both an object and a subject of sanctions, which in turn have been divided into two tracks: economic and geopolitical. In terms of the degree of sanctions pressure exerted by a number of foreign countries on Russia, and vice versa, two stages can be identified that preceded the "large-scale" sanctions (*Tab. 1*).

Table 1. Sanctions imposed by foreign countries against Russia and by Russia against foreign countries before 2022

Sanctions track	Types of sanctions	Sanctions against Russia	Sanctions against foreign countries
Economic	Trade sanctions: restrictions on trade based on the imposition of unilateral or multilateral limitations on the exporter and importer, on specific sectors, or on trade as a whole	2014–2021: Ukraine, EU-28, USA, Canada, Norway, Australia, Albania, Iceland, Japan, Liechtenstein, Switzerland, Montenegro	2006, 2009 and 2014 – Ukraine; 2006–2007, 2013–2021 – Moldova; 2006–2013 – Georgia; 2010 – Belarus; 2013 – Lithuania; 2013–2018 – Eritrea; 2014–2021: EU-28, Canada, USA, Norway, Australia; 2015–2021: Albania, Liechtenstein
	Financial sanctions: restrictions on financial transactions and assets; suspension of the exchange of financial assets and investments; «freezing» of foreign assets and blocking of bank accounts of individuals	2014–2021: Ukraine, EU-28, USA, Canada, Norway, Australia, Albania, Iceland, Japan, Liechtenstein, Switzerland, Montenegro	2020 – Kyrgyzstan
	Travel sanctions: restrictions on the movement of persons into or out of the country, with the exception of diplomatic personnel	2014–2021: Ukraine, EU-28, USA, Canada, Norway, Australia, New Zealand, Albania, Iceland, Japan, Liechtenstein, Switzerland, Montenegro	2006–2011 – Georgia; 2014–2021 – Canada; 2020–2021 – United Kingdom; 2021: Albania, EU-27

² Republic of Buryatia, Republic of Sakha (Yakutia), Trans-Baikal Territory, Kamchatka Territory, Primorye Territory, Khabarovsk Territory, Amur Region, Magadan Region, Sakhalin Region, Jewish Autonomous Region, Chukotka Autonomous Area

End of Table 1

Sanctions track	Types of sanctions	Sanctions against Russia	Sanctions against foreign countries
Geopolitical	Arms supply sanctions: prohibition of direct or third-country supply, sale or transfer of armaments or related materials	2014–2021: EU-28, Australia, Switzerland	2006–2011 – Georgia
	Military assistance sanctions: restrictions on services in the supply, sale, transit, manufacture, maintenance and use of armaments	2014–2021: EU-28, Australia, Switzerland, Japan	2009–2018 – Eritrea
	Other sanctions: diplomatic measures, restrictions on flights and the use of ports	2008–2011 – Georgia; 2014–2021 – New Zealand	2006–2011 – Georgia
Notes. EU-28: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom. EU-27 includes the above countries without the United Kingdom. Source: The Global Sanctions Data Base. Available at: https://www.globalsanctionsdatabase.com/			

The first stage (chronologically, up to 2014) encompassed the imposition of “episodic” and, in most cases, short-term sanctions. During this period, Russia was primarily a sanctioning country, imposing sanctions – mainly for foreign policy and economic reasons – chiefly against a number of former Soviet Union countries, thereby restricting their opportunities to interact with the Russian market, the largest in the post-Soviet space. Russia’s principal instrument of sanctions pressure was trade sanctions. Exceptions included travel sanctions and geopolitically oriented restrictions against Georgia amid Russia’s intense foreign policy confrontation with that country, which softened considerably after a change of leadership in that post-Soviet state; as well as UN-imposed trade sanctions and military assistance sanctions against Eritrea, which were prolonged until 2018. The only counter-restrictions against Russia were imposed by Georgia, based on the mechanism of other sanctions that provided for the severance of direct diplomatic relations.

During the subsequent stage (2014–2021), Russia encountered multilateral and targeted “local” sanctions imposed by a number of Western states in response to the situation in Ukraine, particularly the incorporation of Crimea into the

Russian Federation. These sanctions were based on selective economic restrictions. Specifically, the export of certain goods to Russia was halted³; barriers were erected to restrict the inflow of direct capital and medium- and long-term loans into the Russian economy from a number of Western countries; and travel sanctions focused on personal restrictions against Russian citizens. The set of countries that initiated trade sanctions, financial sanctions, and travel sanctions against Russia was, with a few exceptions⁴, largely the same. Within the framework of the geopolitically oriented “local” sanctions, the restrictions against Russia concerning arms supplies and military assistance⁵ were imposed by European countries, Australia, and Switzerland, while other sanctions were introduced solely by New Zealand. There was no direct confrontation based on geopolitically oriented sanctions between Russia and the United States, presumably because of the treaties on mutual monitoring and control of certain types of armaments, as well as other agreements.

³ Dual-use products, as well as equipment and technologies for oil exploration and production.

⁴ New Zealand did not impose trade sanctions, while Canada and Switzerland did not impose travel sanctions.

⁵ Japan also imposed them.

It should be noted that the “local” sanctions were not exactly “mirror” measures, since, up until 2022, Russia did not impose any retaliatory restrictions against such countries as Iceland, New Zealand, Switzerland, Montenegro, and Japan⁶. For its part, Russia, acting within the framework of trade sanctions, banned the import of a number of food product categories⁷ from most of those states under a counter-sanctions regime. Russia did not impose financial sanctions against the above-mentioned countries, thereby allowing the possibility of attracting capital through other states and economic territories, and applied this type of restriction only for several months in 2020 to Kyrgyzstan because of the internal political confrontation there. With a certain delay, Russia introduced retaliatory travel sanctions, but only against some Western countries, and it did not initiate any sanctions of a geopolitical nature at all.

Accordingly, Russia’s restrictions were concentrated in the trade sphere. In turn, the “local” sanctions against Russia were, on the whole, comprehensive and open-ended, given the impossibility of their being met. Therefore, despite the seemingly formal character of the “local” sanctions – which were, to some extent, reciprocal – they contributed to heightened bilateral risks for business, demanding additional efforts to mitigate the negative consequences of such restrictions, a phenomenon that began to manifest itself at the regional level in Russia, including in the Russian Far East.

Despite the heterogeneity of its constituent regions, the Russian Far East is, on the whole, an open economic system closely tied to foreign markets. Over the period under review, the Far East’s trade turnover with foreign countries grew considerably, from 3.1 billion US dollars in 1999 to 48.0 billion US dollars in 2021. Owing to its

territorial proximity and the large size of the market, the Far East’s foreign trade was skewed toward the three largest economies of Northeast Asia (NEA) – the People’s Republic of China, the Republic of Korea, and Japan (the so-called “Big Three” of NEA). Moreover, the trend over time has been one of growing consolidation of the Far East’s trade in favor of the NEA Big Three. Whereas in the late 1990s these three states accounted for 63.2% of the Far East’s trade turnover with foreign countries, by 2021 the share of the NEA Big Three in the macroregion’s foreign trade had reached 80.0%. The expansion of the Far East’s trade ties with foreign countries was driven chiefly by the increase in the macroregion’s exports in value terms (*Fig. 1*).

The dynamics of the Far East’s exports were shaped by the launch of new mineral extraction projects, including some based on foreign direct investment, by the construction of transportation infrastructure for the transit of raw commodities to the APR market, and by the price environment in global and sub-global markets. It is worth noting that, among the Far Eastern regions, exports were generated primarily by the Sakhalin Region⁸ and the Republic of Sakha (Yakutia)⁹, which together accounted for roughly 70% of the value of goods shipped from the macroregion to foreign countries in 2021. Owing to the expanding demand for raw commodities from the PRC, the Chinese vector in the Far East’s exports became increasingly prominent, especially under the “local” sanctions. The sanctions restrictions imposed by a number of Western countries against the Russian economy made it impossible to attract foreign capital and technology for the development of new oil and gas projects on the shelf of the Sakhalin Region,

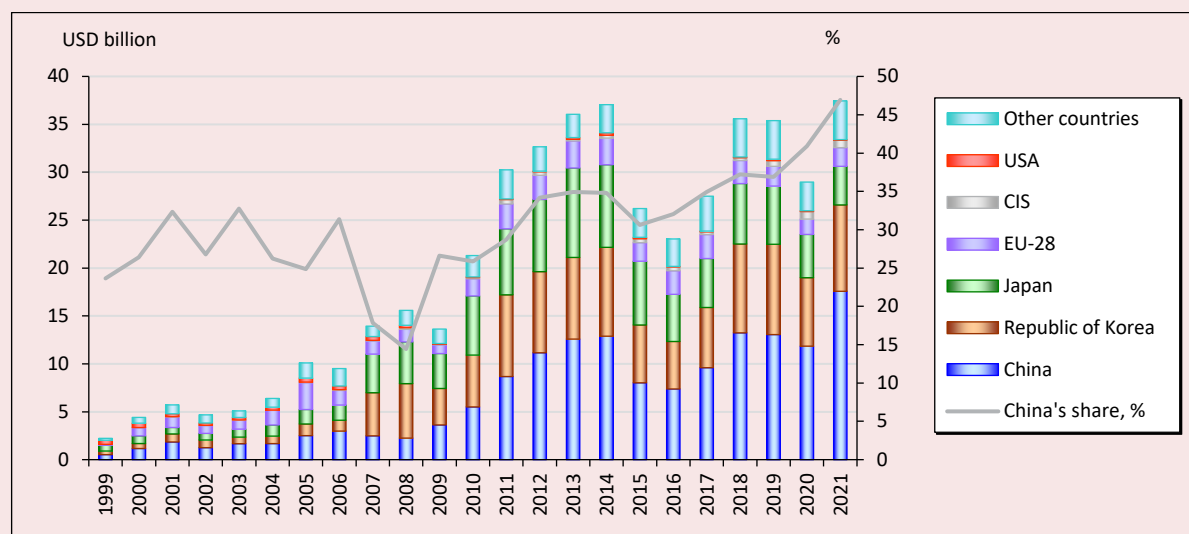
⁸ In connection with the commissioning, from 2007, of the Sakhalin-1 and Sakhalin-2 oil and gas projects under production-sharing agreements with a consortium of global-level oil and gas corporations.

⁹ Exports of coal and diamonds, and the expansion of oil and natural gas deliveries to the Chinese market via the pipeline infrastructure built in the second half of the 2010s.

⁶ Also Ukraine – from 2015.

⁷ The majority of commodity groups of agricultural goods, fish, and seafood.

Figure 1. Exports of the Russian Far East (left axis) and the share of the PRC (right axis)



Calculated from: data of the Federal Customs Service (FCS), regional offices of the Federal State Statistics Service (Rosstat), and industry-specific statistics of Russia.

and they fundamentally transformed the “resource transit” of hydrocarbons in the mainland portion of the southern Far East, shifting its emphasis from diversifying exports toward the APR as a whole to ramping up deliveries to the Chinese market. In addition, at the end of the 2000s, Russia’s tightening of restrictions on the export of timber products to foreign markets encouraged a reorientation of these goods from the Japanese market to the Chinese one. As effective demand in China grew, a portion of the fish and seafood exports from the Far East that had previously been destined for Japan began to flow to the PRC market, including via the newly created “Primorye-2” transport corridor. Under these conditions, China’s share of the Far East’s exports reached 46.9% by 2021, despite the restrictions associated with the COVID-19 pandemic.

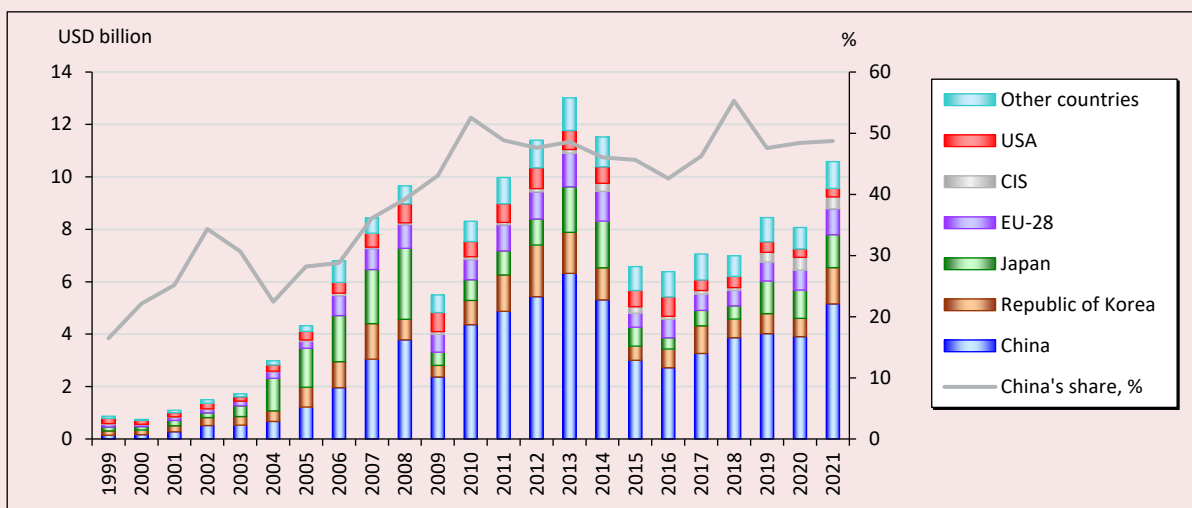
In 2021, the value of the macroregion’s exports was 3.5 times greater than that of its imports, a disparity explained by the production of commodity surpluses in excess of the Far East’s own needs and by its small population. Over the long run, as with exports, the Far East’s imports exhibited a skewing

in favor of the NEA Big Three. At the same time, a certain shift was observed in the country structure of the Far East’s imports, linked to the implementation of major investment projects that required the delivery of costly and, at times, unique components and equipment to the macroregion. For this reason, in the late 1990s the largest share of imports into the Far East belonged to the United States (23.1% in 1999), owing to the supply of investment goods for the operation of extractive industries, while in the late 2000s—early 2010s the share of imports from the EU-28 countries was comparable to that of Japan, as a result of the construction of unique infrastructure projects in the south of the Primorye Territory. The main peak of import deliveries to the Far East occurred in 2013, against the backdrop of a “strong” ruble exchange rate and an increase in the value of exports for Russia as a whole amid a favorable price environment for crude oil, as well as the absence of any sanctions restrictions on the Russian economy. After 2014, in the wake of declining exports and a significant devaluation of the ruble, imports into the Far East contracted, recovering only to some extent

by 2021. Against the backdrop of sanctions imposed by a number of Western countries, deliveries of goods from China to the Far East increased, including those destined for the implementation of mineral extraction and transportation projects. As a result, China became the leader in supplying goods from foreign countries to the Far East, with its share reaching 48.7% in 2021. Overall, by 2021 the NEA Big Three accounted for 73.7% of the Far East's imports, marking an increase of 21.1 percentage points compared to 1999 (*Fig. 2*).

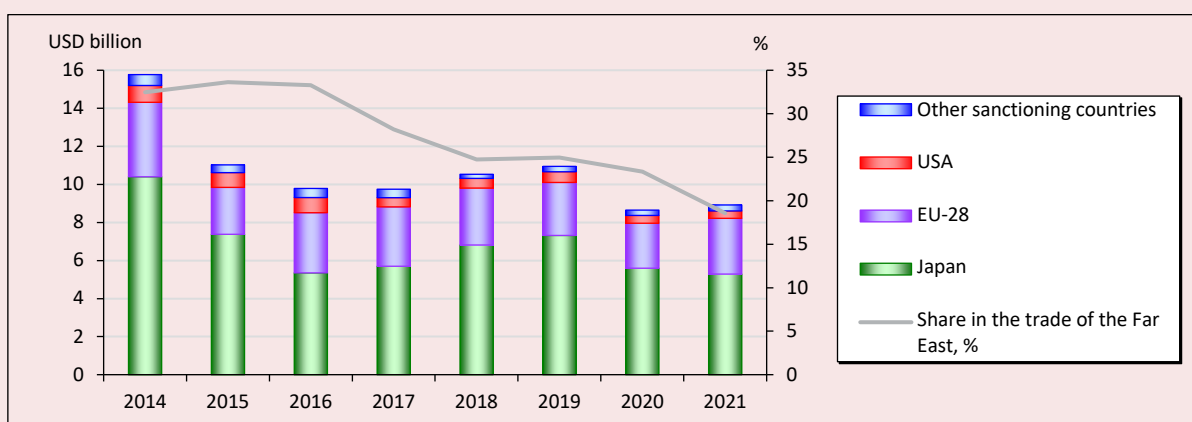
It should be noted that, over the 1999–2013 period, the only country to impose sanctions against Russia was Georgia, whose share in the Far East's foreign trade was minuscule, standing at 0.01% in 2008 and shrinking to zero by 2011. Between 2014 and 2021, sanctions became more notable. Among the states that imposed “local” sanctions on the Russian economy was Japan, which holds a significant share in the Far East's trade, followed by the European countries and then, at a considerable distance, the United States and others (*Fig. 3*).

Figure 2. Imports of the Russian Far East (left axis) and the share of the PRC (right axis)



Calculated from: data of the FCS, regional offices of Rosstat, and industry-specific statistics of Russia.

Figure 3. Trade turnover of the Russian Far East with countries sanctioning Russia (left axis) and the share of these countries in the macroregion's trade (right axis)



Calculated from: data of the FCS, regional offices of Rosstat, and industry-specific statistics of Russia; The Global Sanctions Data Base. Available at: <https://www.globalsanctionsdatabase.com/>

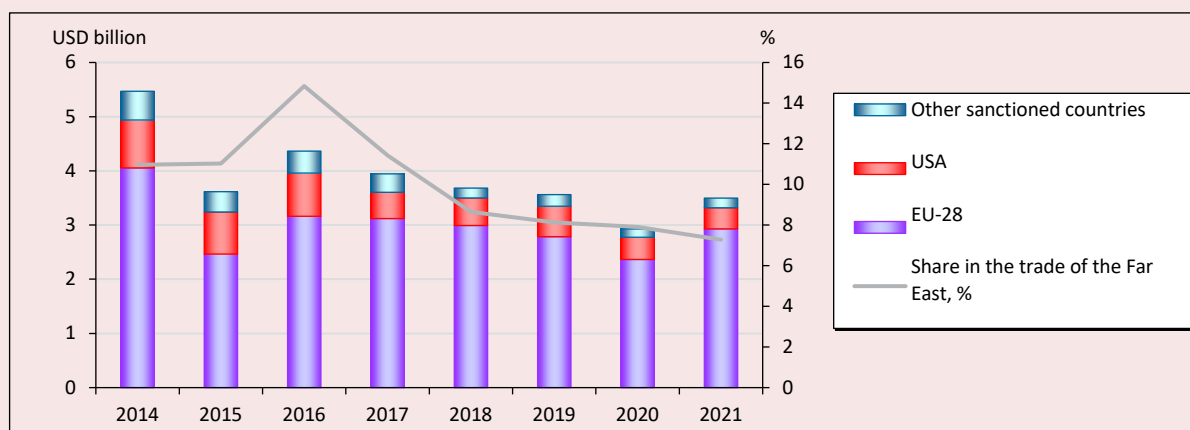
In 2014–2021, the share of this group of countries in the macroregion's trade turnover exhibited a downward trend (from 32.5% in 2014 to 18.6% in 2021), driven both by cyclical factors and by the diversion of the Far East's trade toward other states. During this period, against the backdrop of a pronounced increase in the Far East's trade with the PRC and the Republic of Korea, Japan's share in the macroregion's foreign trade turnover was declining. While imports of investment goods from the EU-28 countries to the Far East were maintained at a certain level, exports to European countries were falling as the macroregion's commodity flows were reoriented toward the countries of the Middle East and India, a shift linked to sanctions risks. The shares of the United States and the remaining countries sanctioning Russia (Ukraine, Canada, Norway, Australia, Albania, Iceland, Liechtenstein, Switzerland, Montenegro, and New Zealand) in the macroregion's foreign trade turnover were already small before 2014, and contracted even further after the “local” sanctions were imposed.

The share of the countries¹⁰ sanctioned by Russia in 2006–2013 in the Far East's trade turnover was negligible (from 0.7% in 2006 to 0.01% in 2013). In turn, in 2014–2021, Russia's retaliatory sanctions did not extend to Japan and New Zealand, while continuing to apply against Moldova¹¹. The share of the countries sanctioned by Russia in the Far East's trade turnover with foreign countries was declining in 2017–2021 (Fig. 4). The analysis presented points to a negative impact of the 2014–2021 sanctions restrictions on the macroregion's trade both with the countries sanctioning Russia and with those sanctioned by Russia.

Estimation methodology and data

An ex-post assessment of the dynamic impact of sanctions on trade can be obtained by constructing a structural gravity equation, an approach that has produced satisfactory results in a large number of empirical studies and draws on theoretically grounded modifications (Shumilov, 2017). Several provisions have now emerged that govern the correct estimation of factors based on the structural gravity

Figure 4. Trade turnover of the Russian Far East with countries sanctioned by Russia (left axis) and the share of these countries in the macroregion's trade (right axis)



Calculated from: data of the FCS, regional offices of Rosstat, and industry-specific statistics of Russia; The Global Sanctions Data Base. Available at: <https://www.globalsanctionsdatabase.com/>

¹⁰ Ukraine, Moldova, Georgia, Belarus, Lithuania, and Eritrea.

¹¹ Also to Kyrgyzstan in the framework of financial sanctions in 2020.

methodology. First, this methodology rests on controlling for all time-varying and time-invariant bilateral trade costs facing trading economies, using fixed effects for the exporting and importing economies with a time dimension and for each pair of trading economies, respectively, in order to identify the impact of a particular independent dummy variable (Yotov et al., 2016). Second, an important aspect of studying trade determinants, especially at the regional level, is overcoming the problem of so-called zero observations, which do not permit the estimation of the relationship in log-linear form. To address this problem, the relationship is estimated in multiplicative form (Flowerdew, Aitkin, 1982), typically using Poisson pseudo-maximum likelihood (PPML) (Santos Silva, Tenreyro, 2011), on the basis of which satisfactory results have been obtained even for samples with a large number of zero values, exceeding 80% – a feature that matches the characteristics of the trade data for the Far Eastern regions with foreign countries. Third, standard errors are clustered by interacting country pairs within the Newey – West procedure to correct for autocorrelation when using Poisson pseudo-maximum likelihood with fixed effects (Yotov, 2022). Fourth, a direct estimate of the impact of the independent dummy variable can be obtained by controlling for the influence of the common trend of international trade growth, or the globalization effect, by including domestic trade flows in the panel data (Campos et al., 2021). Fifth, to enhance the overall efficiency of the model, it is desirable to use consecutive, rather than interval, years in the panel (Larch et al., 2025).

Since the assessment of the dynamics of the impact of the “local” sanctions on the Far East’s trade is based on dummy variables reflecting the presence or absence of sanctions restrictions, a particular year or period is assumed to be excluded to avoid the problem of multicollinearity; by default, this period is treated as the *benchmark*, i.e., the reference or baseline value. For Russia, the period

up to 2014 was characterized as being relatively free from sanctions pressure; in the present study, it can therefore be used as the *benchmark*, and the dynamic estimate of the sanctions’ impact on trade will be comparative, covering 2014–2021 – that is, evaluated for each year within this time interval (Borchert, Yotov, 2017; Bergstrand et al., 2015). Another important consideration is the distinction between the estimates of the overall effect and the direct effect of sanctions on trade: the former does not account for, while the latter does account for, the influence of the common trend in international trade growth. This distinction is needed to identify the extent to which the globalization effect has softened the trade interactions of the Far Eastern regions under the sanctions restrictions imposed on the Russian economy as a whole.

Consequently, the direct effect of sanctions on the trade of the Russian Far East was estimated within the following model::

$$X_{ij,t} = \exp \left[\frac{\beta_0 + \sum_{N=2014}^{N=2021} \beta_N SANC(N)_{ij} + \sum_{T=1999}^{T=2020} \beta_T INTL(T)_{ij} + \pi_{it} + \chi_{jt} + \mu_{ij} + \varepsilon_{ijt}}{\quad} \right], \quad (1)$$

where X_{ij} is exports from economy i to economy j (this indicator also includes X_{ii} – trade within the Far Eastern regions, between the Far Eastern regions, and with other Russian regions). All independent variables are dummies, thus avoiding the problem of endogeneity: $SANC(N)$ equals one if sanctions are in place between Russia and foreign countries for each year N , and zero otherwise; $INTL(T)$ equals one for the Far East’s trade with foreign countries for each year T , and zero for trade with the domestic market (X_{ii}), reflecting the comparative aggregate costs (barriers) the macroregion faces in its interactions with the foreign market, with 2021 serving as the *benchmark*; β_0 is the constant; β_N are the semi-elasticities of the impact of sanctions on the Far East’s trade; β_T are the semi-elasticities of the aggregate barriers to the Far East’s trade interactions with foreign countries;

t is time. The fixed effects are: π_i – for the exporting economy, accounting for the year; χ_j – for the importing economy, accounting for the year; μ_{ij} – for pairs of trading economies.

Next, the dynamics of the overall effect of sanctions on the Far East's trade were estimated as follows:

$$X_{ij,t} = \exp \left[\beta_0 + \sum_{T=2014}^{2021} \beta_N SANC(N)_{ij} + \pi_{it} + \chi_{j,t} + \mu_{ij} + \varepsilon_{ij,t} \right]. \quad (2)$$

The difference in the semi-elasticity values β_N between models (2) and (1) provides a quantitative estimate of the globalization effect's influence on the Far East's trade with foreign countries. In accordance with the research objective, the dynamic assessment of the impact of the sanctions restrictions $SANC(N)$ on the Far East's trade was carried out separately for the sanctions imposed by foreign countries against Russia and for those imposed by Russia against foreign countries. An important caveat is that the methodology employed also estimates the dynamics of the sanctions' impact on the Far East's trade with the sanctioning or sanctioned countries in comparison with the macroregion's trade with other countries with which Russia is not engaged in confrontations of this kind.

As a result, the dataset on trade flows for the Far Eastern regions was constructed on the basis of their trade ties with the foreign market (foreign countries and economic territories) and with the domestic market (with other Russian regions, among themselves, and within the Far Eastern regions themselves). Statistics on the Far Eastern regions' trade with the foreign market were compiled from the following information sources: the Federal Customs Service (FCS); regional offices of the Federal State Statistics Service (Rosstat); and industry-specific statistics for Russia. The use of information sources beyond the FCS for the trade of the Far Eastern regions with the foreign market was necessitated by the need to account for a

number of commodity groups traded outside the Russian customs border, as well as by the specific nature of the way trade in crude oil and petroleum products is recorded. Apart from the Far Eastern regions' trade with foreign countries and economic territories, a key element in constructing the dataset was the inclusion of the macroregion's trade with the domestic market, so as to identify the direct effect of sanctions. Owing to the exclusion – and, later, the discontinuation – of Rosstat's accounting for a number of commodity items from the mid-2000s, the data reflecting the value of the Far Eastern regions' trade with the domestic market were based on statistics on the inflow and outflow of goods for more than 200 enlarged commodity groups, estimated on the basis of industry-specific and microeconomic statistics (Izotov, 2024; Izotov, 2026). An important caveat is that the FCS has not officially published data reflecting the value and physical volume of trade for Russian regions since 2022, while Rosstat's statistics on the inflow and outflow of goods are available only from 1999; the time frame of the study is therefore the 1999–2021 period. In all, the trade of the Far Eastern regions covered 150 foreign economies, though trade with most of these was sporadic for a number of the Far Eastern regions.

Given the significant differences in the trade relationships of the Far Eastern regions both with foreign countries and with the domestic market, the final dataset on the macroregion's trade contained roughly 70% zero values. This circumstance, on the whole, points to a marked heterogeneity in the trade interactions of the Far Eastern regions with foreign economies, indicating the need to control for other time-varying factors via fixed effects, which is consistent with the estimation methodology employed in this study within the framework of equations (1) and (2). To avoid problems associated with incorrect estimates (Baldwin, Taglioni, 2006), the value of the Far Eastern regions' trade was expressed in current prices.

The array of independent variables reflecting the presence or absence of sanctions imposed by Russia against foreign countries and by foreign countries against Russia was constructed on the basis of the GSDB database¹². In the resulting indicator, all types of sanctions were used, since the “local” sanctions were closely correlated with one another¹³. In all, the variable array comprised 79,189 observations (*Tab. 2*).

Estimation results

Estimates from models (1) and (2) yielded econometric results that, in terms of their formal properties, are satisfactory for assessing the impact on the Far East’s trade of sanctions imposed by Russia against foreign countries and by foreign

countries against Russia, respectively (*Tab. 3*).

The estimates indicated a delayed negative impact of the “local” sanctions imposed by foreign countries against Russia on the Far East’s trade, as evidenced by the absence of statistical significance between the variables for the first three years (2014–2016). Only the 2017–2021 period witnessed a statistically significant and increasing negative impact of the “local” sanctions restrictions imposed by foreign countries against Russia on the Far East’s trade with these economies observed, both for the direct effect (1) and for the overall effect (2). In turn, the sanctions restrictions imposed by Russia against foreign countries exerted a restraining effect on the Far East’s trade in 2014–2015 only in the case of

Table 2. Descriptive statistics of the dataset

Variable	Mean	Standard deviation	Min.	Max.
Trade between economies, USD million (<i>X</i>)	12.80	172.89	0	10389.25
Dummy variable (<i>SANC</i>) – sanctions imposed by foreign countries against Russia	0.09	0.29	0	1
Dummy variable (<i>SANC</i>) – sanctions imposed by Russia against foreign countries	0.09	0.28	0	1
Dummy variable (<i>INTL</i>) – trade of the Russian Far East with foreign countries	0.96	0.20	0	1
Source: own calculations.				

Table 3. Results of estimating models (1) and (2)

Variable	Sanctions imposed by foreign countries		Sanctions imposed by Russia	
	(1)	(2)	(1)	(2)
<i>SANC</i> ₂₀₁₄	-0.29 (0.17)	-0.08 (0.17)	-0.42** (0.20)	-0.26 (0.20)
<i>SANC</i> ₂₀₁₅	-0.23 (0.21)	-0.01 (0.21)	-0.42** (0.21)	-0.23 (0.21)
<i>SANC</i> ₂₀₁₆	-0.25 (0.18)	-0.19 (0.17)	-0.08 (0.23)	-0.07 (0.23)
<i>SANC</i> ₂₀₁₇	-0.49** (0.15)	-0.32** (0.15)	-0.38 (0.25)	-0.29 (0.25)
<i>SANC</i> ₂₀₁₈	-0.67*** (0.18)	-0.44** (0.18)	-0.69*** (0.26)	-0.55** (0.26)
<i>SANC</i> ₂₀₁₉	-0.65*** (0.15)	-0.41*** (0.15)	-0.76*** (0.18)	-0.60*** (0.17)
<i>SANC</i> ₂₀₂₀	-0.74*** (0.13)	-0.55*** (0.13)	-0.79*** (0.16)	-0.68*** (0.15)

¹² The Global Sanctions Data Base. Available at: <https://www.globalsanctionsdatabase.com/>

¹³ On the whole, as preliminary estimates have shown, it was trade sanctions that determined the overall negative impact of the restrictions on the Far East’s trade, both in the case of the sanctions imposed by foreign countries against Russia and those imposed by Russia against foreign countries.

End of Table 3

Variable	Sanctions imposed by foreign countries		Sanctions imposed by Russia	
	(1)	(2)	(1)	(2)
<i>SANC</i> ₂₀₂₁	-1.03*** (0.17)	-0.77*** (0.17)	-0.88*** (0.20)	-0.73*** (0.16)
<i>INTL</i> ₁₉₉₉	-0.81*** (0.24)	–	-0.81*** (0.24)	–
<i>INTL</i> ₂₀₀₀	-0.65*** (0.25)	–	-0.65*** (0.25)	–
<i>INTL</i> ₂₀₀₁	-0.54*** (0.26)	–	-0.54*** (0.26)	–
<i>INTL</i> ₂₀₀₂	-0.59*** (0.22)	–	-0.59*** (0.22)	–
<i>INTL</i> ₂₀₀₃	-0.73*** (0.21)	–	-0.73*** (0.21)	–
<i>INTL</i> ₂₀₀₄	-0.81*** (0.20)	–	-0.81*** (0.20)	–
<i>INTL</i> ₂₀₀₅	-0.71*** (0.20)	–	-0.71*** (0.20)	–
<i>INTL</i> ₂₀₀₆	-0.66*** (0.26)	–	-0.66*** (0.26)	–
<i>INTL</i> ₂₀₀₇	-0.56*** (0.16)	–	-0.56*** (0.16)	–
<i>INTL</i> ₂₀₀₈	-0.72*** (0.17)	–	-0.72*** (0.17)	–
<i>INTL</i> ₂₀₀₉	-0.62*** (0.15)	–	-0.62*** (0.15)	–
<i>INTL</i> ₂₀₁₀	-0.50*** (0.16)	–	-0.50*** (0.16)	–
<i>INTL</i> ₂₀₁₁	-0.47*** (0.15)	–	-0.47*** (0.15)	–
<i>INTL</i> ₂₀₁₂	-0.39*** (0.15)	–	-0.39*** (0.15)	–
<i>INTL</i> ₂₀₁₃	-0.34** (0.15)	–	-0.34** (0.15)	–
<i>INTL</i> ₂₀₁₄	-0.12** (0.05)	–	-0.12** (0.05)	–
<i>INTL</i> ₂₀₁₅	-0.03 (0.18)	–	-0.03 (0.18)	–
<i>INTL</i> ₂₀₁₆	-0.43** (0.19)	–	-0.43** (0.19)	–
<i>INTL</i> ₂₀₁₇	-0.20 (0.21)	–	-0.20 (0.21)	–
<i>INTL</i> ₂₀₁₈	-0.07 (0.17)	–	-0.07 (0.17)	–
<i>INTL</i> ₂₀₁₉	-0.04 (0.16)	–	-0.04 (0.16)	–
<i>INTL</i> ₂₀₂₀	-0.15 (0.15)	–	-0.15 (0.15)	–
Constant	-22.31*** (2.04)	-18.32*** (2.03)	-21.10*** (2.08)	-21.40*** (2.06)
Pseudo log-likelihood	-277869	-284356	-281622	-286397
Pseudo R ²	0.90	0.88	0.89	0.87
RESET-test	0.05	0.01	0.04	0.01

Notes. (1) – specification for estimating the direct effect of sanctions; (2) – specification for estimating the overall effect of sanctions. Fixed effect values are not reported for brevity. *** – $p < 0.01$, ** – $p < 0.05$.

Source: own calculations.

the direct effect, while no statistical significance was observed for the overall effect of these sanctions. Subsequently, in 2018–2021, increasing negative effects of the sanctions imposed by Russia against foreign countries on the macroregion's trade were recorded. The estimates from model (1) also pointed to a decline in the comparative aggregate costs of the Far East's trade interactions with foreign countries (INTL) up to and including 2014, especially after Russia's accession to the WTO in 2012. Thereafter, the dynamics of the comparative aggregate costs of the Far East's trade interactions with foreign countries were marked by uncertainty, which served as a kind of confirmation of the restraining influence exerted by the comprehensive "local" sanctions on the macroregion's trade¹⁴.

For ease of comparison, the corresponding values of the sanctions' semi-elasticities in models (1) and (2) were evaluated in a comparable form, both in terms of their impact on trade and in the form of the additional burden on the price of goods expressed as a tariff (ad valorem) equivalent (*Tab. 4*).

According to the estimates, the negative direct effect of the sanctions imposed by foreign countries on the Far East's trade with them amounted to

38.6% in 2017, increasing (in absolute value) to 64.3% in 2021. When recalculated as a tariff equivalent, the additional "burden" on trade rose from 27.6 p.p. in 2017 to 67.4 p.p. in 2021. On the other hand, the negative direct effect of Russia's sanctions against foreign countries on the Far East's trade exceeded 34% in 2014–2015, which was equivalent to an increase in the tariff on trade with these foreign states of more than 23 p.p. Subsequently, as a result of the sanctions restrictions on the Russian side, the Far East's trade with the sanctioned countries contracted from 50% (41.4 p.p. in tariff equivalent) in 2018 to 58.5% (55.3 p.p.) in 2021. This suggests that, by 2021, the direct effect of the foreign countries' sanctions against Russia exerted a greater restraining influence on the Far East's trade than the analogous effect of Russia's sanctions against foreign countries.

The estimates showed that the negative overall effect of sanctions on the Far East's trade was weaker than the direct effect, thanks to the softening influence of the growth in international trade, or the globalization effect. The overall effect of the foreign countries' sanctions against Russia contributed to a contraction of the Far East's trade

Table 4. Dynamics of the impact of sanctions on the trade of the Russian Far East

Effect of sanctions	Sanctions imposed by	%, p.p.	Year						
			2014	2015	2017	2018	2019	2020	2021
Direct	Foreign countries	Δ	–	–	-38.6	-48.6	-47.9	-52.4	-64.3
		T.E.	–	–	27.6	39.5	38.6	44.9	67.4
	Russia	Δ	-34.3	-34.5	–	-50.0	-53.3	-54.7	-58.5
		T.E.	23.4	23.6	–	41.4	46.3	48.6	55.3
Overall	Foreign countries	Δ	–	–	-27.4	-35.7	-33.9	-42.3	-54.0
		T.E.	–	–	17.4 [-10.2]	24.7 [-14.8]	23.0 [-15.6]	31.6 [-13.2]	47.5 [-19.9]
	Russia	Δ	–	–	–	-42.4	-45.3	-49.5	-52.1
		T.E.	–	–	–	31.7 [-9.7]	35.3 [-11.1]	40.7 [-7.9]	44.4 [-10.8]

Notes. The impact of sanctions on bilateral trade was assessed as follows: $\Delta = (e^{\hat{\beta}_N} - 1) \times 100\%$. The tariff equivalent of sanctions was calculated using the expression $T.E. = [e^{\frac{\hat{\beta}_N}{1-\sigma}} - 1] \times 100\%$, with the elasticity of substitution between domestic and foreign products on the Russian market (σ), set equal to three (Izotov, 2022). Figures in square brackets indicate the tariff equivalent of the globalization effect. "–" – denotes the absence of an effect due to its statistical insignificance (see Tab. 3); for the same reason, the values of sanctions effects for 2016 are not presented in the table.
Source: own calculations.

¹⁴ The impact of the COVID-19 pandemic was accounted for in the fixed effects.

with these economies by 27.4% in 2017 and by 54.0% in 2021 – equivalent, in tariff terms, to 17.4 and 47.5 percentage points, respectively. In tariff-equivalent terms (by absolute value), a mounting softening influence of the globalization effect on the macroregion's trade was observed amid the “local” sanctions imposed by foreign countries against the Russian economy, from 10.2 p.p. in 2017 to 19.9 p.p. in 2021. As regards the impact of the sanctions imposed by Russia against foreign countries on the Far East's trade, under the overall effect of sanctions, the negative direct effect of their introduction in 2014–2015 was fully offset. In turn, the Far East's trade with the countries sanctioned by Russia shrank by 42.4% (31.7 p.p. in tariff equivalent) in 2018 and by 52.1% (44.4 p.p.) in 2021, respectively. Under the conditions of counter-sanctions, a mounting softening influence of the globalization effect on the Far East's trade was recorded in tariff-equivalent terms (by absolute value), from 9.7 p.p. in 2018 to 10.8 p.p. in 2021.

The calculations indicate that, in 2021, the stimulating effect of globalization on the Far East's trade was far smaller (almost half in terms of the tariff equivalent) under the negative influence of Russia's sanctions against foreign countries than in the reverse case. As a result, for the Far East's trade, the magnitude of the negative overall effect of the sanctions imposed by foreign countries against Russia had, by 2021, become broadly comparable to that of Russia's counter-sanctions against foreign countries – unlike the case of the direct effect of the sanctions.

Conclusion

For Russia, prior to the imposition of the “large-scale” sanctions by Western countries against the Russian economy, a stage of “episodic” sanctions (up to 2014) can be identified, as well as a stage of “local” sanctions (2014–2021). The “local” sanctions were notable for their comprehensiveness and open-ended nature, contributing to heightened risks in bilateral interactions with both sanctioning

and sanctioned countries – a phenomenon that began to manifest itself at the regional level, including in the Russian Far East.

The assessment of the dynamics of the impact of the “local” sanctions quite unambiguously indicated their delayed negative effect on the trade of the Russian Far East. It was determined that, by 2021, the direct effect of the sanctions imposed by foreign countries against Russia exerted a greater restraining influence on the Far East's trade than did the sanctions imposed by Russia against foreign countries. The assessment also showed that, thanks to the globalization effect, the restraining influence of the overall effect of sanctions on the Far East's trade was weaker. The calculations obtained attest to a much smaller stimulating impact of the globalization effect on the Far East's trade under the negative influence of Russia's sanctions against foreign countries than in the reverse case. As a result, by 2021, the magnitude of the overall effect of the sanctions imposed by foreign countries against Russia on the Far East's trade was comparable to that of Russia's counter-sanctions against foreign countries.

The globalization-driven positive effect could presumably be explained by the specific nature of the Far East's trade with Japan¹⁵, against which Russia had not imposed sanctions. The macroregion's trade was observed to be shifting toward other foreign countries that, at that time, were not participating in sanctions against the Russian economy. Yet the diversion of the Far East's trade was, in all likelihood, occurring only up to a certain limit, as Japan – other things being equal – remained a proximate market and one of the largest for the Far East, despite the restrictions that had been adopted and the risks associated with expanding trade and economic interactions.

¹⁵ And subsequently for the Republic of Korea as well, which joined the “large-scale” sanctions against Russia, ceasing purchases of hydrocarbons from the Far East with a certain lag.

Moreover, unlike China and the Republic of Korea, Japan was among the principal investors in the macroregion's oil and gas projects as part of its efforts to ensure its own energy security, maintaining its presence and its import quota for deliveries of crude oil and liquefied natural gas from the Sakhalin Region¹⁶; the Far East, in turn, continued to receive traditional Japanese manufactured goods, even though their product range had narrowed. Thus, a certain improvement in the price environment and the post-COVID recovery of the global economy eased the negative impact of the overall effect of sanctions. The presence of this softening influence of the globalization effect can be taken into account for further qualitative analysis of the impact of the "large-scale" sanctions on the macroregion's foreign trade.

Nevertheless, by 2022 the foreign trade of the Russian Far East had deviated substantially away from the countries sanctioning Russia. The positive impact of the globalization effect only "softened" the negative influence of the "local" sanctions imposed by foreign countries on the Far East's trade with those economies, but it was unable to reverse the mounting constraining effect of the restrictions. It is also noteworthy that the "local" sanctions, which at first glance did not appear to

be a serious factor in constraining the Far East's trade, nevertheless prompted decisions – including at the micro level – that ultimately led to an increasingly negative impact on the macroregion's trade turnover with both the sanctioning countries and those under sanctions. Against the backdrop of the "local" sanctions, the Far East's trade turnover with China expanded, including for the implementation of projects in mineral extraction and transportation. By complicating the attraction of foreign capital into the macroregion's large-scale resource projects, the "local" sanctions, to a certain degree, transformed the priorities for expanding the Far East's exports in favor of the Chinese market. This circumstance points to a case of a delayed and disproportionate increase in the risks of trade and economic interactions under conditions of a comprehensive sanctions confrontation between countries, including at the regional level. It can be assumed that, under the conditions of the "large-scale" sanctions against Russia, first, the Far East's trade with China and the "friendly" countries of Southeast Asia will intensify; and second, the macroregion's trade cooperation with Japan and the Republic of Korea will persist, but only within commodity groups not included in the "sanctions" list.

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¹⁶ Even under the conditions of the subsequent "large-scale" sanctions against Russia from 2022.

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Formalizing the Economic Immunity of Industrial Regions: A Pilot Testing Experience

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Abstract. Industrial regions, which constitute the core of Russia's technological development and underpin its leadership positions on the global stage, deserve particular attention as they find themselves under the influence of geo-economic factors. The aim of this study is to develop a methodological approach that makes it possible to formalize the economic immunity of industrial regions in the face of adverse external impacts. The theoretical and methodological basis includes a set of approaches to assessing the shock resilience of territories and to identifying the dependence of their economic development on prior trajectories. The principal methodological toolkit proposed in the study is a matrix that integrates, on the one hand, assessments of the economic predisposition of industrial regions toward resistance and recovery – which determines the protective mechanisms against external shocks – and, on the other, narrative express analysis, which reveals the preconditions for the genesis of a new economic development trend that underpins a territory's adaptation to changing economic conditions. The study period spans 2009–2025; testing was carried out on 36 industrial regions of the Russian Federation. According to the resulting matrix, the indicators that proved most sensitive during the period of exposure to external shocks in regions where manufacturing accounts for $\geq 25\%$ of GRP are the average annual number of people employed in manufacturing and spending on technological innovation. In industrial regions

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with a diversified economy, it is fixed capital investment that suffers substantially. At the same time, industrial regions with a diversified economy display greater economic resilience than regions specializing in manufacturing. The Novosibirsk Region possesses the strongest economic immunity, followed by the Moscow Region and the Republic of Tatarstan. Half of the industrial regions are characterized by vulnerable economic immunity, and 36% have a disruptive protective mechanism alongside a vulnerable activating mechanism. It is stressed that factoring in the predisposition of regions, as one of the elements of economic immunity, will make it possible to ensure the evolutionary nature of the national economy's development. The findings may prove useful to public authorities in improving regional strategies for socio-economic development.

Key words: economic immunity, heredity, region's resistance, region's recovery, region's predisposition, sustainable economic development, manufacturing specialization, diversified economy.

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Introduction

The heightened scholarly attention to the sustainable development of the national economy stems largely from the fact that territories have become more vulnerable to shock disturbances amid geopolitical challenges and varying degrees of integration among countries on the global stage. Industrial regions, which form the core of the Russian Federation's innovative and technological development and are responsible for its leadership positions in international markets, deserve particular attention. The effectiveness of preventive measures that allow such territories to evolve gradually is substantially constrained under conditions of instability. This makes it essential to apply knowledge about the established features of their functioning and development trajectories in order to identify, in a timely manner, when defense mechanisms need to be activated and to design institutional pathways for strengthening them.

At present, the concept of "immunity", which has entered interdisciplinary discourse from medicine – where immunology understands it as the body's defense mechanism against external

and internal pathogens (Kiseleva, 2011) – is beginning to be actively employed in the economic sphere, highlighting one or another aspect of this phenomenon's manifestation. Thus, the institutional-legal aspect of territorial immunity is presented in the scholarly literature through special legal conditions governing economic activity, by virtue of which individual entities are afforded the opportunity to perform functions, duties, and exercise rights in the interests of the state, society, and individual citizens (Yakovenko, 2010). Here, the value of immunity lies in safeguarding the socially and economically significant, useful ties and functions performed by economic entities, which makes it possible not only to preserve but also to develop functioning economic institutions.

The social aspect of regional immunity manifests itself as society's ability to withstand external social risks and threats stemming from the penetration into society of values, norms, and behavioral patterns belonging to other cultures – patterns that destroy its integrity, integration, and adaptive potential. The economic aspect,

to a greater degree, reflects the resilience-related characteristics of both economic entities (production chains) and the territory as a whole under the negative impact of external environmental factors, and it manifests itself in ensuring the country's technological sovereignty, integration into the global scientific space, investment attractiveness, and the production of high-tech products in demand on both domestic and international markets. Understood in this context, the value functions of a territory's immunity are the protection, resistance, and adaptation of economic entities to exogenous negative impacts caused by systemic and sudden financial threats (Zhakupov, 2013). According to N. Luhmann, immunity serves as a source for preserving the stable condition of a territorial socio-economic system and contains the measures necessary to support the resolution of current problems, so that the region can function with its inherent efficiency while maintaining the growth rate of its GRP (Luhmann, 2007). That is, this phenomenon reflects the degree to which the region itself is immune to, or absorbs, adverse factors impacting it.

At the same time, the interpretations presented above are better suited to defining the mechanisms for ensuring shock resilience, a topic that has been extensively studied in both Russian and international literature to date and is usually explored within the framework of an adaptive or a systemic approach, but not an evolutionary one. Since the application of the concept of immunity to the study of regional economic development is at issue, the methodology for its formation must take into account the historically shaped territorial determinants of socio-economic relations that condition it. In support of this scholarly position, one may cite the words of M.Yu. Kazakov, who understands a territory's economic immunity as a unique combination of "innate" and "acquired" factors, together with conditions of a natural character, that generate the necessary output "products" for the system's

vital activity and prevent it from disappearing or becoming deformed (Kazakov, 2018).

In order to link innate and acquired factors, the latter must be shaped with due regard for the inherited predisposition of industrial regions. This is necessitated, first, by the fact that a region is an open and economically non-isolated system, functioning under conditions of global transformation (Galbraith, 1999; Medvedev, 2016): the gradual erosion of boundaries between markets; the growing diversity of economic ties; the high-speed cross-country mobility of technologies; the intellectualization of the world economy; the creation of knowledge-intensive products using global scientific and technological platforms; the investment attractiveness of international cooperation; and the like (Vazhenin, Vazhenina, 2012). The emergence or escalation of each of these meta-processes constitutes a shock for an industrial region, one that demands the design and implementation of protective measures capable of ensuring compromise and the search for a reasonable balance of territorial interests within the economic space of the global community.

Second, a region represents a large number of interconnected elements, each possessing its own endogenous dynamics and a co-evolutionary pattern of development with the others (Mokhov, 2018). When subjected to an external negative impact, a regional socio-economic system needs to return to the stable state in which it existed before the shock. This return to equilibrium must be accomplished by the system independently, without disruptions to its functioning, which demands the autonomous and efficient use of sustainable development resources and the preservation of their quality at minimal expenditure. When the scale of the economic shock exceeds the resilience threshold of the regional system, the system does not return to its original state but instead strives to transition to a new equilibrium position. Such a movement is accompanied by qualitative changes in the

internal structure, shifts in functional dynamics, and a redistribution of resources, which signifies a transition from simple recovery to adaptive transformation – a transition that provides the next evolutionary step in development.

Third, the actors within a regional economic system maintain constant yet individually varying degrees of interaction with the external environment (Nekipelov, 2003; Yakovets, 2001). At the same time, the region possesses the capacity to reproduce its core components and to ensure their ordered coherence. It follows, then, that different socio-economic trajectories of changing conditions and development are possible for regions under the negative impact of the external environment. For instance, an economy may return to its original trajectory without long-term deviations. However, if the reorientation process entails sufficiently radical changes, the economy may not return to its previous state but may instead ascend to a higher technological level of growth through positive hysteresis effects, or embark on a new trajectory with a higher long-term trend. These scenarios demonstrate that regions' reactions to external shocks are path-dependent and are conditioned by structural characteristics, institutional adaptability, and the scale of the transformations involved (Auzan, 2015). This once again confirms the idea that a region's response to negative impacts can manifest itself in a variety of ways, yet at its foundation always lies its past development path (economic heredity), which, among other things, determines the territory's inherited predisposition to a particular type of behavior in a situation that is stressful for it (Auzan, 2025).

The triad of methodological considerations outlined above necessitates that every region develop its own immunity: a hereditary economic mechanism for maintaining positive dynamics in the key indicators of a territory's economic practice, one that enables adaptation to the new realities of economic life by transforming the structural

elements of the regional system while preserving the integrity and functionality of the historically formed linkages among them.

As G. Vollmer observed, in the real world “a continuous historical and genetic connection exists between individual states across all spheres of reality, where the existence of a first event conditions the existence of a second, the first event being the cause that brings about the second event – the effect” (Vollmer, 1998). M.Ya. Kovalzon noted that “...the decisive role in the history of society's development belongs to human activity. At the same time, if economic theory and practice ignore the objective determinants of this activity, then the heroic efforts of a billion people will yield not ten thousand years of happiness for ten years of labor, but economic and social chaos” (Kovalzon, 1985). In his works, J. Schumpeter touched upon the idea that any economic event arises not simply from a preceding economic condition, but from its preceding general condition; that is, one must take into account all the factors “that characterize the very picture of the state, or determine the course of the process” (Schumpeter, 2022). N.D. Kondratiev still more precisely underscored the importance of accounting for the heredity of territories when ensuring their economic development, speaking of the factors that shape the economic cycle. As these factors, the scholar identified objective economic, material-technical, and innovative prerequisites that, long before an economic impetus arises, accumulate, are synthesized, and are stored within the existing regional practice, awaiting the moment of their large-scale expansion when the conditions of the territory's external environment change or global challenges emerge.

It follows that a region's economic immunity endows it with the characteristics of sustainable development, not least by taking into account the determinants of heredity – specifically, predispositions – whose consideration makes it possible to accelerate or moderate the exit from

crisis processes under the influence of destabilizing factors. This understanding of economic immunity makes it possible to formalize it in terms of such regional characteristics as:

- predisposition toward economic resistance to negative external impacts – the capacity for stabilization through the prevention of functional disruptions and economic decline when confronted with external negative factors or shock disturbances;
- predisposition toward economic recovery – the capacity to return rapidly and on a large scale (engaging all actors of the regional socio-economic system) to the original state within the context of adaptation to the conditions of a new reality;
- predisposition toward the genesis of new economic development trends – the capacity of a region's hereditary determinants (a concept elaborated in the author's earlier works (Myslyakova, 2022; Myslyakova, 2025)) to generate fundamentally new directions of economic development, adapted to the new realities of economic practice, and thereby to contribute to improving the processes of resistance and recovery under conditions of shock disturbances. The source of this genesis, according to S.Yu. Glaziev, lies in the population's readiness for the economic transformation of society, which determines the direction and course of the reforms (Glaziev, 2018). This readiness can be identified by analyzing the narratives that reflect the value-based and behavioral attitudes of regional societies (Vólchik, 2017). Narratives present in the collective memory nudge individuals toward a particular model of economic behavior, because they shape an understanding of the cause-and-effect relationships underlying economic well-being, subordinating personal convictions to the components of a society's current socio-cultural code (Collier, 2016; Tomasello, 1999). It is therefore important to identify the dominant narratives that represent institutional practices and are capable of orienting society toward the diffusion of major innovations, toward participation in them, or, conversely, toward

resistance to the transformations ahead (Algan, Cahuc, 2010; Malone et al., 2017).

These characteristics (predispositions) of a region are activated by the core of its genotype (Myslyakova, Neklyudova, 2021) and govern the principles according to which economic linkages are transformed. The first two predispositions largely reflect the protective function of economic immunity, while the third reflects its activating function – the effectiveness of adaptive economic transformations to the conditions of a new reality. This protective-activating functionality makes it possible to conclude that a territory's immunity serves as an instrument for the evolutionary development of its economy and is responsible for the processes of inheriting and strengthening its defenses, endowing the region with the necessary set of active indicators exhibiting positive dynamics.

The author's understanding of economic immunity provides the impetus for formulating the study's aim: to develop a methodological approach that makes it possible to formalize the economic immunity of industrial regions. Achieving this aim requires solving the following tasks: to substantiate the economic development factors responsible for the immunity of industrial regions; to propose a methodological approach to formalizing the economic immunity of industrial regions; and to test the toolkit and identify those regions possessing the greatest degree of economic immunity.

The novelty of the proposed approach lies in refining the understanding of the economic immunity of an industrial region and in developing an evaluation toolkit that allows its hereditary predisposition to be taken into account, with a focus on the formation of a new trend in the development of the national economy. This will make it possible to regard the phenomenon under study not merely as a static one – reflecting a region's behavioral performance under conditions of stress – but also as a dynamic one, generating the prerequisites for further economic development.

Materials and methods

To substantiate the selection of factors that shape the immunity of industrial regions, we present the following arguments.

1. Human capital has a positive impact on sustainable economic development (Martin, Sunley, 2015; Crescenzi et al., 2016; Cappelli et al., 2021). According to the work of T. Abrha and B. Weldeyohans, education, practical competencies, and health constitute the basic factors promoting economic resilience (Abrha, Weldeyohans, 2025). The higher their levels, the more adaptive and productive the economy becomes, while investments in education enhance a state's capacity to respond effectively to shock disturbances. In the view of E. Kokkinopoulou, A. Bouteraa, and F. Bouaziz, education not only develops individual capabilities but also generates positive externalities that strengthen the quality of regional institutions, since economic inequality is reduced through knowledge-driven productivity growth (Kokkinopoulou et al., 2025; Bouteraa, Bouaziz, 2023). It follows that regions with a larger pool of skilled labor suffer less from economic shocks thanks to the accumulated knowledge that engenders the socio-economic adaptability of the workforce (Martin, Gardiner, 2019). Moreover, regions that invest in professional training and workforce development achieve greater employment stability, since skilled workers are less susceptible to layoffs and turnover (Molina, Ortega, 2003; Kitsos, Bishop, 2018). For industrial regions, no less important a composite indicator is the employment share in manufacturing industries, which constitutes the core of sustainable development for both the regional and the national economy as a whole.

2. Innovation (Balabanova, 2025) and high-tech production enhance regional adaptability through the introduction of new technologies and business models that facilitate industrial renewal and stimulate cross-sectoral dynamism (Audretsch et al., 2015; Angulo et al., 2018). In the sphere of production chains, for example, robots have

become a revolutionary tool (Segun-Ajao, 2025). F. Santoso found that countries with advanced digital infrastructure, a skilled workforce, and innovative potential cope better with shocks and recover from them (Santoso et al., 2024). J. Kim argues that more highly developed information and communication technology infrastructure – measured by internet access, the number of mobile subscribers, and digital readiness – made it possible to offset GDP losses despite high morbidity rates during the COVID-19 pandemic (Kim et al., 2022). Y. Tian and L. Guo note that digital technologies boost productivity, serving as a modern instrument and platform for modernization processes in industry, which not only enhance regions' capacity for short-term recovery but also strengthen the sectoral structure of GRP over the long term (Tian, Guo, 2023).

3. Sectoral structure of the economy (Tan et al., 2020; Martin, 2012). Specialization in fast-growing industries can boost productivity, yet at the same time it renders a region more vulnerable when those industries experience a downturn (Cainelli et al., 2019; Geelhoedt et al., 2021). Some studies show that economies dependent on manufacturing are more sensitive to recessions, whereas regions in which knowledge-intensive services predominate recover more quickly (Giannakis, Bruggeman, 2020). Moreover, diversified economies tend to be more resilient, since risks are distributed across sectors and the economy adapts more flexibly to external shocks (Sutton, Arku, 2022). Indeed, a more diversified and developed industrial structure can reduce a region's dependence on a single production chain and create a "buffer zone" for risk distribution. Within this conceptual framework, related variety promotes long-term innovation by stimulating synergy among technologically linked industries, while unrelated variety enhances short-term resilience by shielding regions from sector-specific shocks (Hu et al., 2022). A diversified economy also implies stronger financial capacities at the regional level, since local authorities have more resources to build and maintain modern transport,

logistics, and information-communication infrastructure, and to create effective digital platforms for the provision of industrial services and emergency management systems. This directly reduces the systemic baseline risks faced by economic entities.

The primary regional indicators analyzed, which, on the one hand, react rapidly to shock disturbances and, on the other, characterize territories' predisposition toward economic resistance and recovery, are as follows:

- average annual number of persons employed in manufacturing (L);
- volume of goods shipped by manufacturing industries (P);
- number of employed persons with higher education (Kn);
- investment in fixed assets (Inv);
- volume of innovative goods, works, and services (Inn);
- expenditure on technological innovation (Techn).

The methodological approach to formalizing the economic immunity of an industrial region consists of three steps: 1) assessing the protective mechanism in terms of indicators of economic predisposition; 2) assessing the activating mechanism in terms of the predisposition toward the genesis of a new economic development trend; 3) a matrix-based assessment that integrates the results obtained.

Step 1. The methodological tools that can be used in this step range from descriptive and interpretive case studies to complex static econometric models (Evans, Karecha, 2013); simple Martin indices (Martin, 2012) or Augustine indices (Augustine et al., 2013); statistical time-series models, as in the work of Fingleton (Fingleton et al., 2012); and, finally, structural causal models, as presented in the works of Doran and Fingleton (Doran, Fingleton, 2013) or Fingleton and Palombi (Fingleton, Palombi, 2013), among others. However, all these complex measurement approaches presuppose a methodological framework

for estimating the trajectory along which the region would have developed in the absence of external negative impacts (Han, Goetz, 2019; Sensier et al., 2016). It is assumed that the region's pre-shock average growth rates persist, making it possible to calculate resistance and recovery as deviations from this counterfactual path. Yet such an approach requires a sufficient volume of time-series data, and the underlying economic dynamics must remain unchanged over an extended period (Martin, Gardiner, 2019).

Within the framework of our study, we propose applying a comparative approach that makes it possible to assess the indicative behavior of industrial regions in relation to national economic trends (Martin, 2012; Faggian et al., 2018; Murua, Ferrero, 2019). This approach rests on the assumption that every region's economy should strive to achieve the same growth rates as the national economy and to have the capacity to increase them. Deviations from this benchmark in the regions during and after shocks point to the relative level of their resistance to the crisis and of their recovery once the crisis has receded.

A territory's resistance to negative trends will be measured in the context of its sensitivity to external shocks, while recovery will be understood as the degree to which it returns to its previous path (additionally identifying whether a reorientation has occurred will most likely not be possible). Thus, to assess the protective mechanism, we will use the selected indicators and compare their rates of change against the expected national ones.

First, both indicators must be normalized relative to national trends (Formula 1).

$$(\Delta E_i^{t+k})^{expected} = \Delta g_N^{t+k} * E_i^t, \quad (1)$$

where g_N^{t+k} – denotes the rate of contraction or expansion of the national indicator; E is the indicator in the i -th region; t is the base year, which serves as the turning point for contraction or expansion; and k is the duration of the contraction or expansion periods.

Next, the resistance and recovery indicators for industrial regions should be calculated using Formulas 2 and 3.

$$Resistance_i = \frac{(\Delta E_i^{Contraction}) - (\Delta E_i^{Contraction})^{expected}}{|(\Delta E_i^{Contraction})^{expected}|}, \quad (2)$$

$$Recovery_i = \frac{(\Delta E_i^{Expansion}) - (\Delta E_i^{Expansion})^{expected}}{|(\Delta E_i^{Expansion})^{expected}|}, \quad (3)$$

If a region under analysis exhibits the same level of resistance and recovery as the corresponding national indicator, it is assigned a value of zero.

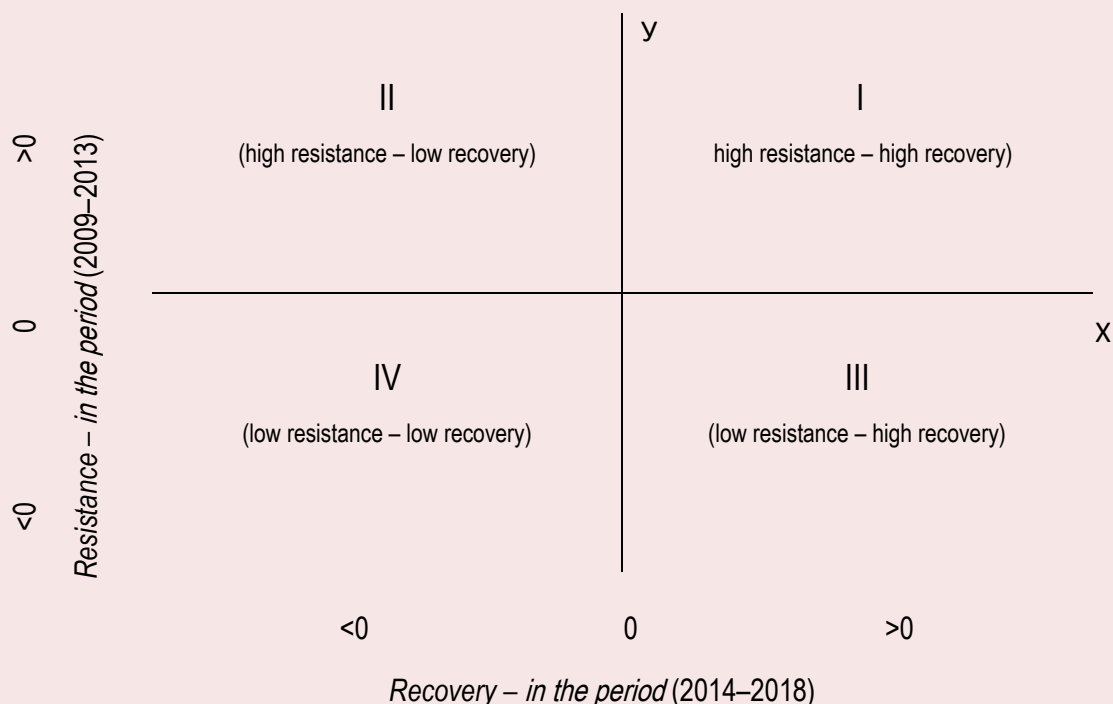
Positive values reflect stronger resilience, while negative values indicate weaker performance compared to national trends. Each resulting variable is binary: that is, it takes the value of 1 for regions

with high resistance (where the change in the indicator under analysis exceeds the dynamics of the equivalent nationwide indicator) and high recovery, and a value of -1 for the reverse cases.

Within this matrix, regions are analyzed across all indicators involved in shaping immunity (P, L, Kn, Inv, Inn, Techn); the results are then combined into an overall assessment that makes it possible to identify and formalize the characteristics of the protective mechanisms for each industrial region (Fig. 1).

In order to compare regions according to their protective mechanism in subsequent analysis, we propose using a scoring scale that converts qualitative indicators into quantitative ones according to the following principle: if a factor falls in

Figure 1. Assessment of the factor ensuring the economic immunity of an industrial region in the “resistance–recovery” system



Quadrant I comprises regions with strong resistance and strong recovery - the most protected group. Quadrant II represents regions with weak resistance but strong recovery, whereas Quadrant III includes regions with strong resistance but weak recovery. Quadrant IV contains regions with weak resilience and weak recovery - the least resilient group.

Source: own compilation.

Quadrant I, it is assigned a value of 5 points; if it falls in Quadrant II or III, 2.5 points; and if it falls in Quadrant IV, 0 points. The score is obtained by summing the corresponding assessments (Protection). This makes it possible not only to analyze the structural components of the protective mechanisms of economic immunity, but also to classify industrial regions according to the criterion of strong (21–30 points), vulnerable (11–20 points), and undermining (0–10 points) protective mechanisms.

Step 2. The assessment of the activating mechanism, as noted earlier, is proposed to be conducted through a narrative express analysis, which makes it possible to identify the prerequisites for the formation of a new trend in economic transformation. The methodology for selecting the narratives that activate the protective mechanisms of industrial regions' development is then defined by the questions they must be capable of answering: Who or what processes determine the content of the economic development of industrial regions? How can the sustainability of industrial regions' economic development be achieved under conditions of shock disturbances?

The narrative answer to these questions, which must be evaluated, can be presented as the following solution: in order to trigger the mechanisms that activate the protection of economic development under conditions of external shocks, a new code of societal transformation is needed – one that involves turning data into a key economic asset and

transitioning to algorithm-based governance in all spheres of life; creating a platform ecosystem that ensures a new quality of life for the population; attracting and retaining professionals as the capital of industrial transformation; introducing robotic automation of production, including the application of Industry 4.0 technologies; and designing an institutional environment that enhances the demand for and the effectiveness of digital solutions being implemented in economic practice.

Since a narrative normally contains a setting, a moral, a plot, and a character, and represents the resolution of some event, the sought-after narrative can be expressed through quantitative indicators as follows (*Tab. 1*).

We then obtain:

$$Narrative_D = \sqrt[4]{\bar{S} * \bar{M} * \bar{St} * \bar{P}}, \quad (4)$$

where each of the four indicators characterizing the narrative is calculated using Formula 5.

$$\bar{S}/\bar{M}/\bar{St}/\bar{P} = 1/n * \sum_{i=1}^n N_{S/M/St/P}, \quad (5)$$

where:

$S/M/St/P$ – elements of the narrative (setting/moral/plot/character);

$N_{S/M/St/P}$ – the structural component of the setting/moral/plot/character that characterizes the formation of the region's digitalization narrative;

n – the number of structural components reflecting, respectively, the setting/moral/plot/character of the sought-after regional narrative.

Table 1. Baseline narrative reflecting the genesis of a new economic development trend

Narrative element	Narrative content	Key words in Yandex search queries
Setting (S)	Data as a new asset	big data, data analyst
	Digital sovereignty	Russian software, MAX, Russian cloud services
Moral (M)	Platforms shape a human-centric ecosystem in the region	Online bank, buy online (marketplaces), communication platform, online learning (online courses / online school), personal data, gosuslugi login to personal account
Plot (St)	Robotization and Industry 4.0	Robotics, chatbot for business, digital twins of production, industrial internet of things, PLM system
Character (P)	Talents as part of capital	IT specialist, freelancing, remote work, second higher education
Resolution (Narrative_D)	Strategies for forming the digital code of economic development in industrial regions	
Source: own compilation.		

In order to assess the extent to which regions are involved in the genesis of a new economic development trend, $N_{S/M/St/P}$ to rank them, and to classify them, it is recommended that this indicator *Narrative_D* (calculated, within the framework of the study, on the basis of the volume of queries containing the keywords listed in Table 1 and made on the Yandex Wordstat platform) be compared to the employed population figure for the same period, which serves as the labor resource for the development of both the regional and the national economy. The regions most deeply involved in the process of forming a new economic development trend are identified when at least 80% of the maximum value of this indicator among industrial territories is achieved (Activation).

Step 3. This step is implemented on the basis of a matrix approach to formalizing economic immunity, which makes it possible to provide an integrative assessment of the protective (Protection) and activating (Activation) mechanisms of the economic development of industrial regions.

Results

The author's methodology was tested on the period 2009–2018 using the example of industrial regions, which were divided into two groups: 1) industrial regions with a manufacturing specialization, where the share of manufacturing in GRP is $\geq 25\%$; and 2) industrial regions with a diversified economy.

Step 1 was implemented within two five-year measurement intervals: 2009–2013 and 2014–2018, the choice of which is dictated by the Great Recession of 2008. The systematization of the assessments for all the analyzed factors made it possible to note that the majority of industrially developed regions with a pronounced specialization are sensitive to external economic shocks (*Tab. 2*). The exceptions are the Leningrad Region and the Tula Region, as well as the Republic of Bashkortostan, which have no indicators that fall in the zone of low resistance and low recovery. At the same time, 15% of the regions have one vulnerable factor, 40% have two factors, 25% have three factors, and 5% have

Table 2. Formalization of protective mechanisms in industrial regions with a pronounced specialization

	Region	P	L	Kn	Inv	Techn	Inn	Protection
1	Kaluga Region	I	II	I	II	IV	I	20
2	Tula Region	III	II	III	I	III	I	20
3	Leningrad Region	III	II	III	III	II	I	17.5
4	Lipetsk Region	III	I	II	I	III	IV	17.5
5	Omsk Region	I	II	II	II	IV	I	17.5
6	Republic of Bashkortostan	II	II	III	I	II	III	17.5
7	Vologda Region	III	IV	III	I	III	IV	12.5
8	Krasnoyarsk Territory	IV	I	III	IV	II	II	12.5
9	Murmansk Region	I	IV	II	III	IV	II	12.5
10	Nizhny Novgorod Region	IV	IV	III	II	III	I	12.5
11	Arkhangelsk Region	II	III	IV	II	IV	II	10
12	Kirov Region	III	IV	III	IV	II	III	10
13	Novgorod Region	IV	II	IV	I	III	IV	10
14	Perm Territory	IV	II	II	IV	II	III	10
15	Ryazan Region	II	IV	III	II	IV	III	10
16	Chelyabinsk Region	III	I	III	IV	IV	IV	10
17	Vladimir Region	I	IV	IV	IV	IV	II	7.5
18	Sverdlovsk Region	II	IV	II	IV	IV	III	7.5
19	Chuvash Republic	IV	IV	IV	II	III	III	7.5
20	Yaroslavl Region	III	IV	III	IV	IV	III	7.5

Source: own calculations based on open statistical data from <https://rosstat.gov.ru/>.

four factors (Vladimir Region), which undermine the territories' economic immunity.

As for industrial regions with a diversified economy, they also proved to be sensitive to external shocks. At the same time, the Voronezh, Novosibirsk, and Tyumen regions, the Republic of Tatarstan, and Saint Petersburg have no indicators that fall in the zone of low resistance and low recovery (Tab. 3). 32% of the regions have one

vulnerable factor, 32% have two factors, and 12.5% (the Ivanovo Region and the Komi Republic) have three factors that undermine their economic immunity.

Moreover, a structural breakdown of the protective mechanisms makes it possible to identify the indicators of industrial regions that are most sensitive to shocks, depending on the type of region (Fig. 2).

Table 3. Formalization of protective mechanisms in industrial regions with a diversified economy

	Region	P	L	Kn	Inv	Techn	Inn	Protection
1	Republic of Tatarstan	I	I	I	II	I	III	25
2	Novosibirsk Region	I	I	II	II	III	I	22.5
3	Voronezh Region	I	III	I	II	III	III	20
4	Tyumen Region	II	II	I	I	II	III	20
5	Kursk Region	II	IV	I	III	II	I	17.5
6	Tomsk Region	II	I	III	IV	II	I	17.5
7	Belgorod Region	I	II	II	IV	III	III	15
8	Irkutsk Region	IV	IV	II	I	III	I	15
9	Moscow Region	IV	III	I	III	II	III	15
10	Primorye Territory	II	I	IV	II	III	III	15
11	Kemerovo Region	III	IV	IV	I	III	III	12.5
12	Ulyanovsk Region	III	IV	III	II	I	IV	12.5
13	Volgograd Region	III	III	II	IV	IV	III	10
14	Ivanovo Region	II	IV	I	IV	IV	III	10
15	Samara Region	IV	II	II	II	II	IV	10
16	Komi Republic	II	IV	IV	II	III	IV	7.5

Source: own calculations based on open statistical data from <https://rosstat.gov.ru/>.

Figure 2. Structural matrix of protective mechanisms in industrial regions

Industrial regions with a manufacturing specialization						Industrial regions with a diversified economy				
	I	II	III	IV	Protection	I	II	III	IV	Protection
P	4	4	7	5	47.5	4	6	3	3	42.5
L	3	7	1	9	35	4	3	3	6	35
Kn	1	5	9	5	40	6	4	2	3	45
Inv	5	6	2	7	45	3	7	2	4	37.5
Inn	5	4	7	4	52.5	4	0	9	3	40
Techn	0	5	6	9	27.5	2	5	7	2	42.5
$\overline{Protection} = \frac{1}{n} * \sum Protection_{P/L/Kn/Inv/Inn/Techn},$ where n is the number of regions in the corresponding group										
$\overline{Protection} = 12.4$						$\overline{Protection} = 15.1$				

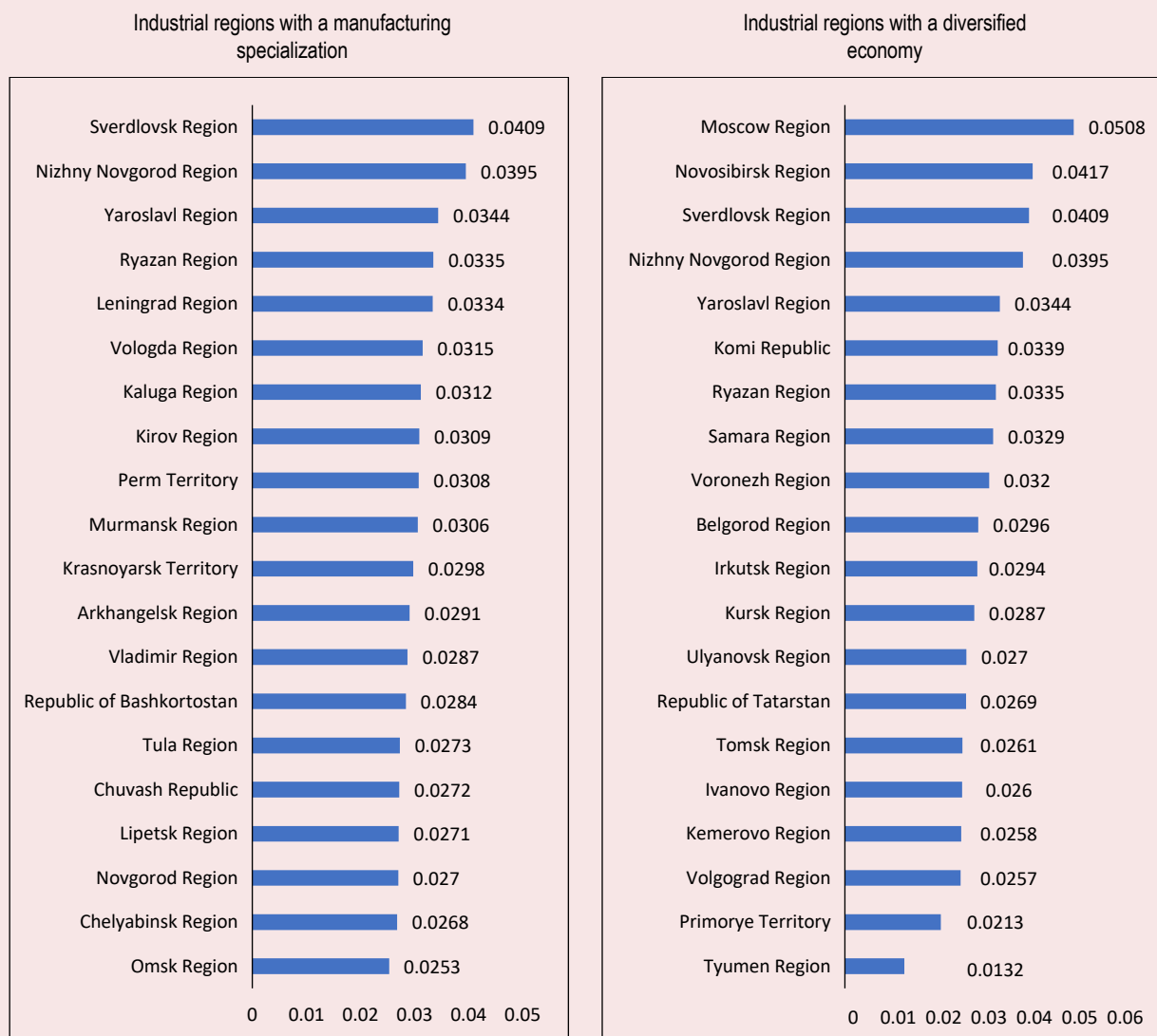
Source: own calculations based on open statistical data from <https://rosstat.gov.ru/>.

The matrix obtained demonstrates that, during periods of external shocks, the most alarming indicators for industrially developed regions are the average annual number of persons employed in manufacturing and expenditure on technological innovation. For industrial regions with a diversified economy, the most alarming indicators are investment in fixed assets and the average annual number of persons employed in manufacturing.

On average, industrial regions with a manufacturing specialization prove to be less ($\overline{Protection} = 12.4$), than regions with a diversified economy ($\overline{Protection} = 15.1$), which calls for more substantial preventive measures.

Step 2 of the study was carried out over the period 2018–2025. The results of the narrative express analysis point to variation across regions in their predisposition to participate in the genesis of a new economic development trend (Fig. 3).

Figure 3. Ranking of industrial regions by predisposition to participate in the genesis of a new economic development trend, activation



Source: own calculations based on open statistical data from Yandex Wordstat (<https://wordstat.yandex.ru/>) and Rosstat (<https://rosstat.gov.ru/>).

Thus, looking at the indicator reflecting the presence of the sought-after narrative in the collective memory – confirming the activation of the economic immunity mechanism – per employed person, a greater involvement in shaping the new code of economic transformation is recorded for regions with weaker protective mechanisms (regions with a manufacturing specialization) than for regions with a diversified economy, which possess stronger protective mechanisms: the group averages are 0.031 and 0.029, respectively. The leaders in terms of inclusion in the genesis of a new economic development trend are the Moscow, Novosibirsk, and Sverdlovsk regions; the ranking's outsiders are the Tyumen and Omsk regions.

In Step 3, the matrix-based approach to formalizing economic immunity makes it possible to identify regions that possess strong, vulnerable, and undermining characteristics of such immunity (Fig. 4).

The greatest economic immunity is exhibited by the Novosibirsk Region; the Moscow Region and the Republic of Tatarstan rank second. Fifty percent of the industrial regions possess vulnerable economic immunity (of these, 44% are constituent entities with a diversified economy), while 36%

of the regions have an undermining protective mechanism and a vulnerable activating mechanism (of these, 23% are entities with a diversified economy). At the same time, the Sverdlovsk Region has an undermining protective mechanism that enables the region to participate more fully in the processes of shaping a new economic development trend. The Tyumen Region has the weakest economic immunity, which accounts for the territory's vulnerability and weak adaptability to external crisis phenomena.

On the whole, the matrix-based approach makes it possible to register the presence in society of the prerequisites for shaping a new code of economic development. Moreover, these prerequisites correlate positively with the share of employed persons holding higher education, yet they are not connected with, nor do they determine, the rate of GRP growth. Consequently, it is necessary to transform these prerequisites into effective mechanisms of economic development – that is, to strengthen the activating function of the protective mechanism of industrial regions' immunity.

Conclusion

As a result of the study, a methodological approach to formalizing the economic immunity of industrial

Figure 4. Formalizing the economic immunity of industrial regions

Protective mechanism of economic immunity (Protection)	Strong		Republic of Tatarstan	Novosibirsk Region
	Vulnerable	Tyumen Region	Belgorod Region; Vologda Region; Voronezh Region; Irkutsk Region; Kaluga Region; Kemerovo Region; Krasnoyarsk Territory; Kursk Region; Leningrad Region; Lipetsk Region; Murmansk Region; Nizhny Novgorod Region; Omsk Region; Primorye Territory; Republic of Bashkortostan; Tomsk Region; Tula Region; Ulyanovsk Region	Moscow Region
	Undermining		Arkhangelsk Region; Vladimir Region; Volgograd Region; Ivanovo Region; Kirov Region; Novgorod Region; Perm Territory; Komi Republic; Ryazan Region; Samara Region; Chelyabinsk Region; Chuvash Republic; Yaroslavl Region	Sverdlovsk Region
		Undermining	Vulnerable	Strong
Activating mechanism of economic immunity (Activation)				

Source: own calculations.

regions has been developed, the relevance of which stems from the multidimensionality of the methods used to assess the shock resilience of territories – methods that depend on spatial and temporal factors (Chen et al., 2024; Sutton et al., 2023) yet focus solely on the protective mechanisms of economic development.

The cornerstone of the author's approach is a matrix that integrates the findings from two sources: first, the application of an evaluation toolkit that assesses industrial regions' predisposition toward economic resistance and recovery, which determines the functioning of their protective mechanisms against external shocks; and second, a narrative express analysis that reveals the prerequisites for the genesis of a new technological trend in economic development under new economic conditions, which accounts for the territories' adaptation to them. This methodological approach advances the ideas behind measuring regional shock resilience by expanding the content of the concept of "economic immunity" – through the inclusion of an additional factor dimension, namely territorial predispositions – and thereby endows the concept with characteristics of adaptability and dynamism.

The testing of the matrix-based approach within the framework of the study made it possible to identify a greater degree of economic protection in industrial regions with a diversified economy than in those with a manufacturing specialization.

This confirms the enduring importance of expanding the sectoral specialization of territories, including through innovation and digitalization. Implementing these preventive measures during non-crisis periods will minimize the risks of a decline in the adoption of technological innovations and of slow recovery in the face of shocks, as was observed in 29% of regions during the 2008 crisis, when only 8% of industrial regions proved positively resilient in terms of the dynamics of spending on innovative technologies, while 61% of territories saw their innovation activity generally trending downward amid the shock disturbances.

This can be achieved by activating the regions' existing predisposition toward economic transformation – namely, by defining a "condensed set of rules that incorporate what is consensual and successfully operative within the existing socio-cultural code of the region's economic development" (Brockmeier, Harré, 2000), by interpreting economic-political events, and by outlining the directions of their technological solutions (Shiller, 2019a; Angulo et al., 2018).

Thus, taking into account the heredity of regions will make it possible to formalize economic immunity not only for designing subsequent measures to ensure the shock resilience of territories, but also for fostering the evolutionary character of development at both the regional and the national level.

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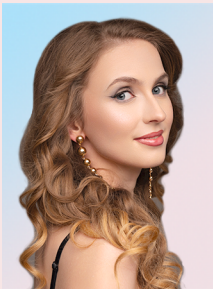
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Specifics of the Socio-Economic Development of a Northern Region: Strategies and Expectations (the Case of the Arkhangelsk Region)

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Abstract. Drawing on the case of the Arkhangelsk Region, this article uses methods of economic-statistical and sociological analysis to uncover various aspects of the contemporary socio-economic development of a typical northern region. The findings indicate that the situation in the Arkhangelsk Region continues to deteriorate: the region's share of the country's gross regional product is declining, as are the size of its population and the number of its enterprises. Drawing on expert interviews conducted by the authors in 2025, three groups of investment projects of the greatest strategic importance for the region were identified: 1) "transport and logistics"; 2) "utilization of the resource base"; 3) "the military-industrial complex and shipbuilding". Examples of projects within each group, as set out in the territory's long-term development

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plans, are examined. However, given the time lag between investment and economic return, and given that most of the projects are still in their early stages of implementation, no substantial improvement in the socio-economic indicators of the Arkhangelsk Region can be expected in the medium term. The article also presents the findings of a representative mass survey of the region's residents. The aim of the survey was to obtain subjective assessments of the current socio-economic situation in the country and the region and to identify the public's vision of the key directions for the territory's development. The majority of respondents consider the current economic situation in the Russian Federation, and in the region in particular, to be satisfactory. At the same time, those surveyed perceive the current economic position of the Arkhangelsk Region in a more negative light than that of Russia as a whole. The study reveals a mismatch between the population's social expectations and the vision of the region's "image of the future" that is being put forward by the authorities. The practical significance of the study lies in the possibility that its results might be used by the authorities as an information base for adjusting the goals and objectives of regional economic policy.

Key words: Arkhangelsk Region, North, Arctic, regional economy, socio-economic development, project management, expert assessments, sociological survey.

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Introduction

At present, issues of the socio-economic development of Russia's northern regions are the focus of attention among both scholars and practitioners. In the works of V.N. Lazhentsev, for example, special attention is devoted to the specific characteristics of production and population settlement under the harsh natural and climatic conditions of the North (Lazhentsev, 2024; Lazhentsev, 2025). Studies by V.G. Loginov, M.A. Lebedeva, E.A. Korchak, V.V. Fauzer, A.V. Smirnov, and many other researchers analyze and assess the natural resource and human potential of Russia's northern and Arctic territories (Lebedeva, 2020; Korchak, 2022; Loginov, 2024; Fauzer, Smirnov, 2025).

A prominent example of Russia's northern regions is the Arkhangelsk Region, which constitutes a unique natural and socio-economic entity with diverse natural conditions and

considerable resource potential. The region's coastline is washed by the White, Barents, and Kara seas, which determine the territory's climatic features and its strategic significance, including in the context of the ongoing Arctic policy. The region borders the Republic of Komi, the Republic of Karelia, the Kirov Region, and the Vologda Region¹.

Contemporary socio-economic aspects of the Arkhangelsk Region's development have been examined in studies devoted to the region's sectoral specificities (Onyakova, 2020; Myakshin et al., 2024; Muraev, Sushko, 2025), the strategic plans for the territory and its urban agglomerations (Nosyrev et al., 2022; Sekushina, Kryukov, 2025), and problems of demography and the labor market, the shortage of investment resources,

¹ Passport of Arkhangelsk Region. Ministry of Foreign Affairs of the Russian Federation. Available at: <https://www.mid.ru/upload/medialibrary/317/.pdf> (accessed: 07.03.2026).

and insufficient investment activity on the part of business (Ushakova et al., 2025; Samarina, Skufina, 2025; Yakhyaev, Zharinova, 2025).

That said, the majority of existing studies rely solely on an analysis of statistical data, which in turn suffer from a number of shortcomings — a substantial time lag, a lack of consistency in data for the same indicator across different sources of statistical information, and so forth — as described in greater detail in a number of works (Volkova, 2014; Marshova, 2017). Yet, despite all the attendant nuances, socio-economic research cannot, of course, dispense with statistics.

At the same time, the studies addressing the socio-economic development of the Arkhangelsk Region are predominantly statistical-analytical in nature and draw on official data and strategic planning documents. Thus, sectoral studies are based on an analysis of export and production statistics for the forestry complex (Muraev, Sushko, 2025) and for diamond mining (Onyakova, 2020); investment priorities are identified by calculating intersectoral interactions within the structure of the economy (Myakshin et al., 2024); the problems of wages and the labor market are revealed through the dynamics of statistical indicators for 2017–2023 (Samarina, Skufina, 2025); and the condition of small and medium-sized entrepreneurship is assessed through quantitative indicators of the sector (Yakhyaev, Zharinova, 2025). Strategic studies, for their part, focus on a content analysis of the legal-regulatory and planning documents of agglomerations (Nosyrev et al., 2022; Sekushina, Kryukov, 2025). Such an approach yields an objective but “external” picture: it captures the resulting indicators, yet leaves outside the framework of analysis the subjective perceptions that the population holds about the ongoing changes — its migration plans and its expectations regarding the “vision of the future” for the region in which it lives. In combination with the statistical limitations

noted above, this creates a certain research gap: the question remains unresolved of how well the strategic orientations promulgated by the authorities align with the population’s actual social expectations. It is precisely the impossibility of closing this gap through statistical analysis alone that makes it necessary to supplement the latter with a sociological component.

In view of this, the present work adopts an integrated approach that combines methods of economic-statistical and sociological analysis, making it possible to address the following tasks:

- 1) to provide a brief characterization of the key indicators of socio-economic development of the Arkhangelsk Region as a northern region of Russia over a twenty-year retrospective;
- 2) to examine the strategic orientations and the possibilities for project-based governance of the territory under the current conditions of external challenges, drawing on expert-analytical techniques;
- 3) to assess, on the basis of a sociological survey, the social expectations of the population of the Arkhangelsk Region regarding the prospects for the region’s and the country’s socio-economic development.

The study is built on the following scientific hypothesis: under the conditions of external challenges, demographic decline, and investment constraints, objective indicators of the socio-economic development of the Arkhangelsk Region (above all, statistical indicators) do not provide a complete picture of the territory’s development prospects, since they fail to account for the subjective social expectations of the region’s residents. At the same time, it is assumed that these expectations are characterized by a cautious optimism concerning the prospects for the region’s and the country’s development, and that incorporating them alongside statistical data and expert assessments enhances the robustness of strategic decisions aimed at managing

a northern region's development. This hypothesis is tested by juxtaposing statistical-analytical data against the findings of expert interviews and a mass sociological survey of the population.

Research methods

The information base of the study comprised scholarly works addressing the socio-economic development of northern territories in general and of the Arkhangelsk Region in particular, the role of strategic planning and project-based governance in the regional economy, and official data from Rosstat. A systems approach was employed, incorporating the methods of logical, conceptual, economic-statistical, and sociological analysis.

The authors conducted in-depth semi-structured expert interviews with representatives of government, business, science, education, and non-profit organizations, and carried out a mass survey of Arkhangelsk Region population in order to construct a picture of how different age groups perceive the new economic reality and to capture their social expectations. Verbal assessments were obtained from the population regarding their migration attitudes and the motivations behind them, the development prospects of the Arkhangelsk Region, the demand for investment projects, and the transformation of the economic situation in the region and in the country as a whole.

The expert-analytical procedures involved eight individuals: two representatives of government bodies, two representatives of the academic community, two heads of large and midsize enterprises of the region, and two leaders of civic associations. It should be noted that, according to numerical experiments, the optimal number of experts ranges from seven to 11 persons (Tutygin et al., 2024). The following criteria were observed when selecting the experts: 15 or more years of professional experience, an active civic stance, and systematic participation in various events devoted to the socio-economic development of the region.

To obtain candid responses and objective assessments, the experts were guaranteed anonymity.

The mass survey of the population was conducted online using Yandex Forms. The sample comprised 400 persons², with a spontaneous, quota-based sampling design. Quotas were set by geographic criterion (residence in the Arkhangelsk Region – urban or rural population), gender, and age. The confidence interval is 95%, and the statistical margin of error does not exceed 5%.

The scientific novelty of the study lies in the approach proposed by the authors, which combines a perspective on the specific features of a northern region's socio-economic development through the lens of project management principles and strategic orientations, together with the data from an original sociological study based on a mass survey of the population and expert interviews.

Research findings

A brief characterization of the socio-economic situation of the Arkhangelsk Region as a northern region of Russia

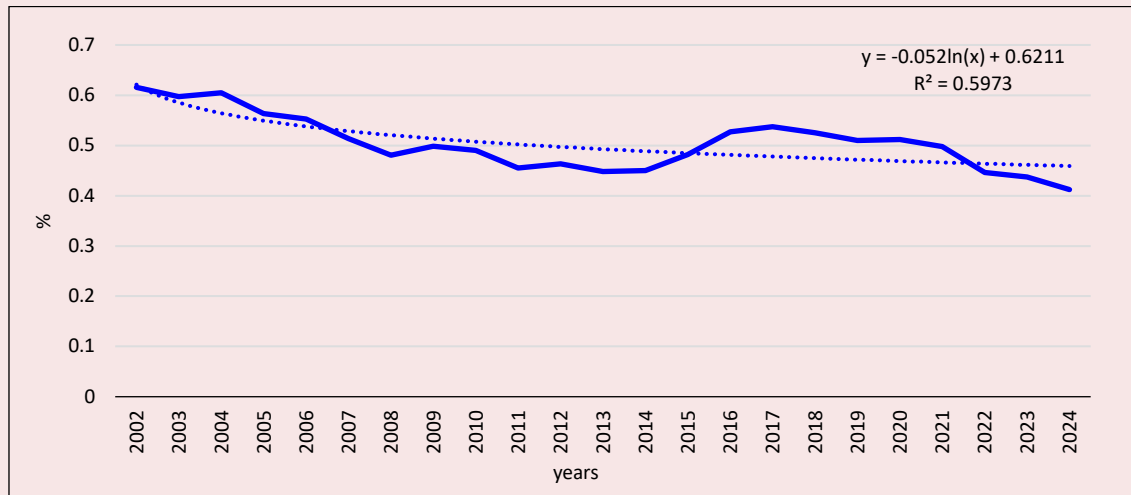
The Arkhangelsk Region is located in the northwest of European Russia and ranks among the largest constituent entities of the Russian Federation by territory (the region's area is roughly 413,000 sq. km)³. Yet, despite its considerable size, the region's share of gross regional product (GRP) in the country's economy is relatively small – for the past 20 years it has not exceeded 0.5–0.6% (Fig. 1).

The share of the Arkhangelsk Region's GRP in Russia's gross domestic product (GDP) exhibits a persistent downward trend, which is also characteristic of the demographic situation (Fig. 2).

² In determining the size of the sample, V.I. Paniotto's formula was used, according to which the minimum sufficient number of respondents is 384 persons.

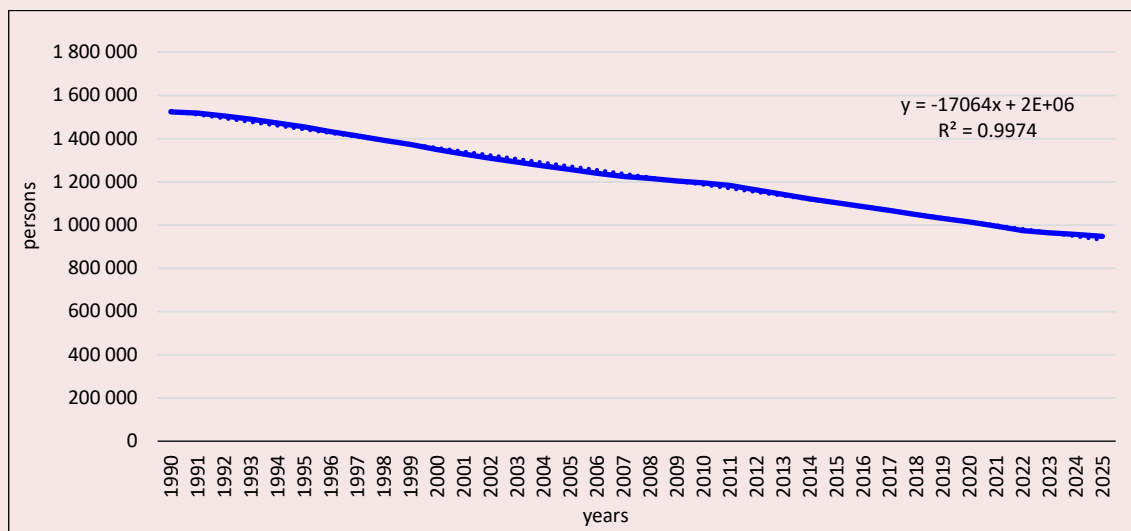
³ Regions of Russia. Socio-Economic Indicators. 2025: Statistical Compendium. Rosstat. Moscow, 2025. 1035 p. Available at: https://www.rosstat.gov.ru/storage/mediabank/Region_Pokaz_2025.pdf (accessed: 07.03.2026).

Figure 1. Share of the Arkhangelsk Region's GRP in the economy of the Russian Federation, %



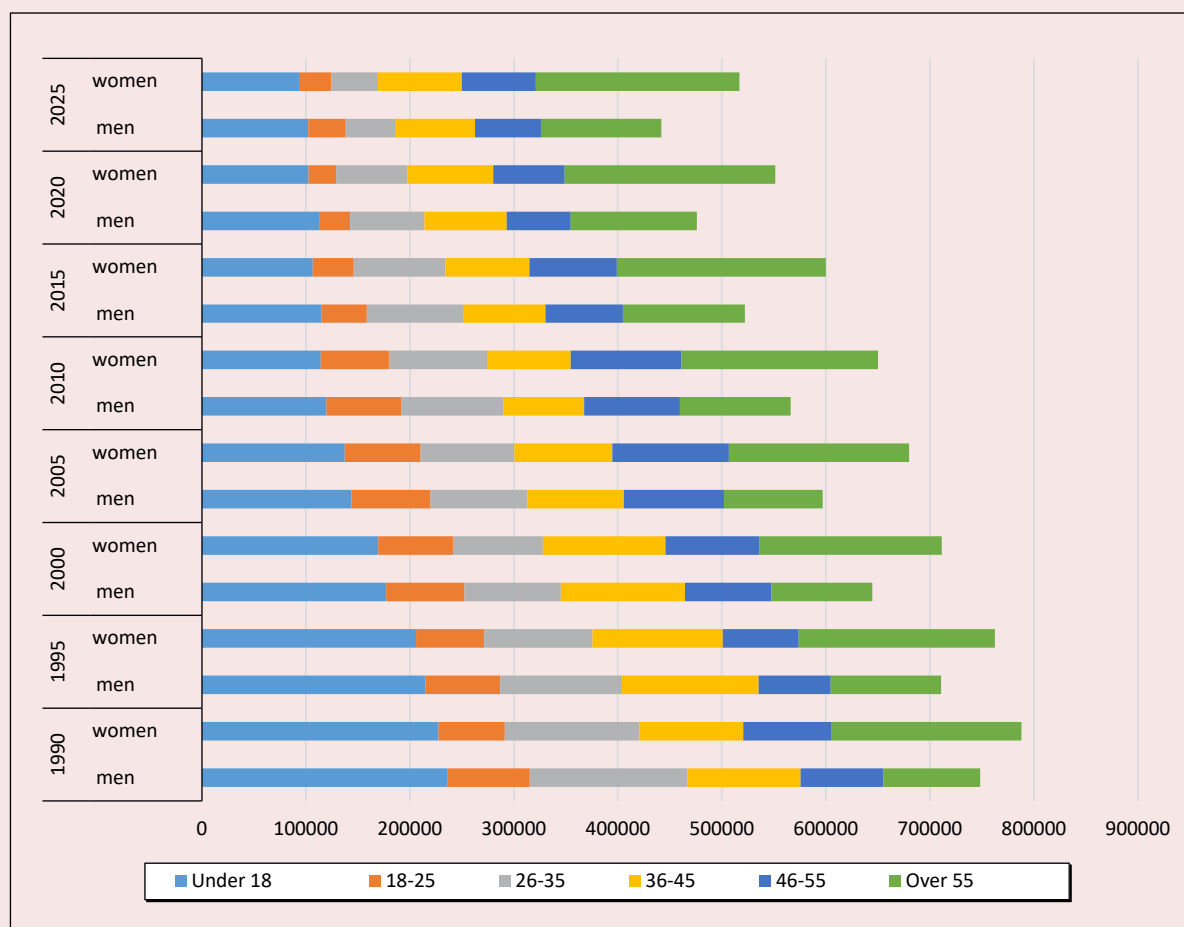
Compiled from: National Accounts. Rosstat. Available at: <https://rosstat.gov.ru/statistics/accounts> (accessed: 07.03.2026); Over the past five years, GRP in the Arkhangelsk Region has increased by 50 percent and by the end of 2024 amounted to 834 billion rubles. United Russia. Available at: <https://arkhangelsk.er.ru/activity/news/za-poslednie-pyat-let-obem-vrp-v-arkhangelskoj-oblasti-uvelichilsya-na-50-procentov-i-po-itogam-2024-sostavil-834-milliarda-rublej> (accessed: 07.03.2026).

Figure 2. Population of the Arkhangelsk Region, persons



Compiled from: Resident population – women by age as of January 1. EMISS. Available at: <https://fedstat.ru/indicator/33459> (accessed: 07.03.2026); Resident population – men by age as of January 1. EMISS. Available at: <https://fedstat.ru/indicator/31548> (accessed: 07.03.2026).

Figure 3. Gender-age structure of the population of the Arkhangelsk Region, 1990–2025, persons



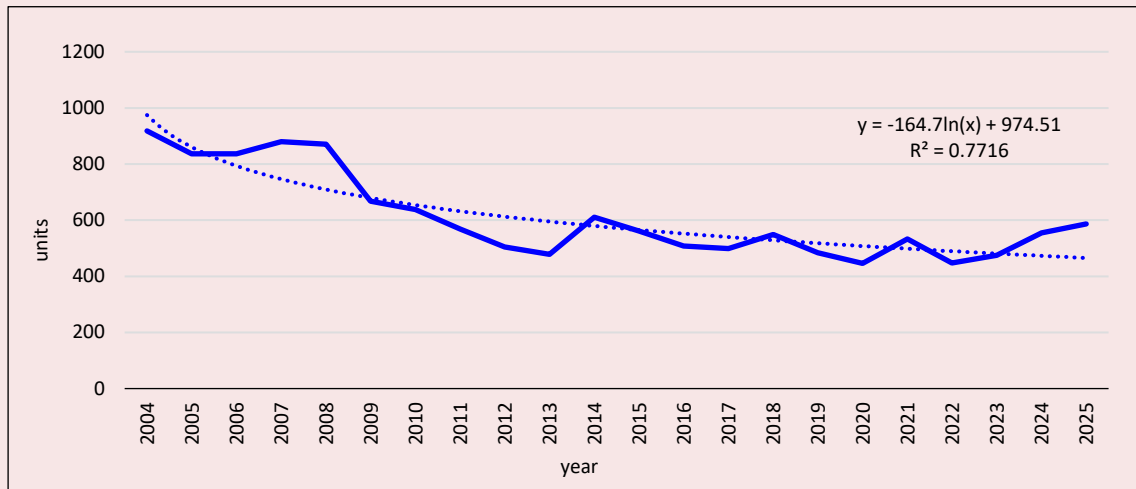
Compiled from: Resident population – women by age as of January 1. EMISS. Available at: <https://fedstat.ru/indicator/33459> (accessed: 04.03.2026); Resident population – men by age as of January 1. EMISS. Available at: <https://fedstat.ru/indicator/31548> (accessed: 07.03.2026).

From 1990 to 2025, the population declined by nearly one-third. It should be noted that the coefficient of determination for this indicator is 0.997, attesting to the stability of this process and the urgent need to adopt measures aimed at retaining residents within the region. The most pronounced outflow of population from the Arkhangelsk Region is observed in rural areas, which is linked to a low standard of living and unfavorable conditions for livestock farming and crop cultivation (Kuznetsova, Vasilyeva, 2023).

Figure 3 depicts the gender-age structure of the population of Arkhangelsk Region.

Since 1990, the age structure of those residing in the region has undergone significant changes: as the population ages, a clear skewing toward the female gender becomes apparent. It is noteworthy that, among women, the cohort “55 years and older” has predominated in the age categories under consideration since 2000; for men, this trend becomes observable with a slight lag (since 2015). Another adverse factor in the dynamics of the region’s gender-age structure is the declining size of the “under 18” and “18–25” age groups. Notably, since 2015, the “18–25” and “26–35” age groups have accounted for the smallest shares of

Figure 4. Number of enterprises and organizations, units*



*Excluding small and midsize enterprises, budgetary organizations, banks, insurance companies, and other financial and credit organizations.

Compiled from: Enterprises and organizations. Arkhstat. Available at: <https://29.rosstat.gov.ru/organizations11001> (accessed: 02.03.2026); Number of enterprises and organizations in the Arkhangelsk Region. EMISS. Available at: <https://www.fedstat.ru/indicator/31148> (accessed: 07.03.2026).

the region's population – a phenomenon that can be readily explained both by demographic troughs (Fauzer, Smirnov, 2025) and by the migration attitudes of young people (Podoplekin, 2024).

One reason for net out-migration in the region (according to the mass survey conducted by the authors in 2025) is the low level of wages. Moreover, young people point to a lack of career advancement prospects, a perception that is borne out by official statistics. *Figure 4* examines the dynamics of the number of enterprises and organizations in the Arkhangelsk Region.

Since the number of enterprises and organizations exhibits a downward trend, this, in turn, leads to a reduction in the number of jobs (*Fig. 5*). It should be noted that the average number of employees in the region is relatively stable as a share of the population (amounting to roughly 33–34% of the latter). At the same time, both indicators have declined markedly.

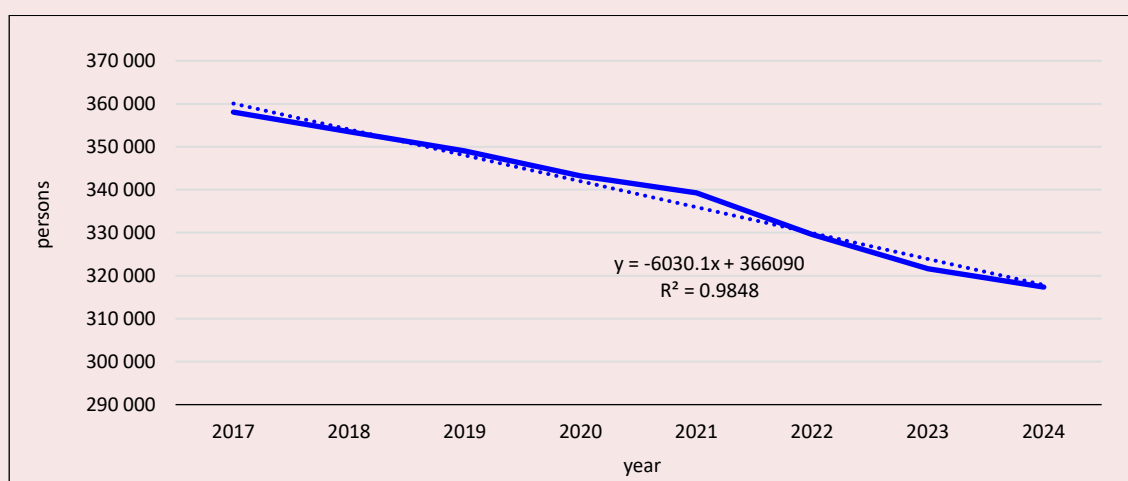
Given the above, it must be acknowledged that the socio-economic situation of the Arkhangelsk Region exhibits a persistent trend of deterioration across key indicators, which demands serious, well-founded, and effective managerial efforts on the part of authorities at both the regional and federal levels.

Strategic orientations and the potential of project-based governance

Naturally, as in every constituent entity of the Russian Federation, a number of strategic documents are in effect in the Arkhangelsk Region that define the vector of the region's socio-economic development and contain a set of target (planned) indicators. *Table 1* presents the results of a comparative analysis of the planned development indicators for the region and their actual values according to official statistics for 2023.

Despite the observed excess of the actual GRP figure over the plan, it would be unwarranted to speak of any genuine economic growth in the

Figure 5. Average number of employees (excluding external part-time workers) across the full range of organizations for the reporting period, persons



Compiled from: Average number of employees (excluding external part-time workers) across the full range of organizations for the reporting period in the Arkhangelsk Region. EMISS. Available at: <https://www.fedstat.ru/indicator/57848> (accessed: 07.03.2026)

Table 1. Analysis of socio-economic development indicators of the Arkhangelsk Region for 2023

Indicator	2023 plan	2023 actual	Deviation from planned values
Resident population, annual average, thousand persons	1059.64	960.1	-99.54
Net migration, persons	-672	-1383	-711.00
Natural population increase, persons	-4899	-6351	-1452.00
GRP at current basic prices, billion rubles	703.74	761.59	+57.85
Average annual number of employed persons in the economy, thousand persons	499.96	460.50	-39.46
Unemployment rate (ILO methodology), %	6.32	5.60	-0.72

Compiled from: Strategy for the Socio-Economic Development of the Arkhangelsk Region to 2035 (approved by Arkhangelsk Region Law 57-5-OZ of February 18, 2019). Available at: <https://portal.dvinaland.ru/upload/iblock/f91/Стратегия%20развития%20Архангельской%20области%20до%202035%20года.pdf> (accessed: 07.03.2026); Regions of Russia. Socio-Economic Indicators. 2025. 1,035 p. Available at: https://www.rosstat.gov.ru/storage/mediabank/Region_Pokaz_2025.pdf (accessed: 07.03.2026); Statistical Yearbook of the Arkhangelsk Region. Arkhangelsk, 2025. 169 p. Available at: <https://29.rosstat.gov.ru> (accessed: 07.03.2026).

region, since a substantial portion of the GRP increase was driven by rising prices (inflation) rather than by an expansion in the output of goods and services. This is confirmed by a comparison of the nominal and real dynamics of the indicator: whereas GRP at current basic prices grew from 700.29 billion rubles in 2022 to 761.6 billion rubles

in 2023 (an increase of roughly 8.8%), the physical volume index of GRP at constant prices over the same period was close to 100%⁴, and, according to an official estimate by the Arkhangelsk Region Government, real GRP growth in comparable prices amounted to only about 1% in 2023⁵.

⁴ Statistical Yearbook of the Arkhangelsk Region, Excluding the Nenets Autonomous Area: Statistical Compendium. Arkhangelsk, 2025. 162 p. Available at: <https://29.rosstat.gov.ru/> (accessed: 07.03.2026).

⁵ The head of Pomorye reported that industrial output would grow by 2.5% thanks to the timber industry complex and machine building. Available at: <https://tass.ru/ekonomika/20874541> (accessed: 07.04.2026).

The demographic situation in the region is unfolding worse than projected: the resident population fell short of the plan by 99.54 thousand persons, while the natural population decrease deepened and net migration outflow increased. The labor market was characterized by a decline in the average annual number of employed persons in the economy, accompanied by a concurrent decrease in the unemployment rate, which may point to the existence of systemic problems, hidden unemployment, and the spread of informal forms of employment.

As is well known, an effective means of enhancing a region's economic performance is to increase the investment attractiveness of the territory and to implement a portfolio of investment projects (Myakshin et al., 2024). In this connection, expert interviews conducted by the authors in 2025 served as the basis for identifying three groups of investment projects of the greatest strategic importance for the Arkhangelsk Region as a whole and for the Arkhangelsk agglomeration in particular.

1. "Transport and logistics projects" envision a development scenario for the region that is contingent on the implementation of major projects in transport infrastructure and transport logistics (the Northern Sea Route, the deep-water port of Arkhangelsk, bridges, and the like).

The Northern Sea Route (NSR) holds a special place among the transport projects not only of the Arkhangelsk Region but of the entire Arctic macroregion. Moreover, it is the shortest route connecting the regions of the Russian Far East with the European part of the country, and it passes close to both already developed and potentially exploitable mineral deposits. Given the exhaustibility of natural resources, the NSR provides an additional impetus for the development of the territories adjacent to its route (Muraev, Sushko, 2025).

The deep-water port of Arkhangelsk will be located on a 239-hectare site near the Kuysky Lighthouse, north of the Mud'yug Island, five

kilometers from the village of Kuya. Its berthing front will be about 2.5 kilometers long, designed for the simultaneous handling of up to nine vessels with a maximum draft of 14.5 meters, a deadweight of 75,000 tons, and a container capacity of 5,000 TEU. The port is slated to have five terminals with a combined capacity of 31.4 million tons: a container terminal with a capacity of 14.9 million tons; a general cargo terminal at 3.9 million tons; a fertilizer terminal at 5.5 million tons; a bulk terminal at 4.7 million tons; and a bunkering terminal at 2.4 million tons. A motor road from Arkhangelsk and railway approaches are planned to be built to the new port. Between 2028 and 2035, 79.5 billion rubles are expected to be invested in the construction of the first stage of the general and container cargo transshipment terminal and the overall on-site port infrastructure, which will result in the creation of 500 new jobs⁶.

2. "Resource base utilization projects" rely mainly on timber processing, diamond mining, the extraction of other minerals and bioresources, and the use of recreational areas for the development of the tourism industry.

At present, against the backdrop of external challenges and threats, a decline in demand for Arkhangelsk timber and forest products from the Collective West is being observed, generating an oversupply on the Russian market and leading to falling prices. These changes are having a negative impact on the financial health of enterprises in the Arkhangelsk Region, whose economy depends on the forestry complex (Muraev, Sushko, 2025). Diamond mining also plays a significant role in the economy of the Arkhangelsk Region, and the further development of this sector depends not only on geological exploration but also on the geopolitical situation (Onyakova, 2020; Voronina,

⁶ The Arkhangelsk deep-water port project attracts business. Available at: <https://ria.ru/20250619/tsybulskiy-2024039599.html>; A deep-water port is planned to be built near Arkhangelsk. Available at: <https://29.ru/text/economics/2025/12/04/76153691/> (accessed: 12.03.2026).

Table 2. Key investment projects of the Arkhangelsk Region

Transport and logistics projects	Resource base utilization projects	MIC and shipbuilding projects
1. Construction of the deep-water area of the seaport of Arkhangelsk (including construction of the first stage of the terminal for handling general and container cargoes and the common on-site port facilities) 2. Construction of a plant for the production of reinforced concrete caissons and other reinforced concrete products	1. Technical upgrading of a paper-making machine with increased capacity for the production of lightweight paper products at the board mill 2. Establishment of a sawmilling and pellet production facility 3. Reconstruction of key production facilities, including the modernization and expansion of production at the Arkhangelsk Pulp and Paper Mill. 4. Creation of a private industrial park specializing in import substitution in the pulp-and-paper industry and the timber industry complex 5. Construction of a forest selection-and-seed-breeding center 6. Establishment of a facility for harvesting biological raw materials (wild berries) and their deep processing for the production of food and pharmaceutical products	1. Construction of a ship-repair (shipbuilding) yard consisting of four workshops (assembly, painting, slipway, and turning shops), a warehouse, and a berthing line, enabling a full range of ship repair and new vessel construction works 2. Construction of four ice-strengthened passenger vessels (Project REGK.126) 3. Construction of a crab fishing vessel of Project KSP01 "Kildin" for the exploitation of aquatic biological resources in the Northern Basin
Source: On the Approval of Long-Term Plans for the Comprehensive Socio-Economic Development of a Number of Agglomerations for the Period up to 2035: RF Government Resolution 3014-r of October 27, 2025. Available at: http://publication.pravo.gov.ru/document/0001202510270034?index=80# (accessed: 12.03.2026).		

Varfolomeev, 2025). According to the experts, one of the important directions for the region's economic development is the tourism industry. At present, the tourism potential of the Arkhangelsk Region is largely untapped and insufficiently developed. The region's tourism sector requires comprehensive efforts on the part of the authorities and business to improve the infrastructural environment, to develop natural and cultural initiatives (including the territories of national parks and nature reserves), and to create conditions for enhancing the efficiency of small businesses and for boosting tourist flows (Myakshin et al., 2021).

3. "Military-industrial complex (MIC) and shipbuilding projects" are primarily linked to the defense industry (spaceport, shipbuilding, ship repair, etc.) and to civilian shipbuilding. It should be noted that shipbuilding and ship repair development projects in the Arkhangelsk Region hold considerable growth potential within the framework of bringing the deep-water port of Arkhangelsk into operation and the transport logistics of the Northern Sea Route.

For each of these groups, identified through expert-analytical techniques, we present examples of key investment projects that have already been approved at the federal level (*Tab. 2*).

Beyond those listed in Table 2, the Arkhangelsk Region authorities are now pinning their hopes on a new project – the world-class university campus "Arctic Star". To quote the region's governor, A.V. Tsybulsky: "...Another project that ranks among our top priorities in planning the region's socio-economic development is the construction of the world-class inter-university campus 'Arctic Star.' By 2027, we should have a modern campus that will become both a scientific hub, incorporating some 40 new laboratories, and a part of a contemporary urban environment offering living accommodations for students and faculty alike..."⁷

⁷ Tsybulsky: solving the problem of uneven development within the concept of developing anchor settlements. Available at: <https://www.echosevera.ru/2025/12/10/6939135c6b128174380a3ffa.html> (accessed: 13.03.2026).

Thus, the regional authorities have crafted a fairly thorough and complete “vision of the future” for the Arkhangelsk Region, one that takes into account the investment projects that can be implemented. At the same time, given the time lag in economic returns inherent to investments and the fact that a number of projects are either at the pre-investment stage or in the initial phases of implementation, there is little reason to expect a significant improvement in the socio-economic indicators of the Arkhangelsk Region in the medium term.

Social expectations: findings from the sociological survey of the population

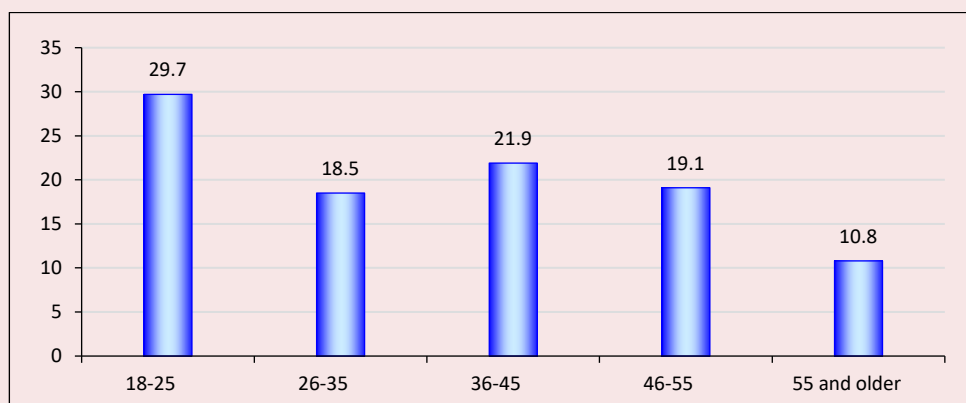
In 2025, the authors conducted a mass survey of residents of the Arkhangelsk Region, the aim of which was to capture subjective assessments of the current socio-economic situation in the country and the region and to identify the popular vision of the key directions for the territory’s socio-economic development. The sample comprised 400 persons, with a spontaneous, quota-based sampling design (urban or rural population of the Arkhangelsk Region, gender-age composition of respondents).

The ratio of urban (78%) to rural (22%) population in the sample roughly mirrors that found in the population of the Arkhangelsk Region – the sample reliably represents both territorial groups of the region’s residents. Owing to the specific features of the data collection technique (an online survey), the distribution by gender is skewed toward women (women account for 62%, men for 38%), while the age distribution is centered around the working-age population of middle age, with a slight asymmetry favoring the under-25 age cohort and a smaller share of the 55+ age group in the sample compared to the general population (*Fig. 6*). The latter is related to the relatively weak digitalization of daily life among the older age group of respondents.

Let us turn to the migration attitudes of the population in *Figure 7*.

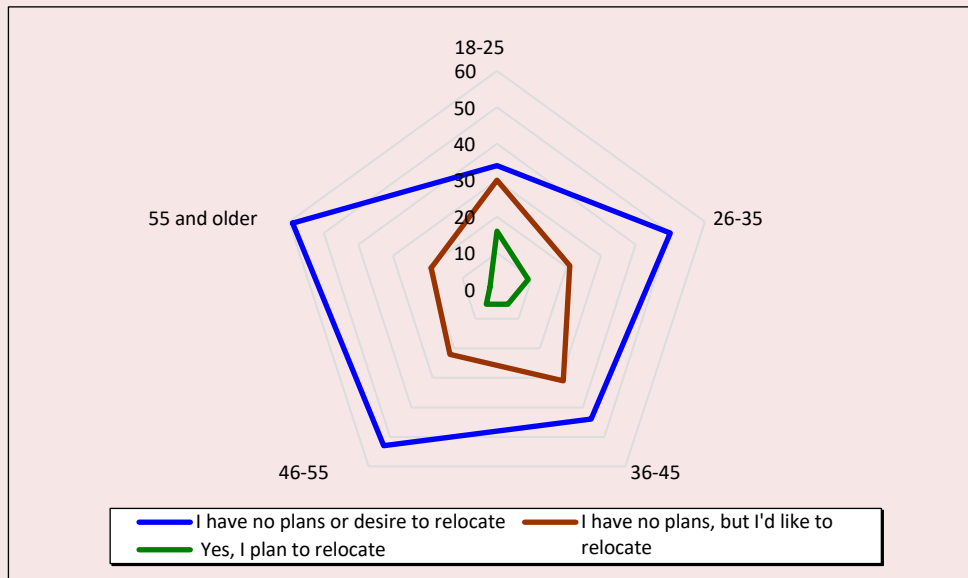
The majority of respondents across all age groups have no plans or desire to relocate. The weakest negative migration attitudes are observed among the older generation. Plans to relocate become more concrete and exhibit a growing tendency toward implementation only in the younger age categories. *Figure 8* examines the reasons behind the desire to move to another region.

Figure 6. Distribution of respondents by age cohort, %



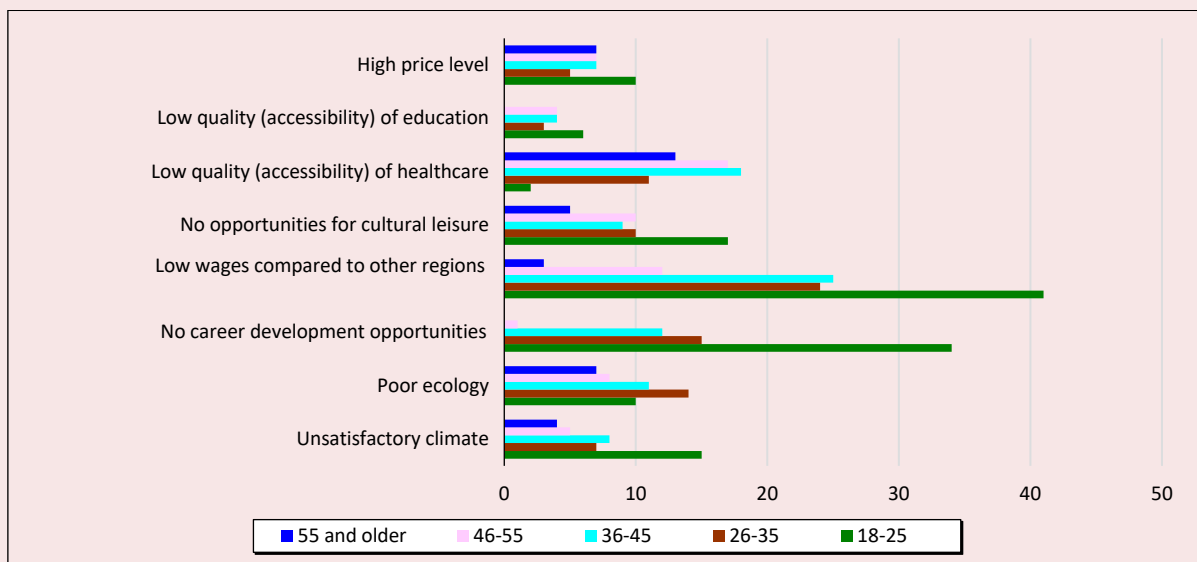
Compiled from: results of the sociological survey.

Figure 7. Migration attitudes of the population, number of responses*



* Respondents were asked to choose one answer.
Compiled from: results of the sociological survey.

Figure 8. Age-specific breakdown of reasons for the migration attitudes of the region's residents, number of responses*



* Respondents were asked to choose no more than three answers.
Compiled from: results of the sociological survey.

For young people, low wages and the lack of career advancement opportunities carry the greatest weight as migration factors. For the older generation, the quality and accessibility of medical care are of great importance. It is noteworthy that the harsh climate does not play a substantial role on the list of reasons, which may suggest that socio-economic factors predominate over natural-ecological ones in shaping migration attitudes. In turn, economic reasons (factors) carry greater weight than social ones. Next, let us examine the grounds on which people choose to remain in the region of residence (*Fig. 9*).

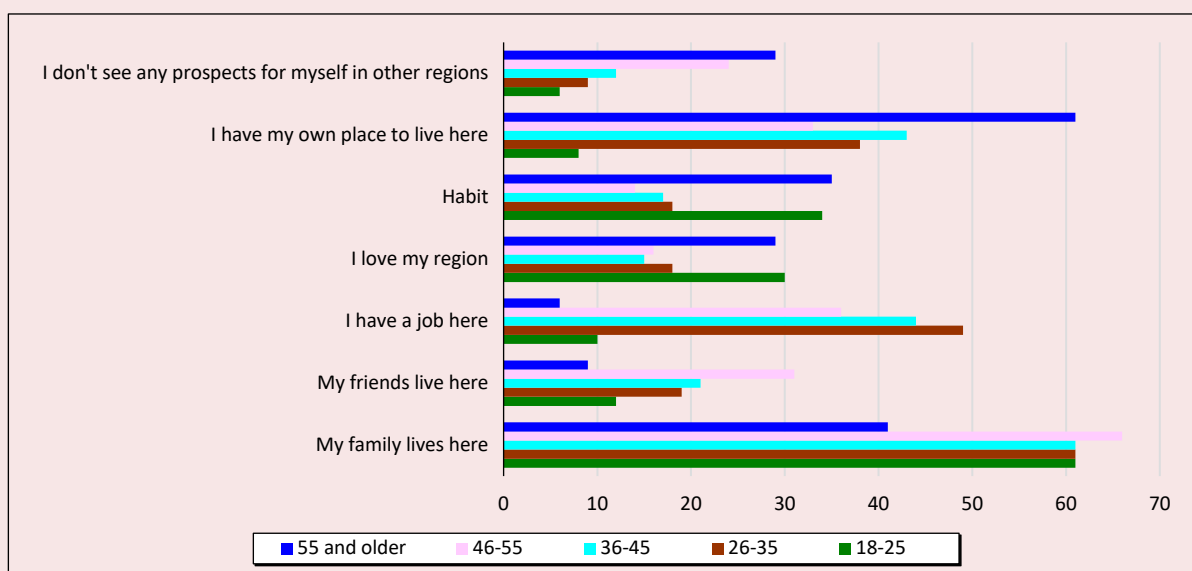
For the majority of respondents, the principal motive for remaining in the region of residence is the presence of family. This is entirely natural and understandable, since, as studies show, family constitutes the greatest value for all age groups of the population (Tsalko, 2024).

The second most popular response explaining the intention to reside permanently is the fact that the respondents own their own housing. In third

place on the list of reasons, working-age residents of the region placed “having a job”. A noteworthy finding is the pronounced tendency for the choice of the answer “I see no prospects for myself in other regions” to rise with the age of the respondents. It is worth noting that nearly 30% of young people cited love for their place of residence as one of the reasons for staying in the region, a finding that is quite consistent with the results presented in (Podoplekin, 2024).

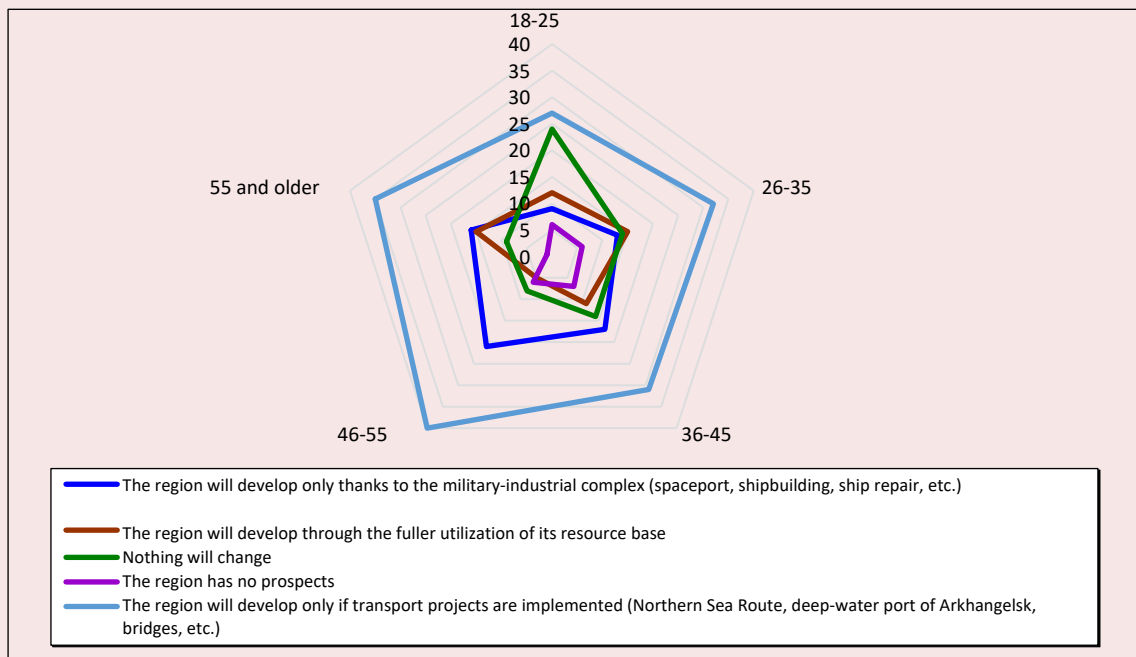
Let us compare our findings with the conclusions of researchers from Petrozavodsk. According to their study, roughly 36% of young people in the Arkhangelsk Region wish to stay (Simakova et al., 2024); according to our data, that figure exceeds 40%. One reason for youth out-migration in most of Russia’s northern and Arctic regions is the lack of opportunities to obtain higher education in one’s hometown. In the case of the Arkhangelsk Region, this is not entirely accurate, since several higher education institutions offering a wide range of specialties operate in the regional

Figure 9. Age-specific breakdown of the reasons underlying the population’s intentions to reside permanently in the region, number of responses*



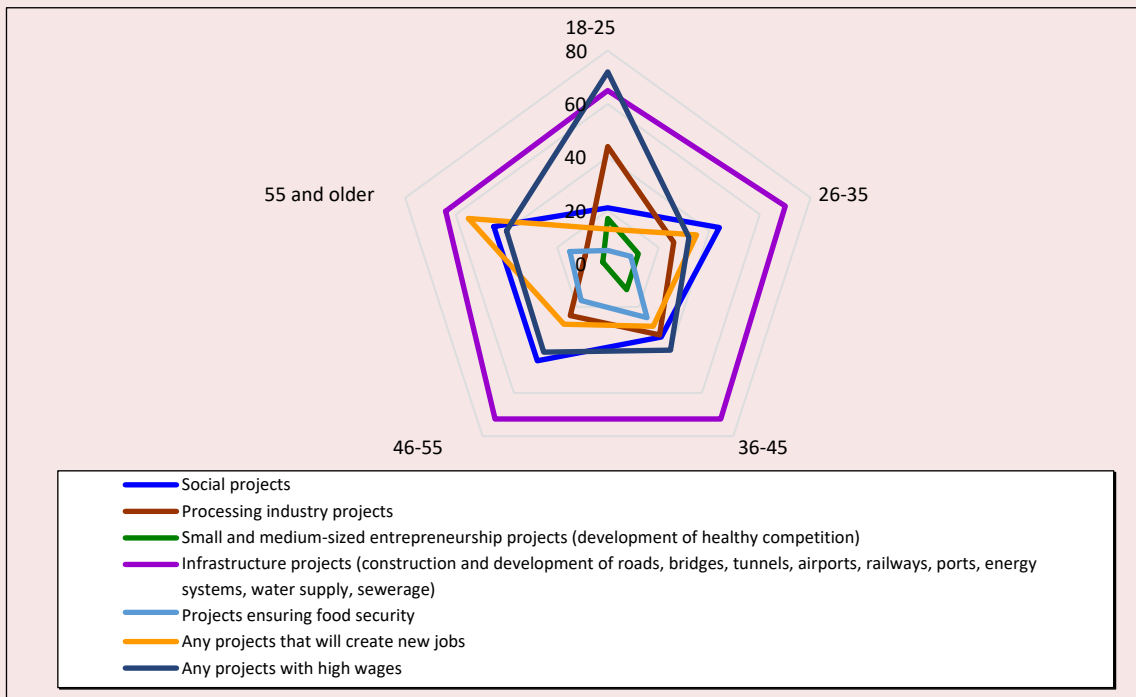
* Respondents were asked to choose no more than three answers.
Compiled from: results of the sociological survey.

Figure 10. Age profile of the population's assessments regarding the development prospects of the Arkhangelsk Region, number of responses*



* Respondents were asked to choose one answer.
Compiled from: results of the sociological survey.

Figure 11. Age profile of the population's assessments regarding the projects needed for the development of the Arkhangelsk Region, number of responses*



* Respondents were asked to choose no more than three answers.
Compiled from: results of the sociological survey.

center. According to our data, young people in Arkhangelsk who express a desire to move are less focused on actually relocating: only one in three is taking any steps to realize their migration plans. In the North and the Arctic as a whole, by contrast, this indicator for youth is far higher – two out of every three who wish to move are taking steps to do so (Simakova, 2024). An analysis of the survey findings shows that young people in the Arkhangelsk Region are more inclined to reside in their home region than are the youth of other northern and Arctic constituent entities of the Russian Federation.

It should be noted that researchers' interest in the younger generation is not accidental, for it is young people who form the basis of the region's future labor potential. At present, however, the labor potential of Russia's northern regions is characterized by a number of negative trends, the causes of which include adolescent morbidity linked to the specifics of single-industry settlements; unemployment among young qualified specialists; a low level of residential comfort; the low income of a large number of families with children; and the selective nature of measures in the sphere of social and labor partnership (Korchak, 2022).

One solution to reducing the migration attitudes of young people could be more targeted and in-depth informational work on the part of the authorities regarding opportunities for self-realization and the preferences available to residents of the North and the Arctic (Stepus, Rodion, 2025), as well as the preservation of existing higher and secondary educational institutions that contribute to the diversification of the regional labor market (Fauzer, Smirnov, 2024).

Next, the survey sought to determine how the residents of the Arkhangelsk Region perceive the current economic situation and how they assess the prospects for the region's socio-economic development (*Fig. 10, 11*).

The majority of the region's residents (41.25% of respondents), regardless of age, predominantly see transport (infrastructure) projects as the driver of the region's development. Among the population aged 36 and older, MIC projects rank second, while among those under 36, resource base utilization projects take second place. It is worth noting that 6.5% of those surveyed see no development prospects at all. Within the 18–25 age group, the opinion that nothing will change for the region in the future stands out sharply. To further detail the assessments of development prospects, the questionnaire included an additional question: "What projects does the Arkhangelsk Region need to ensure its socio-economic development?" (*Fig. 11*).

The majority of respondents (more than 60% in every age group) identified infrastructure projects as the most important for the region's development. Projects offering high wages and those in the processing industries are of particular interest to young people aged 18–25. At the same time, high-wage projects also carry considerable weight in the responses of other age groups. The greatest attention to projects that would create new jobs is shown by the "55 and older" age group; other respondents regard such projects with caution. Several individuals noted that the new jobs are quite likely to be filled by shift workers or migrants. For the success of such projects from the standpoint of the region's social development, programs aimed at attracting local youth are needed. In addition to the above, social projects are of great interest across all groups (with the exception of the 18–25 group). *Figure 11* does not show extractive projects that drew the attention of fewer than 5% of those surveyed.

Within the context of the importance of transport (infrastructure) projects that the region's residents particularly highlight, we offer several observations drawn from the work of Russian and international scholars. In examining transport

projects, the condition of the region's roads cannot be overlooked. In the Arkhangelsk Region, only 6% of local roads meet normative requirements, which points to the need not only for their construction and modernization but also for the possibility of alternative transport and multimodal shipping (Kozhevnikov, Patrakova, 2024). That is why implementing all the major projects of the Arkhangelsk Region – whether in extractive industries, manufacturing, tourism, or elsewhere – is impossible without preparing and adapting the region's transport and logistics infrastructure (Tutygin et al., 2024).

In connection with climate change (global warming) and the shifting of geopolitical vectors, the prospects for using northern ports within the framework of the Northern Sea Route (NSR) are increasing. International scholars forecast with an 80% probability that the Arctic Ocean will become ice-free in summer by the mid-2030s (Chen et al., 2025). Even now, foreign partners view the NSR as a third transport corridor alongside the Suez Canal and the Chinese railway (Zhou et al., 2024). With the implementation of the NSR project, freight delivery times between Northwest Europe and Northeast Asia during the summer-autumn season could be reduced by 30–40%. Yet today, the NSR undoubtedly finds it difficult to compete with the Suez Canal, not only because of the harsh climate but also owing to the remoteness (and, in part, the poor equipment) of the ports. This is largely due to the need to transship cargo from one vessel to another or to unload goods for onward delivery by land transport (Hermann et al., 2022). At the same time, international specialists note that, for goods with a high time value, the NSR could become a viable alternative to the overland route (Pruyn, Hassel, 2022). However, the implementation of the NSR project faces a number of difficulties, the most significant of which is the challenging ice conditions that hinder vessel transit without the assistance of icebreakers. At present, the most

active year-round shipping activity is observed at the ports of Murmansk and Arkhangelsk (Gunnarsson, 2021).

The port of Arkhangelsk plays a fairly substantial role in the implementation of the NSR project, since it supports not only the transport of cargo linked to Arctic projects but also the transport of locally produced goods – a prominent example being the forestry complex. In the context of the port of Arkhangelsk's expansion, a likely increase in cargo traffic should be taken into account, including the development of the Pavlovskoye deposit and the transshipment of cargo from the Republic of Karelia, the Republic of Komi, and the Vologda Region. Moreover, the port of Arkhangelsk is situated at a distance from the borders of other states, which makes it a promising alternative for cargo transshipment (Muraev, Sushko, 2025).

Despite the fact that Arkhangelsk has historically been associated with maritime transport, small aviation plays an equally important social role, since certain remote locations (including island territories) can only be reached by air. Today, there is an acute shortage of small aircraft, caused by the aging of the aircraft fleet and the need to replace a number of airplanes with new ones (Nosyrev, 2024).

Let us examine the opinion of the region's population regarding the current economic situation in Russia and the Arkhangelsk Region, as well as the changes that have taken place in the economy over the 2022–2025 period (*Fig. 12, 13*).

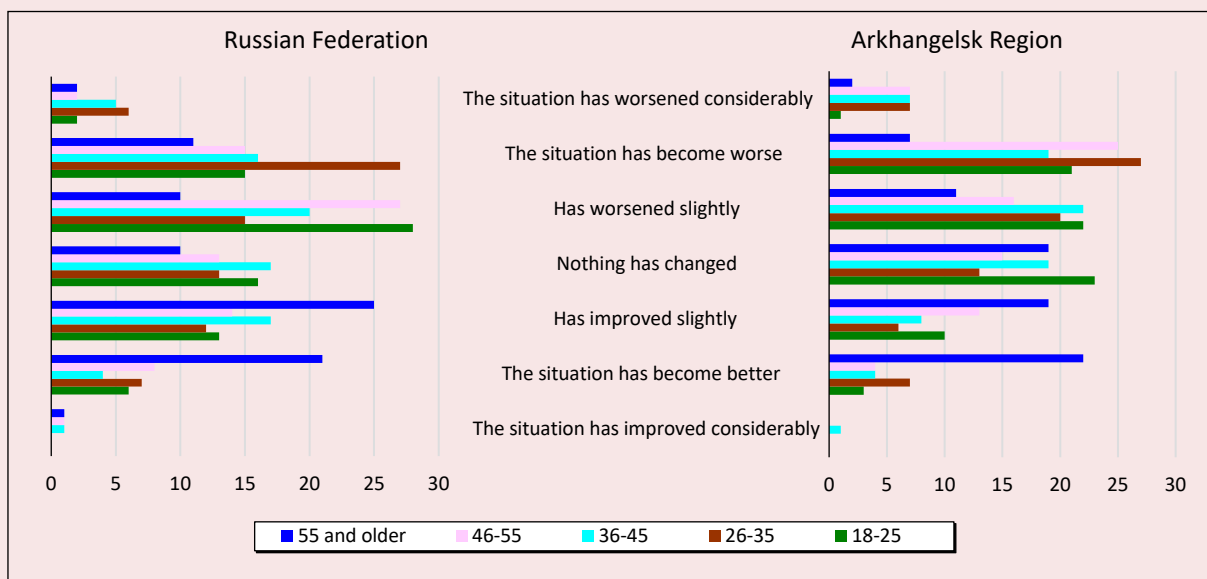
The majority of respondents believe that, at present, Russia as a whole (about 50% of responses) and the region in particular (about 40% of responses) are characterized by an average or satisfactory economic situation. At the same time, those surveyed (especially the population aged 45–55) perceive the current state of the Arkhangelsk Region in a more negative light compared with Russia as a whole. On this issue, respondents older than 55 stand out sharply for their positive outlook among

Figure 12. Age profile of the population's assessments of the current economic situation, number of responses*



* Respondents were asked to choose one answer.
Compiled from: results of the sociological survey.

Figure 13. Age profile of the population's assessments of the changes in the economic situation in the region and the country over the 2022–2025 period, number of responses*

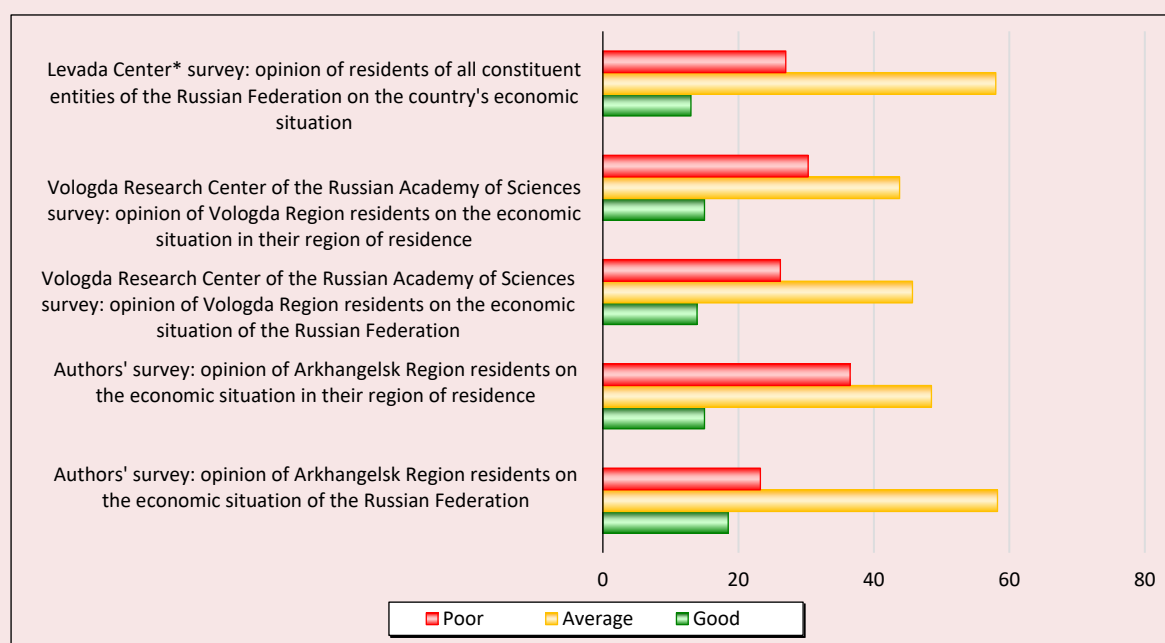


* Respondents were asked to choose one answer.
Compiled from: results of the sociological survey.

the other age groups (negative sentiments are present in fewer than 10% of those surveyed in this category). It should be noted that the assessments obtained are quite similar to the responses of experts in the fields of science, state and municipal governance, and business, as presented in (Khadyko, 2024).

In terms of dynamics, the majority of those surveyed observe that the situation in the Arkhangelsk Region has deteriorated to a greater extent over the past three years than it has across the country as a whole. Young people and those of middle age hold more pessimistic assessments than the older generation. Our results are fully

Figure 14. Respondents' opinions on the current economic situation in the Russian Federation and in the region of residence, %



Compiled from: Assessments of the economic and political situation in Russia in January 2026. Levada-Center*. Available at: <https://www.levada.ru/2026/02/19/otsenki-ekonomicheskogo-i-politicheskogo-polozheniya-rossii-v-yanvare-2026-goda/print/> (accessed: 03/14/2026); (Morev, Leonidova, 2025); results of the sociological survey.

* Levada-Center has been included in the register of foreign agents.

comparable with the findings of a number of international researchers. For instance, American scholars have found that older people are more satisfied with life, experience stress and anxiety less often, view the world more positively, and react more calmly to negative life situations⁸.

Despite the fact that the main value for all generations is family, other value orientations vary considerably across age groups (Sergeev, 2023). Young people tend to gravitate toward the values of independence of thought, whereas the older generation leans toward traditionality (Fedotova,

2017). Russia's older generation lived through the collapse of the USSR; it is the least demanding of life and the most susceptible to the influence of mass media.

Similar questions about Russia's economic situation were asked in the course of mass surveys conducted by researchers in Vologda (Morev, Leonidova, 2025) and by Moscow-based specialists (Fig. 14).

The regional cross-section of residents' opinions (Vologda and Arkhangelsk regions) about the economic situation in their place of residence shows a clear predominance of poor assessments over good ones. The majority of those surveyed give an average rating to the current economic situation. At the same time, respondents in both the Arkhangelsk Region and the Vologda Region assess the economic situation of the Russian Federation more positively than that of their own regions. The Arkhangelsk

⁸ Psychologists have found that older people view life more positively than young people. Available at: <https://www.mk.ru/science/2016/03/01/psikhologi-vyyasnili-chto-pozhilye-lyudi-smotryat-na-zhizn-pozitivnee-molodezhi.html> (accessed: 18.03.2026); It has been scientifically proven that old age is a joy. Available at: <https://www.mk.ru/science/2016/08/30/nauchno-dokazano-chto-starost-radost.html> (accessed: 18.03.2026).

Region and the Vologda Region differ substantially in socio-economic terms (for example, in the 2024 Russian socio-economic development ranking of the 85 constituent entities of the Russian Federation, the Vologda Region held 32nd place, while the Arkhangelsk Region held 59th), yet the residents of these regions display similar evaluative opinions⁹. At the same time, this similarity should be treated as preliminary: the two regions' economies differ significantly in their sectoral structure (ferrous metallurgy, chemical production, and agriculture dominate in the Vologda Region, whereas the forestry complex, shipbuilding, and machine building are dominant in the Arkhangelsk Region), in their levels of fiscal capacity, and in their positions in the socio-economic development ranking. The closeness of the population's subjective assessments should therefore be interpreted with caution – rather, as a reflection of general macroeconomic and other factors. A proper explanation of this phenomenon, one that accounts for the structural differences between the economies, could well become a subject for further academic research.

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⁹ Rating of Russian regions by socio-economic position. Available at: <https://ria.ru/20250623/rejting-2023127995.html> (accessed: 15.04.2026).

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A Rating Assessment of the Condition of the Urals' Agro-Industrial Complex: Key Problems and Potential Growth Points



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Abstract. In recent years, despite mounting external challenges – from the general problems affecting global agriculture and the deteriorating situation on food markets to the intensifying “first global food war” – Russia’s agro-industrial complex has been turning into a backbone sector of the national economy. It can now be viewed not only as a supplier of food and resources for many industries, but also as a developer and consumer of critical high-tech solutions and breakthrough technologies capable of mitigating many of today’s global threats. The specific processes unfolding in the country’s agro-industrial sector, however, are rarely scrutinized at the micro-level – that is, from the standpoint of individual agricultural and food-industry enterprises – largely because the work is so labor-intensive and primary data so difficult to collect. This work is one of the first attempts to fill that gap, using a sample of 585 enterprises from the agro-industrial complex of the Urals, spanning seven federal subjects: the Republic of Bashkortostan;

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the Chelyabinsk, Orenburg, and Kurgan regions; and three regions of the Non-Black Earth Zone – the Udmurt Republic, the Perm Territory, and the Sverdlovsk Region. As far back as 2000, this macro-region ranked second among the country's 11 economic regions in gross agricultural output (14.07%) and produced nearly one-tenth of the Russian Federation's food (8.78%), yet over the following quarter-century it has lost some ground in that hierarchy (down to 10.81% and 7.13% in 2024, respectively). The main methodological tool is a first-ever ranking of the enterprises of the Ural agro-industrial complex, based on open data from the "Professional Market and Company Analysis System". For each year from 2018 to 2024, seven rankings were compiled: the Top-400 Leaders of the Ural agro-industrial complex by sales revenue; the Top-100 Leaders in agriculture; the Top-100 Leaders in the food industry (by sales volume); the Top-100 Leaders by net profit; the Top-100 Leaders by profitability; a ranking of problem zones (the 50 agricultural and food-industry enterprises with the largest net loss from business operations at year-end); and the Top-100 Leaders by labor productivity. In line with the study's objectives, the paper identifies the key risk-prone problem areas and possible growth points for the Ural agro-industrial business. Given its focus on the period 2018–2024, the discussion is prefaced by a brief characterization of the key global challenges currently affecting the world agrarian sector and of the main outcomes of the repositioning of agriculture in the modern Russian economy. The findings can be used by practitioners when preparing specific decisions to refine the "road map" for the further development of the country's agro-industrial complex and of the Urals in particular.

Key words: agro-industrial complex, food industry, ranking, agriculture, sustainable economic growth.

The global agricultural sector in the new geo-economic reality

By the third decade of the 21st century, global agriculture has faced a number of challenges. Among the most significant are, first, a sharp decline in the average annual growth rate of total factor productivity – from 1.7% in the 1990s and 2.0% in the 2000s to 1.1% in the 2010s (Fuglie et al., 2024) and 0.7% in the 2020s (Nakelse, Thompson, 2025, p. 15) – at a time when it needs to at least double (Ortiz-Bobea et al., 2021, p. 310) to feed a growing global population (projected to reach 9.6 billion by 2050) (Adam, 2021, p. 463). Second, the first recorded contraction in global agricultural land area by more than 2% in 2001–2023 (Cattaneo et al., 2024, p. 473), compounded by accelerating land degradation (Wuepper, 2021; Nkonya et al., 2024), which the FAO has recognized

as a "critical challenge", affecting the quality of life of over 1.7 billion people worldwide by 2025¹.

Third, the intensifying problem of freshwater availability (Pierri et al., 2025): according to FAO, 70% of global freshwater is used by agriculture by the third decade of the 21st century, while further expansion of water consumption by the sector is constrained, primarily due to inefficient use (Su et al., 2025). Fourth, the accelerating aging of farmers (Barbier, di Falco, 2021). According to FAO data, the share of agricultural workers over 55 increased between 2005 and 2023 from 19.2 to 23.2% in Brazil, from 15.2 to 22.7% in India, from 25.4 to 30.1% in China, and from 30.1 to 33.9% in the United States². Fifth, global food markets (especially grain) entering a period of low prices and intense competition. As of June 1, 2025, the global average price for one metric ton of wheat was 174.78

¹ FAO. The State of Food and Agriculture 2025. Available at: <https://openknowledge.fao.org/items/dd568913-8938-4705-96c4-3f0ebb2a22b6> (accessed: 12.01.2026).

² FAO Stat. Employment Indicators: Agriculture and Agrifood Systems. Available at: <https://www.fao.org/faostat/en/#data/OEA> (accessed: 12.01.2026).

dollars, compared to 436.85 dollars on June 1, 2022, with the average annual rate of price decline for 2016–2025 being 4.3%, accelerating to 26.3% over the last three years³. The situation is further complicated by traditionally high import duties on food. The global average weighted import tariff on agricultural products (not considering preferential regimes) was 15.7% in 2023, slightly down from 17.2% in 2012, but still nearly four times higher than the corresponding rate for finished manufactured goods – 4.1% (4.2% in 2012)⁴, leading experts to speak of a “first global food war” unfolding in the mid-2020s⁵.

The seriousness of these challenges is acknowledged by the expert community. For instance, among the major six priorities of sustainable development until 2030, UN experts highlight not only “quality education”, “universal health coverage”, “digital connectivity” and others but also “sustainable agriculture”⁶ in all regions of the world, not just the poorest countries. In 2025, experts from the World Economic Forum directly linked strengthening domestic economic resilience with the development of strategic sectors – energy, agriculture, and defense⁷.

These conclusions are based on statistical evidence. In particular, global economy slowdown –

from an average annual global GDP growth of 3.4% in 1995–2009 to 3.3% in 2010–2023 – largely determined the decline in average annual global agricultural production growth from 5.7 to 4.2%⁸. This correlation is even more pronounced when examining the changing composition of the world's top ten economies. China, the absolute world leader in agricultural production, by 2023 (the only representative of the 1995 top ten) managed not only to nearly double its contribution to global agricultural production (from 17.2 to 33.2%) but also to simultaneously increase its share in global GDP (from 2.4 to 17.1%). The United States, the absolute leader of the global economy by nominal GDP (28.3% in 2023), managed to retain its top position (24.5% in 1995) and, despite a decline in its share of global agricultural production from 10.3 to 9.0%, remained the number one food exporter (195.2 billion dollars in 2024⁹). Germany over the same period, while nearly halving its contribution to global GDP from 8.3 to 4.3%, also lost positions in global industrial output (moved from the third to the fourth place) and agricultural production (left the top ten by 2000 and ranked 13th in 2023). Japan, while remaining in the top ten global economies, as well as its industrial and agricultural sectors, had almost a simultaneous 5-fold decrease in its share in global GDP from 17.7 to 3.9% and global agricultural production from 8.5 to 1.6% between 1995 and 2023¹⁰.

³ Inflation Adjusted Price of Wheat. Available at: https://www.gurufocus.com/economic_indicators/4555/inflation-adjusted-price-of-wheat (accessed: 14.01.2026).

⁴ UNCTAD. Global Trade Update. March 2025. Policy Insights. The Role of Tariffs in International Trade. 23 p. P. 4.

⁵ Labykin A. (2025). First global food war. *Ekspert*, 16, 17 (in Russian).

⁶ “To a great extent, sustainable development is a long-term investment challenge... major investment priorities include quality education, universal health coverage, zero-carbon energy, systems, sustainable agriculture, urban infrastructure, and digital connectivity”. See: UN. Sustainable Development Report 2024: The SDGs and the UN Summit of the Future. Dublin University Press: Dublin, 2024. Available at: <https://s3.amazonaws.com/sustainabledevelopment.report/2024/sustainable-development-report-2024.pdf> (accessed: 05.12.2025).

⁷ WEF. The Global Risks Report 2025. 20th Edition. WEF Press: Geneva, 2025. Available at: https://reports.weforum.org/docs/WEF_Global_Risks_Report_2025.pdf (accessed: 05.12.2025).

⁸ World Bank Data. GDP Growth (%). Available at: <https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD>; FAO Stat. Production. Crops and Livestocks. Value. Available at: <https://www.fao.org/faostat/en/#data/QCL> (accessed: 14.01.2026).

⁹ UN Comtrade Statebase. Available at: <https://statbase.ru/datasets/trade/food-exports-share/?syar=last&firmreq=495954&sproc=sum&filter=&sort=> (accessed: 14.01.2026).

¹⁰ World Bank Data. GDP (Current US\$). Available at: <https://data.worldbank.org/indicator/NV.IND.MANF.CD>; FAO Stat. Production. Crops and Livestocks. Value. Available at: <https://www.fao.org/faostat/en/#data/QCL> (accessed: 12.01.2026).

In this context, the repositioning of Russia's agricultural sector is of particular interest. In 1991, according to FAO estimates (in current dollars), the USSR ranked first in the global hierarchy (11.2% of gross agricultural production), but by 1992, the Russian Federation had dropped to fifth place (4.2%), and by 2023 it was in sixth place (1.9%)¹¹. In this context, assessing the capacity of Russia's agribusiness to reverse this negative trend requires a detailed examination of current realities at both the macro and micro levels and holds practical significance.

The changing role of agriculture in the modern Russian economy

In the post-reform period, Russia's agro-industrial complex demonstrated a remarkable duality. On the one hand, during the transition to a market economy, the sector suffered perhaps the greatest material and financial losses. For instance, between 1990 and 2000, the physical quantity of fixed assets in the national economy increased, at least slightly, by 5.4%, including a 5.8% rise in industry, while in agriculture it declined by 14.3%. Over the 1990s, Russia lost 50.9% of its cattle stock, 59% of its pig stock, and 47.6% of its poultry stock¹². This was primarily the result of underinvestment in the agricultural sector. While the physical investment in fixed capital in Russia decreased by three quarters (in comparable prices, capital investment in the economy in 2000 was 25.8% of the 1990 level), agriculture's investment share dropped from 15.9 to 3.5% in 1995 and 2.6% in 2000¹³. The financial losses of the agricultural sector were even more significant. The net adjusted

financial result (profit minus loss) in agriculture in 1990 was 2.6 times lower than in industry, and in 2000 it was 42.7 times lower; in 1994 and 1996–1998, it was actually negative (with the share of loss-making enterprises skyrocketing from 10.0% in 1993 to 76.5–84.4% of all enterprises in the sector in 1996–1998)¹⁴, virtually eliminating the investment potential of commercial agricultural producers. In conditions of continuous redistribution of created added value for the benefit of other sectors, the decline in gross agricultural production (GAP) during the 1990s (38.1%) was less severe than in industry as a whole (45.7%)¹⁵. This can be explained by, among other things, a more gradual reduction in the average annual number of people employed in agriculture between 1990 and 2000 (by 14.0%, from 9.7 to 8.4 million people) compared to 14.6% in the national economy as a whole (from 75.3 to 64.3 million) and 36.2% (from 22.8 to 14.5 million) in deindustrialized industry¹⁶.

On the other hand, the agricultural sector demonstrated an immediate response to increased state support from the second half of the 2000s. During the implementation period (2011–2020) of the first edition of the Russian Federation's Food Security Doctrine of 2010¹⁷, when the share of agriculture in total consolidated budget expenditures consistently exceeded 1% (1.49% in 2010 and 1.0% in 2020; the maximum was 2.81% in 2000)¹⁸, gross agricultural production increased by 49.7%, compared to a 21.6% growth in gross industrial output and 11.8% GDP growth¹⁹. Even in 2021–

¹¹ FAO Stat. Production. Crops and Livestocks. Value. Available at: <https://www.fao.org/faostat/en/#data/QCL> (accessed: 14.01.2026).

¹² Calculated based on: Russian Statistical Yearbook (RSY) 2001: Statistical book. Moscow: Goskomstat, 2020. Pp. 305, 416.

¹³ Calculated based on: RSY 2001. Pp. 569–570.

¹⁴ Calculated based on: RSY 2001. Pp. 546–547.

¹⁵ Calculated based on: RSY 2001. Pp. 337, 396.

¹⁶ Calculated based on: RSY 2001. P. 141.

¹⁷ On the approval of the Food Security Doctrine of the Russian Federation: Presidential Decree 120, dated January 30, 2010. Collection of legislation of the Russian Federation. 2010. No 5. Art. 502.

¹⁸ RSY 2015. P. 538; RSY 2021. P. 513; RSY 2024. Pp. 499–500.

¹⁹ Calculated based on data from the "Russian Statistical Yearbook" for the respective years.

2023, during the initial phase of implementing the second edition of the Food Security Doctrine of 2020²⁰, when the average annual state support for agriculture, being 230 billion rubles (in constant 2012 prices), had declined by almost one-fifth compared to the 2012–2020 average of 282.9 billion rubles²¹, the growth in GAP exceeded GDP dynamics (10.8% versus 9.0%, respectively)²².

The implementation of the Food Security Doctrine activated intensive factors of agricultural growth: crop yields, milk yields, livestock weight gains, egg production, etc., started to rise. For example, between 2000 and 2023, the yield of grains and pulses doubled (from 15.6 to 31.0 quintals/ha), milk yield per cow more than doubled (from 2,502 to 5,322 kg/year), and the average annual egg production per laying hen in agricultural companies showed a 1.2-fold increase (from 264 to 313 eggs)²³. Moreover, the declining trend in the use of mineral fertilizers was reversed. The share of sown fertilized area increased from 27% in 2000 to 72% in 2023, and the total amount of used mineral fertilizers grew from 1.4 to 3.5 million tons, though still being three times lower than in 1990 (9.9 million tons). It should also be acknowledged that a 2-fold increase in annual mineral fertilizer production from 12.2 to 25.9 million tons (in terms of 100% nutrient content) could not radically change the share of domestic agriculture in their consumption: 13.5% in 2023 compared to 11.5% in 2000²⁴.

Unlike the progress in agricultural chemicalization, another challenge — a sharp decline in

the energy capacity of agriculture (from 240.0 million hp in 2000 to 92.3 million hp in 2023) — has not been resolved (the peak level of 419.7 million hp was reached in 1990)²⁵. As a result, while in 1990 there were 10.7 tractors per 1,000 hectares of arable land in Russia, and 7.4 in 2000, by 2023 there were only 3²⁶. For comparison, the U.S. has 26, France has 71, not to mention the greater average power and other technical specifications of Western equipment, which accounted for 60–65% of total sales in the Russian market until 2021 (Frolova, 2025, pp. 36–37). However, the root causes of this are obvious. The post-reform problems of domestic agricultural machinery manufacturing resulted in a manifold reduction in the production of tractors (from 214 thousand units in 1990 to 19.2 thousand in 2000 and 8.8 thousand in 2023), grain harvesters (from 65.7 thousand to 5.2 and 5.1 thousand over the same period), milking machines (from 30.7 thousand units to 4 and 2.7 thousand, respectively), etc.²⁷ It is difficult to expect significant demand for machinery when the share of loss-making agricultural enterprises rose from 3% of their total number in 1990 to 51% in 2000, and even in the climatically favorable year of 2023, every fourth enterprise (26.6%) in the agricultural sector remained loss-making²⁸. The question of the “multi-speed” dynamics of prices for the sector’s output and input deserves separate consideration.

Since 1992, the dominant sector of the Russian economy has been services (52% of GDP), exceeding the share of goods (46.2% of GDP)²⁹. Agriculture’s share in the gross value added (GVA) generated in Russia fell from 16.5% in 1990 to a minimum of 3.5% in 2012, after which it stabilized in the 4.0–4.3% range from the mid-2010s, but

²⁰ On the approval of the Food Security Doctrine of the Russian Federation (with amendments and additions): Presidential Decree 20, dated January 21, 2020. Collection of legislation of the Russian Federation. 2020. No 4. Art. 345.

²¹ Calculated based on: Russian economy in 2023. Trends and prospects (Issue 45). Moscow: Gaidar Institute Press, 2024. 456 p. P. 197.

²² Calculated based on: RSY 2022. P. 373; RSY 2023. P. 375; RSY 2024. Pp. 262, 362, 385.

²³ RSY 2024. P. 394; RSY 2001. P. 408.

²⁴ RSY 2001. P. 364, 405; RSY 2024. Pp. 375, 390.

²⁵ RSY 2001. P. 406; RSY 2024. P. 391.

²⁶ RSY 2001. P. 405; RSY 2024. P. 390.

²⁷ RSY 2001. P. 367; RSY 2024. P. 379.

²⁸ RSY 2001. P. 402; RSY 2024. P. 329.

²⁹ RSY 2001. P. 280.

in 2023 it returned to the levels of the early 2010s. Almost at the same time, industry's share, having declined from 38.0% of Russia's GVA in 1990 to a minimum of 25.6% in 2014, was around 30% in the early 2020s, but also returned to early 2010s levels in 2023. However, since the early 2000s, the combined contribution of agriculture and industry to Russia's GVA has remained above one-third, acting as an important factor in stable socio-economic development. For example, from 2011 to 2024, each drop in GAP compared to the previous year (in 2012, 2018, 2021, 2023, and 2024) was offset, in part, by growth in industrial output, ensuring positive total annual GDP growth³⁰.

It is worth noting that the factor constraining even more significant synergy effect of the agricultural and industrial sectors is the imbalance in the distribution of the net adjusted financial result among Russian enterprises. In 1990, agriculture's share in Russia's GVA almost matched its share in the national net adjusted financial result. By 2000, however, there had been a multiple gap, persisting into 2020s, with agriculture's contribution to GVA being 1.5–2.5 times higher than the share of net profit remaining at the disposal of farmers. This means, on the one hand, a redistribution of this profit in favor of other sectors, and, on the other hand, that agricultural growth is being driven by investments from previous years, which obviously cannot be stable: the reserves are running down. For instance, between 2021 and 2023 alone, the net adjusted financial result remaining in the agricultural sector dropped (even in current prices) from 797.0 to 654.0 billion rubles, or by one-fifth³¹.

Growing strategic importance of agribusiness in ensuring not only food security but national security

as a whole means that building and strengthening inter-sectoral links within agribusiness and with related industries becomes a crucial condition for the stability and efficiency of the entire economic complex of Russia and its regions (Ushachev et al., 2025; Patrakova, Kopytova, 2025). In this context, agriculture is considered not only as a supplier of food and resources for many industries but also as a catalyst for and consumer of critical high-tech solutions and breakthrough industrial technologies capable of mitigating many contemporary global challenges.

Several preconditions allow Russian agribusiness performing this mission. Natural environment includes the invaluable reserve of unused agricultural land (abandoned, converted to other land use categories, etc.). On January 1, 1992, Russia entered the reform period with 643.6 million hectares of agricultural land³², but by 2024 this area had experienced a 2.6-fold decrease and was 244 million hectares due to changes in the economic structure, productivity growth, etc. It is essential that unused agricultural land of an adequate quality – 31.6 million hectares, including 16.9 million hectares of arable land as of January 1, 2024 (Altukhov et al., 2025, p. 4) – is not necessarily a source of increased production and export of agricultural raw materials, food, and related products. Of course, this is crucial³³, but even more important is the fact that Russian soils (and forests, mineral resources, etc.) represent the world's largest carbon reservoir – the “scarcest element of life”. Their rational use (applying no-till farming, replacing mosses on wastelands and fallow lands with cereals that will feed rich fauna and

³² RSY 1998. P. 41.

³³ Indicatively, Russian agribusiness has achieved a sustained surplus of food exports over imports since 2021 (Kheyfets, Chernova, 2024, p. 167), turning into a “high-tech driver of Russia's export revenue growth”. See: Kalyamina L. (2022). Agribusiness is capable of significantly changing the structure of Russian exports in the next 15–20 years. *Ekspert*, 46, 50.

³⁰ Calculated based on: RSY 2001. Pp. 282, 546; RSY 2002. P. 288; RSY 2015. Pp. 282, 559; RSY 2022. Pp. 333–334; RSY 2024. Pp. 268–269, 327–328.

³¹ RSY 2024. P. 327.

could serve as an alternative to hydrocarbon fuels, restoring forest shelterbelts, pasture biodiversity, etc.) will not only contribute to achieving carbon neutrality in the Russian economy – agriculture accounts for 5.7% of greenhouse gas emissions in CO₂ equivalent in Russia (Ryabov et al., 2024, p. 34) – but also to accelerating the development of ecosystems that will become “a reserve of proteins and fertile soils”. At the same time, Russia will be capable of “changing the albedo at will”³⁴ on the world’s largest territory, thereby contributing to easing the “environmental tension” stoked by the Western community in recent decades. Western plans to develop climate management technologies have, in fact, proven unfeasible. Experts increasingly agree that “the future climate and food security of the world depend most heavily on Russia today”³⁵.

Furthermore, the fundamental significance of Russia’s modern agribusiness is reinforced by the consistent implementation of quality growth strategies, transforming the sector into a driver of national economic development. A case in point is labor productivity. Russian average considering purchasing power parity per person employed was 80 thousand dollars in 2023 prices (141 thousand dollars in Western Europe, 211 thousand dollars in the U.S.), while in Russia’s agriculture and forestry (as well as in the food industry) it was 34 thousand dollars (compared to 24 thousand dollars in mechanical engineering), equal to the results of Eastern Europe but with a 2-fold lag behind Western Europe (74 thousand dollars) and a 5-fold lag behind the U.S. (176 thousand dollars)³⁶. This achieved level, first, indicates an

“employment reserve” that could be used in other economic sectors if labor productivity is increased. For example, in 2021, agriculture employed 6.0% of the Russian workforce, compared to 3.1% in Japan, 1.5% in the U.S., and 1.2% in Germany (Uzyakova, Shirov, 2024, p. 9), and most of the key targets and indicators set in the Russian Food Security Doctrine were met or exceeded by the early 2020s (Dolgushkin, 2025). Second, it highlights the potential for growth in added value and productivity of agriculture. Notably, between 2001 and 2020, the average annual growth rate of labor productivity in agriculture was 5.9%, only lagging behind financial and insurance services (7.5%), telecommunications (7.0%), and medium-tech manufacturing (6.7%), raising the sector’s average labor productivity from 42.7% to 74.4% of the national average (Uzyakova, Shirov, 2024, p. 10). We propose to examine the processes unfolding in Russian agribusiness in recent years in more detail at the micro-level from the perspective of specific agricultural and food-producing enterprises in a selected region. The object of study is the Ural region, comprising 7 constituent entities. The principal methodological tool is the ranking of agribusiness enterprises in the Urals.

Methodology for rating assessment of structural transformation in Russian agribusiness: The Urals case

In 2015, the analytical center of the “Expert” magazine first presented a rating of the 50 largest agro-industrial companies in Russia based on 2014 results³⁷. Subsequently, the preparation of special annual reports “Rating of Agribusiness Companies in Russia” became a tradition, interrupted in 2023 – for well-known reasons, primarily due to the need for Russian business leaders to protect their original reporting. In the analytical commentary

³⁴ Zimov S. (2024). On Monday, in 100 years, it will be... *Rossiiskaya gazeta* (July 2), 142, 9.

³⁵ Zimov S. (2023). Nature is immortal. But man? *Rossiiskaya gazeta* (October 11), 229, 11.

³⁶ Calculations by the Center for Macroeconomic Analysis and Short-term Forecasting based on the ratio of value added in USD to PPP per person employed. See: On labor productivity in sectors of the Russian economy compared to other countries. Moscow: CMASF, 2025. P. 6.

³⁷ Ermak S. (2015). Food optimism. *Ekspert*, 41, 72–80.

accompanying the first ratings, experts consistently noted turning points in the development of Russian agribusiness: rapid growth since 2006 based on modernization, production diversification and active investment, a new boost to the development in 2014 due to the introduction of Russian food counter-sanctions against unfriendly countries, and the final stage of import substitution for most critical positions, with a gradual transition to an export-oriented development model³⁸.

The publication of federal ratings was interrupted on the threshold of a new stage in Russia's agribusiness development, when its main segments were approaching market saturation, structural transformations – the phenomenon of vertical integration (“from field to market”, “from test tube to consumer” strategies), increasing investment in infrastructure to gain full control over technological cycles and optimize costs, etc. – had captured virtually all key subsectors, and the Russian food market was becoming more and more integrated into the global market. However, the new reality – the combination of the next agro-technological wave and the anti-Russian sanctions spiral that began in 2014, as well as investment contraction (in 2019, 6.4 kopeks of net investment accounted for 1 ruble of GAP, in 2023 – 4.4 kopecks) (Klimentova, Dubovitskii, 2025, p. 15) due to the tightening of Central Bank's monetary policy, rising transaction costs for agricultural producers (e.g., grain production costs in Russia increased by one-third in 2024³⁹), and the continuous price disparity between agricultural products and inputs such as machinery, fuel, fertilizers, etc. (in 2021, 1 thousand tons of grain was to be sold to buy one combine harvester; in 2024, 2 thousand tons was to be

sold⁴⁰) – could not help affecting agribusiness development. All of this underscores the importance of identifying key trends in the development of Russian agribusiness by the mid-2020s and assessing its contribution to the stability of the Russian economy under current conditions.

When preparing the first ratings of leading Russian agribusiness representatives, the compilers pursued three main goals: identifying main development trends in agriculture and its sectors, defining key problems agriculture faced in the corresponding period, promoting central market players. In a competitive market, to enhance marketability and improve non-price competitive positions, leaders benefit from external, independent confirmation of their leadership. In our methodological approach, we tried to keep to these three objectives.

The information base for our ratings of Urals' agribusiness was open data from the “System of Professional Market and Company Analysis” (SPARK)⁴¹. The primary criterion for ranking enterprises was sales revenue in the year under review, excluding VAT and excise taxes. Specialists at “Expert RA” carried out a lot of surveys to choose among candidates for their ratings. However, in our analysis the survey (interview) method was not used. Instead, the problem areas and growth points identified during the preparation of the ratings were subsequently verified using open national and regional statistics.

The rating format suggested ranking enterprises in descending order of sales revenue (excluding VAT and excise taxes), while also recording the company's position in the previous year. For each

³⁸ Ermak S., Pechenkina T. (2016). Greenhouse effect. *Ekspert*, 40, 44–51; Labykin A. (2017). Suffocating abundance. *Ekspert*, 40, 63–66; etc.

³⁹ Karabut T. (2025). Spare shoots. *Rossiiskaya gazeta* (February 18), 35, 5.

⁴⁰ Pichurina V. (2025). Patched combine harvesters. *Rossiiskaya gazeta* (Appendix “Ural Region”. February 27), 43, 13.

⁴¹ Among several search systems and counterparty verification services operating in the Russian Federation (“List-Org”, “Saby”, “Chekko”), the authors selected the SPARK database as best meeting the objectives of this study.

enterprise, its name in 2024, organizational form, registered address, industry affiliation (determined by economic activity) were indicated. To characterize the qualitative parameters of the Ural agriculture sector, it was additionally structured by representation in the rating of large, medium, and small enterprises for a given year. Also, profitability and labor productivity were calculated. A significant limitation was the impossibility of conducting a comprehensive ranking of the entire pool of enterprises (585) by labor productivity. In the SPARK database, the indicator “average headcount” at the end of the period (December 31 in annual reports) is often given as a range, e.g., 0–5, 16–50, 501–1000 people (or not updated due to companies failing to provide data), making it impossible to calculate the denominator of the corresponding fraction. Additionally, data on average headcount is not cumulated in the SPARK database. Nevertheless, being aware of the importance of labor productivity values, we attempted a preliminary assessment using available data for 2023–2024 to establish a baseline for future comparative analysis in the ongoing development of this topic.

In total, for each year from 2018 to 2024, we compiled seven ratings: the top 400 leaders of the Urals' agribusiness by sales revenue (including agricultural, food, compound feed, and elevator enterprises), the top 100 leaders in agriculture and the top 100 leaders in the food industry (by sales), the top 100 leaders by net profit and the top 100 leaders by profitability, then a problem area rating (50 agricultural and food industry enterprises with the largest net losses from business activities for the year), and a rating of the top 100 leaders by labor productivity (only for 2023 and 2024)⁴². Profitability

was calculated as the ratio of net profit (line 2400 of the statement of financial results) to sales revenue (line 2110) and expressed as a percentage, while labor productivity as the ratio of annual sales revenue to the average number of employees. Due to the absence of data on export deliveries and agricultural land holdings in the SPARK database, it was not possible to calculate export intensity or “land productivity” (revenue per 100 hectares of arable land).

Our sample was set to the maximum possible “depth”, including enterprises with publicly available financial statements and revenue over 400 million rubles in 2024 – thus covering not only large and medium-sized enterprises but also leaders of small business. To illustrate the severity of our preliminary work, we note that our top 400 Urals' agribusiness rating for 2024 includes 10 “heavyweights” – the agroholdings “Milkom” and “Makfa”, “Elevator” (Kumertau), Chishminsky oil extraction plant, “Russalt” (Orenburg), Udmurtia poultry farm (Glazov), Kurgan meat processing plant “Standart”, “Orel” (Yekaterinburg), poultry farms “Varaksino” (Republic of Udmurtia) and “Chelyabinskaya” (Kopeysk) – with annual revenues ranging from 6.6 to 53.7 billion rubles, which, for unknown reasons, were not included in the most recent multi-sectoral rating of the 400 largest companies in the Urals and Western Siberia (Tyumen Region, Khanty-Mansi Autonomous Area, Yamal-Nenets Autonomous Area) prepared in 2025 by the analytical center “Ekspert”⁴³. Furthermore, we considered it necessary to include in our ratings six enterprises that have been re-registered in Moscow (and in one case in the Republic of Tatarstan) in recent years but continue their operations in the Urals: “Makfa”, Kurgan meat processing plant “Standart”, poultry farm “Chelyabinskaya”, agricultural enterprise

⁴² All the mentioned ratings and the 55 calculation tables supporting them are available in the cloud service. Available at: https://drive.google.com/drive/folders/1C_zPk5ZKYJ6amej6EJ6MWy8vfHcEs2jK?usp=drive_link (accessed: 17.04.2026).

⁴³ 400 largest companies in the Urals and Western Siberia. Ekspert-Ural. 2025. No. 11. Pp. 42–58.

“Mir” (Republic of Udmurtia), “Mozhgasyr”, and greenhouse farm “ATENA” (Orenburg)⁴⁴. Some enterprises could not be included due to the absence of data in SPARK or technical reasons – liquidation, reorganization, change of economic activity, etc. However, this is a common challenge for all compilers of ratings.

The representativeness of the prepared ratings is confirmed by the following data. The revenue of the agricultural enterprises included in our ratings rose from 30.3% of the Urals’ GAP in 2018 to 36.2% in 2024 (ranging from 17.9% of GAP in the Kurgan Region to 62.4% in the Chelyabinsk Region). The evidence is even stronger for the food industry. Enterprises from 15 subsectors of the Urals food industry, consolidated in our ratings, increased their share in the sector’s total sales from 59.9% to 72.2% between 2018 and 2024. The highest concentration of industrial production in the Urals in 2024 was in the Republic of Udmurtia, where 99.5% of total sales of food products and beverages were provided by 21 enterprises; in the Orenburg Region – 84.2% (23 enterprises); and in the Perm Territory – 82.6% (21 industry leaders)⁴⁵. It is clear that the Urals’ agribusiness extends further than its 400 leading representatives, but the analysis of trends within this group can help identify the core challenges of the current period and possible directions for future development.

Finally, it should be noted that the method of expert rating of enterprises in the agro-industrial sector is used not only in Russian but also in international research practice. For example,

European economists pay considerable attention to ranking different types of farms (viticulture, grain farming, horticulture, etc.) based on their level of investment activity to identify the most underinvested agricultural sectors (Ivanović et al., 2025). This method is also used to compare the profitability levels of leading agricultural enterprises in different EU countries, such as the Czech Republic, Hungary, and Poland, to identify possible growth points (Davidova et al., 2025). Expert rating based on contribution to total regional consumption is employed by EU specialists to identify enterprises of the “zone of necessary organizations” that ensure economic (food, financial, technological, etc.) security within the studied cluster (Simdiakin et al., 2021). In the U.S., the application of this method is often more practical. Research is typically commissioned by the U.S. Department of Agriculture to, for example, rank farms by business form and/or size of agricultural land (MacDonald et al., 2015), concentration levels in different states (Lowder et al., 2016), etc. Based on this, the need for state support for agribusiness and its required volume is determined (Manono, 2025).

It is easy to see that our approach conceptually builds on the methodological platform of “rating construction” common to Russian and contemporary foreign practice, but our method is distinguished by its comprehensiveness (as we capture not just one or two but a set of key indicators) and greater depth (time series data over the 7 years, rather than the standard comparison of the reporting and previous year). The use of analytical data processing models in Excel and Power BI allowed us to automatically aggregate 55 calculation tables and generate seven types of ratings with flexible customization of the ranked indicators. These tools enable retrospective monitoring of industry and spatial dynamics of agricultural production, construction of new ratings based on the consolidated database (e.g., leading activities

⁴⁴ The consequences of the loss of formal registration ties with the region of production activity for its economy, in the context of enterprises considered, were not investigated in this work. Their inclusion in our ratings was based on the place of their original registration.

⁴⁵ Calculated based on the top 400 Ural agriculture companies in 2018–2024. Available at: https://drive.google.com/drive/folders/1C_zPk5ZKYJ6amej6EJ6MWy8vfHcEs2jK?usp=drive_link (accessed: 17.04.2026) and Ural regional statistics of 2024.

of the Urals or individual constituent entities' agribusiness, identification of product clusters, etc.), and aggregation of new ratings with the extension of time series to an increased depth.

Main “quantitative” results of the Urals' agribusiness rating assessment

We highlight the following key “quantitative” findings:

First: the ratings have become “heavier”. Between 2018 and 2024, the total revenue of the top 400 leaders of the Urals' agribusiness increased from 531.9 to 1,126.8 billion rubles (2.1-fold), including agricultural enterprises from 187.4 to 348.2 billion rubles (1.86-fold) and food industry enterprises from 321.1 to 732.5 billion rubles (2.28-fold). The faster growth of food production was driven by several factors. On the one hand, the quantitative composition of industries in the ratings changed. While the rating for 2018 (R-2018) included 189 agricultural and 189 processing enterprises, in R-2024 the ratio shifted to 173:206 in favor of the food industry. On the other hand, the entry threshold for the ratings increased from 133.9 to 543.0 million rubles (4.1-fold). For agricultural enterprises, the average revenue per enterprise in the top 400 rose from 991.4 million to 2.0 billion rubles, for food industry enterprises from 1.7 to 3.6 billion rubles, the overall average increase was from 1.3 to 2.8 billion rubles.

Second: the stability of the agro-industrial elite. In R-2024, the renewal of the enterprise composition compared to R-2018 was only 9.2% (37 newcomers). The agricultural sector contributed 14 new enterprises, while the food industry contributed 20. However, in some cases in the processing sector, nominally new enterprises were recorded. For example, ZAO “Sarapul'skii myasokombinat” and OAO “Sibaiskii myasokombinat”, after bankruptcy and liquidation in 2012, resumed operations on their former

production sites as OOO enterprises in 2021 and 2022, respectively. The renewal of the ranks in the top 100 of the Urals' agribusiness becomes more intensive with the implementation of new investment projects, changes in market strategy, and shifts in state agricultural policy, but mainly through changes in ratings' “echelons”. For instance, in R-2024, the composition of the first 100 enterprises compared to R-2018 changed by 26 positions, but only 5 were occupied by newcomers.

Third: persisting sectoral structure of the Urals' agribusiness. In 2018, the leading sectors of the Urals food industry were dairy – 44 enterprises, meat processing – 35, and bakery – 26. In R-2024, the representation of the dairy and bakery industries was maintained, with the number of meat processing enterprises increasing to 47. In agriculture, the number of crop farming enterprises in the ratings for 2018 and 2024 remained unchanged at 65; livestock farming decreased from 50 to 45, but poultry farming increased almost correspondingly from 35 to 38. In terms of sales, the leading sectors of the Urals' agribusiness in 2024 remained dairy production – 22.35% of total sales of the 400 leading enterprises (18.59% in R-2018), poultry farming – 13.31% (16.07%), oil and fat industry – 9.55% (in R-2018, the third position with 10.24% was held by livestock).

Fourth: persisting spatial structure of the Urals' agribusiness. The top three leaders in agricultural production (Republic of Bashkortostan, Orenburg Region, Chelyabinsk Region) remained unchanged between 2018 (accounting for 62.27% of Urals GAP) and 2024 (61.79%), though the Orenburg Region moved into second place (21.30%) ahead of the Southern Urals (14.34%). However, this can be considered as status quo restoration. In 1992, the Republic of Bashkortostan (23.32%) and the Orenburg Region (20.82%), together with the Sverdlovsk Region (15.55%), formed the trio

of leaders in agricultural production⁴⁶, with the Chelyabinsk Region taking third place in 2005, replacing the Middle Urals⁴⁷. The situation in the processing of agricultural raw materials in the Urals also remained unchanged, with the Republic of Bashkortostan, the Sverdlovsk Region and the Chelyabinsk Region consistently accounting for two-thirds of food and beverage production in 2018 (65.35%) and 2024 (68.79%), with the Sverdlovsk Region maintaining its absolute leadership since 2005 (increasing its share in the Urals' total from 22.08% in 2005 to 25.81% in 2024). In fact, since the early 1990s, the leading positions of these regions have only strengthened. In 1992, they accounted for 58.71% of total Ural food production, with the Republic of Bashkortostan leading (26.35%), the Sverdlovsk Region second (19.36%), and the Perm Territory third (14.53%)⁴⁸.

Fifth: the continued decline in the Urals' share in both Russia's GAP – from 11.56 to 10.81% in 2018–2024 (with an absolute maximum of 14.9% in 1999) (Maltsev, Chichilimov, 2025, p. 57) – and in the production of food products and beverages – from 7.90 to 7.13% (peak levels of 10.4%, including 1.9% from flour, cereals, and compound feed industries, were recorded in 1998⁴⁹). Over the same period, the share of the food industry in the structure of manufacturing industries in the Urals slightly increased – from 8.03 to 8.19% – but it happened in the context of the region's declining contribution to national processed product output, from 15.0% to 14.18%. Over these 7 years, only agricultural enterprises in the Orenburg Region (from 2.02 to 2.30%) and food industry enterprises in the Sverdlovsk Region (from 1.83 to 1.84%) managed

to increase their share of the total national output. A broadside approach reveals that over 35 years of reforms three Ural regions – the Perm Territory, the Kurgan Region and the Sverdlovsk Region – have not surpassed their own 1990 GAP levels, and the Orenburg Region only reached this level in 2022⁵⁰. Notably, the processing of agricultural raw materials in the Urals, as in Russia as a whole, has grown faster than its production in recent years, but this comparative acceleration in the Urals (1.22-fold in 2018–2024) is not so pronounced as at the national level (1.2-fold), contributing to the region's loss of positions, especially in the production of higher value-added products.

Key problem areas of the Urals' agribusiness identified by the rating

First: in the environment where market majors' dominance persists, the positions of medium and small business are weakening. The top 100 leaders of the Urals' agribusiness consistently account for over 70% of total sales of the rated enterprises, with a maximum of 73.08% in 2018 and a minimum of 70.03% in 2024. At the same time, the first decile (top 10) improved its position in the ratings from 22.25% in 2018 to 23.81% in 2024. Notably, two-thirds of the top ten leaders remained unchanged throughout the period under review, with the remaining one-third rotating (reverse substitution) with enterprises from the second decile. The leaders of agricultural production in the Urals in 2024 were: "Agrofirma Ariant" (16.0 billion rubles), "Turbaslinskie broiler" (10.5 billion rubles), and "Bashkirkaya myasnaya kompaniya" (10.4 billion rubles). Their integrated production processes make them modern high-tech industrial complexes. In terms of 2024 revenue, they are comparable to

⁴⁶ Calculated based on: Regions of Russia. 1999. Vol. 2. Pp. 440–441.

⁴⁷ Calculated based on: Regions of Russia. Socio-economic indicators. 2006. P. 529.

⁴⁸ Calculated based on: RSY 1992. Pp. 91, 183.

⁴⁹ Calculated based on: Regions of Russia. 1999. Vol. 2. Pp. 358–359, 363–364.

⁵⁰ Comparative dynamics of agricultural production in the Russian Federation and Ural regions in the post-reform period are provided in the appendices. Available at: https://drive.google.com/drive/folders/1C_zPk5ZKYJ6amej6EJ6MWy8vfHcEs-2jK?usp=drive_link (accessed: 17.04.2026).

well-known Ural industrial enterprises such as the Kyshtym copper electrolyte plant (17.0 billion rubles), the Tuymazinsky plant of concrete mixers (13.1 billion rubles), and the Novotroitsk plant of chromium compounds (10.7 billion rubles). The absolute leaders of the Urals' agribusiness in 2024 – “Milkom”, Izhevsk (53.7 billion rubles), Fat plant, Yekaterinburg (46.2 billion rubles), and Yugovskoy dairy plant, the Perm Territory (29.8 billion rubles). Their annual sales revenue could easily allow them entering the Russian top 50 largest mechanical engineering companies for the same year⁵¹.

This context is less favorable for medium-sized business and its market position. Formally, between 2018 and 2024, the number of large and medium-sized enterprises⁵² in the top 400 Urals' agribusiness grew almost equally – by 68 (from 64 to 132) and 66 (from 91 to 157), respectively. In percentage terms, the share of medium-sized business even nearly doubled, from 22.7% to 39.3% of the total rating composition. However, regarding the percentage of total sales, the share of medium-sized business has been declining year after year – from 20.56% in R-2018 to 16.35% in R-2023, with only a slight improvement to 17.0% in 2024. The largest number of medium-sized enterprises in 2024 were located in the Sverdlovsk Region – 39 (25 in 2018), the Chelyabinsk Region – 29 (19), and the Republic of Bashkortostan – 28 (15). In terms of sectors, medium-sized business is concentrated in crop production (29 enterprises in R-2024, 13 in R-2018), meat processing (18 and 13), and the dairy industry (14 and 16). Between

2018 and 2024, the total number of medium-sized enterprises in agriculture grew from 30 to 66, in the food industry from 60 to 80, in the compound feed industry from 1 to 9, and two elevators were also included in the list of medium-sized enterprises in 2024. This means that the entire Ural's agribusiness has only 157 medium-sized enterprises, which are supposed to be the backbone of any economy. The situation is exacerbated by small business crisis – the source meant to replenish medium-sized business. It turned out that between 2018 and 2024 small enterprises experienced 2.2-fold decrease in the ratings (from 245 to 111), and their share in the total revenue of the top 400 Urals' agribusiness fell by 2.55-fold (from 16.78% to 6.57%), contradicting the conclusion of many experts that “small farming enterprises and cooperatives have been growing very fast since 2019” (Sokolova, Makarova, 2025, p. 8).

Second: patchiness of agribusiness profitability. The total net profit of the top 400 leaders of the Urals' agribusiness increased from 31.3 to 86.4 billion rubles between 2018 and 2024, or by a factor of 2.76, thus outpacing the growth in their annual sales over the same period. It is noteworthy that in 2018, with an equal number of enterprises in the rating (189 each), the food industry accounted for 17.1 billion rubles and agriculture for 13.4 billion rubles of net profit, while in 2024, 173 agricultural units generated 43.3 billion rubles of net profit, being 2.3 billion rubles more than the 206 enterprises in the Urals' food industries. Excluding “Russol” with its exceptionally high net profit (2.0 billion rubles in 2018, 4.8 billion in 2024), the sector with highest average net profit per enterprise throughout 2018–2024 (except for the negative result in 2022) was the oil and fat industry (ranging from 190.6 million rubles in 2018 to 596.0 million rubles in 2024). Among agricultural sectors, livestock farms ranked fourth in absolute terms in 2018 (151.3 million rubles), behind the grain milling industry (third with 154.3 million

⁵¹ Remizov M., Ogorodnikov E. (2025). Who builds machines in Russia? *Monokl'*, 49, 44–45.

⁵² Enterprise classification (large – medium – small) was performed in accordance with the provisions of Federal Law (On the development of small and medium-sized enterprises in the Russian Federation: Federal Law 209-FZ, dated July 24, 2007) and Government Resolution (On the maximum revenue limits from the sale of goods (works, services) for each category of small and medium-sized enterprises: RF Government Resolution 702, dated July 13, 2015).

rubles), while in 2024, poultry farms ranked third in this micro-rating (471.4 million rubles), having ended 2018 with a net loss of 100 thousand rubles per farm. However, even this brief selection of the most profitable enterprises in the Urals' agribusiness reveals two points. On the one hand, only the 2023–2024 period had no negative values across sectors in terms of annual net profit per enterprise. On the other hand, enterprises in six sectors (including meat processing, alcoholic beverages, compound feed) had average net profits per enterprise in 2024 of less than 100 million rubles (in 2021, this was the case for 12 sectors; in 2022, for 10). With such low net profits, it is extremely challenging to implement any major innovative modernization projects. The specific nature of Russian business is well known: more than half of investments in fixed capital is funded by enterprises (53.8% in 2023, compared to 9.8% from bank loans⁵³), but this makes the emerging trend even more concerning.

Third: extremely slow profitability growth, which depresses the sector's investment capacity. The average ratio of net profit to sales revenue for the top 400 Urals' agribusiness enterprises in 2024 was 7.7% (7.6% for the first hundred) compared to 5.9% (5.7%) in 2018⁵⁴. In 2022, this indicator fell to 5.4% (4.3%). In agricultural production in 2024, profitability ranged from 10.3% (livestock) to 15.5% (crop production), which was below the Russian average – 18.4% (including subsidies) and 15.4% (excluding subsidies)⁵⁵. The situation in the processing sector is not better. Excluding the outlier “Russol” (35.5%), profitability in the

processing industries ranged from 0.7% in the alcoholic beverage industry and 2.1% in meat processing to 9.0% in the bakery industry and 10.5% in the production of seasonings and spices. For this reason, in the separate rating of the top 100 profitable Urals' agribusiness enterprises, only 13 agricultural enterprises, one salt and one meat processing plants from the top 400 in 2024 were included.

Possible growth points for the Urals' agribusiness

First: the main resource for agricultural production development is labor productivity. For 25 enterprises included in top 400 in 2024, there were no average headcount data as of December 31, 2024 (among the top hundred only “Milkom”, the absolute leader, had missing data). For the remaining 375 enterprises, the average labor productivity was 8.98 million rubles (7.78 million rubles in 2023). By sector, the highest labor productivity in 2024 was in tea and coffee production – 45.83 million rubles, the oil and fat industry – 41.28 million rubles, processing and preserving of fish, crustaceans, and mollusks – 34.1 million rubles. Below the average rating level were the confectionery industry – 6.82 million rubles, livestock farming – 5.45 million rubles, and poultry farming – 6.0 million rubles. Unfortunately, it is impossible to compare these figures with national averages due to their unavailability. However, analytical commentaries to early top 50 ratings of the federal agribusiness give some approximate values. In the first 2014 rating, the productivity leader was the vertically integrated holding “Agro-Belgor'e” – 10.5 million rubles of annual sales per employee⁵⁶. In the federal 2016 rating, this company, remaining the leader by this indicator, showed a nearly similar result – 9.85 million rubles⁵⁷. Subsequently, the Analytical Center “Ekspert” did not reveal this parameter.

⁵³ RSY 2024. P. 294.

⁵⁴ For comparison: the leader of the historically first rating “Top 50 Russian Mechanical Engineering Enterprises” for 2024 – “Rostekh” – ended the year with a revenue profitability of 3.64%, while the third-ranked “Transmashkholding” had 5.5%. See: Remizov M., Ogorodnikov E. (2025). Who builds machines in Russia? *Monokl'*, 49, 42.

⁵⁵ RF Government Resolution 1843-r, dated July 10, 2025. Collection of Legislation of the Russian Federation. 2025. No. 28. Art. 4044.

⁵⁶ Ermak S. (2015). Food optimism. *Ekspert*, 41, 82.

⁵⁷ Ermak S., Pechenkina T. (2017). To fertilize the AIC. *Ekspert*, 41, 69.

Second: exploitation of new niches in the region's market. Between 2018 and 2024, the largest growth in sales per food industry enterprise was recorded for activities such as “tea and coffee production” – an 8.45-fold increase, “other ways of processing and preserving fruits and vegetables” – a 4.2-fold increase, and “processing and preserving of fish, crustaceans, and mollusks” – a 3.32-fold increase. In agriculture, enterprises in the top 400 specializing in greenhouse vegetables, mushrooms, and truffles increased their revenue from 7.0 to 20.3 billion rubles (2.9-fold), while all crop farming structures showed a 2.38-fold increase. Even more successful were floriculture enterprises. In R-2018, only two such Udmurtia's enterprises were included – “Dekorativno-tsvetochnye kul'tury” (Izhevsk) and “Tsvey Udmurtii” (Sarapul) – with rather modest results (657.2 million rubles in total sales). In R-2024, the number of floriculture farms doubled, and their total sales revenue showed a 5.23-fold increase to 3.4 billion rubles. The Republic of Udmurtia is the leader in this field in the Urals, but floriculture is also actively developed in other regions, primarily the Chelyabinsk and Sverdlovsk regions.

Third: development of production with possibly higher added value. For example, the Ural dairy complex, possessing (as of 2023) 14.56% of Russia's cattle herd and producing 15.48% of the country's milk⁵⁸, which some experts call Russia's “second oil”⁵⁹, is capable of producing highly marketable deep-processed goods, particularly whey and casein proteins – key ingredients in infant formula, sports, therapeutic, and specialized nutrition. The Ural grain sub-complex (8.19% of Russia's grain harvest in 2023), despite the challenging climatic

conditions in some areas (the Sverdlovsk Region, Perm Territory, and the Republic of Udmurtia are in the non-black earth zone), is the foundation of a powerful flour-and-cereals cluster (14.09% of national flour production⁶⁰), which has barely entered the deep processing of grains and pulses⁶¹. For example, at the beginning of 2025, Russia had only two plants producing lysine (an amino acid that significantly improves feed conversion in livestock, poultry, etc.), covering two-thirds of domestic demand⁶². One of them, “Aminosib” (120 thousand tons of annual wheat processing capacity⁶³), is located in the Tyumen Region, bordering the Kurgan Region, which has almost identical climatic conditions and grain production volumes (these two regions harvested 1.5 million tons of grain each in 2023 and ranked 29th and 30th in Russia's grain rating⁶⁴). Moreover, amino acids can be considered as an intermediate stage of grain processing, and it is possible to move toward higher value-added segments (and still unoccupied niches) – modified starches, biodegradable plastics, etc., with maximum added value.

⁶⁰ Calculated based on: Regions of Russia. Socio-economic indicators. 2024. Pp. 654–655; Ural regional statistics.

⁶¹ For comparison: according to the Ministry of Agriculture, Russia exported 44 million tons of wheat in 2024 (compared to 54.1 million tons in 2023), retaining first place in the world (21%), while on the relatively small global flour market (16 million tons), it captured only 7.5% (shipping 1.2 million tons out of 11.2 million tons of total production). See: Wheat under pressure. Results of the 2024/2025 grain season and outlook for the new agricultural year. Oilworld.ru. 24.07.2025. Available at: <https://www.oilworld.ru/news/wheat/360991> (accessed: 14.12.2025); Komarov V. (2025). Millers shipped to Afghanistan. Kommersant (February 20), 31, 6.

⁶² Labykin A. (2022). “Expanding and deepening” grain processing turned out to be challenging. Ekspert, 46, 60, 63.

⁶³ Tyumen's “Aminosib” increases lysine production by a third. Ekspert-Ural. 2024. November 5. Available at: <https://expert-ural.com/news/tyumenskiy-aminosib-na-tret-uvlichivaet-proizvodstvo-lizina.html> (accessed: 14.12.2025).

⁶⁴ Regions of Russia. Socio-economic indicators. 2006. P. 655.

⁵⁸ Calculated based on: Regions of Russia. Socio-economic indicators. 2024. Pp. 676–677, 684–685.

⁵⁹ Krasnova V., Matveeva A. (2024). Investments of a steel magnate: Milk, purees, and porridge. Monokl', 41, 29.

Conclusion

The analysis has shown that agribusiness has the potential for growth even in Russian major industrial centers. However, it requires complementary efforts from the state, regions, and business. In this regard, several points raise concerns.

First, funding for four key state programs of the Ministry of Agriculture of the Russian Federation is declining⁶⁵ – from 665.0 billion rubles in 2024⁶⁶ to 565.0 billion rubles in 2025 and 540.4 billion rubles in 2026⁶⁷. This trend is also evident at the regional level. For example, the Kurgan Region's funding for priority areas of small agribusiness, which plays a significant role in the region's agriculture, was 363 million rubles in 2024, 283 million in 2025, and 222.2 million rubles are planned for 2026⁶⁸. In the context of declining profitability in agricultural production (from 28.4% including subsidies in 2021⁶⁹ to 18.4% in 2024⁷⁰), only a slight growth in the physical volume of investments in fixed capital in the sector (1.7% over the years of the basic state program 2012–2024, compared to 33.1% total growth in the national economy over the same period⁷¹), challenges in a number of export

markets (direct and indirect sanctions, the ruble which strengthened 25% against the dollar in 2025⁷², etc.), the decreasing state support negatively affects agricultural sector's stability and relays this tension to related industries along the chain.

Second, “smart protectionism” requires some general adjustments. For example, in 2021, a grain damper mechanism was introduced to protect the domestic market, combining export duties with a floating rate (3,489 rubles per ton on average in 2021, 5,746 rubles in 2022, 4,353 rubles in 2023, 2,701 rubles in 2024) and support for grain producers from funds received from the grain duties. The domestic market was successfully protected, and production of higher value-added products (flour, compound feed, etc.) increased. However, the negative consequences outweighed. The grain damper reduced domestic prices by 10–25% below potential prices with zero export duty. This resulted in a 200 billion rubles of revenue loss for the agricultural sector over 2021–2024, and 369.7 billion rubles for grain exporters. At the same time, producers of all grain crops received only 40 billion rubles of direct subsidies from the collected duties over the four-year period (Boldiasov, 2025).

Third, there is still no approved conceptualization of agribusiness integration into the strategic planning system of the Russian economy. In this regard, the following point is noteworthy. At the meeting on December 8, 2025, the Council for Strategic Development and National Projects considered the Plan for Structural Changes in the Russian Economy until 2030, previously approved by the government. The plan had seven key directions, but agribusiness, which steadies economic growth, was not among them. In

⁶⁵ Development of agriculture and regulation of markets for agricultural products, raw materials, and food: RF Government Resolution 717, dated July 14, 2012; Development of the fishery complex: RF Government Resolution 314, dated April 15, 2014; Integrated development of rural territories: RF Government Resolution 696, dated May 31, 2019; Effective involvement of agricultural land and development of the reclamation complex of the Russian Federation: Government Resolution 731, dated May 14, 2021.

⁶⁶ Koroleva A. (2025). Agricultural budgets prepared for cuts. *Kommersant* (July 29), 134, 2.

⁶⁷ 540.4 billion rubles allocated for AIC state programs in 2026 – *Lut. Spetsagro*. 2025. September 25. Available at: <https://specagro.ru/news/202509/v-2026-godu-nagosprommy-apk-predusmotreno-5404-mlrd-rub-lut> (accessed: 16.12.2025).

⁶⁸ Pichurina V. (2026). Worse than locusts. *Rossiiskaya gazeta* (Appendix “Ural Region”, April 16), 81, 13.

⁶⁹ *RSY* 2024. P. 336.

⁷⁰ RF Government Resolution 1843-r, dated July 10, 2025. Collection of Legislation of the Russian Federation. 2025. No. 28. Art. 4044.

⁷¹ Calculated based on data from the “Russian Statistical Yearbook” for the respective years.

⁷² Calculated based on: Central Bank of Russia. Dynamics of the official exchange rate of a given currency. Available at: https://www.cbr.ru/currency_base/dynamics/ (accessed: 16.01.2026).

particular, the plan aims to increase the share of manufacturing industries, R&D, the financial sector, ICT, and tourism in GDP by 2% each over the decade to 2030, while reducing the share of oil and gas by 3.6%⁷³. It is obvious that issues of food security enhancement will certainly be considered in the implementation of all basic directions of the planned economic transformation. Nevertheless, though this set of issues is not a separate direction of structural reforms, we believe that the objective of increasing priority of agribusiness growth (in agricultural and food industries) should be included in the policy documents, at least by ensuring the stability of its share in Russia's GDP (but preferably by synchronizing its growth with that of manufacturing industries).

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⁷³ Kryuchkova E. (2025). Without a shadow of doubt. *Kommersant* (December 9), 227, 2.

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Digitalization Experience in the Oil and Gas Sector and Its Implementation in the Russian Arctic Zone



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Abstract. The relevance of this study stems from the fact that globalization – accompanied by the penetration of information and communication technologies and the internet into production and social processes, the opening up of new pioneer regions, and the COVID-19 pandemic – has triggered a catalytic reaction that is turning digital technologies into the main driving force of scientific and technological progress. One of the sectors affected by digitalization is the fuel and energy complex, particularly oil and natural gas extraction enterprises. In the Russian Arctic, digitalization has become a strategic priority for development. Hence the aim of this study: to characterize digitalization as a strategic direction for the development of oil and gas companies operating in the Russian Arctic. To achieve this aim, the following

methods were employed: analytical method, content analysis of digitalization strategies and practices, expert interviews, and a comparative descriptive analysis of the authors' own experience. The scientific novelty of the study lies in providing a more detailed characterization of the drivers of, and barriers to, the development of digital technologies in the Russian Arctic; in revealing how these drivers and barriers influence one another; and in firmly establishing digitalization as a strategic development path for oil and natural gas companies active in the region. The objective facts and subjective assessments presented in the paper highlight the need to deploy and refine digital technologies in the interests of effective and safe resource management in the Arctic. From a practical standpoint, the article's materials will be useful to strategic planning specialists and to experts working on import substitution and on ensuring Russia's technological sovereignty. A promising avenue for further research could be to systematize and classify the experience of digitalization in Russian and foreign energy companies, quantifying the effects of introducing such technologies under Arctic conditions and identifying the infrastructure requirements this entails.

Key words: Arctic zone of the Russian Federation, mineral resources, digitalization, import substitution.

Introduction

The subject of this study is digitalization¹ at oil and gas enterprises in the Arctic Zone of the Russian Federation (hereinafter – AZRF).

Digitalization in a broad sense is understood as the process of developing and implementing digital technologies into product manufacturing and enterprise management. Digitalization is facilitated by the development of information and communication technology (hereinafter – ICT) networks, the Internet, mobile applications, artificial intelligence (hereinafter – AI), the construction of high-speed fiber-optic communication lines (hereinafter – FOCL), data processing service centers (hereinafter – DPSCs).

In Russia, considerable effort is devoted to the development of digitalization by both the state and business. Given the size of the Russian Federation, the use of digital technologies is vital for some regions, for example, the Northern and Arctic Zone of the Russian Federation. The drivers and barriers of the digital economy differ there from those in any other part of the country.

The use and development of ICT are enshrined in the Strategy for the Development of the AZRF and Ensuring National Security for the period up to 2035. Considering the geographic and economic factors of the region's development, digitalization in the AZRF is a mega-project. Its implementation will improve the quality of life of the local population and will contribute to safety of environmental management and sustainable development of the region. Extraction of minerals, primarily hydrocarbons, is the predominant economic activity in the Arctic in the long term, and the key element of socio-economic development of the AZRF constituent entities.

The authors set out to determine what makes the drivers and barriers of digitalization unique in the AZRF constituent entities and the oil and gas industry, what digitalization means for the oil and gas industry, and whether successful examples of digitalization can be found at oil and natural gas enterprises in the AZRF over the past 10 years. The limited length of the article does not allow

¹ The concepts of "digitalization", "digital economy", "digital solutions", "digital technologies" are used as synonyms in this article.

an exhaustive examination of the features of digitalization in the Russian Arctic, but it provides a necessary foundation for future researchers of digitalization in remote resource regions.

Materials and methods

To fully study the opportunities and risks of digitalization development at oil and gas enterprises, the methodology was based on the results of research into the factors determining the processes in question and their interrelationships. Accordingly, not only theoretical and methodological provisions are valuable, but also a focus on applied management tasks and examples, as well as the authors' personal experience.

Thus, the research tools included the analytical method, content analysis of digitalization strategies and practices, interviews with experts, and comparative-descriptive analysis of the authors' experience.

In our problem field, the research topics are extremely broad. A search for "Arctic" in the Russian Science Citation Index (RSCI) yielded nearly 95 thousand publications. Many experts have compiled detailed descriptions of the geographical and economic features of the global and Russian Arctic (Tatarkin, 2014).

A search for "Digitalization" in the RSCI yielded more than 95 thousand publications. They focus on general issues of the digital economy development, including service industries, tourism, social services, education, and public administration.

A search for "Digitalization of the Arctic Zone of the Russian Federation" yielded 323 publications in the RSCI. The role of digital technologies in regional development is studied by scientists M.G. Treiman, A.V. Kupryakova, D.Yu. Ignatova. Their article provides a comparative description of

the level of digitalization in the AZRF constituent entities and compares it with national averages, offering recommendations for improving digitalization (Treiman et al., 2025). D.B. Iakhiaev, I.A. Ivanova, L.V. Voronina, and A.V. Grigorishchin state the positive effect of digitalization on the economy and social issues of the Russian Arctic. The authors propose for discussion a classification of digitalization problems to be considered when making plans and programs for the development of Arctic regions (Iakhiaev et al., 2023). P.V. Smirnova and D.A. Stepanenko conclude that there is an imbalance between the natural resource potential of the Arctic macro-region and the approaches to its development since the industrial model. To solve the problem, they propose a digital consortium model with a justification of the legal framework for its functioning (Smirnova, Stepanenko, 2025). Yu.S. Vasil'ev, N.I. Didenko, V.I. Cherenkov believe that "innovative high-tech solutions, such as a digital cyberspace for the AZRF developed using unmanned aerial vehicles (UAVs), can contribute to solving problems and responding to challenges of sustainable development of the Russian Arctic" (Vasil'ev et al., 2019).

Dozens of articles in the RSCI are devoted to digitalization of the fuel and energy complex. For example, S.S. Vopilovskii notes that "the active development of the energy market contributes to Russian energy sector diversification" (Vopilovskii, 2022). His study presents key directions of energy development in the context of new trends and challenges. It is emphasized that the AZRF is becoming a growth driver and opens "new windows" for Russia's development. It is established that "the current situation of global technological breakthroughs, geopolitical challenges, and climate changes contributes to a transition from vertical integration

to distributed generation and decentralization, making maximum use of the opportunities of Russia's northern territories". A.G. Kazanin concludes that the use of domestically produced equipment and software systems in hydrocarbon development can ensure Russia's technological sovereignty (Kazanin, 2024). This is possible on the basis of "a holistic concept of coordinated sectoral and corporate strategies with established methodological approaches". The article (Skotarenko, Khatsenko, 2022) substantiates the need to use digitalization instead of the traditional contractual form in communicative interactions between energy resource suppliers and client markets, using the example of a company operating in the AZRF. The authors emphasize that digitalization is vital for high-tech business management, including ESG transformation processes management both at the industry level and at the level of an individual enterprise.

The sources used in our study indicate that the energy industry generally remains conservative in terms of innovation. A number of scientists note that for oil and gas companies that generate up to 90% of the GRP of the Arctic constituent entities of Russia – Khanty-Mansi, Yamal-Nenets and Nenets autonomous areas – digital transformation is an important area of modernization (Dmitrieva et al., 2022). O.V. Skotarenko and co-authors in their collective research provide a comparative assessment of the digital maturity of companies authorized to operate in remote areas of the Russian Arctic (Skotarenko et al., 2012). Their approach is based on an analysis of sustainable supply chain management techniques in the oil and gas industry. The study identifies the limits for reducing hydrocarbon production costs through digital transformation of

Arctic projects. The growing technological lag of oilfield service companies is identified as the main factor limiting the digitalization of shelf projects in the AZRF. N.A. Polyakov and P.E. Zherebchikova consider technological innovation as a factor in the competitiveness of oil and gas companies. An important role is played by the use of AI, augmented and virtual reality technologies, "smart field" and other approaches that ensure an increase in reserves and oil recovery, improve the safety of technological processes and personnel at all stages of the field life cycle (Polyakov, Zherebchikova, 2025).

Promising directions for digitalization of the oil and gas industry include modeling and visualization systems (especially for areas with hard-to-recover reserves), well construction and predictive maintenance, industrial robotization, remote field data management, "unmanned warehouses". UAVs, 2D and 3D seismic survey vessels are used everywhere (Pitukhina, Belykh, 2023; Zaikov et al., 2021; Dmitrieva et al., 2022; Filippov et al., 2022; Ponomarenko et al., 2022; Zemenkova et al., 2022; Romashev et al., 2022; Samylovskaya et al., 2022; Vasileva et al., 2023; Buzmakov et al., 2023; Zhukovskiy et al., 2023; Beloshitskiy et al., 2024). At the Sobolev Institute of Mathematics of the Siberian Branch of RAS, scientists are engaged in numerical modeling of the structure of reservoirs and collectors of oil and gas fields based on seismic surveys. They found that only about 30% of oil can be extracted from a well without additional efforts².

Up-to-date information on the regulatory framework and development trends of the fuel and energy complex (hereinafter – FEC) and AZRF, as well as on digitalization projects in the oil and gas industry of Russia and abroad, was borrowed

² Black twins. Available at: <https://www.kommersant.ru/doc/8399652> (accessed: 12.02.2026).

from specialized media resources whose audience includes experts, economists, and managers³.

In modern conditions, access to foreign literature on the research topic is greatly limited. The discovered sources examine general issues of digitalization of the Arctic and its major industries, contain geographical examples of Arctic oil and natural gas endowment, and analyze problems of their development⁴.

The “Arctic way” of digitalization in foreign publications is considered through the development of ICT and broadband Internet. These studies are in line with the ideas of sustainable development of northern regions and their local communities (Moulton, 2000; Kukul, Coşkun, 2011; Palviaa et al., 2017). We can take Northern Canada as an example (here the word “Northern” means not only Arctic territories): “...over 99 percent of Canadian households currently have access to broadband with speeds of at least 1.5 Mbit/s. However, only 27 percent of households in the rural Nunavut region have access to broadband”⁵. In articles by Russian scientists published abroad, attention is

paid to cases of digitalization of the economy and logistics services in the context of the Northern Sea Route (hereinafter – NSR) development and data transmission via FOCL (Levina et al., 2025; Pichkov et al., 2022).

Given the limited length of the article, the presented literature review on the research topic does not claim to be comprehensive. Acquaintance with sources not included in the references showed that in Russia and abroad, digitalization is understood as the process of introducing digital (or ICT) technologies into various areas of activity to convert analog data, processes, and interaction models into a digital form. According to experts, the goal of digitalization is to increase the efficiency of enterprises, optimize business processes, and improve the accessibility and quality of products. We share such concepts and goals of digitalization in a broad sense.

A common “weak point” of publications on digitalization in the AZRF is the general topics and research objectives, which almost never contribute to developing digital solutions in the real economy sector, and even less so at oil and gas enterprises, despite its strategic importance for the Arctic region. Our article contributes to filling this gap.

In recent years, Russia has developed strategies and adopted state programs in the field of digitalization⁶. The Government of the Russian Federation will allocate more than 1.5 trillion rubles

³ Barriers to digital transformation. Available at: <https://companies.rbc.ru/news/CcvFFaFWLx/bareryi-naputi-tsifrovoj-transformatsii> (accessed: 15.01.2026); Digital transformation of the Arctic. Available at: <https://goarctic.ru/news/tsifrovaya-transformatsiya-arktiki-napravlenie-diversifikatsii-rossijskogo-tek> (accessed: 12.12.2025) How the oil and gas industry is digitizing. Available at: <https://www.kommersant.ru/doc/7026080> (accessed: 10.01.2026); IT technologies for the Arctic. Available at: <https://www.kommersant.ru/doc/6666173> (accessed: 12.12.2025).

⁴ Arctic oil and natural gas resources. Resource basin in the Arctic region. Available at: <https://www.eia.gov/todayinenergy/detail.php?id=4650> (accessed: 12.05.2026); The Development of Arctic Offshore Oil and Gas Resources in Russia: Energy Policy Updates and New Activities by Companies. Available at: <https://arcticyearbook.com> (accessed: 12.05.2026); Developing Oil and Gas Resources in Arctic waters. Available at: https://www.academia.edu/8345201/DEVELOPING_OIL_AND_GAS_RESOURCES_IN_ARCTIC_WATERS (accessed: 12.05.2026).

⁵ Improving digital infrastructure in the Arctic. Available at: <https://jsis.washington.edu/news/improving-digital-infrastructure-in-the-arctic> (accessed: 12.05.2026).

⁶ Strategy for the Development of the Information Society in the Russian Federation for 2017–2030. Available at: <https://tass.ru/politika/3869202>. (accessed: 12.12.2025); Strategic directions in the field of digital transformation of public administration. Available at: <http://government.ru/docs/all/152609/> (accessed: 12.12.2025); Digital Economy of the Russian Federation: state program. Available at: <https://digital.gov.ru/target/naczionalnaya-programma-czifrovaya-ekonomika-rossijskoj-federaczii> (accessed: 12.12.2025); Strategic direction in the field of digital transformation of the fuel and energy complex until 2030. Available at: <http://government.ru/docs/51101> (accessed: 12.12.2025).

for the implementation of the national project “Data Economy and Digital Transformation of the State” in 2025–2035⁷. The Strategy for the Development of the Mineral Resource Base covers the questions of the development of algorithms for analyzing data generated by the mineral resource base monitoring, as well as ways, means and technologies for data exchange between participants in the geological exploration process, and the development of remote sensing technologies for the subsurface⁸.

The article contains an analysis of strategies and examples of digitalization at PAO “Gazprom” and PAO “Rosneft”⁹. The choice of companies was not accidental. In 2020–2024, PAO “Gazprom” accounted for about 16% of world and over 70% of Russian natural gas reserves, and 12% and 68% of gas production in the world and in Russia, respectively. PAO “Rosneft” is also a leader of the Russian oil industry. Rosneft’s share in world oil production is about 6%.

Gazprom and Rosneft are corporations that, in accordance with federal legislation, are authorized to work on the continental shelf of the Arctic Ocean. They have the necessary (more than 5 years) experience and technologies adapted to areas with extreme climatic conditions, and a state participation share of over 50%. Gazprom and Rosneft are public companies whose reports are published on the Internet.

The strategies of Gazprom and Rosneft in the Arctic differ. The former is primarily focused on the development of gas and oil fields onshore, in the Yamal-Nenets Autonomous Area and on the shelf of the Barents Sea. The latter operates on small, poorly studied areas in remote parts of the AZRF, such as the eastern Kara Sea, Siberia, and the Far East.

The Russian government has been discussing for several years the idea of allowing private companies to work on the Arctic shelf, which would correspond to global trends. However, at present, the main role is still played by state-owned corporations. Nevertheless, PAO “Lukoil” has been operating in the Yamal-Nenets Autonomous Area for more than 30 years, its activity reports are published on the company’s official website.

Results and discussion

The Arctic is the last promising area on Earth for the development of hydrocarbon deposits. “...The Arctic Zone of the Russian Federation provides more than 80% of natural gas and 17% of oil (including gas condensate) in Russia ... The Russian continental shelf in the Arctic contains more than 85 trillion m³ of natural gas, 17.2 billion tons of oil (including gas condensate)”¹⁰.

To develop oil and gas resources, Russia continues to implement investment projects with international participation for exploration and extraction of minerals and fuel onshore and on the continental shelf of the Arctic Ocean, as well as for the development of transport infrastructure (mega-projects) “Arctic LNG”, “Yamal LNG”, “Yamal LNG 2”, “Vostok Oil”. “The volume of state investment in these projects exceeds 1.3 trillion rubles, and their result will be the creation of more

⁷ Data Economy and Digital Transformation of the State: National Project. Available at: <http://government.ru/rugovclassifier/923/about> (accessed: 12.12.2025).

⁸ Strategy for the Development of the Mineral Resource Base of the Russian Federation until 2050. Available at: <http://static.government.ru/media/files/TNB3oQkPRJTmDE3AMaxuTn2KRSHG9X0S.pdf> (accessed: 05.03.2025).

⁹ Digital Transformation Strategy of PAO “Gazprom” for 2022–2026. Available at: <https://www.gazprom.ru/press/news/2021/december/article545124> (accessed: 12.12.2025); Digitalization of PAO “Rosneft”. Available at: https://www.rosneft.ru/Development/Tehnologicheskij_klaster/Cifrovizacija (accessed: 12.12.2025).

¹⁰ Strategy for the Development of the AZRF and Ensuring National Security for the period up to 2035. Available at: <http://publication.pravo.gov.ru/Document/View/0001202010260033> (accessed: 10.06.2024).

than 30 thousand jobs and an increase in average wages... By 2030, the number of state-supported projects should be at least 1300, the volume of private investment – at least 730 billion rubles, and the total planned investment – almost 5 trillion rubles”¹¹.

The Russian Arctic is a macro-region with non-standard environmental and socio-economic conditions. It has special options for the development of the digital economy that other regions lack.

The economy of Arctic regions is highly dependent on the extractive industries. The resource-based nature of the economy means that if extractive industries show slower growth, the same processes affect other sectors. The narrow economic base leads to amplification of boom and bust cycles. This creates problems for intensive environmental management development in areas beyond the Arctic Circle and hinders sustainable socio-economic development of territories and preservation of the environment.

In this regard, the experience of Arctic countries, such as the USA, Denmark, Norway, and Canada, shows that many companies and government agencies are investing in expanding broadband (Nuvitik Communications, the Innovation, Science and Economic Development (ISED) agency under the Greenland Connect initiative, the Quintillion project to reduce the digital divide in Alaska, a submarine cable system near the Norwegian Svalbard archipelago). Obstacles to the implementation of these projects include the size and cost of investments, their payback period, coordination with governments

and indigenous organizations, settlement of the land issues with natives, environmental constraints, logistics development, and confidentiality. Solving these problems and challenges can take years, so time is also a constraint here. Finally, the Arctic is sparsely populated: only about 4 million people live there, of which about 2.4 million are in the AZRF. When assessing investments and the final cost of digital infrastructure projects in the Arctic, it is necessary to consider factors such as specific photoperiodicity, the presence of permafrost, the short construction season, poor road conditions, the need to create reserves and warehouses with spare parts and equipment for long periods of impassability, etc.¹²

In the Russian Arctic, these constraining factors for the development of the digital economy are exacerbated. Geographic barriers include a huge (more than 9 million km²) and sparsely populated territory, more severe climatic conditions than anywhere else in the Arctic, peripherality, remoteness of industrial facilities on the Arctic Ocean shelf from coastal supply and assistance centers. Northern and Arctic regions of Russia are characterized by poor and uneven development of the land transport network. Significant distances between production facilities lead to a lack of reference stations. Many settlements and municipalities are virtually cut off from the Internet and mobile communications.

The unique environment in areas beyond the Arctic Circle is extremely vulnerable and requires special approaches to environmental management. At the same time, over the past 30 years, natural conditions in the global Arctic have been changing,

¹¹ Sanctions will not melt the Arctic. Available at: <https://www.kommersant.ru/doc/5407059> (accessed: 05.01.2026).

¹² Improving digital infrastructure in the Arctic. Available at: <https://jsis.washington.edu/news/improving-digital-infrastructure-in-the-arctic> (accessed: 12.05.2026).

with “Arctic amplification of global warming” taking place. This may facilitate access to resources on the Arctic Ocean shelf and simplify the development of ICT and other digital infrastructure¹³.

New technologies and means of production, and the constant outflow of population from the AZRF, are changing approaches to production organization. Overcoming the personnel barrier of digitalization requires continuous recruitment, targeted training of specialists, cooperation with educational organizations in order to develop sector-specific educational standards in the field of ICT with an emphasis on practical training. Mentoring in secondary vocational and higher education, provision of professional education services are effective tools for solving the problem of personnel shortage (Zaikov, 2021).

Compared to economically developed states, Russia’s lag in digitalization can be explained by gaps in the regulatory framework¹⁴. Despite the adopted laws and programs in the field of digitalization, the Arctic strategy describes the AZRF territories as having “a poorly developed communication environment and noncompetitive telecommunications sector,” as well as “... a low share of high-tech and knowledge-intensive sectors’ added value in the Arctic zone’s GDP, underdeveloped R&D, insufficient rates of innovation development ...”¹⁵.

The digital transformation of the oil and gas industry in Russia in the last decade has been significantly influenced by changes in the global

environment. Sanctions imposed by Western states (in excess of 32 thousand as of 2026)¹⁶ are, in the long term, exacerbating the technological barriers to digitalization.

Global experience in implementing energy projects in the Arctic region testifies to their high complexity and the fact that the development of resources onshore and on the Arctic Ocean’s shelf requires any northern country to involve foreign partners. Globalization brought dozens of companies from the USA, Canada, Norway, Sweden, Finland, and Western European countries to the Russian Arctic. Their withdrawal from joint Arctic projects with Russia in 2012–2024 was all the more painful.

The energy industry, as an indicator, has demonstrated the failure of the theory of the international division of labor (with “unfriendly” countries). Russia is relying on its own resources in its development. However, many IT products introduced into domestic production processes belong to foreign companies. The Russian government is stimulating the transition to domestic products, but also allows parallel imports of technologies and equipment.

The Russian Federation’s course toward integration into the global economy in the 1990s contributed to dependence not only on industrial equipment, but also on standards used in its manufacture and parameters it takes into account. API (American Petroleum Institute) and IFP (French Institute of Petroleum) have either suspended the issuance of conformity certificates to Russian enterprises or are revoking them. Foreign manufacturers from friendly Eastern countries,

¹³ Climate Change 2022: Impacts, Adaptation and Vulnerability. Available at: https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf (accessed: 10.12.2023).

¹⁴ Global information technologies. 2024: report. Available at: <https://gtmarket.ru/ratings/networked-readiness-index> (accessed: 12.01.2025).

¹⁵ Strategy for the Development of the AZRF and Ensuring National Security for the period up to 2035. Available at: <http://publication.pravo.gov.ru/Document/View/0001202010260033> (accessed: 10.06.2024).

¹⁶ Total number of list-based sanctions imposed on Russia by territories and organizations worldwide from February 22, 2022 to January 11, 2026, by target. Available at: <https://www.statista.com/statistics/1293531/western-sanctions-imposed-on-russia-by-target/> (accessed: 12.02.2025).

fearing illegal secondary sanctions, are forced to cease their activities in Russian projects.

Drivers of digitalization in the oil and gas industry of the AZRF, as in the FEC as a whole, are associated with technological, organizational, regulatory, and socio-economic factors. They include:

- development of high-tech breakthrough technologies and software used at all stages of the production process;
- development of import substitution (systems of standardization and certification in the energy sector as a tool for technological sovereignty);
- strategic planning of digital transformation of the Russian economy, the FEC and its industries;
- use of experimental legal regimes (proposed “... special regulatory measures for the development, testing, and implementation of digital and technological innovations”)¹⁷;
- state support measures (development and adoption of industry strategies, AZRF development programs, activities of the Coordination Council for Import Substitution of Oil and Gas Equipment under the Government Commission on Import Substitution);
- development of land, sea, and digital infrastructure;
- personnel training and development of educational programs in the field of ICT, creation of science and technology parks and centers based at universities (for example, the “Digital Arctic” IT Park operates at Northern (Arctic) Federal University named after M.V. Lomonosov).

In the AZRF territories, the greatest success in digitalization has been achieved by PAO “Gazprom”, PAO “Rosneft”, and PAO “Lukoil”. At the same time, we do not aim to compare their overlapping

approaches to the development and use of digital solutions in environmental management, limiting ourselves to demonstrating successful cases.

The architecture of Gazprom’s digital strategy is based on a Unified Data Model, which consists of digital platforms – specialized IT services. On their basis, digital ecosystems of the gas and oil business operate. “Digital twins” are virtual copies of existing production facilities that contain complete digital characteristics of the original to predict its operation under various conditions.

The “Captain” system (Complex for Automatic Planning of Interactive Transportation of Arctic Oil) of “Gazpromneft” company is designed for planning and developing predictive analytics. The system contributes to increased safety, reduced logistics costs (up to 10–12%), and reduced time for calculation and approval of shipment operations. “Captain” is part of a comprehensive plan for the modernization of trunk infrastructure to increase cargo traffic along the NSR.

“Gazpromneft-Khantos” (Khanty-Mansi Autonomous Area) introduces video analytics into drilling and well stock management. In 2024, more than 2 thousand vehicles moving both within fields and on public roads were equipped with smart cameras.

The digitalization of “Rosneft” is based on a Technological Digital Platform. It consists of several databases and applications developed for a specific field. The platform’s activity is based on neural network technologies, computer vision, and mathematical models for remote field management. The information technology system “Sfera 3D” contains more than 3 thousand models, allowing decisions to be made during exploration and oil production, and reservoir pressure maintenance.

¹⁷ On experimental legal regimes in the field of digital innovations in the Russian Federation: Federal Law 258-FZ, dated July 31, 2020. Available at: <http://www.kremlin.ru/acts/bank/45796> (accessed: 13.05.2026).

Table 1 presents the main characteristics of digitalization identified by analyzing the digitalization strategies of companies engaged in oil and natural gas production in the AZRF.

The data in Table 1 show that the approaches to digitalization in oil and gas companies in the AZRF

are similar in goals, objectives, and developments. Differences are, in particular, in the geography of activities and application of digital developments, as we have already mentioned above.

Table 2 presents the effects of digitalization at fields in the Russian Arctic.

Table 1. Features of digitalization in Russian companies developing oil and gas fields in the AZRF

No.	Company name	Digitalization features
1	PAO "Gazprom"	Digital Transformation Strategy up to 2035 developed; digitalization covers all types of the company's activities; digitalization uses AI and DPSCs; digitalization covers all stages of the field life cycle; more than 150 digitalization projects are being implemented, including in the social sphere
2	PAO "Rosneft"	Digital Transformation Strategy up to 2030 developed; digitalization covers all types of the company's activities; digitalization is part of the corporate strategy, including projects such as "digital filling station", "digital supply chain", "digital plant", "digital field"; uses its own software, AI, and DPSCs; digitalization covers all stages of the field life cycle
3	PAO "Lukoil"	Company Informatization Development Strategy up to 2030 developed, including projects: robotization, "digital twins", "digital personnel", "digital field"
Source: own compilation.		

Table 2. Classification of digitalization effects by life cycle stages of oil and gas fields in the AZRF

Stage No.	Stage	Digitalization effects
1	Exploration	Increased amount of data, improved accuracy of seismic surveys; development of visualization and modeling technologies; increased probability of new discoveries; development of new approaches to standardization of exploration processes
2	Drilling	Remote drilling (hundreds of kilometers from the facility); remote control of the technological process; development of predictive analytics algorithms; development of new approaches to standardization of drilling processes: operating parameters, required equipment
3	Field operation	Introduction of telemetry at the field; automation of technological processes; remote control of technological processes and modeling ("digital twins", emergency situation modeling); monitoring of personnel actions and infrastructure at the field
Source: own compilation.		

Based on the analysis of open data, the use of digital technologies at oil and gas enterprises has been systematized, requirements for infrastructure and some effects of innovations have been summarized. The data are presented in *Table 3*.

“Gazprom” and “Rosneft” cooperate with PAO “Sberbank” (“SBER”). A digital service created by “SBER” and OOO “Arktik Katering Servis” is designed to support the daily life of shift workers in the Far North. The mobile application can be used to solve urgent problems in a “one-stop” mode, or as an electronic key for entering the enterprise and production facility. Biometric terminals have been

installed at the fields to use all functions. More than 15 thousand workers can use them, with a potential coverage exceeding 750 thousand users.

Despite difficulties, PAO “MTS”, PAO “Megafon”, and PAO “Rostelecom” continue projects to build FOCL along the Arctic Ocean coast. The new communication lines will be used for hydrocarbon production and transportation, and will contribute to the development of port infrastructure¹⁸.

The introduction of digital technologies in the development of remote fields in the Arctic is also taking place in foreign companies (*Tab. 4*).

Table 3. Examples of digital solutions and qualitative effects of their implementation at oil and gas enterprises in the AZRF

Digital solutions	Implementation effects	Required infrastructure
AI for geological exploration and well construction	Fast processing of big data with proposals for optimal field development schemes	1. DPSCs 2. Specialized software 3. Professional education services to maintain and develop the production base
Monitoring of remote production facilities	Improved industrial and environmental safety through the use of UAVs and machine vision technologies (control of oil and gas leaks, other emergency situations)	1. UAVs and technical means for remote monitoring and control 2. Specialized software
Additive technologies and their application in production automation	Reduction of logistics costs and uninterrupted operation through 3D printing	Equipment and consumables (powder, cartridges) for 3D printing

Source: own compilation.

Table 4. Technologies and effects of digitalization in the development of oil and gas fields by foreign companies

Developer	Technology name	Impact on reserves/production	Impact on enterprise economics
Shell	Smart Field	Increase in gas recovery factor up to 5%	Reduction of capital costs by 20%
Chevron	I-field	Gas production increase up to 30%	-
Petoro	Smart Operations	–	Reduction of capital costs by 50%
Equinor	Integrated Operations	Production increase by 20%	–
Halliburton	Real Time Operations	–	Reduction of capital costs by 20%

Compiled based on: (Cherepovitsyn, Tretyakov, 2023; Ponomarenko et al., 2022).

¹⁸ Arctic internet cable projects are being scrapped one after another. Available at: <https://servernews.ru/1119745> (accessed: 12.02.2026).

A comparative analysis of Tables 1, 3, and 4 shows that while the focus of digitalization of Russian companies in the Arctic is shifted toward creating digital ecosystems and developing application tools, foreign companies target specific operational KPIs, such as increase in reserves and production, as well as reduction in costs and payback period of investments.

One of the first states to start using digital technologies in the development of offshore fields in the Arctic was Norway (state-owned company Statoil-Equinor). However, it must be considered that climatic conditions in Norway and on its shelf in the Barents Sea and Norwegian Sea are the mildest in the Arctic. Innovative technical solutions were used in 2006 at the Kirkinesskoe gas condensate field (hereinafter – GCF), and then planned for the Shtokmanovskoe GCF.

With respect to quantitative effects from the introduction of digital solutions, the following data can be considered.

According to estimates by the Government of the Russian Federation, the share of imported equipment and technologies (including software) in various sectors of the Russian FEC in 2023 ranged from 25% to 90%¹⁹. The reduction in import dependence of the Russian oil and gas industry from 2014 to the active phase of anti-Russian sanctions in 2022 was 20% (from 60% to 40%). According to McKinsey, the use of cloud technologies can accelerate data processing by 30%. Oil and gas companies that use digital technologies show productivity growth of up to 8%. The introduction

of currently available digital developments will increase the probability of discovering new fields in the Arctic by 48–50%, reduce costs in exploration drilling and production by 10–15%, up to 150 billion rubles, and reduce emergency shutdowns by up to 20%²⁰.

In 2020–2023, “Rosneft” received a patent for 63 inventions, and the total number of patents used approached 1 thousand. The use of its own ICT led to the discovery of seven fields and hundreds of hydrocarbon deposits. The introduction of digital technologies allowed reducing well downtime by 56% and oil losses by 63%. Production process efficiency increased by 10%. The economic effect from the implementation of the production efficiency improvement program in 2023 exceeded 3.5 billion rubles, and over 5 years amounted to 15 billion rubles²¹.

Digitalization of the oil and gas industry makes an important contribution to ensuring the technological sovereignty of the Russian Federation. Let us consider the activities of the Institute of Oil and Gas Technological Initiatives (hereinafter – INTI) as an example²². It was established in 2020 to modernize outdated domestic (from the Soviet period) and inaccessible Western (2014–2022) standards for equipment and technologies used in the oil and gas industry, and their certification. INTI’s founders include such Russian FEC companies as “Gazprom”, “Gazpromneft”, “SIBUR”, “NOVATEK”, “Lukoil”, “Tatneft”, “Transneft”, “Rosneft” (joined in 2023)²³, as well as foreign companies “Uzbekneftegaz” (Uzbekistan),

¹⁹ The share of imported equipment in different segments of the fuel and energy complex varies from 25% to 90%. Available at: <https://oilcapital.ru/news/2023-09-20/dolya-importnogo-oborudovaniya-v-raznyh-segmentah-tek-variruetsya-ot-25-do-90-novak-3047190> (accessed: 12.11.2025).

²⁰ Fuel and energy complex of Russia: digitization. Available at: <https://magazine.neftegaz.ru/articles/tsifrovizatsiya/547922-tek-rossii-otsifrovka> (accessed: 12.11.2025); Expert: digitalization of projects in the Arctic will increase the probability of discovering fields by 50%. Available at: <https://tass.ru/ekonomika/19996705> (accessed: 12.11.2025).

²¹ How the oil and gas industry is digitizing. Available at: <https://www.kommersant.ru/doc/7026080> (accessed: 10.01.2026).

²² INTI – Institute of Oil and Gas Technological Initiatives. Available at: <https://inti.expert> (accessed: 30.12.2025).

²³ “Rosneft” became one of the founders of INTI. Available at: <https://www.interfax.ru/russia/1065652> (accessed: 12.05.2026).

“KazMunayGas” (Kazakhstan), “Kyrgyzneftegaz” (Kyrgyzstan), “Belorusneft” (Belarus).

INTI is a platform designed to discuss challenges facing the oil and gas industry, promote local manufacturers of equipment and technologies in the oil and gas industry, test innovative products and pilot standards, exchange information on suppliers of equipment and technologies, organize interaction between them and raw material producers, and unify the requirements of energy and engineering companies for equipment and technologies through the development of industry regulations (standards).

A foreign analogue of INTI is API, established in the USA in 1919. API’s tasks include developing cooperation with the government, stimulating trade in oil and natural gas in external and domestic markets, attracting investment, and increasing interest in the activities of the US oil and gas industry. API remains one of the most authoritative structures in the field of standardization and certification of oil and gas equipment.

The presence of foreign partners, including from OPEC+ countries: “ADNOC” (UAE), “Sonangol” (Angola), “Sonatrach” (Algeria), “KPC” (Kuwait), is not just an indication of interest in Russian developments; it means that a manufacturer that receives conformity assessment according to standards developed by INTI (more than 500 in 2025) has the opportunity to work not only in the Russian market but also in the countries of the Middle East and Africa. Analyzing the interest of foreign partners in INTI’s activities, we believe that the number of firms wishing to replace American and European standardization models will increase. INTI contributes to the development of Russian import-substituting standards in the field of application of polymer reinforced pipes at oil

and gas fields, technologies of surface hardening of metal products by ion chemical-thermal treatment, and other technologies²⁴.

INTI is developing a certification system – verification of compliance of standards with the requests of the manufacturer company. A network of testing centers has been created on the territory of Russia (including in the constituent entities of the AZRF) for proving equipment and technologies, and testing is not required to be carried out at each oil and gas company; it is now sufficient to confirm product quality at a single testing ground.

INTI is a modern digital standard in the oil and gas industry, which exists in several interconnected applications: INTI.DOC serves for storing standards, INTI.QUALITY is intended for expert evaluations and tests, INTI.INSIGHTS contains information about equipment, products, services, standards certified in INTI.

Among the effects of INTI’s activities, the following can be distinguished:

- elimination of barriers to the application of foreign standards and certification systems by creating an alternative conformity assessment system;
 - accelerated implementation of technologies and equipment into production activities;
 - reduction of manufacturers’ costs for passing technical qualification and competence assessment;
 - optimization of the technological chain through uniform standards from customers;
 - expansion of product sales geography;
 - simplification of processes for implementing and scaling innovative developments.
- The effects for oil and gas companies can be as follows:
- reduction of sanctions risks to economic activity;

²⁴ Aleksei Fadeev on standardization measures in INTI. Available at: <https://lng.expert/2025/11/mnenie-eksperta-aleksej-fadeev-o-merah-standartizatsii-v-inti> (accessed: 12.05.2026).

- expansion of the pool of equipment and technology suppliers;
- supply security and technical independence;
- optimization of capital and operating costs during project implementation;
- reduction of time and financial costs for the application and testing of innovative and import-substituted products;
- reduction of time and financial costs for technical assessment of product quality, as well as assessment of manufacturers' competencies.

Conclusion

Despite the development of alternative energy sources, international energy agencies forecast an increase in demand for traditional energy sources by 2030. Meeting this demand entails the need to bring new reserves into operation, as well as to improve the efficiency of existing equipment. This determines the relevance of using modern digital technologies at all stages of oil and gas field development.

Among the enterprises of the fuel and energy complex operating in the Russian Arctic, practical success in digitalizing economic activities has been achieved by PAO "Gazprom", PAO "Rosneft", and PAO "Lukoil". At the same time, one of the difficulties of our study was the search for up-to-date information. The lack of data in official statistics and closed corporate reports did not allow us to fully quantify the interim results of digitalization at oil and gas enterprises in the AZRF.

Nevertheless, one of the outcomes of the study is the recognition that digitalization at oil and gas facilities is a comprehensive concept. It includes the processes of developing and implementing high-tech equipment, software, and ICT into the technological process, as well as improving enterprise management systems, including remote management. The goal of digitalization at fuel and energy enterprises in the Arctic is to increase the return on investment, profitability of enterprises,

personnel safety, and preserve the quality of the fragile environment. Digitalization also increases the probability of discovering new fields.

One of the authors' contributions to the study of digitalization issues was the examination of its drivers and constraints in the AZRF. The research showed that they are paradoxically interrelated. On the one hand, a large number of documents and industry strategies on the transition to a digital economy have been adopted at the state and corporate levels in Russia. On the other hand, according to international experts, imperfections in legislation still hinder digitalization. On the one hand, the extreme natural conditions in the AZRF make the development of land transport impossible and create prerequisites for the provision of digital communication services. On the other hand, climatic features, remoteness of facilities, and deserted spaces increase the costs of developing and implementing digital solutions. On the one hand, sanctions have a negative impact on the implementation of Arctic mega-projects and shift timelines. On the other hand, successful examples of overcoming external constraints indicate import substitution processes in Russia. On the one hand, the digital economy faces the problem of personnel shortage. On the other hand, the Russian government's decisions in the areas of recruitment, targeted training of specialists, joint development with educational organizations of industry educational standards in the field of ICT with an emphasis on practical training, mentoring, and the development of a professional education system contribute to overcoming the personnel shortage and the emergence of breakthrough scientific and technological developments.

One of the obstacles to digitalization in the Arctic fuel and energy complex is the high cost of projects. Though the goals are recognized as important and the funds allocated from the budget

are significant, they are insufficient. It seems appropriate to continue the practice of creating public-private partnerships, applying concession agreements and the status of “resident of the Arctic zone”, which implies credit, tax, customs, and organizational privileges. It appears that interaction between the state, business, scientific and educational organizations contributes to the development and connectivity of territories, and allows accumulating knowledge and valuable experience of environmental management.

The activities of INTI are presented in the article as an absolute management innovation. This digitalization tool has proven itself well in terms of import substitution: oil and gas companies agree on uniform requirements for equipment, technologies, and software to replace foreign analogues. Also, the instrument helps to specify industry demand, identify anchor manufacturers, and test samples. This positive experience of recent years certainly needs to be replicated and gain international recognition.

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On the Impact of Personal Income Tax on Labor Migration



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Abstract. The article proposes an original methodological approach to assessing the impact that changes in individual elements of the personal income tax have on migration flows. The subject of the study is personal income taxation instruments (PIT rates, tax residency criteria, the list of taxable incomes), as well as migration flows. The aim of the work is to substantiate directions for improving personal income taxation instruments in ways that give the Russian Federation a competitive edge in the competition for labor resources. The research methods employed include interval grouping, analytical grouping, cluster analysis (hierarchical and k-means), the cartographic method, and theoretical methods of juxtaposition and comparison. The resulting clusters made it possible to identify a relationship between migration processes and the competitiveness of individual income taxation, while a cross-country comparative analysis (covering data from 38 OECD countries) has substantiated the high competitiveness of Russia's

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PIT. As a result, the study finds that the changes introduced in personal income taxation (the adoption of a progressive scale, the change in the approach to taxing residents and non-residents) are unlikely to trigger negative consequences in the form of an outflow of labor resources abroad, yet at the same time they do not contribute to attracting the most valuable human capital. Recommendations are put forward for improving the taxation of highly qualified specialists. The methodological approach developed makes it possible to assess the potential migration-related consequences of changes to income taxes in countries around the world. The scientific novelty of the study lies in the original two-stage methodology for analyzing the influence of PIT elements on migration flows, as well as in formulating proposals for improving personal income taxation – specifically, adapting the tax scale and the approaches to applying tax deductions for highly skilled professionals to the demands of technological development. This would help attract the most valuable labor resources while also upholding the principles of tax equality.

Key words: income tax, labor flows, tax residency, tax rate, progressive taxation, tax competition, cluster analysis, highly skilled professionals.

Introduction

Since its inception, the personal income tax (PIT) scale in Russia has evolved from simple proportional rates to a complex multi-level model, which today serves not only as a mechanism for generating funds for the budget, but also as a crucial tool for social policy. Since January 1, 2025, the Russian Federation has implemented a new progressive tax rate (13–22%), which, according to some researchers, has brought Russia into the club of countries with “civilized” taxation (Balatsky et al., 2020) and should contribute to economic growth (Hatfield, 2015).

A progressive tax scale forms a balance between the fairness of the distribution of the tax burden and economic efficiency. However, in the context of dynamic socio-economic development, rising prices, changing consumer preferences, and demographic trends, the balance, competitiveness, and sustainability of personal income tax are being seriously analyzed in the scientific literature. It is noted that the use of social transfers as a tool of social policy is currently of significant importance (Novikova, 2024).

The realities of the modern economy reveal a number of problems that undermine both the balance and competitiveness of the national

personal income tax. First, there is an imbalance between the personal income tax rate and the standard of living (Panskov, 2023). The rising cost of housing, healthcare, and education makes the 13% personal income tax rate significantly more burdensome for the middle class, even with the availability of deductions that do not cover the basic expenses of a family. Second, the existence of gaps between rates creates a ceiling effect, where people can artificially limit their income to avoid being classified in a higher tax category, which has been proven using instrumental economics methods (Pinskaya, Tikhonova, 2024; Pinskaya et al., 2025). This reduces economic flexibility and encourages informal practices. Such behavior undermines the very idea of progressivity (Balatsky, Ekimova, 2021). At the same time, most studies on the negative consequences of introducing a progressive tax rate focus on the risks of wages being “shadowed” (Smirnova, 2024; Boldenkov et al., 2025), which means that only one channel of “leakage” of the tax base is considered.

We focus on another channel: the migration outflow resulting from more favorable income tax conditions in competing countries. Research has

repeatedly shown that lower individual income tax rates increase the inflow of foreign workers from other countries (Lyssiotou, Savva, 2021). However, the reverse effects of migration outflows are not clearly established. The focus on this type of migration is justified by the scientific community's attention to the exacerbated problem of the outflow of highly qualified specialists after 2022 (Fomkin, 2024). As a result, Russian researchers have observed a paradoxical trend in the last decade: the "brain drain" is being compensated by the "muscle drain" (Bezverbnyi, Mikryukov, 2019). We believe that, in this regard, the assessment of the personal income tax's competitiveness would be incomplete without analyzing the taxation conditions for individuals in the countries with the most active migration flows with Russia.

Based on the above, the aim of the research is to justify the directions for improving the taxation instruments for individuals, which will provide the Russian Federation with an advantage in the competition for labor resources. The hypothesis of the study is that the impact of the increase in the tax burden on individuals is limited and manifests

itself mainly in relation to high-income and highly qualified groups of citizens who are interested in receiving personal and investment income in the country of income taxation. It is worth noting that in this article, we focus only on the taxation of active income (employment income, income from civil law contracts, etc.), as the new Russian progressive tax scale primarily affects this group of income (Panskov, 2025). We have concentrated our research on the following aspects of taxation: determining the taxpayer's status, the list of taxable active income based on the taxpayer's status, and the tax rate.

Methods and materials

The working method is based on two consecutive stages:

- 1) a quantitative study of the impact of income tax competitiveness on population migration processes;
- 2) theoretical analysis of the taxation conditions for individuals in countries that compete with the Russian Federation for labor resources.

Table 1 presents the research methodology in more detail.

Table 1. Research methodology

Stage	Characteristics of the stage research			
	Tool used	Method of analysis	Nature of the data used	Purpose of the stage
1. Quantitative study of the impact of income tax competitiveness on population migration processes				
1.1	Cluster analysis	Hierarchical analysis (dendrogram)	Standardized data: 1. Cost of outbound passenger transportation, million US dollars 2. Number of outbound trips for people who stayed overnight, thousands of trips 3. International Tax Competitiveness Index 4. Individual income tax rating 5. Income tax complexity rating 6. Capital gains/dividend tax rating	Determining the required number of groups (clusters) for subsequent division of the population using the more accurate k-means method
1.2	Cluster analysis	k-means method		Classification of countries in order to identify qualitatively homogeneous groups, due to the need to determine the number of clusters in advance, is carried out in stage 1.1
1.3	Statistical grouping	Typological grouping (country types are formed similarly to the groups in stage 1.2)		To form qualitative conclusions, the data was grouped and the average characteristics were calculated in natural units, as the cluster analysis was performed on standardized data (stage 1.2).

End of Table 1

Stage	Characteristics of the stage research			
	Tool used	Method of analysis	Nature of the data used	Purpose of the stage
2. Theoretical analysis of the taxation conditions for individuals in countries that compete with the Russian Federation for labor resources				
2.1	Statistical grouping	Interval grouping	Data in natural units: the number of Russian citizens who traveled abroad for all purposes of the visit. The number of intervals (groups of countries) is defined as the root of their number, and the interval step is defined as the difference between the maximum and minimum values divided by the number of intervals	Selection of countries for characterizing the taxation conditions of individuals
Source: own compilation.				

In the context of taxation, the term “competitiveness” is used either in the context of territorial competition (Gromov, 2020), competition between tax systems (Pugachev et al., 2019), or international tax competition (Polezharova, 2025). The competitiveness of a tax is a property of a specific fiscal payment that is determined by its ability to minimize the negative impact on the economic activity of entities while maintaining stable and predictable revenues for the budget. Unlike the broader concept of “tax system competitiveness”, which evaluates the overall effectiveness of a country’s taxation model, tax competition focuses on individual taxes. The key difference lies in the scope of analysis: tax system competitiveness assesses the overall attractiveness of a country for investors, while tax competition focuses on how individual taxes influence business decisions, such as job location or income generation.

When selecting countries for the analysis of the conditions for calculating income taxes, scientists are guided by various categories, such as the estimated volume of GDP (Boldenkov et al., 2025), the experience of applying a progressive scale (Dyatlov, 2024). In our opinion, this approach does not comply with the principle of comparability and can significantly distort the results obtained. In this

regard, for the selection of countries, we used the unified migration statistics for 38 OECD countries, formed in 2024 and formed by UN Tourism, a specialized agency of the United Nations¹.

Despite the fact that the UN positions its statistics as tourism statistics, they can be used to characterize migration flows for a number of reasons related to the methodology of accounting for indicators, economic factors, and social dynamics. The key criterion for distinguishing between tourism and migration in UN Tourism is the time factor. According to the recommendations of UN Tourism², a tourist is a person who travels to a place outside their usual environment for a period of one day to one year (for any purpose other than work)³. If a person stays in another country for longer than this period, they formally cease to be considered a tourist and pass into the category of a migrant (or resident). However, in practice, this boundary is blurred: many people who arrive as tourists extend their stay, change their visa status, or simply do not return. As a result, data on tourist flows are overestimated, and migration statistics are underestimated. UN Tourism statistics also take into account seasonal and cyclical migrations, which are often disguised as tourism (for example, in countries with a developed resort sector). Such people are

¹ Available at: <https://www.untourism.int/tourism-statistics/tourism-statistics-database> (accessed: 22.01.2026).

² International Recommendations for Tourism Statistics 2008.

³ Available at: <https://www.untourism.int/glossary-tourism-terms#T> (accessed: 23.06.2026).

recorded as tourists if their stay does not exceed a year, although this is essentially economic migration. Their movements form a stable demographic and labor pattern characteristic of migration processes. Moreover, tourism is often the first stage of migration selection. Many potential migrants first visit a country as tourists to assess living conditions, property prices, educational quality, or employment opportunities. Therefore, a surge in tourism activity from certain regions often precedes an increase in migration flows from the same regions. Additionally, in a globalized and digitalized world, the boundaries between “temporary” and “permanent” residence are blurring. Digital nomads who live in different countries for 6–11 months are formally classified as tourists in hotel and airport statistics, but their lifestyle and economic impact are similar to those of migrants. Their presence is not accounted for in traditional migration statistics, as they do not change their citizenship or permanent registration, but they have a significant impact on the demographic and economic landscape of host countries. Finally, methodological differences in data collection also create overlaps. Tourism statistics are often based on border control data, bank transactions, and reservations. Migration statistics rely on registration data, population censuses, and visa applications. However, many migrants, particularly illegal or temporary workers, are not included in migration registers, and their movements are recorded by tourism databases. Thus, tourism statistics serve as an indirect indicator of the actual extent of population mobility, including unrecorded migration processes.

The significant indicators (within the framework of the cluster analysis) were the average cost of outbound passenger transportation and the number of outbound trips for people staying overnight. The following variables turned out to be statistically insignificant: the outgoing balance of payments for

passenger transportation, the capacity of hotels and similar institutions.

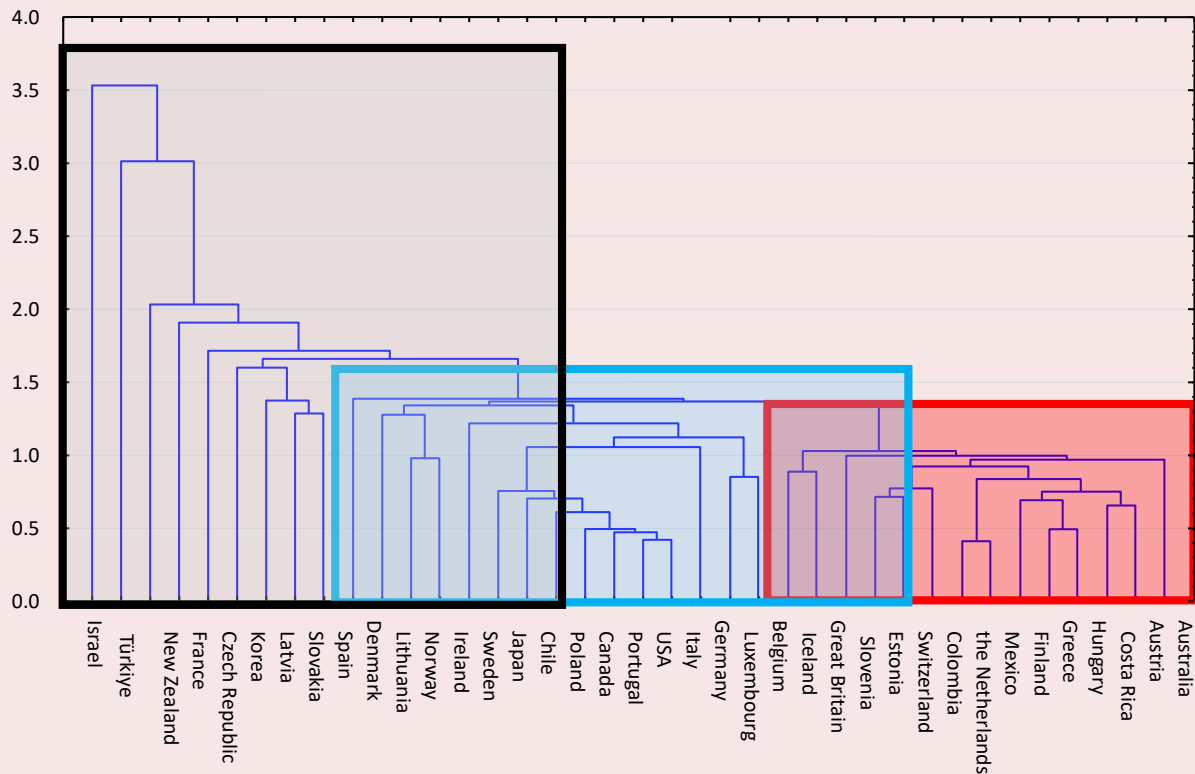
The assessment of the competitiveness of income taxation was carried out on the basis of the International Tax Competitiveness Index (ITCI). This index includes a country’s ranking on individual income tax, which is determined by three subcategories: the rate and progressivity of wage taxation, the complexity of income tax, and the taxation of capital gains/dividends⁴. The choice of components is based on the fact that in most countries, individuals are taxed on income in two ways. First, countries tax income from employment through the regular income tax. Its structure can influence individuals’ decisions about whether to work, take on additional part-time jobs, or whether the second parent in the family will work. Second, individuals are taxed on their savings through capital gains and dividend taxes. In most cases, these taxes can influence individuals’ decisions about how much to save and invest. High taxes on capital gains and dividends can lead to a decrease in overall savings and investment in a country.

The methodological basis of the first stage was cluster analysis, implemented in the Statistica package, which allowed the OECD member countries to be grouped according to migration and tax competitiveness indicators. Since iterative cluster analysis (using the k-means method) improves the partitioning but requires the number of clusters to be known in advance, a hierarchical cluster analysis was performed first. The results of the latter are used exclusively to identify the number of groups, as the nature of the partitioning itself (often unbalanced) is heavily influenced by the chosen distance metric in this approach. Thus, in step 1.1, the number of clusters is determined as 3 (*Fig. 1*).

Subsequently, using the k-means method, the actual division of countries into three clusters was obtained (step 1.2), and the indicators under

⁴ Available at: <https://taxfoundation.org/research/all/global/2025-international-tax-competitiveness-index/> (accessed: 22.01.2026).

Figure 1. Classification tree of countries using hierarchical cluster analysis



According to: Tourism Statistics Database. Available at: <https://www.untourism.int/tourism-statistics/tourism-statistics-database> (accessed: 22.01.2026).

consideration were identified and characterized for each cluster (step 1.3).

The second stage involved a theoretical analysis of the taxation conditions of the main countries competing with the Russian Federation for labor resources. In the theoretical literature on tax competition, the optimal choice of tax rate for a mobile tax base is often characterized by a best response function that determines the optimal tax rate for a jurisdiction, taking into account the choices of other jurisdictions. This situation is typically referred to as a Nash equilibrium, a concept that describes a situation where no player can improve their position by changing their strategy alone, provided that the other players maintain their current actions. In this state, each player's strategy is an optimal response to the strategies chosen by other players, and the combination of these responses forms a system of mutually consistent

decisions (Buettner, Poehnlein, 2024). Since the choice of tax rate by an individual government has a "fiscal" impact on other jurisdictions, it is intuitive that a Nash equilibrium is inefficient. In the case of tax competition, under certain assumptions, tax rates are a strategically important element of taxation (Zodrow, Mieszkowski, 1986). That is why the theoretical and legal analysis of the practice of taxation of individual income in our article is largely based on the study of the conditions for applying tax rates depending on the taxpayer's tax status.

To select countries for the analysis of foreign taxation experience, an interval analytical grouping was carried out on the departure of Russian citizens abroad for all purposes of the visit⁵ (stage 2.1).

⁵ The authors deliberately do not single out the purpose of the visit as "work", as many individuals do not indicate the true purpose of the move when leaving the territory of the Russian Federation.

The analysis of foreign experience was carried out on those countries that were included in the first and third groups in each year. The grouping allowed identifying seven countries that are priority destinations for work in 2022–2025: Türkiye, the UAE, Kazakhstan, Uzbekistan, Egypt, Armenia, and Georgia (*Tab. 2*). The number of citizens who have traveled to these countries is constantly increasing.

On the other hand, the possibility of migration can be a source of openness of the labor market within the framework of integration associations. It is no coincidence that some works consider the experience of “allied” states (Aliev, 2024). Since the EAEU has an open labor market and the countries that are part of the union can act as competitors for labor resources, using, among other things, tax conditions, two more EAEU members that were not included in the sample were added to the number of analyzed states: the Republic of Belarus (hereinafter – Belarus) and the Kyrgyz Republic (hereinafter – Kyrgyzstan).

Results

Quantitative study of the impact of income tax competitiveness on migration processes

To identify the impact of citizens’ income taxation conditions on migration processes, a k-means cluster analysis was performed, which resulted in 38 countries being divided into three groups after two iterations based on six indicators (*Tab. 3*).

All classifiers were significant at the 5% level. As a result, three clusters of countries were formed (*Tab. 4*).

The first cluster includes economically developed countries with high levels of taxation. These countries have a balanced tax system, maintaining relatively high income tax rates (20–35% on average for the main income group) while providing extensive social security, well-developed infrastructure, and stable living conditions. Countries such as Germany, France, Norway, and Canada combine efficient tax systems with openness to migration.

Table 2. Results of cross-sectional interval grouping of countries by the number of departures (first three groups), 2022–2025

Interval group *	Year			
	2022	2023	2024	2025
Composition of country groups				
First	Türkiye, Kazakhstan, UAE	Türkiye, Kazakhstan	Türkiye, Kazakhstan	Türkiye, Kazakhstan
Second	Egypt, Georgia, Finland, Armenia, Estonia	UAE, Egypt, Georgia, Armenia, Thailand, China, Finland, Estonia	UAE, China, Egypt, Georgia, Thailand	China, UAE, Egypt, Georgia
Third	Ukraine, Kyrgyzstan	Azerbaijan, Uzbekistan, Kyrgyzstan, South Ossetia, Tajikistan, Lithuania, Mongolia	Armenia, Azerbaijan, Uzbekistan, Estonia	Thailand, Armenia, Uzbekistan, Azerbaijan
Number of people leaving by country group, in thousands				
First	8728	8557	9081	9598
Second	4215	8436	8042	8351
Third	918	2632	2793	3721
Total left	13861	13625	19916	21670
* In order of decreasing number of departures. Source: EMISS. Departure of Russian citizens. Available at: https://www.fedstat.ru/indicator/38480 (accessed: 15.01.2026).				

Table 3. Significance of model parameters for clustering 38 OECD countries using the k-means method

Indicator	Analysis of Variance (Spreadsheet5)					
	Between SS	df	Within SS	Df	F-test	signif. p
1. Cost of outbound passenger transportation, million U.S. dollars (nominal values)	7.48	2	29.52	35	5.41	0.05
2. Number of overnight stays for people who stayed overnight, in thousands	8.49	2	28.51	35	6.05	0.04
3. International tax competitiveness index	27.61	2	9.39	35	51.44	0.00
4. Individual income tax rating	14.74	2	22.26	35	11.59	0.00
5. Income tax difficulty rating	31.88	2	5.12	35	108.86	0.00
6. Capital gains/dividend taxation rating	25.12	2	11.88	35	37.02	0.00
According to: Tourism Statistics Database (indicators 1 and 2). Available at: https://www.untourism.int/tourism-statistics/tourism-statistics-database ; International Tax Competitiveness Index 2025 (indicators 3–6). Available at: https://taxfoundation.org/research/all/global/2025-international-tax-competitiveness-index/ (accessed: 22.01.2026).						

Table 4. Composition of the formed clusters of 38 OECD countries based on migration indicators and the competitiveness of income taxation

Cluster	Number of countries	Cluster composition
First cluster	18	Australia, Austria, Belgium, Canada, Chile, Finland, France, Italy, Norway, Portugal, Spain, Sweden, United Kingdom, Israel, United States, Netherlands, Denmark, Germany
Second cluster	8	Japan, Poland, Korea, Luxembourg, Costa Rica, Mexico, Ireland, Iceland
Third cluster	12	Czech Republic, Hungary, Latvia, Lithuania, Slovakia, Slovenia, Estonia, New Zealand, Switzerland, Türkiye, Greece, Colombia
According to: Tourism Statistics Database (indicators 1 and 2 of Table 3). Available at: https://www.untourism.int/tourism-statistics/tourism-statistics-database ; International Tax Competitiveness Index 2025 (indicators 3–6 of Table 3). Available at: https://taxfoundation.org/research/all/global/2025-international-tax-competitiveness-index/ (accessed: 22.01.2026).		

The second cluster is formed by economies with a moderate level of tax burden and sustainable mechanisms for attracting foreign capital and labor. This cluster is dominated by countries with liberal tax policies. Ireland and Luxembourg stand out, with low personal income tax rates that attract labor and expats. Japan and South Korea, despite their stricter regulations, actively promote programs to attract skilled workers from outside the country. Poland, Mexico, and Costa Rica are examples of countries that use favorable taxation as part of their strategy to enhance competitiveness in the regional context.

The third cluster is represented by countries with diverse approaches to taxation and migration policies. These countries have a wide range of tax rates, from high tax burdens in Greece and Türkiye

to relatively low rates in the Czech Republic, Estonia, and Slovakia. Despite these differences, all of these countries are interested in modernizing their tax regimes and implementing measures to attract highly skilled workers and temporary migrants. The countries of Central and Eastern Europe are actively developing as alternative centers of attraction for European specialists, while New Zealand and Switzerland remain attractive for long-term migration due to their flexible immigration programs and high quality of life. In general, given the current political situation, the countries of the third cluster can be characterized by a high level of attractiveness for international migrants and a moderately low tax burden on personal income. A map (*Fig. 2*) is provided to visualize the results of the cluster analysis.

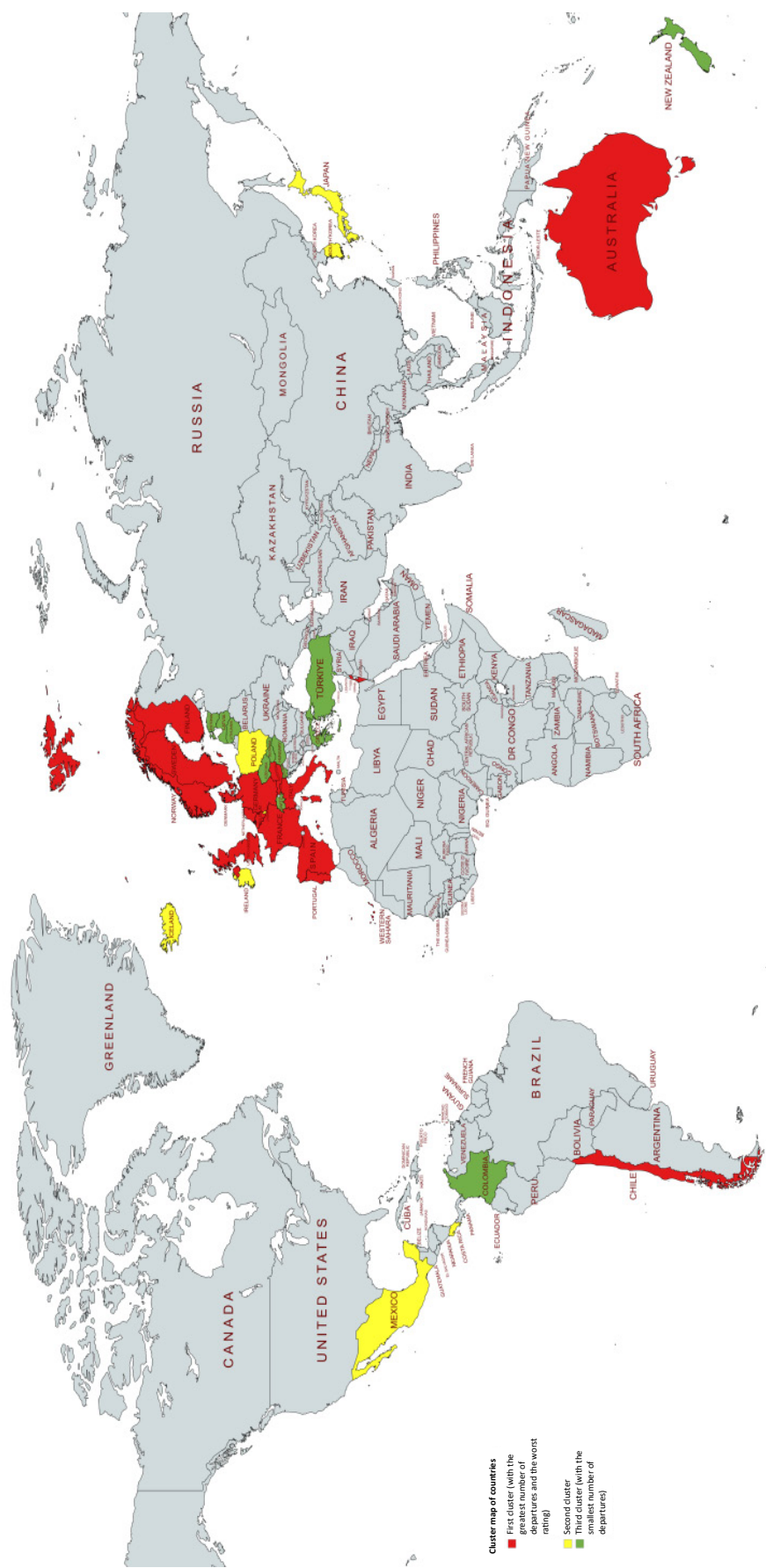


Figure 2. Cluster map of countries using the k-means method
According to: Tourism Statistics Database. Available at: <https://www.untourism.int/tourism-statistics/tourism-statistics-database> (accessed: 22.01.2026).

The relationship between tax and migration indicators was assessed using an analytical grouping of countries, where the composition of the groups is identical to the three clusters formed. Since all the indicators of the cluster analysis were significant for dividing the countries into groups, no further verification of the determination coefficient and the empirical correlation ratio was performed. *Table 5* presents the results of the grouping.

The increase in the number of citizens' departures (from 6,483 departures in the third cluster to 35,535 departures in the first cluster) stands out against the backdrop of a decrease in international tax competitiveness indicators (87 in the third cluster and 59 in the first cluster), as well as a decline in individual income tax assessments (73 in the third cluster and 52 in the first cluster) and capital gains and dividend tax assessments (82 in the third cluster and 48 in the first cluster). The methodology for constructing ratings is such that the more favorable the taxation system, the lower the tax burden, the higher the final rating of the country. Taken together, the results of the analytical grouping indicate that a high tax burden, especially on personal and investment income, becomes one of the significant incentives for emigration.

The direct relationship between migration flows and the complexity of the income tax system has not been confirmed. This means that the complexity of administrative procedures, the multi-level and

complex scale of rates, and the need to apply various benefits do not have a clear effect on citizens' decisions to leave the country. Migration is determined by a combination of factors, including the quality of life, access to healthcare and educational infrastructure, security, unemployment rates, and, most importantly, the actual tax burden. Therefore, while the complexity of tax laws may influence individual behavior, it is not a key driver of migration. The main issue is not the form of the tax, but its size and distribution by type and group of income. It is no coincidence that countries with the highest outflow of population have the lowest income tax ratings. This is due, in particular, to the prevalence of progressive tax systems, where high rates apply even at relatively moderate incomes.

High income tax rates increase labor costs, which can lead to reduced effective working hours and lower production activity. The economy loses flexibility, and entrepreneurs and workers may seek more favorable employment conditions abroad, especially with the widespread adoption of remote work. As a result, countries with high personal income tax rates tend to receive lower scores in tax competitiveness indices compared to those with lower rates. It is especially important to determine the income level at which a progressive tax rate begins to apply: if it is achieved at relatively low income levels, the system is perceived as less attractive for mobile professionals and investors.

Table 5. Results of analytical grouping of 38 OECD countries based on migration indicators and the competitiveness of income taxation

Cluster	Average cost of outbound passenger transportation, million U.S. dollars	Number of overnight stays for people who stayed overnight, in thousands	International tax competitiveness index	Individual income tax rating	Income tax difficulty rating	Capital gains/ dividend taxation rating
First	48,970	35,535	59	52	97	48
Second	12,667	20,069	55	57	59	65
Third	6,380	6,843	87	73	99	82
Source: own compilation.						

In general, the first stage of the analysis confirmed the existence of a relationship between migration processes and the competitiveness of individual income taxation, which justifies further theoretical analysis of the taxation systems of countries that are potential competitors of the Russian Federation for labor resources.

Theoretical analysis of the taxation conditions for individuals in countries that compete with the Russian Federation for labor resources

To test the hypothesis about the relationship between the tax conditions in these countries and their attractiveness as destinations for Russian citizens' labor migration, we will analyze the income taxation of individuals in two ways: 1) residency criteria; 2) income tax rates for residents and non-residents.

Focusing on the first direction, we note that in all the countries included in the sample, as well as in Russia, the main criterion for determining residency is a period of stay in the country exceeding 183 days (6 months) within a 12-month period.

The approaches to defining this period may vary (in some jurisdictions, it is the current calendar year, while in others, it is any 12 consecutive months). The criterion of an individual's stay in a state for the purpose of determining residency is based on the OECD Model Convention on Income and Capital Taxes, so it is logical for countries to use it in their national legislation. However, in many of the countries under consideration, this criterion is supplemented by other criteria (staying in the country for 90 days or more, having a place of permanent residence), which are usually accompanied by additional conditions for their application (special procedures for obtaining status, citizenship, employment, etc.). Consequently, in some countries, an individual can obtain residency status before the 183-day period expires, provided that they meet the additional conditions. *Table 6* presents additional criteria for classifying individuals as residents (Uzbekistan, where the 183-day criterion is the only one, is not included in the table).

Table 6. Additional criteria for determining residency in the countries in question

Country	Additional criteria for determining residency
Türkiye	A resident is a person who has a place of residence (ikametgüh) in Türkiye. The following persons are not recognized as residents (even if they have been in Türkiye for more than 6 months): – businesspeople, scientists, experts, government officials, journalists and radio journalists and others with similar conditions of activity, as well as those who come to Türkiye for the purpose of education, medical treatment, recreation or travel; – those who were detained or were in Türkiye for reasons beyond their control, such as detention, criminal record or illness ¹ .
UAE	A resident is an individual: 1) staying in the country for 90 days or more during 12 consecutive months, provided that the person is a citizen of the UAE (has a valid UAE residence visa) or a member country of the Gulf Cooperation Council, and at least one of the two additional conditions is met: 1) having a permanent place of residence in the UAE; 2) conducting employment (valid employment contract) or business in the UAE; 2) having a primary place of residence and a center of financial and personal interests in the UAE ² .
Kazakhstan	An individual is recognized as a resident in the following cases: 1) stay in the Republic of Kazakhstan for at least 90 calendar days (including arrival and departure days) for an investment resident of the Astana International Financial Center; 2) the existence of a center of vital interests in the country. The Center of Vital Interests is located in the Republic of Kazakhstan, subject to the following conditions: 1) an individual has citizenship or a residence permit or a residence permit; 2) the spouse and/or close relatives of an individual reside in the country; 3) the presence in the country of immovable property owned by right of ownership or on other grounds by an individual and (or) a spouse and (or) his (her) close relatives, accessible at any time for their residence ³ .

End of Table 6

Country	Additional criteria for determining residency
Egypt	An individual is recognized as a resident in the event of a permanent place of residence in Egypt or in the event of citizenship and receipt of income from the treasury of the state (civil servants). Permanent residence: when an individual is in the country for more than six months in housing that they own (rent or use on another legal basis) or when they own a business object (office, shop, etc.) ⁴⁾ .
Armenia	Residents are considered to be: 1) individuals whose center of vital interests is located in the country (home or other place of residence, family, main place of professional or other activity); 2) individuals who are temporarily working outside the country and are in the public service ⁵⁾ .
Georgia	There are special mechanisms for granting resident status: 1) for wealthy individuals (High Net Worth Individual, in accordance with Georgian securities market legislation). The procedure and conditions for recognition are established by the Ministry of Finance and the Ministry of Justice of Georgia; 2) for individuals whose residency cannot be established in relation to any country. Resident status can be granted upon the individual's application, following the procedure established by the Ministry of Finance of Georgia ⁶⁾ .

¹⁾ Articles 3–5 of Law 193 on Income Tax in Türkiye. Available at: <https://www.lexpera.com.tr/resmi-gazete/metin/gelir-vergisi-kanunu-10700-193> (accessed: 10.01.2026).

²⁾ Ministerial Decision No. 27 of 2023 on Implementation of Certain Provisions of Cabinet Decision No. 85 of 2022 on Determination of Tax Residency. Available at: <https://tax.gov.az/DataFolder/Files/Legislation/Corporate%20Tax/Ministerial%20Decision%20No.%2027%20of%202023%20-%20For%20publishing.pdf> (accessed: 10.01.2026).

³⁾ Article 222 of the Tax Code of the Republic of Kazakhstan 214 VIII, dated 18.07.2025. Available at: <https://adilet.zan.kz/rus/docs/K2500000214#z11007> (accessed: 10.01.2026).

⁴⁾ Income Tax Law (promulgated by Law No. 91 of 2005), Egypt. Available at: <https://www.wipo.int/wipolex/en/legislation/details/19870> (accessed: 10.01.2026).

⁵⁾ Article 25 of the Tax Code of the Republic of Armenia. Available at: <https://www.arlis.am/hy/acts/216365> (accessed: 10.01.2026).

⁶⁾ Article 34 of the Tax Code of Georgia. Available at: <https://matsne.gov.ge/en/document/view/1043717?publication=145> (accessed: 10.01.2026).

Source: own compilation.

The resident status in all countries affects the amount of tax liability (residents pay tax on all income received both from sources in the country and abroad; non-residents pay tax only on income received in the source country). It is worth noting that all countries follow the approach that active income is subject to income taxation, which includes total payments to an employee related to their employment (direct wages, contract/agreement payments, bonuses, premiums, and other similar payments) both in cash and in kind. The tax is mostly withheld by the tax agent (employer), but in some cases, a tax return may be required. In almost all countries where personal income tax is imposed (which is not the case in the UAE), the rates applied to the taxation of labor income for residents and non-residents are identical. The only exception is Egypt, where

a single tax rate (10%) is applied to the income of non-residents, along with a progressive rate for residents at the main employer. This is a competitive advantage of foreign jurisdictions, as the main personal income tax rate for non-residents in Russia is quite high at 30%. The differences are most often found in the order of the tax base formation – the application of tax deductions is not available for non-residents. *Table 7* presents the rates applied in the taxation of labor income of individuals by country. For ease of perception, all scales are recalculated into rubles at the exchange rate of national currencies to the ruble on December 31, 2025.

Uzbekistan, Georgia, Armenia, and Kyrgyzstan have flat income tax rates for individuals, and Kyrgyzstan and Georgia offer reduced rates for those employed in priority sectors. The remaining

Table 7. Rates for income in the form of salaries and contract fees

Country	Rates
Türkiye	Progressive rates are applied: – up to 346,560 rubles – 15%; – 346,560 – 729,600 rubles – 51,984 rubles + 20% of the excess; – 729,600 – 2,736,000 rubles – 128,592 rubles + 27% of the excess; – 2,736,000 – 9,667,200 rubles – 670,320 rubles + 35% of the excess; – over 9,667,200 rubles – 3,096,240 rubles + 40% of the excess¹⁾. No tax is deducted from income up to 7,759.9 rubles per month (the minimum gross salary minus the insurance premium). If the salary exceeds the non-taxable amount, the tax amount calculated from the non-taxable amount at the minimum rate²⁾ is deducted from the tax.
UAE	There is no personal income tax.
Kazakhstan	The rate is progressive: – up to 5,698,187.5 rubles – the rate is 10%; – over 5,698,187.5 rubles – 569,818.75 rubles + 15% of the excess amount³⁾. The boundaries of the progression are tied to the MCI (monthly calculation index), which is set for each year⁴⁾.
Egypt	Progressive tax rates: – for income up to 65,640 rubles – 0%; – over 65,640 to 90,255 rubles – 10%; – over 90,255 to 114,870 rubles – 15%; – over 114,870 to 328,200 rubles – 20%; – over 328,200 to 656,400 rubles – 22.5%; – over 656,400 to 1,969,200 rubles – 25%; – over 1,969,200 rubles – 27.5%⁵⁾. Income received by an employee from a non-primary employer is taxed separately at a rate of 10%, without deductions or a 0% threshold. A similar approach applies to income earned by individuals who are not recognized as tax residents of Egypt.
Uzbekistan	The tax rate on “other” income, which includes income from employment, is 12% ⁶⁾ .
Armenia	The rate is 20% ⁷⁾ .
Georgia	The general rate of income in the form of wages is 20%, and a special reduced rate of 10% is applied to the earnings of certain specialists in the field of high technology and R&D ⁸⁾ .
Belarus	Income in the form of wages is taxed at a rate of 13%. However, there are a number of special conditions: 1) the 25% rate is applied to incomes over 9,432,500 rubles⁹⁾, but not more than 16,170,000 rubles; 2) the 26% rate is applied in some cases to incomes that are obtained as a result of illegal actions or in case of incorrect declaration of income (paragraph 7 of Article 214 of the Tax Code of the Republic of Belarus); 3) a 30% rate is applied to income exceeding 16,170,000 rubles. At special (increased) rates, the taxpayer pays tax according to the tax notification¹⁰⁾.
Kyrgyzstan	The basic rate is 10%; for employers who are residents of the High-Tech Park or the Creative Industries Park, and for employers who have national, state, or investment significance, the reduced rate is 5%¹¹⁾. There is a minimum calculated income rule: if an employee's monthly salary is below the minimum calculated income, the base for calculating and withholding income tax is set equal to the minimum calculated income, and the employer pays the remaining amount of tax from their own funds¹²⁾.

¹⁾ General Income Tax Communiqué 322. Available at: <https://www.lexpera.com.tr/resmi-gazete/metin/gelir-vergisi-genel-teblig-seri-no-332-33124-5> (accessed: 10.01.2026). At the Turkish lira exchange rate set by the Central Bank of the Russian Federation as of December 31, 2025, 10TRY = 18.24 rubles.

²⁾ General Income Tax Communiqué 319. Available at: <https://www.lexpera.com.tr/resmi-gazete/metin/gelir-vergisi-genel-teblig-seri-no-319> (accessed: 10.01.2026).

³⁾ Article 363 (for residents) and Article 682 (for non-residents) NK RK 214 VIII, dated 18.07.2025. Available at: <https://adilet.zan.kz/rus/docs/K2500000214#z11007> (accessed: 10.01.2026). According to the exchange rate of the Kazakh tenge set by the Central Bank of the Russian Federation as of December 31, 2025, 100 KZT = 15.5 rubles.

⁴⁾ Law of the Republic of Kazakhstan, dated December 8, 2025, 239 VIII –On the Republican Budget for 2026–2028”. Available at: <https://adilet.zan.kz/rus/docs/Z2500000239> (accessed: 10.01.2026).

End of Table 7

- ⁵⁾ Income Tax Law (promulgated by Law 91 of 2005), Egypt. Available at: <https://www.wipo.int/wipolex/en/legislation/details/19870> (accessed: 10.01.2026); Law 7 “On Amendments to the Income Tax Law”, 2024. Available at: https://www.eta.gov.eg/sites/default/files/2024-03/law_no.7-2024.pdf (accessed: 10.01.2026). According to the Egyptian pound exchange rate set by the Central Bank of the Russian Federation as of December 31, 2025, 10EGP = 16.41 rubles.
- ⁶⁾ Article 381–382 of the Tax Code of the Republic of Uzbekistan. Available at: <https://lex.uz/docs/4674902#4675685> (accessed: 10.01.2026).
- ⁷⁾ Article 150 of the Tax Code of the Republic of Armenia. Available at: <https://www.arlis.am/hy/acts/216365> (accessed: 10.01.2026).
- ⁸⁾ Article 81 of the Tax Code of Georgia. Available at: <https://matsne.gov.ge/en/document/view/1043717?publication=145> (accessed: 10.01.2026).
- ⁹⁾ According to the exchange rate of the Belarusian ruble set by the Central Bank of the Russian Federation as of December 31, 2025, 1BYN = 26.95 rubles.
- ¹⁰⁾ Article 214 of the Tax Code of the Republic of Belarus. Available at: <https://pravo.by/document/?guid=3871&p0=hk0900071> (accessed: 10.01.2026); Law of the Republic of Belarus 127-Z, dated December 30, 2025, “On Amendments to Laws on Tax Relations”. Available at: <https://enp.by/nalogovyyj-kodeks/%D0%98%D0%B7%D0%BC%D0%B5%D0%BD%D0%B5%D0%BD%D0%B8%D1%8F%20%D0%B2%20%D0%9D%D0%B0%D0%BB%D0%BE%D0%B3%D0%BE%D0%B2%D1%8B%D0%B9%20%D0%BA%D0%BE%D0%B4%D0%B5%D0%BA%D1%81%202026.pdf?ysclid=mk5g6grgpm762776219> (accessed: 10.01.2026).
- ¹¹⁾ Article 197 of the Tax Code of the Kyrgyz Republic. Available at: <https://www.alta.ru/tamdoc/22kg0003/> (accessed: 10.01.2026).
- ¹²⁾ Article 200 of the Tax Code of the Kyrgyz Republic. Available at: <https://www.alta.ru/tamdoc/22kg0003/> (accessed: 10.01.2026).
- Source: own compilation.

countries have progressive income tax rates, and Türkiye and Egypt have an exemption threshold (Egypt only for residents).

The conditions for labor income taxation can be also significantly influenced (if any) by agreements for the avoidance of double taxation treaty (DTT) concluded between countries. Russia has concluded the DTT with all the countries under consideration, with the exception of Georgia. It is worth noting that when applying the DTT with the UAE, Kazakhstan, Egypt, and Armenia, it is also necessary to take into account the provisions of the Multilateral Convention on Base Erosion and Profit Shifting (Clause 9 of Letter SHU-4-13/2691 dated March 9, 2023), as these countries (as well as Russia) have ratified it⁶.

All agreements contain an article on the taxation of employment income, which has a similar structure. Almost all agreements⁷ include a condition according to which, if an employee: 1) spends less

than 183 days in the country during a 12-month period; 2) receives income from an employer who does not have a representative office in the country, and 3) the expenses do not reduce the tax base of the representative office in the country, then the tax on such payments to the employee is not withheld in the country, but is withheld in the employer's country. Special attention should also be paid to the definition of a 12-month period, as there are differences from one pair of countries to another in national legislation. There are also exceptional rules in the agreements, such as those often provided for crews of ships, rivers, and aircraft carrying out international transportation, as well as for civil servants.

In the scientific literature, the visa regime is highlighted as one of the most important aspects of migration related to taxation (Shrestha et al., 2026). Regarding the need for work permits and work visas (also an important factor in migration

⁶ Signatories and parties to the multilateral convention to implement tax treaty related measures to prevent base erosion and profit shifting. Available at: <https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/beps-mli/beps-mli-signatories-and-parties.pdf> (accessed: 10.01.2026).

⁷ The DTT with Belarus does not contain only one condition concerning 183 days.

related to taxation rules), it is important noted that for the EAEU member states (Armenia, Belarus, Kazakhstan, and Kyrgyzstan), there is a concept of a “common labor market” (Article 97 of the Treaty on the Eurasian Economic Union), so Russian citizens do not need special permits to work in these countries. Russia has a visa-free entry regime with these countries.

However, this does not exempt Russian citizens from mandatory registration. In Armenia and Kyrgyzstan, registration with the relevant authorities is required after 30 days of stay, while in Belarus and Kazakhstan, it is required after 90 days⁸. *Table 8* presents the conditions for entry into other countries, as well as the necessary documentation for employment.

Table 8. Conditions of entry and employment by country

Country	Entering the country for tourism purposes ¹⁾	Entry into the country for work
Türkiye	Visa-free travel for up to 60 days	A “work visa” and a work permit from the Turkish Ministry of Labor are required ²⁾ : primary permit – up to 1 year, extensions: up to two years (first) and up to three years (subsequent)
UAE	The total permitted stay should not exceed 90 days during each 180-day period	A visa and a work permit issued by the employer are required ³⁾ ; the period is up to two years with an extension
Georgia	Visa-free regime; the permitted period of stay in the country is up to 1 year, after which a Russian citizen must leave the country or obtain a temporary or permanent residence permit	A separate visa is not required, a temporary residence permit for work is issued for a period of 6 months to a year with the possibility of prolongation ⁴⁾
Uzbekistan	Visa-free regime, but if you stay in the country for more than 15 days, you must register at your place of residence no later than the 15th day of one’s stay.	A “confirmation of the right to work” is required; the term is 1 year, for highly qualified and qualified specialists – up to three years with an extension ⁵⁾
Egypt	An entry visa is required, valid for 1 month and can be extended for an additional 2 months at the local migration authorities for free	A work permit is required, on the basis of which a visa is issued for a period of 1 year with an extension ⁶⁾
¹⁾ Consular Information Portal. Country-specific data. Available at: https://www.kdmid.ru/docs/ (accessed: 25.01.2026). ²⁾ Types of work permits. Available at: https://www.csgb.gov.tr/uigm/en/calisma-izni/calisma-izni-turleri/ (accessed: 25.01.2026). ³⁾ Визы и Emirates ID. Available at: https://u.ae/en/information-and-services (accessed: 25.01.2026). ⁴⁾ Law of Georgia on the Legal Status of Foreigners and Stateless Persons. Available at: https://www.matsne.gov.ge/en/document/view/2278806?publication=18& (accessed: 25.01.2026). ⁵⁾ Obtaining confirmation of the right to work for foreign citizens in Uzbekistan. Available at: https://gov.uz/ru/advice/NaN/document/364 (accessed: 25.01.2026). ⁶⁾ How to get a work permit in Egypt? Available at: https://www.mondaq.com/employee-rights-labour-relations/1247956/how-to-obtain-a-work-permit-in-egypt (accessed: 25.01.2026). Source: own compilation.		

⁸ Consular information portal. Country data. Available at: <https://www.kdmid.ru/docs/> (accessed: 25.01.2026).

Comparing the conditions of the visa regime, it is worth noting that the procedure for entry into Russia for the purpose of employment is comparable to the practice of the countries under consideration. An ordinary work visa is issued for the duration of an employment contract, but not more than one year, and a visa for highly qualified specialists is issued for up to three years with subsequent extension⁹.

To summarize, we can note that the personal income tax rates for active income vary significantly by country (where it is present). For example, in Türkiye, Egypt, Armenia and Georgia (subject to the non-application of a preferential rate), the tax burden on this category of income will be higher than in Russia. In Kazakhstan, Uzbekistan, and Kyrgyzstan, it is lower; in Belarus, it is comparable (in terms of the base rate) with the tax burden in Russia. However, returning to the analysis of the number of citizens traveling abroad, we note that there is no obvious correlation between the most popular destination countries for leaving Russia and the personal income tax rates in these countries, so we can conclude that Russian personal income tax rates are competitive compared to other countries in terms of expected employment migration, which is influenced by other factors. In this context, it seems advisable to strengthen those aspects of tax regulation that contribute not only to the preservation, but also to attracting highly qualified labor to the country. In the competition for labor resources, it is necessary to use additional tools, among which the tax should be given a significant place.

From this point of view, the experience of Georgia and Kyrgyzstan is interesting, where reduced income tax rates are applied to the incomes

of highly skilled specialists (HSS). This approach makes an additional contribution to attracting specialists to the country that the economy needs. In Russia, reduced personal income tax rates are also applied for the income of highly qualified specialists (paragraph 4, paragraph 3, art. 224 of the Tax Code of the Russian Federation), however, this reduces the tax burden only for non-residents and works more as a technical norm, allowing the tax to be calculated at general rates (progression of 13–22%) from the moment of entry into the country until obtaining resident status. Therefore, we believe that lower income tax rates can be applied as a tax measure to attract highly qualified specialists from areas where there is a shortage of personnel, regardless of their residence. For such specialists, it is possible to apply a truncated progression (13–15%), which will reduce their tax burden and increase the attractiveness of Russia as a place of residence and performance of work duties. The proposed measure is relevant due to the rather low threshold of progression (2.4 million rubles) with relatively high incomes of the category of highly qualified specialists¹⁰.

It is important to note that today the reduced tax rate in Russia applies exclusively to the labor income of highly skilled specialists, however, other income, such as financial assistance, gifts, reimbursement of housing costs, etc., is subject to personal income tax at a rate of 30% if highly skilled specialists are not tax residents of the Russian Federation (Letters of the Ministry of Finance of Russia, dated August 5, 2014 No. 03-04-06/38542, dated June 30, 2014 No. 03-04-06/31385, dated June 21, 2013 No. 03-04-06/23539). This situation is very common when highly skilled specialists can reside in two countries, and if it is necessary to have a physical presence

⁹ Federal Law 114-FZ, dated August 15, 1996 “On the Procedure for Leaving the Russian Federation and Entering the Russian Federation”.

¹⁰ Available at: <https://www.rbc.ru/economics/05/01/2025/676aafa49a7947ab96fbe7d9> (accessed: 31.01.2026).

in Russia, they are compensated for the associated costs by the employer. Taking into account the above, it seems advisable to apply a reduced personal income tax rate of 13 and 15% for any income of highly skilled specialists, including passive income (today, not all passive income of non-residents falls under this rate), regardless of its status. This will help attract capital from this category of employees to the Russian economy. To comply with the principle of tax equality, it is possible to establish a grace period for the application of reduced rates (up to three years), after which highly skilled specialists either switch to the terms of taxation of residents' income upon obtaining the status (applying the rate of 13–22% for labor income and 13 and 15% for other income), or their income not related to labor will be subject to the conditions applicable to non-residents.

In addition, today highly qualified specialists (as well as other categories of non-resident citizens, for whom the rate of 13–15% is applied) are deprived of the opportunity to receive tax deductions (Letter of the Ministry of Finance of Russia, dated June 15, 2018 No. 03-04-05/40970). It is advisable to grant the right to receive tax deductions for highly qualified specialists from the first day of their employment in the Russian Federation, this will allow for full consideration of the social factors affecting the migration of this category of citizens. For example, property tax deductions are a significant economic incentive to purchase real estate, which will allow “consolidating” the physical location of highly skilled specialists in Russia.

Discussion

First, in substantiating the relationship between income tax competitiveness and migration, we use aggregated data without taking into account the purpose of traveling abroad. It is worth noting that this approach is often used in scientific research (Huo et al., 2016), as it allows assessing the general

trend. However, due to the lack of a breakdown by the purpose of departure, it is impossible to determine exactly which component of migration is due to the tax factor, which determines the prospects for further development of the proposed topic. Second, the analytical grouping based on data on tax competitiveness imposes restrictions on the interpretation of the results, since this method does not disclose which elements of the tax system – for example, rates, accrual thresholds, availability of benefits or the mechanism of tax administration – have the greatest impact on citizens' decisions to leave the country.

In the study, we did not take into account non-financial factors that can play a significant role in migration under the current conditions: political stability, the level of legal protection, the degree of corruption, the quality of public administration, access to education and healthcare, as well as cultural and linguistic proximity to a new country of residence (McKenzie, 2023). A special role among non-financial factors is played by trust in the state, the economy, and the business environment (Frolova, Tyurikov, 2024). At the same time, it is worth noting that the set of factors of labor migration differs for different countries (Odinaev, 2020), therefore, the study of the contribution of non-economic factors to the migration process of the Russian Federation requires independent research. Moreover, when analyzing the legislation of the participating countries, an attempt was made to reduce the impact of non-tax determinants of migration by including only states belonging to the EAEU Single Economic Zone in the sample. Participation in this agreement presupposes the harmonization of key norms in the field of trade, the free movement of goods, services and people, as well as the harmonization of some tax and regulatory practices. The EAEU forms a zone of liberal open trade, and numerous studies have shown that the

country's integration into world trade changes the demand for labor in foreign markets and leads to increased migration flows (Autor et al., 2013; Lee, 2020). In such circumstances, political instability and gaps in the legal framework are much weaker, which makes it possible to more clearly identify the role of tax factors.

In general, our results correlate with the results of other scientists' research. We noted the high competitiveness of personal income tax, while highlighting the high tax rate for non-residents, proving the hypothesis put forward. However, this element negatively affects, first of all, the passive income of individuals from investments in Russian assets (for example, income from renting property) (Milogolov, 2017). Tax rates on labor income in many developed countries are significantly higher than in Russia for non-residents, which makes the tax burden for this category of taxpayers a less stressful factor.

The expediency of developing special taxation rules for highly qualified specialists corresponds to the results obtained earlier (Bierbrauer et al., 2013). (Morelli et al., 2012) proved that the least skilled workers prefer a unitary state to receive higher subsidies, while the most skilled workers prefer tax competition to reduce their tax payments. Research on best practices from abroad also corresponds to our ideas on additional income incentives for highly qualified foreign specialists (Aniskina, Starostin, 2014). The most radical studies have advanced further in this topic, justifying the expediency of canceling the increased personal income tax rate for non-residents. The stay of a specialist for the purpose of employment in Russia usually assumes a duration of more than a year. In such circumstances, the use of an increased personal income tax rate in the first months or at the end of the working period looks contradictory, as this creates a discriminatory effect (Milogolov, 2017).

Conclusion

Against the background of global comparisons, Russia demonstrates a stable position in the category of tax competitiveness in terms of taxation of individuals in a number of key indicators (including the basic income tax rate, the structure of progressive rates, as well as the presence or absence of additional taxes and fees). Thus, the introduced progressive personal income tax scale is unlikely to act as a real incentive to leave the country.

At the same time, given the shortage of specialists (especially highly skilled ones) in certain areas, it seems advisable to develop this area of taxation. To enhance Russia's attractiveness as a place for employment and permanent residence, it is necessary to focus on taxation of key groups of citizens whose activities directly affect the technological development, innovation potential and sustainable economic growth of the country. These groups primarily include highly qualified specialists. They are the basis for creating a new type of competitive economy. The modern taxation system in Russia, focused primarily on the mass consumer and standard incomes, is insufficiently adapted to the needs of this group. High income taxes, the lack of flexible tax incentives for foreigners, as well as difficulties in determining the status of a taxpayer create barriers to attracting highly skilled specialists.

To this end, the study suggests the temporary establishment of a two-stage personal income tax scale (13 and 15%) for any income of visiting highly skilled specialists and the application of tax deductions from the first day of income generation. This approach makes it possible to attract talent without violating the principles of tax equality for local citizens. It reduces the financial burden on specialists during the adaptation period, when moving, finding housing, and organizing everyday life require significant costs. At the same time, this

creates a signal of the state's willingness to invest in human capital, which in the long term will generate new technologies, jobs and GDP growth.

The scientific novelty of the research consists in the development of our own two-stage methodology for analyzing the impact of personal income tax elements on migration flows, as well as in forming

proposals for improving taxation of individuals in terms of adapting to the requirements of technological development of the taxation scale and approaches to applying tax deductions of highly qualified specialists, which ensures the attraction of the most valuable labor resources, as well as compliance with the principles of tax equality.

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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...”¹; “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 now²”.

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

¹ 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).

² 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 education³. 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 2040⁴. 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 project⁵ was launched in Russia (Decree of the President of the Russian Federation "On certain issues of improving the higher education system"⁶), 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.

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

⁴ 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).

⁵ 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).

⁶ 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”⁷.

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-

⁷ “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”⁸.

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” 3266-1⁹, 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

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”¹⁰.

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 system¹¹. 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”¹². 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

⁸ 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 (accessed: 21.04.2026).

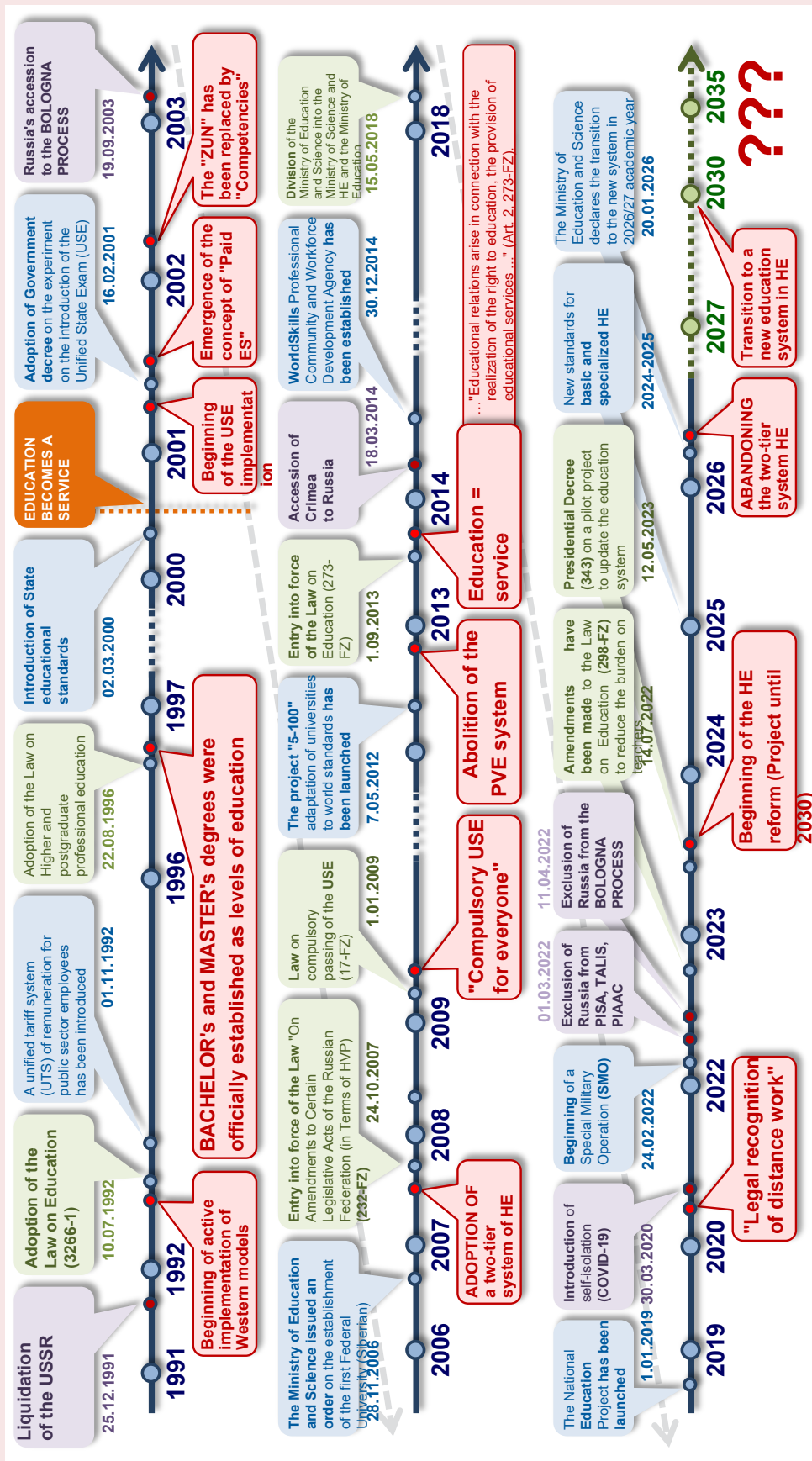
⁹ About education: The Law of the Russian Federation 3266-1, dated 07/10/1992 (last edition). Consultant Plus. Available at: https://www.consultant.ru/document/cons_doc_LAW_1888 (accessed: 15.04.2026).

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

¹¹ 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 (accessed: 15.04.2026).

¹² 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 (accessed: 15.04.2026).

Figure 1. Retrospective of the reforms implemented in the country's education system: main stages and key decisions



Source: own compilation.

was launched on February 16, 2001¹³. 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 Russia¹⁴.

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 elevator¹⁵”. 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”¹⁶.

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)¹⁷. For instance, the FSSES for primary general education were adopted in 2009¹⁸, for basic general education in 2010¹⁹, 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, 2012²⁰, 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.

¹³ 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).

¹⁴ 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).

¹⁵ 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-vstaln-uroven.html?utm_referrer=https%3A%2F%2Fmedia.foxford.ru%2F (accessed: 16.04.2026).

¹⁶ 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).

¹⁷ 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).

¹⁸ 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).

¹⁹ 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).

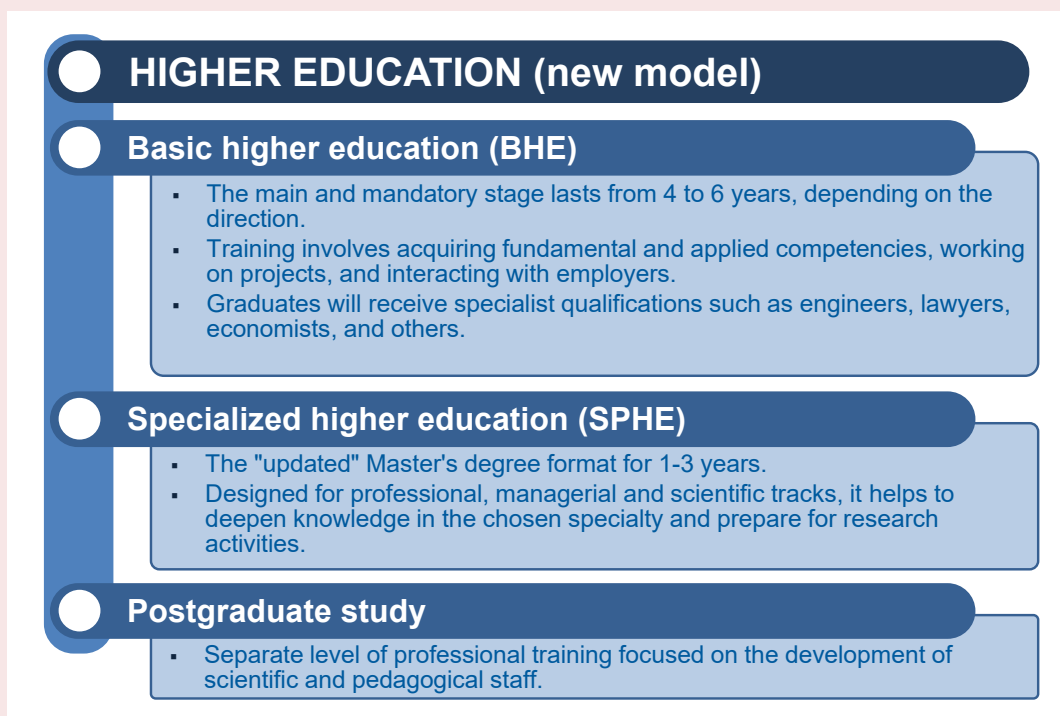
²⁰ On Education in the Russian Federation: Federal Law 273-FZ of December 29, 2012. Garant. Available at: <https://www.garant.ru/products/ipo/prime/doc/70191362> (accessed: 16.04.2026).

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 298²¹ 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).

²¹ 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”²² 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 analysis²³ to study cohort effects (Burch, 2018), decomposition methods in demographic analysis²⁴. 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

²³ 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.

²⁴ 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

²² “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”²⁵), as well as EMISS²⁶. The indicator “Population size by gender and age as of January 1”²⁷ 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)”²⁸ (hereinafter referred to as

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

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

²⁷ Demographic Yearbook of Russia. 2023: Statistical collection. Rosstat. Available at: https://rosstat.gov.ru/storage/mediabank/Demogr_ejegod_2023.pdf (accessed: 22.03.2026).

²⁸ 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 ;

α – 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 , φ_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.

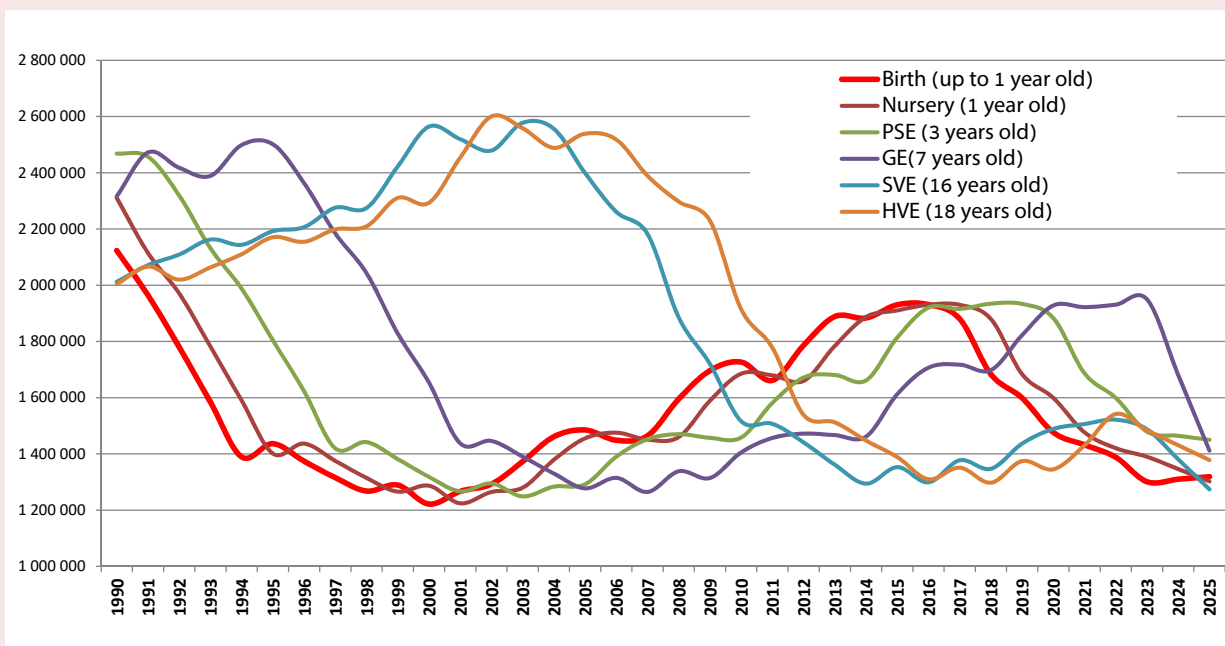
Figure 3 shows the visualization of the selected data for the Russian Federation for building the Ridge Model, which presents the number of students in each age cohort of levels of the education system in the Russian Federation. Arrays for the remaining selected regions are formed in the same way.

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	2319133	2131622	1987787	1804237	1623164	1419635	1314913	1281634	1318173	1266951	1224598	1248767	1283546	1291750	1390063	1452220	1470100	1457191	1458288	1581173	1671614	1680743	1661385	1813760	1920333	1915514	1934443	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	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

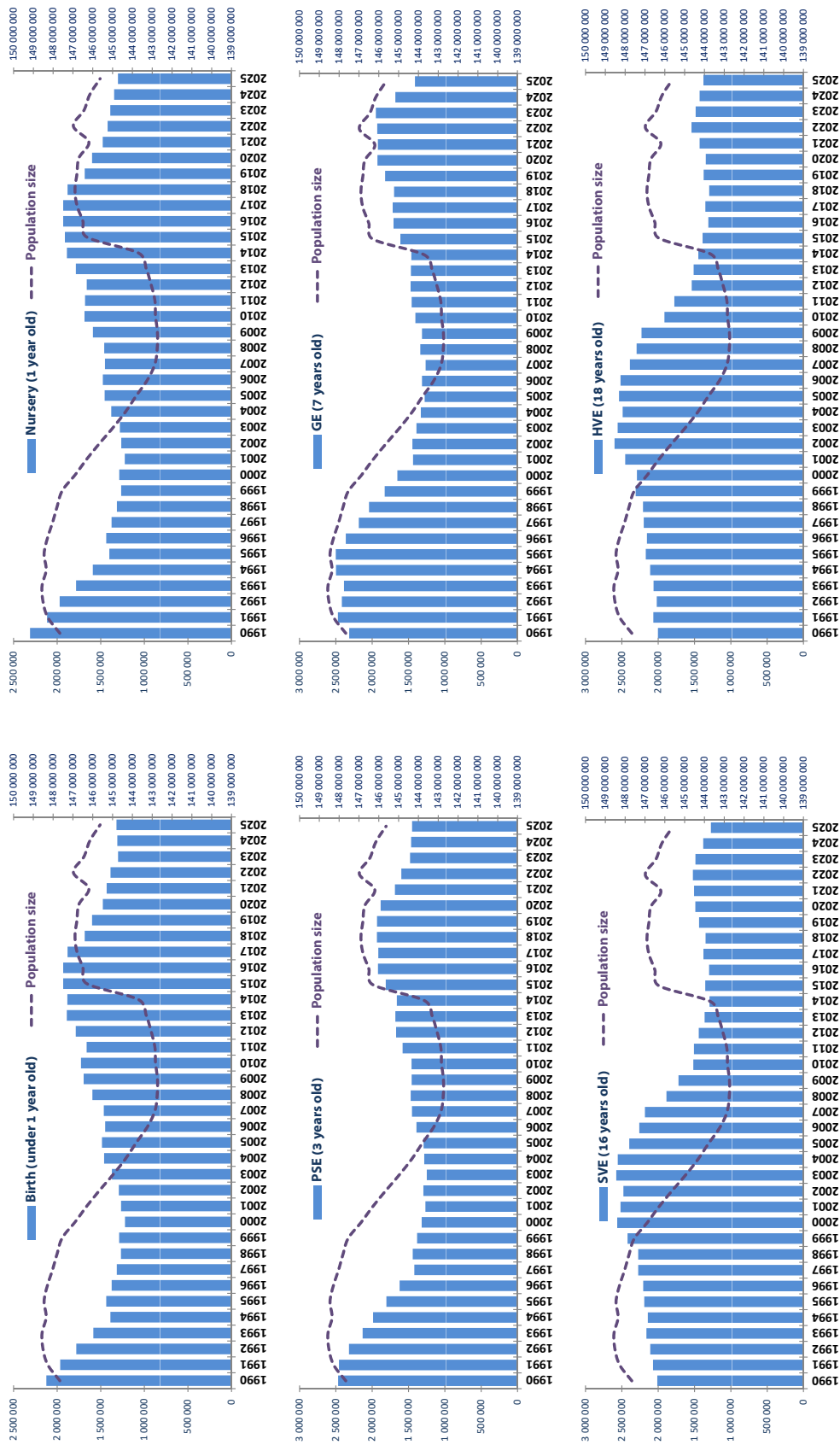
According to: Rosstat Statistical Data Showcase and EMISS data.

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):

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

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.

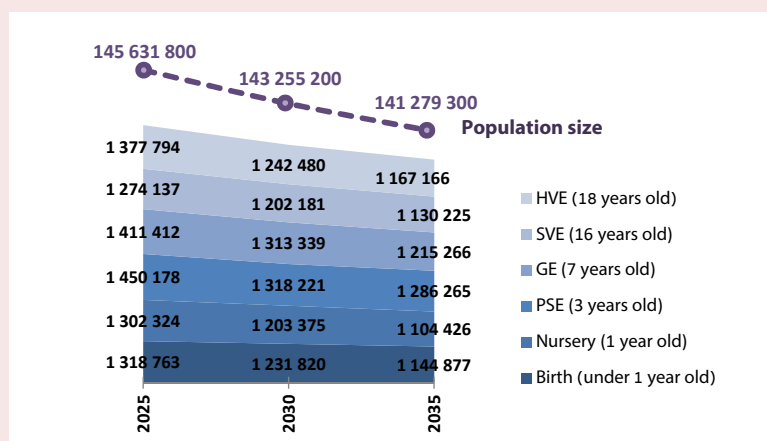
At the final stage of calculations, taking into account the functional dependencies (3), the Ridge Model for the Russian Federation was obtained for the period from 1990 to 2025 and the forecast values for 2030 and 2035. (Fig. 6).

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

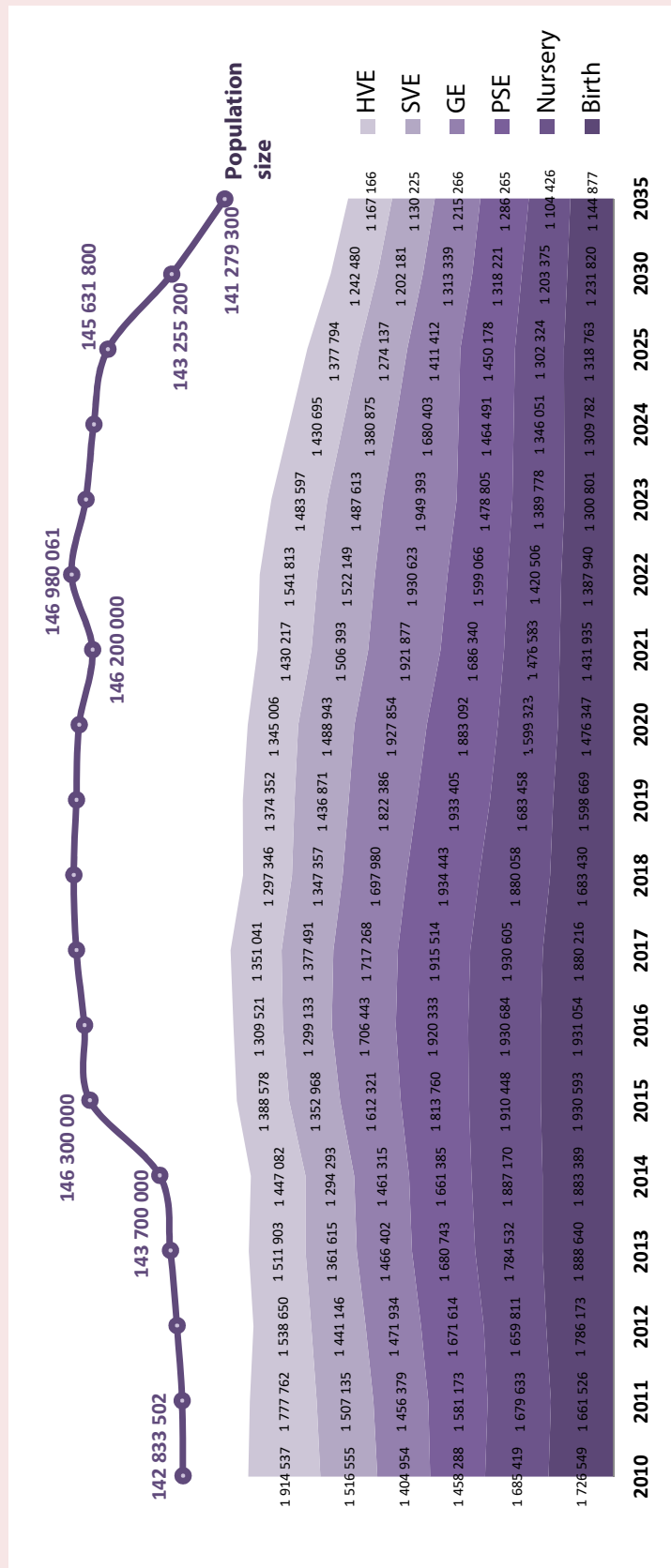
Figure 5. Comparison of predictive estimates of demographic indicators by cohort groups with the population in the Russian Federation (forecast for 2030 and 2035), people



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.

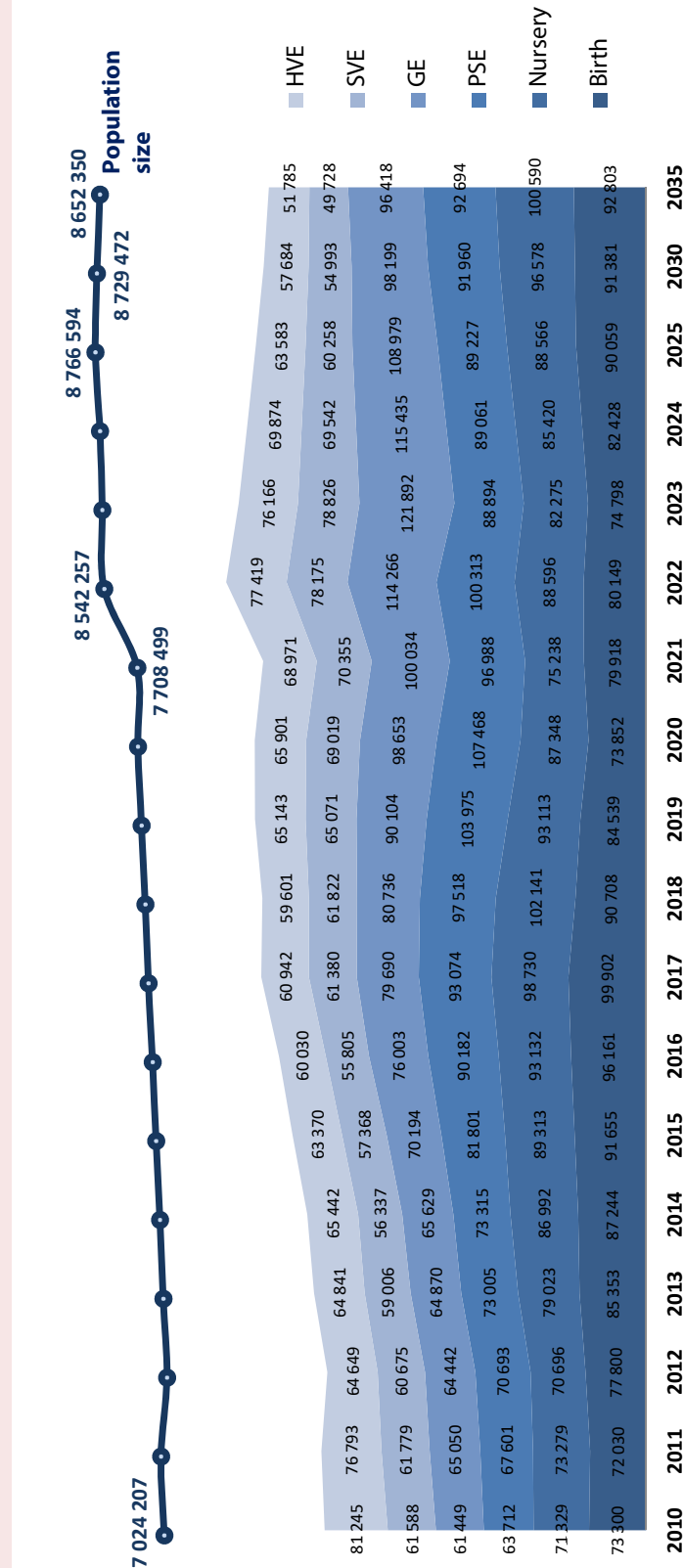
Discussion

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. Nabiullina²⁹, 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

²⁹ 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 people³⁰. The Central Bank states that “... the greatest shortage of personnel remains in agricultural enterprises and in the field of manufacturing, energy and water supply”³¹. 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 times³²), 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 trends³³. 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 thousand³⁴, 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”³⁵. 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

³⁰ 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).

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

³² 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).

³³ 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 (accessed: 16.04.2026).

³⁴ 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).

³⁵ 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 Federation³⁶.

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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³⁶ 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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Analysis and Forecasting of the Structure and Dynamics of the Number of Graduates of Russian Universities



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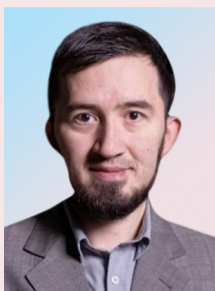


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Abstract. The relevance of this study is determined by the need to improve the reliability of medium-term forecasts of the training of personnel with higher education, in order to enable well-founded planning of state-funded admission quotas and adjustments to the structure of specialist training under conditions of changing demand in the labor market. The aim of the work is to construct a forecast of the number and structure of graduates from Russian universities by 2030, disaggregated by level of education and broad field of study groups. The dynamics of enrollment and the number of graduates from Russian higher education institutions for the period 2016–2025 were analyzed based on official data from the Ministry of Science and Higher Education of the Russian Federation. An original mathematical model for forecasting the number of graduates is proposed. This model takes into account actual past enrollment figures and empirical graduation success rates (the ratio of graduates to enrollments with a fixed time lag). The model was applied to ten aggregated groups of specializations. The analysis revealed significant differentiation among the groups of specializations in terms of graduation success rates. The highest graduation efficiency was recorded for state-funded specialist programs in the “Health and Medical Sciences” group (97.6%), while the lowest was for tuition-fee specialist programs in the “Mathematics and Natural Sciences” group (32.7%). In 2025, the average success rate at the bachelor’s level was 75.8% among budget-funded places and 68.0% among non-budget-funded places; at the specialist’s level, this figure was 81.2 and 56.3%, respectively; and at the master’s level, it was 78.4 and 52.1%. In 2025, the total number of university graduates was 843 thousand people, while enrollment in 2020–2021 averaged 1,100 thousand people. According to the forecast, a steady increase in the number of graduates across all levels of education is expected by 2030, most pronounced at the bachelor’s level (up to 641.5 thousand people). The graduate structure is projected to show a sustained increase in the share of specialists in information technology and healthcare, alongside a reduction in the share of economists and lawyers. The theoretical contribution of the study consists in developing a medium-term forecasting methodology for university graduates using a balancing approach that accounts for differences in academic success. The practical relevance stems from the applicability of the projected structure and dynamics of graduate output to the allocation of publicly funded and tuition based places and to the synchronization of educational policy with labor market needs, thereby reducing the risks of both graduate oversupply in some specializations and shortages in others.

Key words: graduation forecasting, higher education, completion rate, training structure, graduation and admission to universities.

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Introduction

As part of building the nation’s human capital – the principal driver of economic growth and social stability – the higher education system serves to reproduce a skilled workforce (Ketova, Vavilova, 2020; Akaev, Sadovnichii, 2021). According to data from the Center for Macroeconomic Analysis and Short-Term Forecasting (CMASF)¹, by 2035 the Russian labor market could face a surplus of up to

¹ By 2035, a shortage of 3.6 million blue-collar workers may develop in the Russian labor market. Available at: <https://urbc.ru/1068129378-k-2035-godu-na-rynke-truda-rossii-mozhet-sformirovatsya-deficit-36-mln-sinih-vorotnichkov.html>

2.7 million university graduates, even as shortages of specialists persist in certain sectors. Analyzing the structure and dynamics of the number of graduates from higher education institutions makes it possible to assess and forecast the supply of qualified personnel for the labor market.

University graduates constitute a distinctive segment of labor supply, one whose qualitative and quantitative parameters take shape with a considerable time lag. The lengthy training cycle for a specialist (four to seven years) trails behind the pace of technological change, which is why it is essential to engage in forward-looking planning and to adjust graduate numbers based on forecast models (Omelchenko, Safonov, 2024). It is likewise advisable to minimize the time lag between the emergence of demand in the labor market and the supply of qualified graduates (Azarnova et al., 2025).

In 2025, 1.4 million applicants enrolled in Russian higher education institutions, while 843.3 thousand graduates of bachelor's, specialist, and master's degree programs entered the labor market², underscoring the scale of the supply of qualified personnel and its impact on socio-economic stability. In the modern Russian economy, which is going through a period of transformation, an imbalance is evident: the mismatch between the structure of personnel training and the real needs of the economy has worsened in recent years. According to CMASF estimates³, the largest surplus of graduates is expected in the humanities, such as political science (where supply exceeds demand sevenfold), media studies, library science, law, and linguistics, while a shortage persists in technical and blue-collar professions. The problem of personnel shortages is particularly acute in the field of science and technology, where the training of highly qualified researchers and developers in doctoral

programs faces a low rate of successful completion and dissertation defense. This, too, must be taken into account when shaping the new Strategy for the Development of Education until 2040 (Karavaeva, Malandin, 2025).

The structural imbalances identified and the worsening personnel shortages against the backdrop of technological transformation compel the state to develop effective mechanisms for regulating the system of specialist training. The response to these challenges has been a new methodology for setting enrollment caps on tuition-based places in higher education⁴, which provides for limiting admissions to fields where graduates are in low demand. Having allowed market logic to gain strength, the state is now seeking to introduce a corrective mechanism based on employment data. According to ministry data⁵, the reduction will affect nearly 45,000 places across 40 fields of study, or 13% of the total number of tuition-based places; in private higher education institutions, the cuts will be broader – nearly 20%. The number of tuition-based places will be significantly reduced in higher education institutions where law and economics are non-core fields – namely, technical, medical, agricultural, and pedagogical institutions⁶.

The cohort of applicants oriented toward the humanities will, with a high degree of probability, be redistributed to specialized universities that

⁴ On the Approval of the Methodology for Determining the Maximum Number of Places for Admission to Higher Education Programs Under Education Agreements Concluded Upon Admission at the Expense of Individuals and/or Legal Entities for the 2026/27 Academic Year: Russian Ministry of Science and Higher Education Order No. 913 of November 27, 2025 (Registered with the Russian Ministry of Justice on November 28, 2025, No. 84345). Available at: <https://www.garant.ru/products/ipo/prime/doc/413067101/>

⁵ The Ministry of Science and Higher Education will reduce the number of tuition-based places in higher education institutions. Available at: <https://www.rbc.ru/society/22/12/2025/694907719a7947129eaf6bc8>

⁶ The number of state-funded places in engineering and agricultural fields at higher education institutions is planned to increase in the next academic year. Available at: <https://minobrnauki.gov.ru/press-center/news/novosti-ministerstva/98937/>

² Higher education. Available at: <https://minobrnauki.gov.ru/action/stat/highed/>

³ Homo Habilis raises the price. Available at: https://www.kommersant.ru/doc/6773574?utm_source=yxnews&utm_medium=desktop

maintain admissions to these programs. Some applicants who do not meet the score thresholds for higher education institutions will be able to shift to related fields of study within their own regions or temporarily move into the system of secondary vocational education (SVE). This, on the one hand, will intensify pent-up demand for higher education, and, on the other, will help meet workforce needs in the segment of blue-collar trades.

As M. Tomlinson notes, in the context of structural changes in the labor market, the relationship between universities and employers extends beyond a simple balance of supply and demand, demanding that cultural and institutional factors also be taken into account (Tomlinson, 2021). A study of higher education expansion across the European Higher Education Area (Chvorostov, Waechter, 2025) shows that demand for graduates exceeds supply in the majority of European countries, whereas a number of post-Soviet states (including Russia) exhibit a persistent imbalance toward an oversupply of specialists in certain fields of study.

To overcome the imbalance between the output of specialists from higher education institutions and the demands of the labor market, an analysis of the factors driving it is essential. First, demographic fluctuations create unevenness in the flow of applicants. The introduction of the maternity capital program in 2007 and other support measures contributed to a gradual rise in the birth rate in the 2010s (Vavilova, Ketova, 2025). As a result, an increase in the number of 15–18-year-olds has been observed since 2025, producing a new wave of applicants that will last until the mid-2030s; a subsequent wave of rising graduate numbers will follow. It is therefore already necessary to engage in forward-looking planning within the higher education system (Blinova et al., 2021).

Second, structural shifts in the economy and technological challenges are intensifying the imbalance between the training of personnel within

enlarged groups of specialties and fields of study (UGSN) and sectoral workforce needs (Kolesnikova et al., 2023). Despite the redistribution of state-funded admission places in favor of technical fields, an oversupply of humanities graduates persists alongside shortages in information technology, nanotechnology, and engineering. This imbalance is compounded by qualitative changes in the structure of demand driven by technological transformation (Vavilova et al., 2025). Under the influence of artificial intelligence (AI), the competency requirements for specialists are changing. This calls for adjustments to educational programs not only in their volume but also in the content of training.

Third, the spatial concentration of higher education in the large urban agglomerations of the Russian Federation generates a shortage of qualified personnel in small towns and rural areas, exacerbating regional disparities in economic development (Gabbrakhmanov, 2019).

Forecasting the number and composition of university graduates is becoming a strategic task, yet its implementation encounters methodological difficulties. As experts note, “the most common approach applicable to forecasting the output of specialists requires linking demographic trends, the current structure of university admissions, and the economy’s prospective needs; ... workforce demand forecasting must undergo substantial changes, which calls for a revision of methods and techniques, indicators, tools, and, ultimately, the information base” (Kolesnikova et al., 2024).

In addition to quantitative methods for forecasting graduate numbers, it is essential to analyze the qualitative shifts in labor demand brought about by the economy’s technological transformation. The study (Altukhov et al., 2025), which examined a corpus of job vacancies in the Russian Federation for the 2020–2024 period, reveals that, under the influence of AI, the competency requirements for specialists in economics and management are undergoing

structural reconfiguration. The highest demand for specialized AI-related skills is observed in business analytics, project management, and managerial roles. These findings make it all the more urgent to adjust educational programs in light not only of projected graduate numbers but also of the qualitative alignment of graduates' training with an employer demand that is itself being reshaped by new technologies.

In this regard, forecasting the number of university graduates is essential for managing the imbalance between supply and demand in the labor market as well as for planning the nation's human resource potential. This becomes particularly significant when constructing graduate forecasts by enlarged groups of specialties and fields of study (UGSN). Doing so helps the state optimize student admissions while taking economic trends into account.

The aim of the present study is to forecast the structure and dynamics of the number of graduates from Russian higher education institutions for the period up to 2030, broken down by level of education and by specialization group, under the assumption of an inertial development path for the system – that is, the preservation of current admission and academic progress parameters.

The boundaries of this study should be noted: it addresses the task of forecasting exclusively the supply of qualified personnel from the higher education system. Calculating labor market needs (demand) and matching them against projected graduation figures lies beyond the scope of the work.

To achieve this aim, the following tasks were addressed: analyzing the dynamics and structure of admissions and graduations over the past decade; constructing a mathematical model that accounts for the incoming flow of first-year students and the completion rates by enlarged groups of specialties and fields of study (UGSN), differentiated by level of education and source of funding; and estimating the projected structure and dynamics of graduate numbers by specialization group up to 2030.

The methodological foundation of the study rests on the principles of human capital theory and the reproduction of labor resources, as well as on conceptual approaches to forecasting the number and composition of graduates, approaches that combine quantitative analysis of statistical data, mathematical modeling methods, and a comparative analysis of structural shifts.

The instrumental toolkit includes:

- data aggregation (grouping the UGSN into ten specialization groups based on the classification used in statistical compilations by Rosstat and HSE University, which ensures data comparability and the representativeness of the results);

- statistical analysis (analysis of time series; calculation of admission and graduation indicators broken down by level of education and specialization group; analysis of relative indicators and of graduation completion rates);

- mathematical modeling (development of a mathematical model for forecasting the number of graduates, one that takes into account the admissions figures of previous years and the percentage of successful completion of studies, broken down by level of education and specialization group);

- forecasting method (an inertial forecast with a fixed time lag that reflects the normative durations of study: 4 years for bachelor's programs, 5 years for specialist programs, and 2 years for master's programs).

The study's information base comprises official statistical data from the Russian Ministry of Science and Higher Education, as presented in the annual reporting on Form No. VPO-1 "Information on Organizations Conducting Educational Activities in Higher Education Programs – Bachelor's Programs, Specialist Programs, and Master's Programs" for the 2016–2025 period, as well as analytical materials from HSE University and CMASF. The panel dataset, covering a 10-year period, encompasses approximately 500 bachelor's, specialist, and master's degree programs (depending

on the year) and two indicators (admissions and graduations), broken down by two forms of funding (state-funded and tuition-based). In all, the analysis involves more than 20,000 structured data entries.

The study is grounded in the following scientific hypothesis: the use of differentiated empirical graduation completion rates within the model makes it possible to obtain a sufficiently accurate inertial forecast of the dynamics of graduate numbers, compared to traditional trend-based models that ignore the factor of intra-institutional attrition by UGSN.

The study's novelty lies in the adaptation and synthesis of the balance-based approach for forecasting graduate numbers, one that incorporates into the model empirically calculated, differentiated graduation completion rates. Until now, this degree of detail – simultaneously spanning three levels of education, two sources of funding, and ten enlarged groups of specialties – had not been employed for medium-term forecasting. The proposed approach has been applied to the contemporary Russian higher education system for the first time. The theoretical value of the work consists in demonstrating that ignoring the heterogeneity of attrition rates across specializations leads to a systematic overestimation of projected human resource potential. The level of detail proposed ensures high forecast accuracy while preserving full transparency and interpretability of the model for decision-makers. The study's practical significance is defined by its contribution to solving applied problems of state policy. The projected estimates of the composition and dynamics of graduate output make it possible to minimize the risks of an oversupply of personnel in some fields of study and of shortages in others, which is critically important for the implementation of the “Personnel” national project⁷.

⁷ Autonomous non-commercial organization “National Priorities”. Available at: <https://национальныепроекты.рф/new-projects/kadry/>.

Research methods and materials

Among the approaches to forecasting the number of university graduates, regression modeling – including trend extrapolation – is the most common. For instance, the study (Bychkovskaya, Bychkovsky, 2024) examines the dynamics of the number of graduates from Russian higher education institutions over the 2007–2023 period and, based on a graphical analysis of this dynamic, proposes constructing a forecast using cubic trend models. The resulting projections appear debatable, particularly with regard to specialist programs, where the forecast values obtained seem overstated and, in our view, lead to substantively unjustified results.

In the study (Bobko et al., 2023), the number of graduates from regional higher education institutions is forecast while taking into account changes in socio-economic development indicators. Using the proposed regression model, one can study the influence of each model argument on the number of university graduates, forecast its dynamics, and set target benchmarks for devising managerial decisions in the area of regulating the number of young specialists with higher education needed for the regional economy. A similar approach employing machine learning methods is applied in the work (Presnetsova, Konstantinov, 2025), which presents the results of modeling the dynamics of university graduates while considering changes in a number of factors, such as gross regional product and investment, and links the forecast to job vacancies in the labor market.

In international studies, survival analysis models are actively employed to forecast the number of graduates. In the work of Martínez-Carrascal, Hlosta, and Sancho-Vinuesa (2023), this method is used to estimate the risk of student attrition at various stages of study, which influences the likelihood of successful completion (Martínez-Carrascal et al., 2023). This approach is comple-

mented by the study (Loder, 2024), which assesses the probability that a student will successfully complete at least one higher education program. Balance equations of student flows – admissions, attrition, and graduations – are also applied to forecasting graduate numbers (Aikashev et al., 2025); in part, demographic data are taken into account for forecasting student admissions (Popescu et al., 2026).

The study (Kovalenko, Fedotov, 2024) presents the results of an analysis of the dynamics of training highly qualified scientific and pedagogical personnel (doctoral and post-doctoral researchers) for the 2010–2023 period. It proposes a methodology for forecasting the demand for highly qualified personnel based on a dynamic model of the qualification-age structure, one that accounts for the inflow of graduates from doctoral and post-doctoral programs, the outflow of personnel by age, and changes in student-to-faculty ratio norms. A further development of such approaches to modeling the age structure of scientific personnel is presented in the work (Balatsky, Yurevich, 2018), which offers a model that considers not only the quantitative but also the qualitative characteristics of the reproduction of scientific potential. This approach makes it possible to build forecasts, which is useful for the long-term planning of graduate output at the doctoral and post-doctoral levels.

In the present study, official statistical data from the Russian Ministry of Science and Higher Education are used to construct the projected dynamics of graduate numbers. These data are presented in the annual reporting on Form No. VPO-1, “Information on Organizations Conducting Educational Activities in Higher Education Programs – Bachelor’s Programs, Specialist Programs, and Master’s Programs”. They contain information on admissions and graduations, broken down by source of funding and by UGSN program.

Given the variability in the names of the currently existing UGSN⁸, and for the purpose of analyzing the situation on the labor market, it is common practice to combine them into larger groups⁹. In the course of the study, ten specialization groups were identified:

- 1) “Mathematics and Natural Sciences” (UGSN 01–06);
- 2) “Engineering, Technology, and Technical Sciences” (UGSN 07–29), including “Information Technology” (UGSN 09, 10);
- 3) “Information Technology” (IT) (UGSN 09, 10);
- 4) “Healthcare and Medical Sciences” (UGSN 30–34);
- 5) “Agriculture and Agricultural Sciences” (UGSN 35, 36);
- 6) “Social Sciences” (UGSN 37–43), including “Economics and Management” (UGSN 38) and “Jurisprudence” (UGSN 40);
- 7) “Education and Pedagogical Sciences” (UGSN 44);
- 8) “Humanities” (UGSN 45–48);
- 9) “Arts and Culture” (UGSN 49–55, 58);
- 10) “Defense and State Security, Military Sciences” (UGSN 56, 57).

Within the framework of this study, a mathematical model for medium-term graduate forecasting is proposed. The model takes into account the incoming flow of first-year students and the graduation completion rate for each UGSN program. The following notation is introduced:

$S_i^j(t)$ – the number of students enrolled (admitted) in the first year of the i -th specialization group at the j -th level of education ($j = 1$ – bachelor’s, $j = 2$ – specialist, $j = 3$ – master’s) in

⁸ UGSN codes approved (in effect) in accordance with the federal state educational standards of higher education (3++). Available at: <https://fgosvo.ru/fgosvo/index/24>

⁹ Bondarenko N.V., Varlamova T.A., Gokhberg L.M. et al. (2026). Indicators of Education 2026: Statistical Compendium. Moscow: NIU VShE. Available at: <https://issek.hse.ru/news/1125008549.html>.

year t ($j = \overline{1:3}$, $i = \overline{1:10}$); for example, $S_1^1(2025)$ – the number of students enrolled in the first year of bachelor's programs in the "Mathematics and Natural Sciences" group in 2025;

$\alpha_i^j(t)$ – the graduation completion rate for students in the i -th specialization group at the j -th level of education; it is defined as the ratio of the number of graduates in year t to the number of students admitted in year $(t - \tau)$, where τ – the time lag associated with the duration of study: $\tau = 4$ years for bachelor's programs, $\tau = 5$ years for specialist programs, and $\tau = 2$ years for master's programs; for example, $\alpha_2^2(2025)$ – the graduation completion rate for students of specialist programs $\tau = 5$ admitted in $(t - \tau) = 2020$ in the "Engineering, Technology and Technical Sciences" group ($i = 2$);

$G_i^j(t)$ – the actual number of graduates in year t for the i -th specialization group at the j -th level of education; $\tilde{G}_i^j(t)$ – the forecast number of graduates in year t for the i -th specialization group at the j -th level of education.

To construct the forecast of the number of graduates for the i -th specialization group at the

j -th level of education in year t , the following model is proposed:

$$\tilde{G}_i^j(t) = \begin{cases} \tilde{\alpha}_i^j(t) \cdot S_i^j(t - \tau), & \text{if the forecast period} \leq \tau, \\ \tilde{\alpha}_i^j(t) \cdot \tilde{S}_i^j(t - \tau), & \text{if the forecast period} > \tau, \end{cases} \quad (1)$$

where $\tilde{S}_i^j(t - \tau) = k_i^j \cdot S_i^j(t - \tau - 1)$ – the forecast value of admissions, adjusted by the correction coefficient k_i^j , which accounts for the planned regulatory constraints on the volume of tuition-based admissions (based on Russian Ministry of Science and Higher Education Order No. 913 of November 27, 2025)¹⁰. The numerical values of k_i^j are set as intervals: for priority fields (IT, engineering, medicine) $k_i^j = 1.0$; for fields with enrollment restrictions (humanities, economics in non-core higher education institutions) k_i^j is taken in the range of 0.80–0.87 (corresponding to the announced reduction of 13–20%).

The empirical graduation completion rate $\tilde{\alpha}_i^j(t)$ over the forecast period is calculated as a weighted moving average (Wang et al., 2023):

$$\tilde{\alpha}_i^j(t) = \frac{3\tilde{\alpha}_i^j(t-1) + 2\tilde{\alpha}_i^j(t-2) + \tilde{\alpha}_i^j(t-3)}{6}. \quad (2)$$

Table 1. Number of students and number of educational programs delivered by higher education institutions of the Russian Federation (at the beginning of the academic year)

Academic year	Number of educational programs delivered, units			Total number of students, persons	Including by level of education, persons		
	Bachelor's	Specialist	Master's		Bachelor's	Specialist	Master's
2016/2017	23613	4185	13314	4431653	3282820	695990	452843
2017/2018	24631	3235	14387	4277034	3051983	710418	514633
2018/2019	26020	3418	15381	4191957	2920166	730043	541748
2019/2020	26579	3635	16283	4099245	2814179	753393	531673
2020/2021	27312	3854	16424	4082961	2793051	777407	512503
2021/2022	30081	4610	17129	4079342	2780944	800775	497623
2022/2023	30564	4854	17642	4169976	2800405	832048	537523
2023/2024	30980	5142	18190	4368445	2909678	873361	585406
2024/2025	31109	5343	18300	4479455	2977371	910504	591580
2025/2026	30700	5350	18391	4708241	3127378	958177	622686

Source: Form No. VPO-1 "Information on Organizations Conducting Educational Activities in Higher Education Programs – Bachelor's Programs, Specialist Programs, and Master's Programs". Data for the 2016–2025 period. Available at: <https://minobrnauki.gov.ru/action/stat/highed/>

¹⁰ The number of state-funded places in engineering and agricultural fields at higher education institutions is planned to increase in the next academic year. Available at: <https://minobrnauki.gov.ru/press-center/news/novosti-ministerstva/98937/>

Summing across all specialization groups ($i = \overline{1, 10}$) within a given level of education, we obtain the forecast number of graduates for the bachelor's, specialist, and master's levels:

$$\tilde{G}^j(t) = \sum_{i=1}^{10} \tilde{\alpha}_i^j(t) \cdot S_i^j(t - \tau). \quad (3)$$

Summing across all levels of education ($j = \overline{1, 3}$) within a particular specialization group, we obtain the forecast number of graduates for a specific UGSN:

$$\tilde{G}_i(t) = \sum_{j=1}^3 \tilde{\alpha}_i^j(t) \cdot S_i^j(t - \tau). \quad (4)$$

Formulas (3) and (4) represent aggregation operators. Formula (3) sums the absolute values of the forecast graduate output (Formula 1) across all specializations to yield the final figure for a given level of education (e.g., the total number of bachelor's graduates in 2030). Formula (4) sums the graduate output across all levels of education to yield the final figure for an enlarged specialization group (e.g., the total number of IT specialists at all levels graduating in 2030).

Model (1)–(4) can be characterized as a mathematical model for forecasting the number of university graduates based on the UGSN graduation completion rate with a fixed time lag. It is a deterministic linear construct in which the estimate of future graduate output is built on two components: the incoming flow of students (a known or planned quantity) and the empirical graduation completion rate averaged over the last three years. The model can be implemented in the practice of planning and forecasting graduate numbers. The coefficient $\tilde{\alpha}_i^j$ has a clear substantive meaning: it is the share of students who make it to graduation. Differentiation by i and j makes it possible to capture differences in completion rates across engineering, natural science, and humanities fields, as well as across bachelor's, specialist, and master's programs.

Analysis of indicators of the Russian higher education system

Let us turn to an analysis of the data characterizing the current state and dynamics of the Russian higher education system. We will examine changes in the number of students and the structure of admissions and graduations over the 2016–2025 period, broken down by level of education, source of funding, and specialization group. Table 1 presents data on the number of students in higher education institutions at the beginning of the academic year, as well as on the number of higher education programs being delivered in the Russian Federation.

According to the data, the increase in the number of educational programs, especially at the specialist and master's levels, reflects both the implementation of state policy aimed at restoring the specialist level in priority fields of study and the sustained demand among applicants for programs of in-depth specialization¹¹. However, growth in the number of programs does not in itself guarantee their quality or their alignment with market demands. Over the 10-year period under analysis, the dynamics of the overall number of students in the Russian Federation exhibit a wave-like pattern: having declined from 4.4 million persons in 2016 to 4.1 million persons in 2021 (a drop of 352.3 thousand persons, or –8.0% relative to the 2016 figure), the number of students has been steadily rising since 2022. In 2025, it increased to 4.7 million persons (an increase of 628.9 thousand persons over four years, or +15.4% relative to the 2021 figure). This means that, after the completion of their studies over the medium term (up to 2030), the supply of young specialists in the labor market will be expanding.

¹¹ The accessibility of higher education will remain at a high level in 2025. Available at: https://minobrnauki.gov.ru/press-center/news/novosti-ministerstva/90681/?spm=a2ty_o01.29997173.0.0.2c2355fbZa9uc8

Table 2. Dynamics of admissions and graduations in the higher education system of the Russian Federation, 2016–2025

Year of admission / graduation	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Admissions, thousands of persons, of which	1157.8	1142.0	1147.9	1129.4	1093.3	1129.1	1201.5	1287.6	1298.1	1419.5
– bachelor's	773.9	745.0	741.1	735.1	707.3	732.1	751.8	819.6	829.7	905.5
– specialist	150.1	154.0	162.4	167.5	166.0	176.4	187.6	202.4	208.3	224.5
– master's	233.8	243.0	244.5	226.8	220.1	220.6	262.2	265.6	260.0	289.5
Distribution of admissions by source of funding, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
State-funded	44.2	44.4	46.0	45.0	47.7	48.6	49.9	43.9	43.5	40.0
Tuition-based	55.8	55.6	54.0	55.0	52.3	51.4	50.1	56.1	56.5	60.0
Graduations, thousands of persons, of which	893.6	960.5	933.2	908.5	849.4	813.3	816.3	805.9	827.6	843.3
– bachelor's	761.7	732.5	661.7	621.9	558.8	528.9	540.7	532.7	527.6	534.3
– specialist	49.5	90.1	101.1	104.5	105.4	108.0	110.5	115.0	117.9	120.6
– master's	82.4	137.9	170.4	182.1	185.2	176.4	165.2	158.3	182.0	188.4
Distribution of graduations by source of funding, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
State-funded	40.1	42.2	43.5	45.5	47.8	48.4	46.6	46.4	47.8	47.9
Tuition-based	59.9	57.8	56.5	54.5	52.2	51.6	53.4	53.6	52.2	52.1
Absolute difference between graduations and admissions, thousands of persons	-264.2	-181.5	-214.7	-220.9	-243.9	-315.8	-385.2	-481.7	-470.5	-576.2

Source: Form No. VPO-1 «Information on Organizations Conducting Educational Activities in Higher Education Programs – Bachelor's Programs, Specialist Programs, and Master's Programs.» Data for the 2016–2025 period. Available at: <https://minobrnauki.gov.ru/action/stat/highed>

The fastest growth in student numbers is being shown by specialist programs (+37.7% over 10 years). This may represent a response to market demand for narrowly specialized professionals requiring deep sector-specific knowledge. Master's-level enrollment is likewise growing (+37.5% in 2025 compared to 2016), which may point to an emphasis on advanced training and the acquisition of competencies for working with complex technologies. Bachelor's programs, by contrast, showed a decline in enrollment from 2016 to 2021; by 2025, however, enrollment had increased by 12.5% relative to 2021. This may indicate a shift in applicants' focus toward longer, more practice-oriented programs (the specialist level) or toward programs of advanced training (the master's level).

The dynamics of the indicators presented in Table 1 attest to the fact that higher education

institutions are expanding admissions and creating new programs, especially at the specialist and master's levels. The key question is whether this kind of adaptation is adequate and sufficiently forward-looking in relation to the sweeping changes in the labor market brought about by the introduction of AI, or whether it is merely extensive growth that may exacerbate the future imbalance.

Table 2 presents the dynamics of admissions and graduations in the higher education system, broken down by level of education and source of funding.

The figures in Table 2 reflect a steady increase in total admissions to higher education programs against a backdrop of stagnant graduate numbers. Over the period from 2016 to 2025, admissions rose by 22.6% (from 1,157.8 to 1,419.5 thousand persons), whereas graduations fell by 5.6% (from 893.6 to 843.3 thousand persons). In 2025, the gap

reached a record 576.2 thousand persons (meaning that admissions exceeded graduations by 68.3%). This absolute difference does not reflect annual attrition alone, but rather a systemic imbalance between the incoming (applicant) and outgoing (graduate) flows. It stems from the 2021–2025 state policy of raising state-funded admission quotas (control figures), aimed at building a personnel reserve at the exit from the higher education system. However, a substantial share of the contingent that expanded during this period remains temporarily within higher education institutions, owing to a trend toward longer actual durations of study (due to academic leaves, conscription for military service, changes of educational program, and other reasons), which postpones the transition of these students into the graduate category.

If we evaluate the structure of higher education admissions and graduations by level of education, the patterns for 2025 are roughly identical: bachelor's programs account for 63–64% of both admissions and graduations, specialist programs for 14–16%, and master's programs for 20–22%. Over the ten-year period, the most pronounced structural changes have affected specialist programs: the share of graduates rose from 5.5% in 2016 to 14.3% in 2025. A similar increase has been recorded in the admissions structure. This confirms the demand for longer, five- to six-year programs with in-depth, practice-oriented training, of the kind characteristic of medicine, engineering, and defense-related specialties.

An analysis of the admissions and graduations structure in higher education by source of funding reveals that the share of tuition-based (fee-paying) admissions, after declining in the 2016–2022 period, rose from 50.1% in 2022 to 60.0% in 2025. At the same time, the graduation structure has remained more stable over the past five-year period (52–54% being tuition-based). This points to a partial shift in the philosophy of state regulation of higher education toward a greater emphasis on market mechanisms.

Figure 1 presents the actual dynamics of the number of graduates from Russian higher education institutions over the 2020–2025 period across the ten specialization groups.

The graphs in *Figure 1* reveal a growth trend in the number of graduates in the “Information Technology” group (average annual growth rate of +10.9% for 2020–2025), the “Healthcare and Medical Sciences” group (+5.9% per year), and the “Defense and State Security, Military Sciences” group (+26.0% per year).

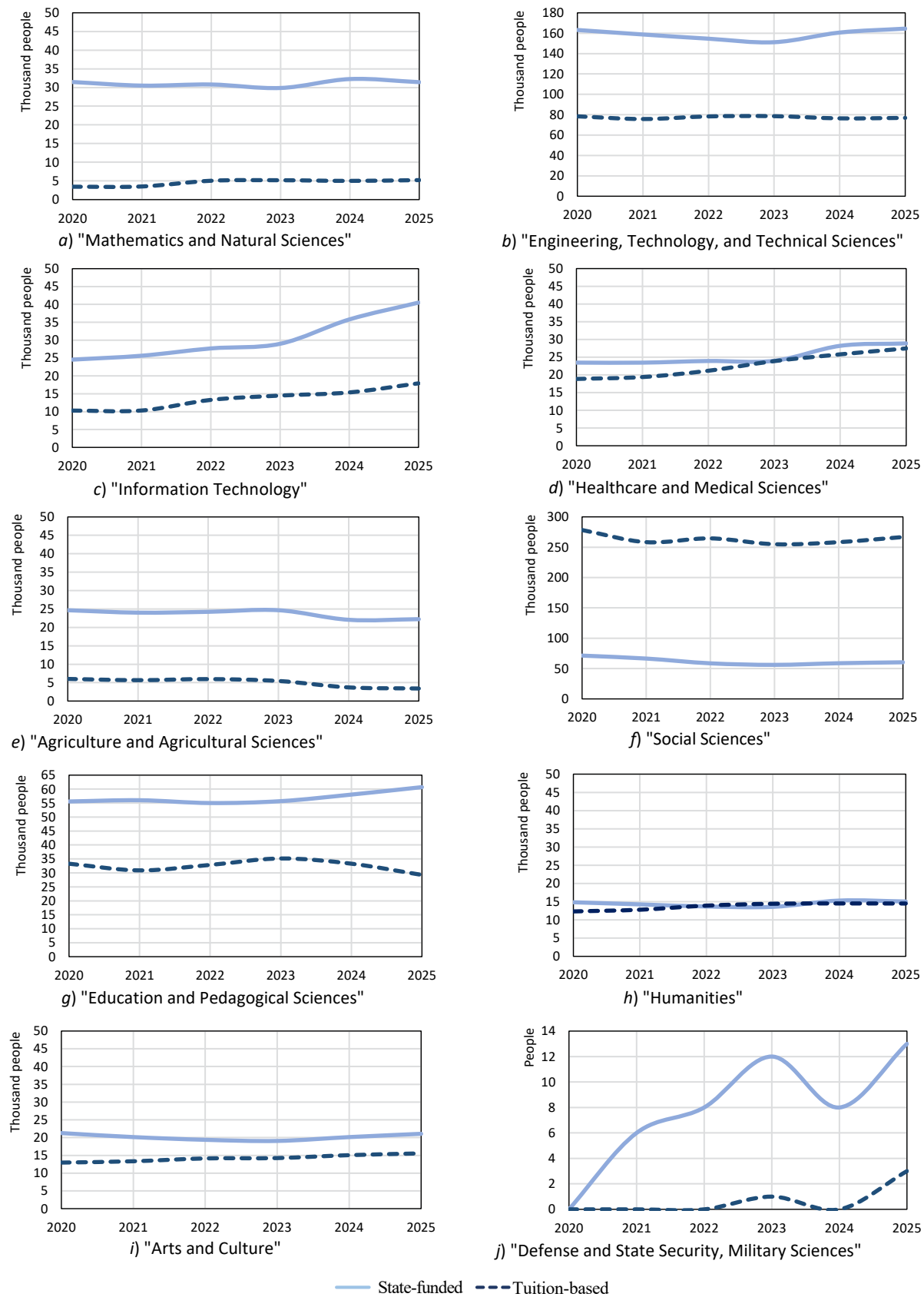
The largest specialization group – “Social Sciences” (which encompasses programs in psychology, economics and management, sociology, law, political science and area studies, media and library-information sciences, and service and tourism) – accounts for more than one-third of all graduates. Only in this specialization group does the number of tuition-funded graduates exceed the number of state-funded graduates by a factor of more than four.

The engineering field remains the leader in terms of the scale of state-funded training, forming the core of the nation's technical workforce potential. In 2024, graduations rose to 160.6 thousand persons, and in 2025 they reached a seven-year high of 164.5 thousand specialists. This represents the effect of the increased admissions of recent years, which were aimed at meeting the workforce shortage in industry.

The “Information Technology” group shows the most impressive growth dynamics among all fields of study. State-funded graduate output rose by more than 1.6 times, from 24.5 thousand persons in 2020 to 40.5 thousand persons in 2025. A decisive leap occurred in 2024–2025, which directly reflects the state policy aimed at achieving digital sovereignty, as well as the multi-year efforts to increase state-funded admission quotas (control figures) for IT fields.

It should be noted that the statistical data on the “Defense and State Security, Military Sciences” group are presented only to a limited extent, owing to the specific nature of the accounting and the

Figure 1. Actual dynamics of the number of graduates from higher education institutions of the Russian Federation by specialization group, 2020–2025



Source: own calculations.

classified character of the departmental educational institutions. The state-funded graduate output reflects only a small portion of civilian specialists who studied in open programs at higher education institutions subordinate to the Russian Ministry of Science and Higher Education. Tuition-based graduations in this group are virtually absent, which is logical given the closed nature of the majority of specialties and their funding exclusively from the federal budget in the interests of the country's defense capability.

Forecast of the structure and dynamics of the number of graduates from Russian Higher education institutions

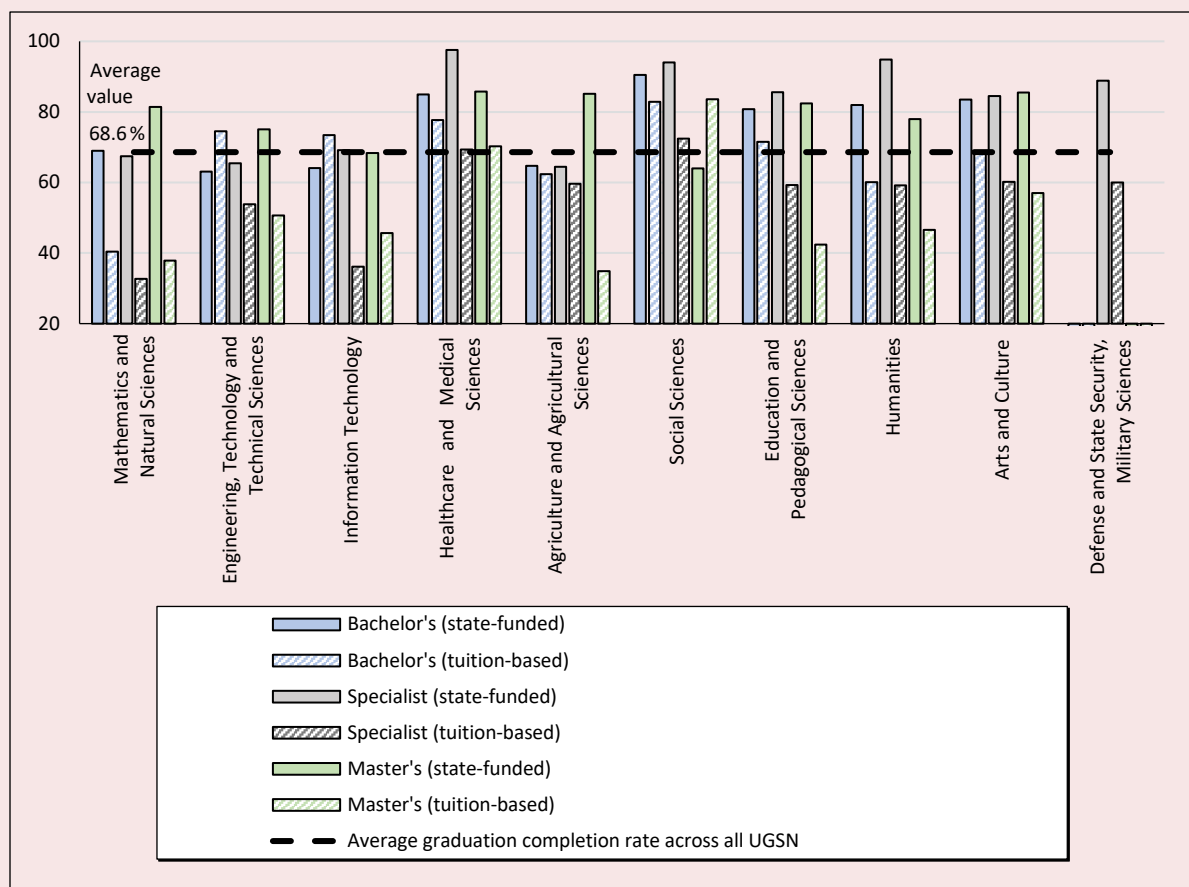
In order to construct a forecast of the structure and dynamics of the number of graduates from

higher education institutions of the Russian Federation, it is necessary to take into account the percentage of those who successfully completed their studies. This will be done for each specialization group.

Figure 2 presents the results of calculating the empirical graduation completion rate for students in the respective specialization group for the year 2025.

If we evaluate the performance of the Russian higher education system by the criterion of successful graduation completion, it appears to be high. The average completion rate across all specialization groups is 68.6% (this figure is provided for reference and reflects a generalized picture across the higher

Figure 2. Percentage of those who successfully completed their studies (as a share of those admitted four years ago for bachelor's programs, five years ago for specialist programs, and two years ago for master's programs) by specialization group in 2025, %



Source: own calculations.

education system, without serving as a forecast parameter). Underlying these values, however, are structural gaps – not only between specialization groups, but also between forms of study (state-funded versus tuition-based) and between levels of education (bachelor's and specialist programs versus master's programs).

Among state-funded places, the leaders are the following groups: “Healthcare and Medical Sciences” (specialist) – 97.6% – practically universal graduation; the system of professional selection, training, and social support functions without disruption; “Humanities” (specialist) – 94.9% – characterized by high motivation, conscious choice on the part of applicants, and low attrition; and “Social Sciences” (bachelor's) – 94.0% – economics and law programs continue to retain students. In the lagging zone are “Engineering” (bachelor's) – 63.1%, “Information Technology” (bachelor's) – 64.1%, and “Agriculture” (bachelor's) – 64.7%. Engineering and agricultural specialties lose one out of every three state-funded students already at the first stage of education.

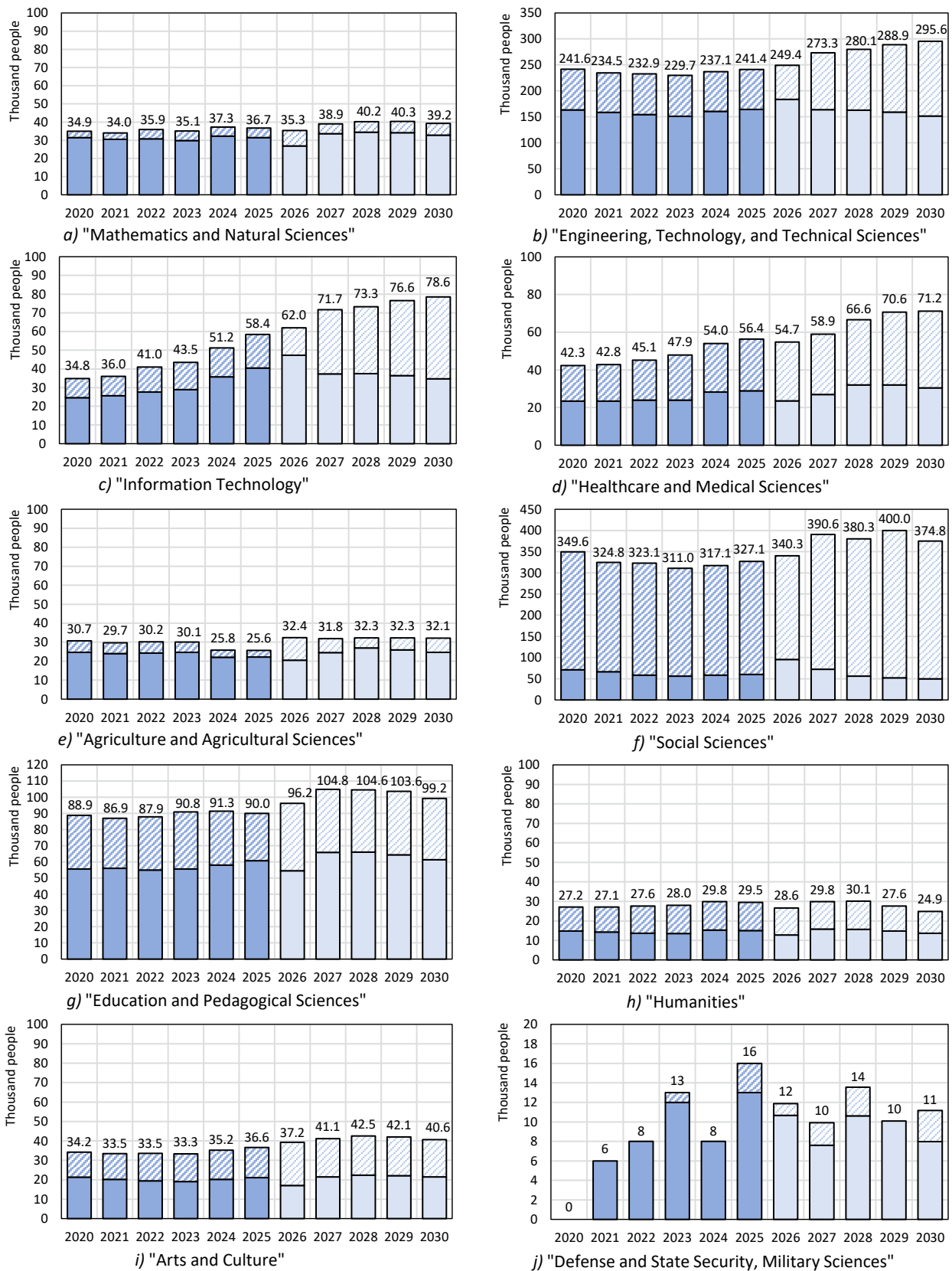
At the master's level, the specialization groups showing the highest graduation rates among state-funded places are “Healthcare and Medical Sciences” at 85.7%, “Arts” at 85.5%, “Agriculture” at 85.2%, “Education and Pedagogical Sciences” at 82.4%, and “Mathematics and Natural Sciences” at 81.4%. Attrition in these groups is clearly minimal, which indicates that those entering state-funded master's programs in these fields are highly motivated students. Among tuition-based master's programs, there are five groups that fall within a critical zone: the percentage of successful completers in these programs ranges from 34.9 to 46.6% – meaning that more than half of the master's students who study on a fee-paying basis do not make it to graduation. These groups, in particular, are “Agriculture” at 34.9%, “Education and Pedagogical Sciences” at 42.4%, and “Information Technology” at 45.6%. It is most likely that these

fields are entered by students who are not prepared for research and other scholarly activities, who become disillusioned during the course of their studies and do not see the economic rationale for obtaining a degree, and who, moreover, combine their studies with full-time employment. There are exceptions as well: tuition-based master's programs show a record 83.6% completion rate in the “Social Sciences” group.

Figure 2 captures the problems of student retention in the higher education system. In 2025, the average graduation completion rate at the bachelor's level was 75.8% among state-funded places and 68.0% among tuition-based ones; at the specialist level, these figures stood at 81.2 and 56.3%, respectively; and at the master's level, at 78.4 and 52.1%. The greatest losses in personnel training occur in tuition-based master's programs and in engineering bachelor's programs. These are areas requiring priority management intervention. In tuition-based master's programs, agriculture, mathematics, pedagogy, and the humanities lose more than 50% of their student cohort. This means that the state (through subsidies to universities) and the population (through tuition payments) incur enormous losses. Every second student does not receive a diploma. A systemic problem is evident in engineering bachelor's programs. The loss of 36.9% of state-funded students is a signal to revise educational programs. Students leave because they cannot cope with the workload or do not see the relevance of the education to their future work.

Using mathematical model (1)–(4), a forecast of the number of graduates from Russian higher education institutions was obtained, taking into account the empirical graduation completion rate for students in the corresponding specialization group. The actual (for the 2020–2025 period) and projected (for the period up to 2030) number of graduates from Russian higher education institutions by UGSN group is presented in *Figure 3*.

Figure 3. Actual (for the 2020–2025 period) and forecast (up to 2030) number of graduates from higher education Institutions of the Russian Federation by specialization group



Source: own calculations.

— State-funded - - - Tuition-based

The model (1)–(4) was verified using statistical data for the 2021–2025 period: the mean approximation error (the standard mean absolute percentage error) for the number of graduates in individual specialization groups ranges from 2.2 to 7.8%. At the same time, the mean error for the total number of graduates was 2.9%, which confirms the adequacy of the constructed forecasts.

The actual (for the 2020–2025 period) and projected (up to 2030) composition of graduates from Russian higher education institutions by specialization group is presented in *Figure 4*.

The structure of specialist training in Russia is undergoing changes, and a number of trends that emerged during the actual observation period are

intensifying in the forecast period. In the socio-economic block, the share of the “Economics and Management” group declines from 21.7% in 2020 to 17.5% in 2030, while that of “Jurisprudence” falls from 13.0 to 11.5%. The relative weight of the “Humanities” group (to 2.5%) and the “Education and Pedagogical Sciences” group (to 10.2%) is also decreasing.

In the technology block, the share of graduates in “Engineering, Technology, and Technical Sciences (excluding IT)” declines from 24.3 to 22.2%; in the “Information Technology” group, it rises from 6.9% in 2025 to 8.0% by 2030. The share of the “Mathematics and Natural Sciences” group remains stable at around 4.0%.

Figure 4. Actual (for the 2020–2025 period) and forecast (up to 2030) structure of graduates from higher education institutions of the Russian Federation by specialization group, %

Mathematics and Natural Sciences	4.1	4.2	4.4	4.4	4.5	4.3	4.0	4.0	4.1	4.0	4.0
Engineering, Technology, and Technical Sciences (excluding IT)	24.3	24.4	23.5	23.1	22.5	21.7	21.4	20.8	21.2	21.1	22.2
Information Technology	4.1	4.4	5.0	5.4	6.2	6.9	7.1	7.4	7.5	7.6	8.0
Healthcare and Medical Sciences	5.0	5.3	5.5	5.9	6.5	6.7	6.3	6.1	6.8	7.0	7.3
Agriculture and Agricultural Sciences	3.6	3.6	3.7	3.7	3.1	3.0	3.7	3.3	3.3	3.2	3.3
Social Sciences (excluding Econ., Manag. and Jur.)	6.4	6.7	6.8	7.3	7.6	8.2	9.0	9.2	9.0	9.7	9.4
Economics and Management	21.7	20.8	20.9	20.2	18.9	18.6	18.6	18.4	17.8	17.9	17.5
Jurisprudence	13.0	12.5	11.8	11.1	11.8	12.0	11.3	12.7	12.1	12.2	11.5
Education and Pedagogical Sciences	10.5	10.7	10.8	11.3	11.0	10.7	11.0	10.8	10.7	10.3	10.2
Humanities	3.2	3.3	3.4	3.5	3.6	3.5	3.3	3.1	3.1	2.7	2.5
Arts and Culture	4.0	4.1	4.1	4.1	4.3	4.3	4.3	4.2	4.4	4.2	4.2
Defense and State Security, Military Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030

Source: own calculations.

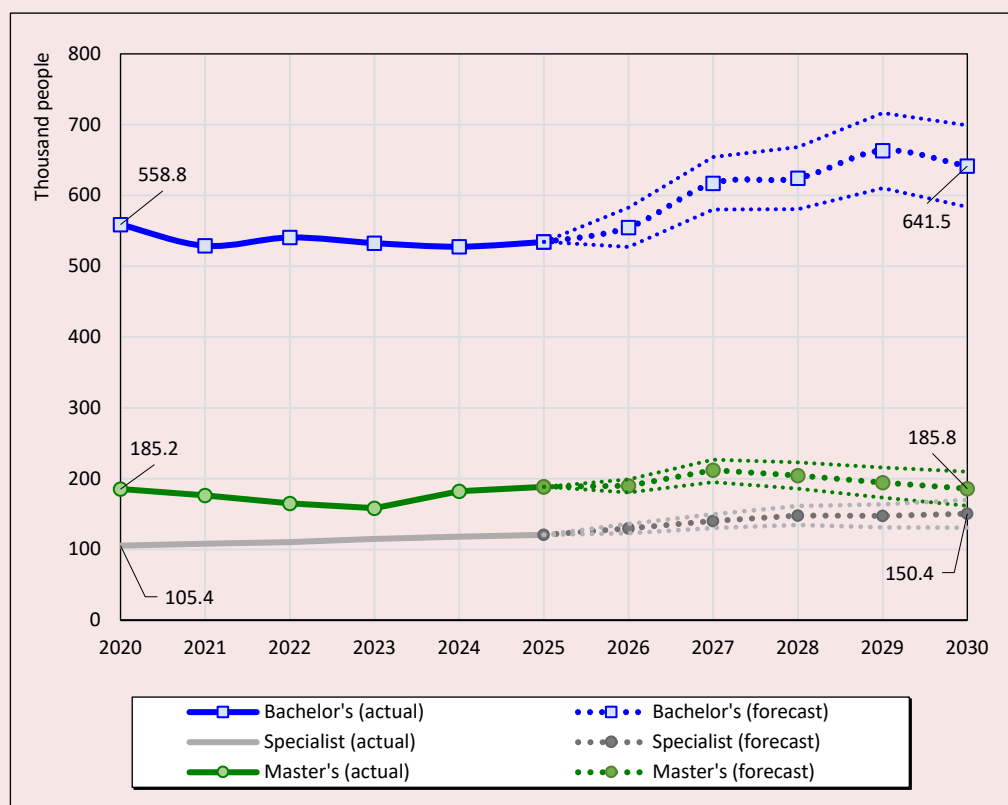
Among the specialized fields, “Healthcare and Medical Sciences” will strengthen its position from 5.0% in 2020 to 7.3% by 2030. The shares of the “Agriculture” group (from 3.6 to 3.3%) and the “Arts and Culture” group (from 4.0 to 4.2%) fluctuate within a range of 0.5 percentage points.

Thus, the structure of higher education in the forecast to 2030 will be characterized by a contraction of the economics and law block (provided the policy of limiting tuition-based places is maintained) in favor of narrower and more applied specialties, primarily information technology and healthcare. Engineering specialties retain a high share but lose ground relative to other groups. Summing across all specialization groups

within each level of education yields the forecast number of graduates (*Fig. 5*).

The graphs in Figure 5 reflect the actual and forecast dynamics of the number of students enrolled in bachelor’s, specialist, and master’s degree programs. From 2020 to 2022, the number of bachelor’s graduates steadily declined from 558.8 thousand to 528.0 thousand persons. Beginning in 2026, growth in the number of bachelor’s graduates is forecast. Over the forecast period from 2026 to 2030, the indicator is expected to increase from 555.0 thousand to 641.5 thousand persons. The number of specialist graduates by 2030 is forecast at 150.4 thousand persons, which points to a sustained demand for traditional engineering and medical

Figure 5. Actual (for the 2020–2025 period) and forecast (up to 2030) number of graduates from higher education institutions of the Russian Federation by level of education: Bachelor’s, specialist, and master’s



Note: Dashed lines represent 95% confidence intervals for the forecasts, constructed on the basis of the standard deviation of the empirical graduation completion rates over the retrospective period (2016–2025).

Source: own calculations.

specialties that are delivered through specialist programs. The master's level remains broadly stable: over the forecast period, the number of graduates is expected to be on the order of 185.0 thousand specialists. In total, a combined figure of 977.7 thousand graduates across all levels of education is forecast for 2030.

Conclusion

The results of the analysis and forecasting of the structure and dynamics of graduates from Russian higher education institutions allow us to formulate a number of conclusions of high practical significance. The model proposed in this study, based on an inertial scenario of the system's development, yields a baseline forecast of the changes in graduate numbers over the medium term (up to 2030).

In contrast to simplified approaches, the proposed model – constructed on balance relationships between student admissions and their graduation after a fixed time lag, using empirical graduation completion rates differentiated by level of education, source of funding, and specialization group – makes it possible to move from abstract extrapolations to a forecast that rests on the actual flows of students. This deepens the theoretical understanding of the higher education system as a dynamic system with a delay.

The verification of the proposed model confirmed the scientific hypothesis put forward. The calculation of the mean approximation error over the retrospective 2021–2025 period demonstrated that the use of differentiated empirical graduation completion rates (in a three-dimensional breakdown: level of education, source of funding, and enlarged specialization group) ensures high accuracy of the inertial forecast: the mean error for the total number of graduates amounted to just 2.9%, while for individual specialization groups it ranged from 2.2 to 7.8%.

In contrast to traditional trend-based models (e.g., Bychkovskaya, Bychkovsky, 2024), which extrapolate aggregate enrollment trends and ignore the factor of intra-institutional attrition, the proposed differentiated approach makes it possible to avoid the systematic overestimation of the forecast – in particular for specialist programs, where trend models yield substantively unjustifiably high values. Taking into account the real heterogeneity of completion rates (ranging from 97.6% in state-funded specialist programs in the “Healthcare and Medical Sciences” group to 32.7% in tuition-based specialist programs in the “Mathematics and Natural Sciences” group) helps to identify structural “rupture points” that remain invisible to aggregated extrapolation models.

Thus, the hypothesis that a differentiated balance-based approach that accounts for the attrition factor by UGSN yields a more accurate and substantively sound forecast compared to traditional trend models has received empirical confirmation.

The forecast estimates obtained in the course of the study correlate with the macroeconomic warnings from CMASF concerning the risk of an oversupply of graduates by 2035. The resulting forecast shows a steady increase in graduate output up to 2030 (up to 977.7 thousand persons) against the backdrop of a structural contraction in the share of the economics and law block. This confirms the timeliness and adequacy of current state regulatory measures, such as Russian Ministry of Science and Higher Education Order No. 913 on limiting tuition-based admissions to fields of study lacking labor-market demand. Had the model failed to account for the real differentiation in completion rates (for example, 97.6% in medicine versus 32.7% in tuition-based natural sciences), it could not have identified these rupture points.

From an applied perspective, the significance of this work lies in its focus on addressing the tasks of state personnel policy. The projected estimates of graduate numbers up to 2030, broken down by ten enlarged specialization groups and three levels of education, make it possible to:

1) verify current state policy; the study clearly demonstrates the consequences of the increases in state-funded admission quotas (control figures) in recent years: the forecast growth in graduate output in engineering, information technology, and healthcare is a direct consequence of earlier decisions and confirms their effectiveness in expanding the supply of strategically important personnel;

2) identify zones of structural imbalance; the study documents a persistent skew in favor of the “Social Sciences” group, which, despite a declining share, continues to dominate the graduation structure, largely on account of tuition-based education; this serves as an empirical foundation for the introduction of regulatory measures such as Russian Ministry of Science and Higher Education Order No. 913 and underscores the need for their further refinement;

3) identify “rupture points” in personnel training; the analysis of graduation completion rates has revealed critical zones of student cohort loss – above all, in tuition-based master’s programs in the natural sciences, pedagogical, and agricultural fields, as well as in engineering bachelor’s programs; this is a signal to university leadership and governing bodies of the need to revise program content and improve the quality of work with applicants and students.

The imbalances identified in personnel training are broadly consistent with global patterns. As in many countries (including European Union member states, the United States, and developing

economies), the global digital transformation and the adoption of AI technologies are generating a persistent worldwide shortage of personnel in STEM fields (science, technology, engineering, and mathematics) and healthcare, accompanied by an oversupply of graduates in the humanities and socio-economic fields. The Russian case, however, also possesses distinctive features. First, the high proportion of tuition-based education in the “Social Sciences” and “Humanities” groups, combined with low graduation completion rates (especially at the master’s level), may indicate that, for a significant share of students, obtaining a diploma is more important than mastering the program. Second, the scale and speed of state regulation – for example, the capping of tuition-based admissions to fields of study lacking labor-market demand and the proactive redistribution of state-funded admission quotas – demonstrate a more stringent and centralized model of correcting imbalances compared to the liberal market models of education systems that predominate in a number of Western countries. Thus, the Russian Federation is following the global trend of reorienting higher education toward technological sovereignty, but is implementing this strategy by relying on specific demographic conditions and administrative levers.

For constructing long-term scenario-based forecasts (with a horizon of more than 10 years), the mathematical model needs to take into account leading demographic factors, in particular the projected decline in the population of the Russian Federation aged 15–18 after the mid-2030s. The formalization of factors that account for demographic waves, macroeconomic shocks, and changes in labor market demand – and their incorporation into the mathematical apparatus – will be the subject of further research.

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Work and Well-Being: An Empirical Analysis Using the Regional Database



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Abstract. Drawing on the concept of work-related well-being, this article tests a methodological toolkit designed to comprehensively assess an individual's standing in the world of work. The authors' approach to measuring work-related well-being relies on data from the Vologda Region labor potential quality monitoring survey. The uniqueness of the proposed study is due to the capabilities of its information base, which helps to construct a three-tier system of work-related well-being indicators. Alongside objective, factual indicators, this system incorporates two sets of subjective assessments that capture different dimensions of subjective well-being. The main findings of the study are as follows: 1) across most key dimensions, the level of work-related well-being is fairly high, largely because subjective indicators tend to outpace the factual ones; 2) assessments of work-related well-being in virtually all of its dimensions are directly correlated with a family's level of material well-being; 3) the most acute problem areas in the profile of work-related well-being are found in its non-monetary aspects, primarily, professional development; 4) the crucial factors that positively influence the level of well-being are the level of professional education – provided it matches the requirements of the workplace – and the stability of employment; 5) the level of work-related well-being is only weakly correlated with age but is closely associated with the qualitative characteristics of the worker's labor potential. The practical significance of the study lies in its potential to produce well-grounded management decisions at both the corporate and the regional level, aimed at creating higher-quality and more decent employment that helps improve a person's standing in the world of work.

Key words: world of work, quality of employment, decent work, quality of working life, work-related well-being.

Introduction

The world of work can be approached from various perspectives, reflecting the interests of different parties to social and labor relations. The state focuses on balanced macroeconomic proportions and the ability of labor potential to meet the workforce needs of the national economy, given the changing structure of labor demand. Employers seek to increase returns on personnel, minimize opportunistic behavior, and optimize the corresponding cost components. For workers, in turn, the world of work is a vital source of satisfaction for a wide range of material and non-material needs. Thus, the interests of economic agents diverge and sometimes conflict, yet they may also have areas of overlap. The scale and role of these overlapping areas are growing in today's conditions due to an objective trend toward the increasing role of human beings, their skills, preferences, and motivations in ensuring successful economic development. This highlights the relevance of a research

perspective that examines the world of work from the standpoint of the working population. In our view, this perspective is most fully captured by the concept of work-related well-being.

This paper aims to empirically analyze the regional profile of work-related well-being, looking at the relationship between its objective and subjective dimensions, identifying its vulnerable areas, and examining the links between monetary and non-monetary aspects of well-being and both worker and job characteristics. The study continues a series of research projects on various aspects of human well-being (Shabunova et al., 2026).

The growing interest of economists in well-being in the world of work is driven by at least two factors. First, there is mounting empirical evidence supporting the hypothesis that a high quality of working life acts as a factor in raising labor productivity and strengthening the competitiveness of both firms and the economy as a whole

(Korogodin, 2021; Harter et al., 2002; Donald et al., 2005; Kauhanen, Ntti, 2015). Second, objective global trends of rising material prosperity and the increasing diversity of working conditions and forms of employment mean that, as basic needs become satisfied, the range of employment contract aspects that matter to workers extends far beyond monetary compensation for their labor.

Recognizing the importance of ensuring favorable employment conditions for workers across a broad range of monetary and non-monetary aspects has given rise to international projects aimed at improving job quality and upholding workers' rights and guarantees. The best-known of these is the International Labour Organization (ILO) initiative to promote decent work indicators, which sets standards in the social and labor sphere that employers and the state are expected to help uphold¹. It is worth noting that the approach developed within the ILO framework involves tracking macroeconomic indicators that characterize the infrastructure and key features of the labor market as a whole – that is, the context in which social and labor relations are formed. Alongside this, however, the European Union and the Organisation for Economic Co-operation and Development have launched large-scale projects to assess job quality through employee surveys, making it possible to track labor market situations at the individual level and by socio-demographic group². Notably, a common feature of these studies is their focus on describing the objective parameters of jobs

without reference to the specific characteristics, needs, and preferences of the workers who hold them.

As an alternative to the objectivist approach taken by international organizations, a perspective that assesses a person's position in the world of work through the lens of subjective well-being has gained ground within sociology and social psychology. This approach prioritizes individuals' own assessments of their situation at work and their satisfaction with various aspects of their job and with their work as a whole (Diener et al., 2010; Bakker, Oerlemans, 2011; Paralta et al., 2023). The reliance on subjective evaluations characteristic of this strand of research sparks methodological debates.

Critics of this approach rightly point to the limited reliability of subjective assessments, which are influenced by personality traits and situational circumstances. Ignoring the objective side of employment is fraught with distortions, since workers' levels of satisfaction can vary considerably depending on factors entirely unrelated to work or not directly dependent on the employer. In this context, set point theory is often invoked: according to this theory, each individual has a genetically predetermined baseline level of satisfaction with life and its domains (including work). This baseline can shift under the influence of external circumstances, but it acts as a kind of “center of gravity” to which a person returns once a new situation becomes familiar (Cummins et al., 2014).

While acknowledging the validity of these arguments, it must be said, however, that despite the undeniable importance of objective job characteristics, the subjective dimension of well-being cannot be dismissed.

First, satisfaction as such is an intrinsic value and a crucial component of well-being, which is not only beneficial for the individual but can also generate economic returns through increased initiative, a more responsible attitude toward one's duties, reduced opportunistic behavior, and so

¹ Decent work and the 2030 Agenda for Sustainable Development: ILO materials. Available at: <https://www.ilo.org/topics-and-sectors/decent-work-and-2030-agenda-sustainable-development> (accessed: 26.04.2026).

² Eurofound (2017). Sixth European Working Conditions Survey – Overview report (2017 update), Publications Office of the European Union, Luxembourg. <https://assets.eurofound.europa.eu/f/279033/75885649e5/ef1634en.pdf>; Cazes, S., Hijzen A., Saint-Martin A. (2015). Measuring and Assessing Job Quality: The OECD Job Quality Framework, OECD Social, Employment and Migration Working Papers, No. 174, OECD Publishing, Paris. DOI: <https://doi.org/10.1787/5jrp02kjl1mr-en>

forth. Research shows that quantitative measures of human feelings, emotions, and states possess considerable predictive power (Kaiser, Oswald, 2022) and correlate with actual behavior. For example, low job satisfaction raises the likelihood of subsequent quits (De Neve, Ward, 2023).

Second, the degree of alignment between a worker's personal and professional characteristics, needs, and preferences and the objective conditions in which they are placed makes its own positive or, conversely, negative contribution to well-being. We believe that taking this alignment into account when designing a research methodology helps to capture the actual level of well-being more fully than considering only the objective parameters of jobs and the labor market situation.

Methodology and information base

In this study, the quantitative assessment of work-related well-being relies on the index method, which is widely used in the socio-economic sciences to aggregate indicators that capture different facets of the object under study into a composite measurement construct.

The authors' approach to measuring work-related well-being is implemented using a unique database from the monitoring of the quality of labor potential of the population of the Vologda Region (Leonidova et al., 2018). The regional nature of the empirical base, on the one hand, limits the generalizability of the findings to other territories and to the country as a whole; on the other hand, it makes it possible to capture local specificities.

The monitoring has been conducted by the Vologda Research Center of the Russian Academy of Sciences since 1997: annually through 2009 inclusive, and once every two years since 2011. The data collection method is a questionnaire survey of the working-age population. The sample is constructed using area-based stratification with proportional allocation of observation units. The sampling type is quota sampling by gender and age. The random sampling error does not exceed 3–4%

with a confidence interval of 4–5%. The surveys are carried out in the major cities of Vologda and Cherepovets and in eight municipal okrugs of the region (Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Kirillovsky, Nikolsky, Tarnogsky, and Sheksninsky). The proposed methodological toolkit was tested on data from the 2024 wave. Accordingly, with due regard to current legislation, the object of the study was the region's population aged 16 to 57 for women and 16 to 62 for men. The total sample size was 1,500 people. For the final analysis, respondents who were employed at the time of the survey were selected: those working only at their main job (59% of the total number of respondents), those with both a main and an additional job (10.6%), those combining their main job with casual earnings (6.3%), and those without a main job but engaged in casual earnings (4.1%). Thus, the analyzed sample of the employed population in 2024 amounted to 1,201 people (80% of the original sample of 1,500).

Our approach to measuring work-related well-being involves comparing factual indicators that capture the objective side of an individual's position in the world of work with corresponding subjective assessments across the available range of monetary and non-monetary aspects, reflecting workers' individual perception of the objective situation through the lens of their interests, needs, and preferences. In selecting indicators, we drew on previous empirical studies on the quality of working life, job quality, and subjective well-being of workers, while also taking into account the capabilities of the database, seeking to capture the key dimensions of work activity and to reflect the multifaceted nature of the phenomenon under study (Soboleva, Chernykh, 2025).

To date, the research community has not developed a standard set of aspects and corresponding indicators, yet a more or less clear consensus on the key employment parameters that shape the well-being of the working population

has nonetheless emerged. Alongside earnings, which capture the material side of well-being, they typically include such non-material aspects as working conditions; opportunities for self-fulfillment, professional development, and career growth; employment stability (job security); opportunities for voice and dialogue with the employer; and work-life balance. Some of these aspects characterize the labor process itself, others its institutional framework, and still others its interaction with other life circumstances; together, however, they form a comprehensive picture of work-related well-being.

In this study, given the specific features of the database, eight components of work-related well-being were identified: professional match; self-fulfillment; professional development; career; employment security; protection and articulation of worker interests; working conditions; and income from employment (*Tab. 1*). The proposed framework captures both the intrinsic content-related characteristics of work activity and its external conditions and outcomes, which together shape the employee's holistic perception of their situation. Components such as professional match, self-fulfillment, professional development, career,

Table 1. Components and indicators for assessing work-related well-being

Component	Indicators		
	Factual	Assessment	
		Opinion	Satisfaction
Professional match	Alignment of job with education received	Alignment of qualifications (training) with the job performed	Satisfaction with the match between qualifications, knowledge, and skills and the job performed
Self-fulfillment	– Alignment with abilities, – alignment with vocation, – having to do less interesting work	Assessment of prospects for self-fulfillment in the profession	– Satisfaction with job content, – satisfaction with opportunities for creativity at work
Professional development	Engagement in additional education and advanced training (at the main workplace; in an external organization; independently)	Assessment of prospects for upgrading qualifications	Satisfaction with opportunities for training and professional development
Career	Change in job position	Assessment of career prospects	Satisfaction with career advancement opportunities
Employment security	– Type of contract, – form of employment, – having to take unpaid leave, – having to switch to reduced working hours	– Threat of job loss, – employer's payment of insurance contributions	– Satisfaction with the stability of one's position in the organization, – satisfaction with the organization's stability
Protection and articulation of worker interests	– Trade union membership, – violations of labor rights	Possibility of dialogue with the employer to defend labor rights	– Satisfaction with the work of a trade union or other worker organization, – satisfaction with relations with the organization's management, – satisfaction with compliance with labor legislation in the organization
Working conditions	– Strain on physical capacity and health, – strain on mental well-being	Possibility of dialogue with the employer to improve working conditions	– Satisfaction with working conditions overall, – satisfaction with occupational safety, – satisfaction with technical equipment
Income from employment	– Amount of earnings, – regular wage delays, – having to accept a reduction in earnings	Assessment of prospects for decent pay	– Satisfaction with earnings, – satisfaction with the material incentive system
Source: own compilation.			

and working conditions directly characterize the labor process. The components of well-being that reflect its institutional framework and instrumental utility are income from employment, employment security, and protection and articulation of worker interests. The list of questions used to assess the eight components of work-related well-being is detailed in the Appendix.

The uniqueness of the proposed assessment toolkit stems from the capabilities of the database, which makes it possible to construct a three-tier system of work-related well-being indicators. Alongside objective factual indicators, it includes two series of subjective assessments that capture different facets of subjective well-being: the respondent's assessment of various job parameters and satisfaction with the corresponding aspect of work. This arrangement overcomes the limitations inherent in approaches that rely exclusively on one of these groups of indicators and yields a more relevant and multidimensional picture of work-related well-being. The first block – factual indicators – captures the objective parameters of the employment situation. The second block – subjective indicators – reflects subjective perception, i.e., how work is refracted in the respondent's consciousness. Distinguishing several components (assessments and satisfaction) within the subjective block helps to increase the reliability of the results, as it smooths out the influence of situational and personal factors that may distort respondents' answers.

To test the internal consistency (reliability) of the composite index and its component sub-indices (in order to show that the items included in each index are indeed consistent with one another), Cronbach's alpha was calculated. The composite index of work-related well-being demonstrates high reliability/consistency ($\alpha = 0.866$ based on 44 individual variables; $\alpha = 0.857$ based on 8 component sub-indices). The sub-indices of Self-fulfillment (6 variables; $\alpha = 0.616$), Professional

development (5 variables; $\alpha = 0.687$), Employment security (8 variables; $\alpha = 0.635$), Protection and articulation of worker interests (6 variables; $\alpha = 0.601$), and Income from employment (6 variables; $\alpha = 0.600$) show acceptable reliability. The sub-indices of Professional match (3 variables; $\alpha = 0.417$), Career (3 variables; $\alpha = 0.475$), and Working conditions (6 variables; $\alpha = 0.389$) have low but, for small scales, acceptable internal consistency.

To ensure clarity of exposition and avoid terminological confusion, we explain the meaning of the calculated indices as follows:

1) composite work-related well-being index (CI_{well}) – a summary measure reflecting the overall level of work-related well-being;

2) component sub-indices – measures reflecting the level of well-being for each of the eight identified aspects; each component sub-index is assessed using three types of indicators (factual indicators, assessment, satisfaction);

3) indicator-type sub-indices – measures reflecting the overall level of well-being broken down by measurement approach:

– factual sub-index (SI_{fact}) – aggregates objective (factual) indicators across all eight well-being components,

– satisfaction sub-index (SI_{sat}) – includes satisfaction indicators across all eight well-being components,

– assessment sub-index (SI_{as}) – includes cognitive assessments across all eight well-being components.

This system of indices makes it possible to identify both problem areas in the world of work and the specifics of how they are perceived. A substantial excess of the satisfaction sub-index over the factual sub-index may signal adaptive rationalization of expectations and aspirations in objectively unfavorable conditions (Sen, 1992; Burchardt, 2005).

The composite work-related well-being index is calculated as the arithmetic mean of the values of

the component sub-indices, each of which, in turn, is calculated as the arithmetic mean of the normalized values of its constituent indicators (all variables used are standardized to a range from 0 to 1; see the Appendix for details). The range of all calculated indices lies between 0 and 1, where 0 corresponds to the lowest possible level of well-being and 1 to the highest possible level.

The calculated indices are interpreted using both mean values and an equal-interval scale divided into four qualitative levels with a step of 0.25: low level (0–0.249), below-average level (0.25–0.499), above-average level (0.5–0.749), and high level (0.75–1). This gradation ensures the clarity of analysis, enables comparative analysis, and helps identify target groups for the development of corrective measures.

Among the limitations that must be taken into account when interpreting the results – and that point toward directions for future research – is the decision not to weight the well-being components when constructing the composite index. While this choice may be considered debatable, it rests on the theoretical premise that all eight aspects are equally important and is consistent with the practice of many well-known index-based studies³, as it avoids the subjectivity involved in assigning weighting coefficients. At the same time, assigning equal weights to all eight components may fail to capture the actual variation in their importance for different groups of workers. In the future, weights derived from factor analysis or expert assessments could be incorporated.

Another important limitation is the static nature of the measurement. The calculated indices capture the situation at the time of the survey and do not reflect trends in the level and structure of work-

related well-being. The monitoring nature of the database, however, makes it possible to investigate regional trends in the profile of work-related well-being in future research.

The following hypotheses were formulated and substantiated for empirical testing in the study.

1. In recent years, the intensifying labor shortage has strengthened the competitive position of workers in the labor market, which has found expression in wage growth. At the same time, against the backdrop of accelerating price growth, nominal employment incomes have been rising faster than real incomes, which may have contributed to an overly positive assessment of changes (Soboleva, Sobolev, 2025). It can therefore be hypothesized that, under current conditions, work-related well-being is at a high, or at least above-average, level, largely driven by an excess of subjective well-being indicators over factual ones.

2. A distinctive feature of the Russian economy, whose roots trace back to the Soviet planned system, is the relatively low level of wages combined with a commitment to full employment and strong institutional guarantees of job security (Sobolev, Soboleva, 2022). It can therefore be hypothesized that the most salient vulnerability in the overall profile of work-related well-being is its monetary aspect – related to the inadequacy of wages to meet basic needs at a socially acceptable level – while its core strength is employment security.

3. Education has traditionally been viewed as the gateway to good jobs that offer prospects for stable professional and career growth. At the same time, there is a discernible trend in today's conditions toward a preference for flexible non-standard employment that provides time sovereignty and relatively high earnings, including among young, educated, and quite competitive workers (Baimurzina et al., 2024; Strebkov, Shevchuk, 2022). Nonetheless, we hypothesize that, at present, in the absence of an effective infrastructure for protecting rights and guarantees that extends to

³ Among the best-known indices calculated according to such a scheme are the UNDP Human Development Index (<https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>), and the OECD Better Life Index (<https://www.oecd.org/en/data/tools/well-being-data-monitor/better-life-index.html>).

new non-standard forms of employment, *a more vulnerable profile of work-related well-being may be found not only among workers with relatively low educational attainment but also among those employed under non-standard arrangements, as well as those working in the primary sector of the economy.*

4. A substantial body of literature is devoted to age discrimination against workers (Klepikova, Kolosnitsyna, 2017; Kozina, Zangieva, 2018; Ashwin et al., 2021). At the same time, data from the Comprehensive Living Conditions Survey of the population show the highest satisfaction with various aspects of work among older age groups. In recent years, against the backdrop of labor shortages, experienced workers, including those of older ages, have become more sought after in many sectors of the economy. Given these circumstances, it can be hypothesized that the level of work-related well-being is weakly correlated with age but is closely linked to the qualitative characteristics of a worker's labor potential.

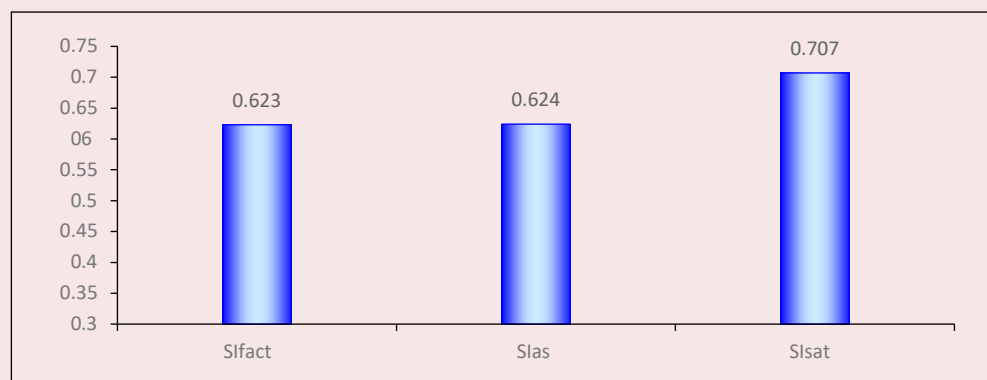
Results and discussion

The first hypothesis – that work-related well-being would be at a high level, largely driven by the contribution of subjective assessments – was largely confirmed. The calculations showed that the values of all sub-indices by indicator type fall into the

above-average range, while the composite index stands at 0.644, i.e., roughly in the middle of the third interval (above average). At the same time, the highest values are observed for the satisfaction indicators. Interestingly, the values of the factual sub-index and the assessment sub-index are very close, at 0.623 and 0.624 respectively (Fig. 1). Meanwhile, the satisfaction sub-index amounts to 0.707, which is very close to the upper boundary of the above-average interval, confirming the expected “surge” in satisfaction against the backdrop of accelerating upward earnings dynamics.

The study revealed an important relationship: individual assessments of work-related well-being across virtually all components are directly linked to the level of household material well-being; that is, “well-off” workers with higher composite index scores earn higher wages (Fig. 2a, 2b). Moreover, among respondents for whom “buying most goods presents no difficulty,” the composite work-related well-being index reaches 0.694, and the satisfaction sub-index enters the high-level zone (0.750); whereas for workers who experience difficulty even purchasing food, the corresponding values are significantly lower (composite index 0.564, satisfaction sub-index 0.602). Given that the material opportunities of households are framed

Figure 1. Sub-indices of work-related well-being by indicator type



Note: SI_{fact} – factual sub-index; SI_{as} – assessment sub-index; SI_{sat} – satisfaction sub-index.

Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

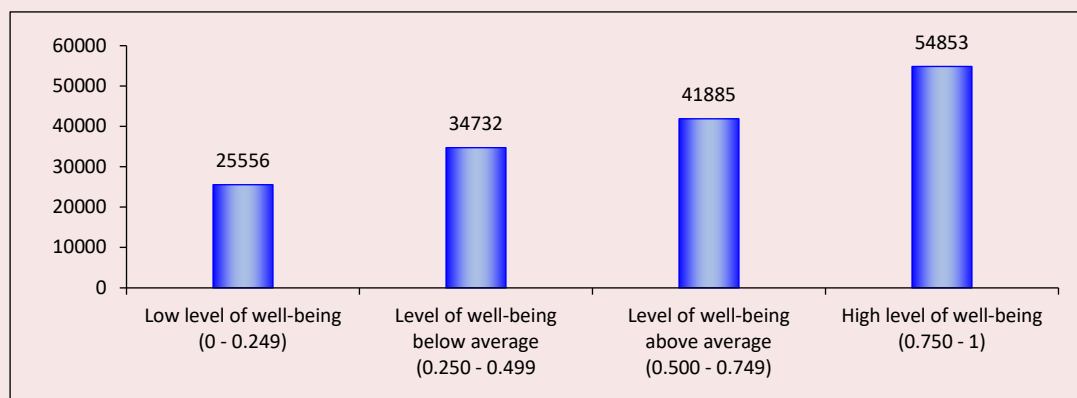
by employment incomes, which account for over 60% of total income (Leonidova et al., 2026), the upward wage dynamics observed in recent years may have been accompanied by a “spillover effect,” positively influencing all aspects of the subjective side of worker well-being.

The second hypothesis, concerning the expected vulnerabilities and strengths of the work-related well-being profile, was partially confirmed. Consistent with our assumptions, the employment security component registered the highest point on the well-being profile (0.798). Notably, this is the only aspect falling into the most favorable fourth

interval (high level; *Fig. 3*). This is fully in line with the specific features of the Russian labor model, which prioritizes employment stability and security (Sobolev, 2015). In our survey, the overwhelming majority of respondents are permanently employed (88%) and work full-time (75%), i.e., their employment is firmly protected by law.

At the same time, contrary to expectations, the monetary aspect of well-being did not emerge as a vulnerable area. The sub-index value for the “income from employment” component stands at 0.673, which is even slightly higher than the composite index (the arithmetic mean of all

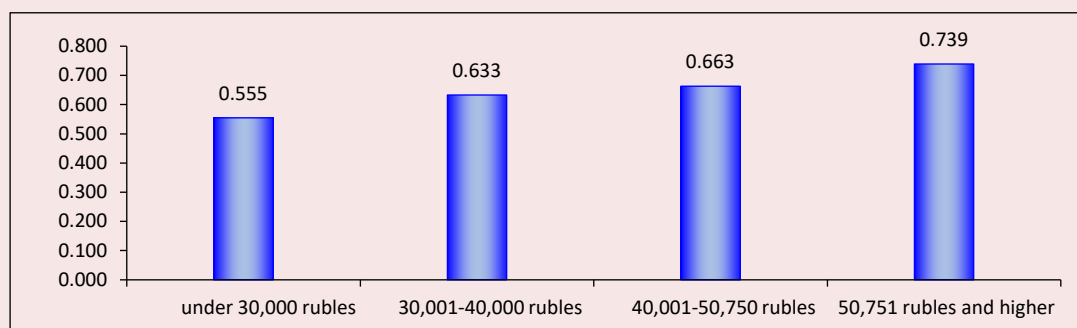
Figure 2a. Wage levels by composite work-related well-being index levels, rubles



Note. The non-parametric Kruskal – Wallis test was used to assess statistical differences between mean wage levels across composite work-related well-being index levels. The distribution of wages differs significantly ($p < 0.05$).

Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

Figure 2b. Values of the composite work-related well-being index by wage quartiles, rubles



Note. The non-parametric Kruskal – Wallis test was used to assess statistical differences between composite work-related well-being index values across wage quartiles. The distribution of index values differs significantly ($p < 0.05$).

Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

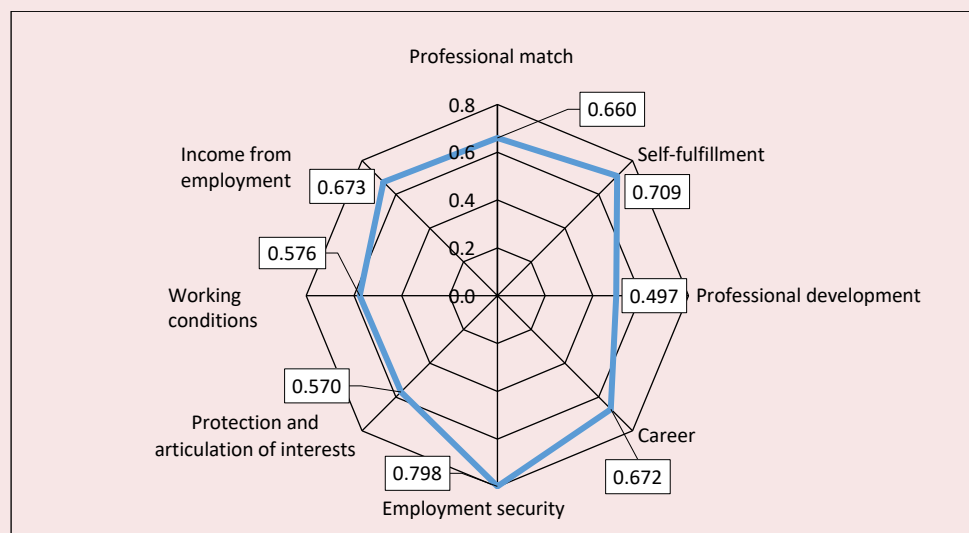
aspects), placing this component in the above-average well-being zone. This result may reflect the aforementioned effect of upward earnings dynamics and the consequent improvement in household monetary well-being. However, for many categories of workers, some income growth has not solved the problem of wages being insufficient to meet basic needs at a socially acceptable level. For instance, a survey conducted by the research center of the Superjob⁴ portal in February 2026 showed that 26% of Russians consider the salaries of teachers and preschool educators insufficient, and 16% feel the same about doctors, paramedics, and nurses. Our research indicates that 65% of young teachers in schools of the Vologda Region are dissatisfied with their salary level (Belekhoa, Leonidova, 2023).

Nevertheless, at present, the most acute problem areas in the work-related well-being profile lie in its non-monetary aspects. The lowest value (0.497) is observed for the professional development aspect.

Notably, this is the only component sub-index falling into the below-average well-being zone. This alarming result reflects the existing problems in enterprises and organizations regarding limited opportunities for worker upskilling. Every third respondent (30%) noted that there is no professional development system at their enterprise (Popov et al., 2026). At a time when transformative processes in the economy require workers to constantly adapt to dynamically changing job requirements and to update and expand their skills and competencies, the identified deficit in the professional development component is fraught with serious negative consequences for both workers' well-being and the regional economy.

Another problem area is “protection and articulation of worker interests” (0.570), which appears to stem from the weak exercise of trade union functions within work collectives and possible violations of labor rights. The latter is

Figure 3. Component sub-indices of work-related well-being, 2024



Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

⁴ Teachers, medical workers, blue-collar workers, and engineers are the most undervalued workers according to Russians. Available at: <https://www.superjob.ru/research/articles/115676/uchitelya/> (accessed: 14.03.2026). Data from the research center of the SuperJob.ru portal. The open SuperJob survey involved 1,600 representatives of the economically active population from all federal districts of the country.

corroborated by the fact that 32% of respondents had difficulty giving a definite answer as to whether the enterprise where they are employed pays insurance contributions. The underdevelopment of the infrastructure that ensures the representation of worker interests is reflected in the low level of trade union involvement. According to the survey, only 13% of respondents are trade union members.

The third hypothesis, concerning the factors shaping the level of work-related well-being, was largely confirmed. The most important factors positively affecting well-being are educational attainment and employment stability. However, the study revealed a number of nuances and exceptions, above all with respect to the education factor.

Practically all component sub-index values for holders of higher professional education are higher than those for respondents with lower levels of education⁵. Across all educational categories, the employment security component sub-index shows the highest values and falls into the fourth interval (high level of well-being). Among workers with higher education it reaches 0.832, among those with secondary vocational education it stands at 0.771, and among those with incomplete secondary and initial vocational education it equals 0.802. At the same time, it is important to note that the link between higher job satisfaction and higher education is not absolute. A more important factor is the match between the profile of the professional education received and the requirements of the job. When such a match is present, the probability of high satisfaction rises; when it is absent, it declines. This finding aligns with the conclusions of a number of other studies.

⁵ To assess statistical differences between mean index values across educational groups, the non-parametric Kruskal–Wallis test was used. For the composite work-related well-being index and for all component sub-indices, except for the Working conditions sub-index, the differences are statistically significant ($p < 0.05$).

By form of employment, groups of workers are clearly distinguished in terms of well-being assessments. The first group comprises workers employed on a permanent contract in accordance with the requirements of the Labor Code of the Russian Federation. The second group includes those with temporary, seasonal, or platform employment, as well as those scraping by with casual earnings and those working on a rotational basis. Calculations show that members of the first group exhibit higher assessments of work-related well-being than the majority of those employed under non-standard arrangements (*Tab. 2*). This is also confirmed by research findings based on Rosstat's Comprehensive Living Conditions Survey data (Chernykh, 2023; Soboleva et al., 2025).

Only one category of workers with non-standard employment stands out from the overall picture: those working on a rotational basis. Rotational workers show not only the highest level of monetary well-being – which is quite predictable – but also lead in such components characterizing the level and development prospects of human potential as self-fulfillment, professional development, and career. Among the rotational worker respondents, long-haul truck drivers made up a large share (57%). At the same time, research by the Institute of Socio-Political Research of the Federal Center of Theoretical and Applied Sociology of the Russian Academy of Sciences, conducted jointly with the National Automobile Union, has revealed a paradox: despite a high level of satisfaction, more than half of long-haul truck drivers changed their place of work over the past three years⁶. Their high assessments may be linked to the benefits and compensation for hazardous working conditions stipulated for this socio-professional group in the

⁶ Experts find out what salary long-haul truck drivers consider fair for themselves. Available at: <https://el-card.ru/blog/v-rejse/eksperty-vyyasnili-kakuyu-zarplatu-dalnobojshchiki-schitayut-dlya-sebya-spravedlivoj> (accessed: 14.03.2026).

Table 2. Component sub-indices of work-related well-being by form of employment

Sub-index	Permanent/ regular employment	Temporary employment	Seasonal employment	Casual/episodic employment	Rotational employment	Platform employment
Professional match*	0.681	0.420	0.482	0.342	0.581	0.417
Self-fulfillment*	0.720	0.603	0.622	0.431	0.786	0.458
Professional development	0.503	0.466	0.352	0.347	0.659	0.208
Career*	0.683	0.546	0.624	0.458	0.795	0.450
Employment security*	0.815	0.636	0.632	0.411	0.804	0.531
Protection and articulation of interests*	0.581	0.452	0.493	0.385	0.529	0.525
Working conditions	0.577	0.554	0.600	0.498	0.529	0.507
Income from employment	0.680	0.620	0.593	0.500	0.866	0.424
Composite work-related well-being index*	0.655	0.537	0.550	0.422	0.694	0.440

Note. The non-parametric Kruskal – Wallis test was used to assess statistical differences between mean index values across forms of employment. An asterisk (*) marks indices where the differences are statistically significant ($p < 0.05$).
Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

Labor Code of the Russian Federation and other legislative acts (entitlement to additional paid leave, the right to early retirement, etc.). In light of this, the high value of the employment security component (0.804) becomes understandable. Moreover, the high level of monetary well-being (the income from employment component for this category of workers is 0.866) is associated, as noted, with a spillover effect, which may positively influence the entire pattern of the well-being profile. Analysts at hh.ru, a Russian online recruitment platform, found that the median offered salary in rotational vacancies across Russia reached 154.5 thousand rubles in Q1 2025, which is twice the average level of offers in the labor market (74 thousand rubles)⁷.

At the same time, the level of well-being among workers in the remaining forms of precarious employment – temporary, seasonal, platform, and episodic – is relatively low, particularly in the group of workers with “casual earnings”. For the professional match aspect, the sub-index

is only 0.342. Low scores are also recorded among platform workers, for whom professional development is likewise the most problematic component. The problem areas identified among respondents in precarious employment point to the heightened vulnerability of these categories, highlighting the need for targeted support measures.

Alongside workers in precarious forms of employment, those employed in the primary sector of the economy also find themselves in a zone of vulnerability (*Tab. 3*). This situation can probably be explained by the specific nature of agricultural labor (seasonal character of employment, territorial remoteness of workplaces, limited opportunities for professional growth and collective representation of interests, etc.).

For most components of work-related well-being, the secondary sector (industry) takes the lead. Pronounced areas of vulnerability for workers employed here are working conditions (0.543), professional development (0.526), and protection and articulation of interests (0.567). This result is quite expected. Industry, especially extractive industry, accounts for a significant share of

⁷ Rotational work wages are twice the market average. Available at: https://www.cnews.ru/news/line/2025-04-28_zarplata_na_vahte_v_dva_raza (accessed: 14.02.2026).

employment under unfavorable conditions⁸. As for professional development and the defense of interests, these aspects show a considerable decline across all categories of workers, which, as noted, is a very alarming symptom fraught with multifaceted negative consequences.

When comparing the well-being indicators of those employed in industry and in the tertiary sector, it should be borne in mind that, compared with material production, the latter is considerably less homogeneous and is characterized by a greater diversity of working conditions and forms of employment. Within this sector, the lowest values of both factual and assessment component sub-indices are recorded among trade workers (their composite well-being index equals 0.595) and workers in the “hotels and restaurants” economic activity (0.629). This result is generally to be expected, given that the average wage in trade, despite its substantial growth driven by the intensifying personnel shortage, remains roughly one-third lower than the national average for Russia.

The fourth hypothesis, which links well-being to the quality of a worker’s labor potential, received unequivocal confirmation⁹.

The study showed that the age profile of work-related well-being is generally flat (*Tab. 4*). Across most aspects, the youngest age group appears somewhat less well-off, which can be explained both by an inflated level of aspirations and by the fact that among workers aged 18–24 there is a high share of those who have not wished or have not yet had time to obtain sufficient professional education – that is, it is not age as such but rather the characteristics of labor potential. This conclusion is broadly consistent with the findings of a number of other studies (Paul, Phua, 2011; Kartashevich et al., 2015; Kucherenko, 2024; Chernykh, 2023).

At the same time, according to the calculations performed, a high level of worker well-being corresponds to a higher assessment of the qualitative characteristics of his/her labor potential (Leonidova et al., 2018). This relationship is traced across both the factual and the assessment-based well-being sub-indices (*Tab. 5*). The findings suggest a link between the quality of labor potential and the level of worker well-being: higher qualitative characteristics are associated with a higher level of well-being.

The association between well-being and the quality of labor potential is confirmed not only by

Table 3. Component sub-indices of work-related well-being by sector of the economy

Sub-index	Agriculture (primary sector)	Industry (secondary sector)	Service sector (tertiary sector)
Professional match	0.613	0.677	0.664
Self-fulfillment*	0.651	0.747	0.707
Professional development	0.462	0.526	0.492
Career*	0.671	0.713	0.661
Employment security	0.768	0.795	0.799
Protection and articulation of interests	0.544	0.567	0.567
Working conditions*	0.597	0.543	0.579
Income from employment*	0.692	0.717	0.653
Composite work-related well-being index	0.625	0.661	0.640

Note. The non-parametric Kruskal – Wallis test was used to assess statistical differences between mean index values across sectors of the economy. An asterisk (*) marks indices where the differences are statistically significant ($p < 0.05$).

Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

⁸ It should be noted that 40% of manufacturing enterprises in Russia have jobs with harmful working conditions. Share of employees working under harmful and (or) hazardous conditions in organizations of the Russian Federation, by type of economic activity (as of the end of 2024), tables. Available at: https://www.rosstat.gov.ru/working_conditions (accessed: 23.02.2026).

⁹ HeadHunter: The average salary of salespeople increased by 15%. Available at: <https://www.audit-it.ru/news/personnel/1121301.html> (accessed: 12.02.2026).

Table 4. Component sub-indices of work-related well-being by workers' age

Component sub-index	Age			
	18–24 years	25–29 years	30–49 years	50 years and older
Professional match	0.583	0.695	0.663	0.659
Self-fulfillment	0.644	0.725	0.719	0.693
Professional development*	0.498	0.559	0.502	0.456
Career	0.680	0.712	0.675	0.647
Employment security	0.760	0.814	0.803	0.788
Protection and articulation of interests	0.511	0.592	0.573	0.572
Working conditions	0.570	0.580	0.571	0.588
Income from employment	0.670	0.685	0.678	0.655
Composite work-related well-being index	0.614	0.670	0.648	0.632

Note. The non-parametric Kruskal – Wallis test was used to assess statistical differences between mean index values across age groups. An asterisk (*) marks indices where the differences are statistically significant ($p < 0.05$).
Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

Table 5. Values of the labor potential quality index by level of work-related well-being sub-indices

Sub-index	Level of well-being sub-indices			
	Low	Below average	Above average	High
Factual sub-index (SI_{fact})	0.570	0.652	0.682	0.708
Assessment sub-index (SI_{as})	0.641	0.645	0.687	0.703
Satisfaction sub-index (SI_{sat})	0.617	0.652	0.662	0.705
Composite work-related well-being index (CI_{well})	0.572	0.639	0.672	0.722

Source: data from the monitoring of the quality of labor potential of Vologda Region population, 2024; own calculations.

Table 6. Strength of the pairwise association between the independent variables – the work-related well-being index and the labor potential quality index

Indicator			CI_{well}	I_{LPQ}
Kendall's tau-b	CI_{well}	Correlation coefficient	1.000	0.317**
		Sig. (two-tailed)		0.000
Spearman's rho	CI_{well}	Correlation coefficient	1.000	0.456**
		Sig. (two-tailed)		0.000

** Correlation is significant at the 0.01 level (two-tailed).

the cross-tabulations but also by correlation coefficients (Tab. 6). Between the work-related well-being index (CI_{well}) and the labor potential quality index (I_{LPQ}) there is a statistically significant positive relationship: moderate according to Kendall's tau-b ($\alpha = 0.317$, $p < 0.01$) and substantial according to Spearman's rho ($\alpha = 0.456$, $p < 0.01$).

The identified relationship is bidirectional and shows that, on the one hand, a higher quality of labor potential (skills, competencies, health status, etc.) corresponds to a higher level of work-related well-being; on the other hand,

more well-off workers, as a rule, possess higher labor potential characteristics. However, we emphasize that correlation does not equal causation: it cannot be claimed that one directly causes the other. Both mutual influence (growth in labor potential quality enhances work-related well-being, while higher well-being fosters the development of labor potential) and the influence of a third variable (e.g., corporate culture) are possible. The exact mechanism linking worker well-being and labor potential requires further research.

Conclusion

The empirical analysis of the regional profile of work-related well-being has shown that using this concept as a methodological framework enables a holistic diagnosis of both the strengths and the vulnerabilities of the employed population's situation at the micro level and its links to worker and job characteristics.

A number of hypotheses were advanced and tested in the study, yielding the following results.

1. Across most key aspects, the level of work-related well-being is fairly high, which is largely driven by a high satisfaction component. The satisfaction sub-indices are significantly higher than the assessment sub-index and the factual indicators.

2. Assessments of work-related well-being across virtually all its aspects are directly dependent on the level of household material well-being. For low-income workers, wage inadequacy acts as a constraining factor across all aspects of the work-related well-being profile, including non-monetary ones. At the same time, contrary to the initial hypothesis, the monetary aspect of well-being (income from employment) does not currently feature among the most vulnerable areas of the well-being profile. This may be attributable to the upward wage dynamics observed in recent years.

3. Both the most favorable and the most acute problem areas of the work-related well-being profile lie in its non-monetary aspects. A high level of well-being in such aspects as employment security and self-fulfillment contrasts with low indices for professional development and the protection and articulation of worker interests. This points to the persistence of an employment model that prioritizes stability maintenance while lacking opportunities for growth and social dialogue.

4. The most important factors positively influencing the level of well-being are the level of

professional education — provided it matches the requirements of the job — and employment stability. Practically all component well-being sub-indices are higher among respondents with higher education than among workers with lower levels of education. At the same time, higher education graduates not working in their field of study lose a substantial share of the monetary and non-monetary benefits associated with education. Workers employed under non-standard arrangements and in the primary sector of the economy find themselves in a zone of disadvantage. This may create pockets of tension and calls for targeted policy interventions.

5. A positive correlation was found between the level of well-being and the quality of labor potential, which underscores not only the social but also the economic rationale for investing in the strengthening of work-related well-being. Improvements in worker well-being are associated with growth in their human capital and, consequently, with higher labor productivity.

The limitations of the toolkit applied in this study include its static nature, the use of an equal-weighting scheme in index construction, and its regional character, all of which, however, point to directions for further inquiry. Future research could involve comparative analysis drawing on nationwide databases (such as the Comprehensive Living Conditions Survey and the Russia Longitudinal Monitoring Survey) and a deeper investigation of the causal relationships between well-being and other available socio-economic indicators.

Thus, the developed toolkit opens up opportunities for monitoring, cross-regional comparisons, and the formulation of evidence-based managerial decisions at both the corporate and regional levels, aimed at promoting higher-quality and decent employment that contributes to improving the individual's position in the world of work.

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Methodology for calculating the work-related well-being index

Factual component		Assessment component	
		Opinion	Satisfaction
Professional match sub-index - J _{prof.match}			
Alignment of job with education received (based on the question “Are you working in the specialty obtained at a professional educational organization (university, technical school, college)?”) 1. Yes = 1 point 2. I work in a closely related (similar) field = 0.7 points 3. No, I work in a different field = 0 points 4. I have not received a specialty = excluded	Alignment of qualifications (training) with the job performed (based on the question “To what extent do your qualifications (training) match the job you perform?”) 1. My qualifications (training) are higher than the job requires; I could do more qualified work = 0.5 points 2. My qualifications (training) match the requirements of the job (to do more qualified work, I would need to undergo additional training) = 1 point 3. My qualifications are lower than the job requires = 0 points 4. Don't know, hard to say = 0 points	Satisfaction with the match between qualifications, knowledge, and skills and the job performed (based on the question “How satisfied are you with various aspects of your working life...?”) 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points	
Self-fulfillment sub-index - J _{self-fulf.}			
• Alignment with abilities (based on the question “Does your profession (main job) match your abilities and inclinations?”) 1. Yes = 1 point 2. No = 0 points 3. Difficult to answer = 0.5 points • Alignment with vocation (based on the question “Does your profession (main job) match your calling?”) 1. Yes = 1 point 2. No = 0 points 3. Difficult to answer = 0.5 points • Interesting work (based on the question “Have the following events happened to you at your main job over the last 6 months – you were forced to do less interesting work? ”) 1. Yes = 0 points 2. No = 1 point 3. Difficult to answer = 0.5 points	Self-fulfillment in the profession (based on the question “How do you assess your professional prospects?”) 1. High + 2. Rather high = 1 point 3. Rather low + 4. Low = 0 points 5. Difficult to answer = 0.5 points	• Satisfaction with job content (based on the question “How satisfied are you with various aspects of your working life...?”) 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points • Satisfaction with opportunities for creativity at work (based on the question “How satisfied are you with various aspects of your working life...?”) 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points	

Factual component	Assessment component	
	Opinion	Satisfaction
Professional development sub-index - J_{dev.}		
Engagement in additional education (based on the question "Over the last 6 months, have you taken part in professional development/retraining courses, educational programs, etc.?") 1. At the main workplace 1. Yes = 1 point, 2. No = 0 points 3. Difficult to answer = 0 points 2. In an external organization 1. Yes = 1 point, 2. No = 0 points 3. Difficult to answer = 0 points 3. Independently 1. Yes = 1 point, 2. No = 0 points 3. Difficult to answer = 0 points	Assessment of prospects for upgrading professional qualifications (based on the question "How do you assess your professional prospects (upgrading professional qualifications)?") 1. High + 2. Rather high = 1 point 3. Rather low + 4. Low = 0 points 5. Difficult to answer = 0.5 points	Satisfaction with opportunities for training and professional development (based on the question "How satisfied are you with various aspects of your working life...?") 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points
Career sub-index - J_{career}		
Change in job position (based on the question "How would you assess the change in your job position...?") Over the last five years 1. Improved + 3. Remained unchanged = 1 point 2. Worsened = 0 points 4. Difficult to answer = 0.5 points	Assessment of career prospects (based on the question "How do you assess your professional prospects – career growth?") 1. High + 2. Rather high = 1 point 3. Rather low + 4. Low = 0 points 5. Difficult to answer = 0.5 points	Satisfaction with career advancement opportunities (based on the question "How satisfied are you with various aspects of your working life...?") 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points
Employment security sub-index - J_{emp. sec.}		
Type of contract (based on the question "How are your labor relations formalized at your main job?") 1. Open-ended (permanent) contract = 1 point 2. Fixed-term labor contract = 0.8 points 3. Contract agreement (labor agreement / contract for a specific job) + 5. I am an individual entrepreneur / self-employed = 0.5 points 4. Without a formal labor contract (oral agreement) + 6. Other + 7. Difficult to answer = 0 points	Threat of job loss (based on the question "Have the following events happened to you at your main job over the last 6 months – you experienced anxiety due to the threat of losing your job?") 1. Yes = 0 points 2. No = 1 point 3. Difficult to answer = 0.5 points	Satisfaction with the stability of one's position in the organization (based on the question "How satisfied are you with various aspects of your working life...?") 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points

Factual component	Assessment component	
	Opinion	Satisfaction
- Forced to take unpaid leave (based on the question "Have the following events happened to you at your main job over the last 6 months...?") - Yes = 0 points; 2. No = 1 point; 3. Difficult to answer = 0.5 points - Forced to switch to reduced working hours (based on the question "Have the following events happened to you at your main job over the last 6 months...?") - Yes = 0 points; 2. No = 1 point; 3. Difficult to answer = 0.5 points - Form of employment (based on the question "What was your main form of employment over the last 6 months?") - Permanent (regular) employment = 1 point - Temporary employment + 3. Seasonal employment (harvesting, logging, etc.) = 0.5 points - Casual (episodic) employment + 5. Difficult to answer + 6. Other form of employment = 0 points	- Employer's payment of insurance contributions (based on the question "if you are an employee, do you think the employer pays insurance contributions on your wages?") - Yes, pays in full = 1 point - Pays partially = 0.5 points - No, does not pay + 4. Difficult to answer = 0 points	- Satisfaction with the organization's stability (based on the question "How satisfied are you with various aspects of your working life...?") - Completely satisfied + 2. Rather satisfied than not = 1 point - Cannot say whether I am satisfied or not = 0.5 points - Rather not satisfied + 5. Not satisfied at all = 0 points
Protection and articulation of worker interests sub-index J_{prolinterests}		
- Trade union membership (based on the question "Are you a member of a trade union organization?") - Yes, I am a trade union member = 1 point - No, but I used to be a member + 4. Difficult to answer + 3. No, I have never been a trade union member = 0 points - Violations of labor rights (based on the question "Have the following events happened to you at your main job over the last 6 months...?") - Yes = 0 points - No = 1 point - Difficult to answer = 0.5 points	Assessment of opportunities for dialogue with the employer (based on the question "Do you have opportunities for dialogue with the employer without the threat of dismissal or punishment at your main job with regard to defending your labor rights?") - Yes, I have full opportunities = 1 point - Yes, formally there are, but it is very difficult to exercise them in practice = 0.3 points - No, I do not = 0 points - Difficult to answer = 0.3 points	- Satisfaction with the work of a trade union or other worker organization (based on the question "How satisfied are you with various aspects of your working life...?") - Completely satisfied + 2. Rather satisfied than not = 1 point - Cannot say whether I am satisfied or not = 0.5 points - Rather not satisfied + 5. Not satisfied at all = 0 points - Satisfaction with relations with the organization's management (based on the question "How satisfied are you with various aspects of your working life...?") - Completely satisfied + 2. Rather satisfied than not = 1 point - Cannot say whether I am satisfied or not = 0.5 points - Rather not satisfied + 5. Not satisfied at all = 0 points

Factual component	Assessment component	
	Opinion	Satisfaction
		• Satisfaction with compliance with labor legislation in the organization (based on the question "How satisfied are you with various aspects of your working life...?") 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points
Working conditions sub-index - J_{workcond}		
• Strain on physical well-being (based on the question "How hard do you 'give your all' at work? To what extent do you use your qualities and skills? – Physical capabilities and health") 4. To the fullest extent (at the limit of my capabilities) = 0 points 3. More or less fully (I could use more) = 1 point 2. Partially (little) + 1. Very little (minimally) = 0.5 points • Strain on mental well-being (based on the question "How hard do you 'give your all' at work? To what extent do you use your qualities and skills? – Psychological resilience") 4. To the fullest extent (at the limit of my capabilities) = 0 points 3. More or less fully (I could use more) = 1 point 2. Partially (little) + 1. Very little (minimally) = 0.5 points	Opportunity for dialogue with the employer to improve working conditions (based on the question "Do you have opportunities for dialogue with the employer without the threat of dismissal or punishment at your main job with regard to improving working conditions?") 1. Yes, I have full opportunities = 1 point 2. Yes, formally there are, but it is very difficult to exercise them in practice = 0.3 points 3. No, I do not = 0 points 4. Difficult to answer = 0.3 points	• Satisfaction with working conditions overall (based on the question "How satisfied are you with various aspects of your working life...?") 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points • Satisfaction with occupational safety (based on the question "How satisfied are you with various aspects of your working life...?") 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points • Satisfaction with technical equipment (based on the question "How satisfied are you with various aspects of your working life...?") 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points

Factual component	Assessment component	
	Opinion	Satisfaction
Income from employment sub-index – J_{income}		
- Amount of earnings (based on the question “Please indicate your average monthly wage over the previous 12 months (rubles)”) - From 0 to 1.5 subsistence minimums = 0 points - From 1.5 to 2.2 subsistence minimums = 0.5 points 2.2 and above = 1 point - Regular wage delays (based on the question “Have the following events happened to you at your main job over the last 6 months...?”) 1. Yes = 0 points 2. No = 1 point 3. Difficult to answer = 0.5 points - Forced to accept a reduction in earnings (based on the question “Have the following events happened to you at your main job over the last 6 months...?”) 1. Yes = 0 points 2. No = 1 point 3. Difficult to answer = 0.5 points	Assessment of prospects for decent pay (based on the question “How do you assess your professional prospects?”) 1. High + 2. Rather high = 1 point 3. Rather low + 4. Low = 0 points 5. Difficult to answer = 0.5 points	- Satisfaction with earnings (based on the question “How satisfied are you with various aspects of your working life...?”) 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points - Satisfaction with the material incentive system (based on the question “How satisfied are you with various aspects of your working life...?”) 1. Completely satisfied + 2. Rather satisfied than not = 1 point 3. Cannot say whether I am satisfied or not = 0.5 points 4. Rather not satisfied + 5. Not satisfied at all = 0 points
Composite index: $J_{wellbeing} = \frac{J_{prof.match} + J_{self-fullf.} + J_{dev.} + J_{career} + J_{emp.sec.} + J_{prot.interests} + J_{work.cond.} + J_{income}}{8}$		
Compiled from: data of the monitoring of the quality of labor potential of Vologda Region population, VolIRC RAS, 2024 (“Database for Monitoring the Quality of Labor Potential of Vologda Region Population – 2024,” certificate No. 2024625745 dated 04.12.2024).		

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The Socio-Cultural Space of a Capital Megalopolis in the Residents' Value Orientations



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Abstract. The aim of the study is to analyze the population's value system as an indicator of the socio-cultural space of a capital megalopolis – a space that reflects the dynamic, and often polarizing, vectors of global transformation. The principal research method is a survey of Moscow residents based on the standard methodology “The Sociocultural Evolution of Russia and Its Regions”. The scientific novelty lies in identifying the degree of fragmentation of Muscovites' moral bonds. This fragmentation manifests itself, above all, in the lack of a widely shared value base and in the blurred nature of any integrating axiological core. The paper traces both common and distinctive features in the value structures of the capital's residents across socio-demographic characteristics such as gender and age. The data obtained for Moscow are compared with the findings of analogous studies of value systems conducted in other Russian regions using the same methodology. Based on the dominant value attitudes that shape the vectors of social behavior – such as migration intentions, social well-being, job satisfaction, and interaction priorities – three groups of respondents are identified: “individualists”, “traditionalists”, and “voluntarists”. The empirical results are further distributed and analyzed across functionally orienting value clusters. An attempt is made to uncover the reasons behind the findings, which include the homogenizing impact of globalization and the rapid development of virtual, mediatized spaces – alternatives to the real world, replete with axiorhizomes, consumerism, and the cult of pleasure. The authors' own position on the issue is also articulated. Its essence is that the preservation of Moscow's role as a global city, a center of consumption and consumerism – a “Tower of Babel” – runs counter to the task of restoring the capital's role as the spiritual heart of the country. In the context of Russia's development as a civilization-state, the moral foundations of all Russian society, and especially of the capital's residents, need to be further strengthened.

Key words: socio-cultural space, values, megalopolis, capital, global transformation.

Introduction

The socio-cultural space is “a system of worldview attitudes, norms, values, symbols, and their objectifications within a given culture” (Mazhitova, 2011, p. 132). It makes it possible to disclose the ontological unity of society, culture, and the human being, along with the spiritual and material dimensions of human activity (Litvinenko, 2003). It is also “a permanent process of creating meanings and events” (Shakirova, 2013, p. 180) and “a constructed meaningful location of a society, in which its cultural specificity is reflected”¹, one that shapes the formation of both individual and collective (social) identity (Kolinko, 2007). As S.A. Khrapov notes, “in the hierarchy of societal spiritual phenomena, the socio-cultural

space is primary and the most capacious, encompassing such defining cultural phenomena as language, social memory, mentality, the social unconscious, public consciousness, socio-cultural identity, and habitus” (Khrapov, 2016, p. 834).

As urbanization processes intensify, the role of cities in shaping the socio-cultural space of modernity grows. Moreover, distinctly urban socio-cultural spaces emerge – dynamically developing organisms (Postnikov, 2008, p. 7), special types of social organization that “are most clearly manifested in social topography, distinguished by the specificity of intellectual and artistic activity, a particular way of life, and the worldview and perception of the world of various strata of the urban population” (Adamenko, 2011, p. 4).

Cities become centers and mirrors of social life, reproducing and developing social relations (Sayko, 2011, p. 8), and often serve as transmitters

¹ Shakirova E.Yu. (2015). Axiological Rhizomorphism of the Contemporary Socio-Cultural Space: Abstract of Doctor of Sciences (Philosophy) Dissertation. Specialty 09.00.11 – Social Philosophy. Ufa. 43 p. P. 11.

of meanings to non-urbanized territories. “Every city possesses a unique socio-cultural space, which acts not merely as a neutral backdrop but rather as a kind of construct – a space of meaning created by people in the course of communicative interaction and reflecting the cultural specificity of the social organization of the society under study...”. Thus, on the one hand, a city’s socio-cultural space is shaped by its inhabitants and determined by their creative energy, while on the other, serving as a kind of ‘context’ ... of everyday reality, it influences the worldview of urban residents and their self-determination” (Zakharova, 2017, p. 22).

At the same time, the space of the capital megalopolis generates meanings that extend far beyond its territorial boundaries – owing, first, to the dynamism of life in a large city and, second, to its central role within the national space. The significance of such megalopolises becomes especially pronounced in periods of systemic crisis, or, in the words of the President of the Russian Federation, during the “tectonic process of global transformation. This is a visible manifestation of the transition to a new cultural, economic, technological, and geopolitical era. The world is entering a zone of turbulence. And, undoubtedly, this period will be protracted and painful. There is no point in entertaining illusions here”².

Research methodology and methods

Values as an indicator of the state of the socio-cultural space

Studying the megalopolis through the lens of the spatial approach serves as a means of interpreting and forecasting urban life (Mohamed, 2026). Within the framework of the socio-cultural approach, “the space of the city, with the meanings embedded in it, sets the coordinates for the cultural existence of people within certain territorial boundaries” (Zakharova, 2017, p. 22). The foundation of the socio-cultural space is formed by a system of worldview universals, the most significant value-

symbolic orientations³ (Gavrilina, 2019, p. 26; Bernyukevich, 2022, p. 14) on which rests the system of “the individual’s relationship to the surrounding world and to other individuals” (Grigorieva, 2011, p. 97).

Let us examine the system of value orientations of Muscovites using the methodology developed by N.I. Lapin (Lapin, 2010), drawing on the findings of the initiative-based sociological study “Our City,” conducted in December 2023 by the research group of the Department of Political Analysis and Social-Psychological Processes at the Plekhanov Russian University of Economics under the supervision of Doctor of Sciences (Sociology), Professor E.V. Kargapolova.

A survey of Moscow residents was conducted using the standard methodology tested since 2006 in 30 regions, developed under the All-Russian Research Program “Sociocultural Evolution of Russia and Its Regions” at the Center for the Study of Sociocultural Changes (CSCC) of the Institute of Philosophy of the Russian Academy of Sciences (federal-level supervisors: Corresponding Member of the Russian Academy of Sciences, Doctor of Sciences (Philosophy), Professor N.I. Lapin, and Doctor of Sciences (Sociology), Leading Researcher, Head of the CSCC at the Institute of Philosophy RAS L.A. Belyaeva)⁴.

The aim of this study is to analyze the population’s value system as an indicator of the socio-cultural space of the capital megalopolis – a space that reflects the dynamic and often polarized vectors of global transformations.

The research method was an online questionnaire survey (N = 1,070). The sampling type was purposive. To this end, our research group has spent

² Putin V.V. (2012). Russia muscles up – the challenges we must rise to face. *Vestnik Rossiiskoi natsii*, 2-3 (22-23), 66–71.

³ Tuliganova I.V. (2009). The Socio-Cultural Space of the Contemporary City: Abstract of Candidate of Sciences (Philosophy) Dissertation. Specialty 09.00.01 – Social Philosophy. Saratov. 18 p. P. 8.

⁴ For more details on the Standard Methodology, see: (Lapin, Belyaeva, 2010). For some results using this methodology, see: (Sokolova, 2023; Kogai, 2023; Agafonova, Romashkina, 2024; Andrianova, 2024; Valiakhmetov, Turakaev, 2024; Gruzdeva, Zhdanova, 2024; Gruzdeva, Kogai, 2024a; Kogai, 2024b; Markova et al., 2025; Sokolova, Kalachikova, 2025).

several years developing an algorithm for conducting online surveys with pre-set quota parameters. Interviewers were assigned the task of surveying respondents from the target group according to these quotas. In this particular study, quotas were set for gender and age. Using a Google Form, respondents provided the interviewer's surname and their own contact information, which made it possible to monitor the interviewers' work. As a result, the gender-age structure of the surveyed sample matches that of the general population of Moscow: 43.2% of respondents were male and 56.8% female; 27.7% were young people (14 to 35

years inclusive), 46.7% were adults (36 to 59 years inclusive), and 25.6% were older adults (60 years and above)⁵.

The methods of mathematical data processing included the calculation of weighted mean scores on a 10-point scale, ranking, cluster distribution according to N.I. Lapin's methodology, as well as factor analysis and regression analysis.

Findings

An analysis of the value system drawing on the findings of an empirical study of Moscow residents reveals that not a single value entered the integrating core (*Tab. 1*). The same situation was identified

Table 1. Value preferences of the Moscow population, weighted mean score on a 10-point scale / rank

Value	Score	Rank	
1. INTEGRATING CLUSTER OF VALUES			
a) integrating core (above 8.8 points)			
b) integrating reserve (7.81–8.79 points)			
The most precious thing in the world is human life, and no one has the right to take a person's life under any circumstances	Human life	8.74	1
Personal safety should be ensured by law and law enforcement agencies	Order	8.61	2
The main focus in life should be on establishing good family and friendly relations	Sociability	8.19	3
I have become who I am mainly through my own efforts	Independence	8.14	4
The most important thing in life is taking care of one's health and well-being	Well-being	7.96	5
Freedom is something without which a person's life loses its meaning	Freedom	7.91	6
People and the state should care above all for children	Family	7.89	7
DIFFERENTIATING CLUSTER OF VALUES			
a) opposing differential (6.0–7.80 points)			
Only meaningful, interesting work deserves to be pursued as one's main life's work	Work	7.41	8
The most important thing is initiative, enterprise, and the search for something new in work and life, even if one finds oneself in the minority	Initiative	6.94	9
The most important thing is respect for established customs and traditions	Tradition	6.86	10
Under any circumstances, beauty makes a person better and purer	Morality	6.74	11
A moral, conscientious person should help the poor and the weak, even if it means going without something oneself	Self-sacrifice	6.01	12
b) conflictogenic periphery (5.99 points and below)			
A person should strive above all to have power and the ability to influence others	Power	3.94	13
There are circumstances when a person may, of their own free will, encroach upon another person's life	Willfulness	3.74	14
MEAN SUPPORT SCORE FOR BASIC VALUES 7.08			
MEAN SUPPORT SCORE FOR UNIVERSAL VALUES (order, well-being, work, sociability, morality, power) 7.14			
MEAN SUPPORT SCORE FOR MODERN VALUES (human life, freedom, independence, initiative) 7.93			
MEAN SUPPORT SCORE FOR TRADITIONAL VALUES (tradition, family, self-sacrifice, willfulness) 6.12			
MODERNITY/TRADITIONALITY COEFFICIENT OF THE VALUE STRUCTURE 1.29			
Source: own compilation.			

⁵ The distribution by age groups was carried out in accordance with the legislation of the Russian Federation and the WHO classification. The oldest respondent among those we surveyed was 91 years old.

in the Kursk Region based on survey results from the same year, 2023 (Markova et al., 2025), and in the Astrakhan Region from a population survey conducted in 2016, which attested to the marginality of the population's consciousness in that border region – a condition shaped both by the historical specifics of the territory's settlement and by the global transformations of recent decades. The socio-cultural space of the capital region – present-day Moscow – likewise exhibits a certain fragmentation in the value consciousness of its population.

It should be noted that in other Russian regions that participated in empirical studies employing N.I. Lapin's methodology in 2023, the integrating core of values contained from two to six values, among them order, initiative, sociability, well-being, family, human life, and independence. Among the regions represented, the fewest values (two) in the integrating core were recorded in the Republic of Bashkortostan, and the greatest number were found in the Sverdlovsk Region and the Chechen Republic⁶ (Gruzdeva, Zhdanova, 2024; Markova et al., 2025). In Moscow, these values were recorded in the integrating reserve; the value of human life ranks first in terms of support (with a minimal margin of 0.06 points from the integrating core), followed by the values of order and sociability, independence, and family – the latter closing out the group of values in the integrating reserve.

The shift of the value of human life from the integrating core to the integrating reserve – that is, a decline in the degree of its endorsement – may signal a deepening dehumanization of human relations and a spiritual and moral crisis. The declining support for the value of family points to growing atomization, while lower support for the values of sociability and order – the formal

(order) and informal (sociability) rules that serve as the bonds underpinning interpersonal and social relations, compliance with legal norms, and the maintenance of moral foundations, all of which have traditionally been highly prized in society – reflects a disorganization of public life.

The majority of Moscow residents do not share the values of the opposing differential. These values have ceased to serve as integrators and have begun to perform the function of preserving and altering the structure of statuses and roles. It is noteworthy that, for Moscow residents, the opposing differential of values includes the values of work, initiative, tradition, morality, and self-sacrifice, while the conflictogenic periphery includes power and willfulness. According to the findings of long-term observations conducted in a number of Russian regions and across the country as a whole using N.I. Lapin's methodology, the functional layer of the conflictogenic periphery has exhibited a high degree of stability; it is typically formed by the categories of “willfulness” and “power,” which “overall attests to the population's ambivalent attitude toward traditionalist willfulness and universal power” (Lapin, 2010, p. 31).

The mean support score across all values stands at 7.08, with universal human values at 7.14. Support for modern values substantially exceeds support for traditional ones. As in other Russian regions, the integrating reserve is composed predominantly of universal human values. Thus, consistent with the findings of long-term studies conducted across Russia's regions since 2006, the structure of basic values among Muscovites reflects “a dynamic coexistence of three culturally distinct types of values – universal, traditional, and modern”⁷.

⁶ Sociocultural Portrait of Russia's Regions – 2023: Database. Contributors: A.A. Shabunova, L.A. Belyaeva, G.F. Romashkina, E.A. Kogai, A.N. Tarasova, O.N. Kalachikova, R.M. Valiakhmetov, M.M. Yusupov, Yu.S. Markova, E.V. Andrianova, Yu.M. Pasovets, M.A. Gruzdeva, A.N. Gordievskaya, M.S. Turakaev. Database Registration Certificate RU 2024623834, 30.08.2024. Application No. 2024623498 dated August 15, 2024.

⁷ Sociocultural Portrait of Russia's Regions – 2023: Database. Contributors: A.A. Shabunova, L.A. Belyaeva, G.F. Romashkina, E.A. Kogai, A.N. Tarasova, O.N. Kalachikova, R.M. Valiakhmetov, M.M. Yusupov, Yu.S. Markova, E.V. Andrianova, Yu.M. Pasovets, M.A. Gruzdeva, A.N. Gordievskaya, M.S. Turakaev. Database Registration Certificate RU 2024623834, 30.08.2024. Application No. 2024623498 dated August 15, 2024. P. 670.

Distribution of values by gender and age groups

When the survey results are examined by age group, only among older adults did a single value – human life – enter the integrating core (Tab. 2). Among young people, this value ranks second, yielding to the value of order. The latter receives the highest level of support in this age group compared to adults and older adults. Sociability is rated highest by older adults, whereas young people show a preference for well-being, and adults – for independence. Freedom is the least important for older adults, while family is rated by them more highly than by youth and adults alike. Among young people, family falls entirely into the opposing differential of values – that is, it is not endorsed by a substantial share of respondents.

Work falls into the opposing differential for all age groups, though it receives the highest support from young people, as do initiative and morality. The values of tradition and self-sacrifice are most strongly shared by older adults. Among youth and adults, self-sacrifice falls into the conflictogenic periphery of values. Young people also endorse the values of power and willfulness to a significantly greater degree than do adults and older adults. The mean support score for basic values is highest among older adults and lowest among adults. Universal human values receive greater support from young people, while traditional values are more strongly endorsed by older adults.

A comparative analysis of the value hierarchy of women and men in Moscow offers further valuable

Table 2. Distribution of value orientations by cluster (weighted mean scores on a 10-point scale)

Cluster	Youth		Adults		Older adults		Men		Women	
	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
Integrating core	–	–	–	–	Human life	8.86	–	–	Human life	9.07
Integrating reserve	Order	8.64	Human life	8.77	Order	8.60	Order	8.42	Order	8.74
	Human life	8.59	Order	8.58	Sociability	8.52	Human life	8.31	Sociability	8.36
	Well-being	8.22	Indepen- dence	8.25	Family	8.36	Sociability	7.96	Indepen- dence	8.30
	Indepen- dence	7.95	Sociability	8.24	Well-being	8.18	Independence	7.93	Well-being	8.06
	Freedom	7.95	Family	7.99	Indepen- dence	8.15	Well-being	7.82	Family	8.04
	Sociability	7.81	Freedom	7.94	Freedom	7.85	–	–	Freedom	8.04
Opposing differential	Work	7.71	Well-being	7.70	Tradition	7.79	Freedom	7.77	Work	7.40
	Family	7.29	Work	7.37	Work	7.19	Family	7.70	Tradition	7.06
	Initiative	7.26	Tradition	6.81	Self- sacrifice	6.85	Work	7.43	Morality	6.86
	Morality	6.86	Initiative	6.80	Initiative	6.84	Initiative	7.15	Initiative	6.76
	Tradition	6.12	Morality	6.72	Morality	6.60	Tradition	6.61	–	–
	–	–	–	–	–	–	Morality	6.56	–	–
	–	–	–	–	–	–	Self-sacrifice	6.11	–	–
Conflictogenic periphery	Self- sacrifice	5.37	Self-sacrifice	5.94	Power	3.58	Willfulness	4.42	Self- sacrifice	5.93
	Power	4.71	Power	3.69	Willfulness	3.11	Power	4.22	Power	3.73
	Willfulness	4.70	Willfulness	3.53	–	–	–	–	Willfulness	3.22
Mean support score for values										
basic	7.08		7.02		7.18		7.03		7.11	
universal	7.32		7.05		7.11		7.07		7.19	
modern	7.94		7.94		7.92		7.79		8.04	
traditional	5.87		6.07		6.53		6.21		6.06	
Coefficient of modernity / traditionality of the value structure										
	1.35		1.31		1.21		1.25		1.33	
Source: own compilation.										

insights. Among women, one value (human life) enters the integrating core. Among men, no value at all falls into this cluster. For men, the value of order occupies the top position in the hierarchy; for women, it ranks second, though women endorse it far more strongly than men do. It is also noteworthy that women give preference to what are, in essence, “non-feminine” values – independence, well-being, family, and freedom (for men, the latter two values land entirely in the opposing differential).

For men, the value of initiative is (predictably) more important, whereas for women, morality and tradition carry greater weight. Men attach greater importance to self-sacrifice, whereas for women this value falls into the conflictogenic periphery. Moreover, men endorse the values of the conflictogenic

periphery – power and willfulness – far more strongly than women do.

Overall, the mean support score for basic, universal, and modern values is higher among women, while the score for traditional values is higher among men.

Factor analysis of the value system of Muscovites

In order to examine the structure of respondents' values, a factor analysis was also conducted using the principal component method with varimax rotation and Kaiser normalization. The rotation of the factor matrix converged in five iterations. Each extracted factor, selected and presented in the matrix, has a positive loading of ≥ 0.35 (Tab. 3). A three-factor solution was identified for the value scale, which together accounts for 47.145% of the

Table 3. Factor matrix of the population's values

Survey question	Component		
	1	2	3
	Individualism	Traditionalism	Voluntarism
19.4. Freedom is something without which a person's life loses its meaning ($M \pm SD = 7.92 \pm 2.431$)	.679		
19.6. Personal safety should be ensured by law and law enforcement agencies ($M \pm SD = 8.61 \pm 1.93$)	.624		
19.2. The most important thing in life is taking care of one's health and well-being ($M \pm SD = 7.96 \pm 2.24$)	.620		
19.5. Only meaningful, interesting work deserves to be pursued as one's main life's work ($M \pm SD = 7.42 \pm 2.49$)	.602		
19.9. I have become who I am mainly through my own efforts ($M \pm SD = 8.14 \pm 1.99$)	.601		
19.13. The most precious thing in the world is human life, and no one has the right to take a person's life under any circumstances ($M \pm SD = 8.74 \pm 2.24$)	.448	.397	
19.14. The most important thing is respect for established customs and traditions ($M \pm SD = 6.87 \pm 2.69$)		.743	
19.11. A moral, conscientious person should help the poor and the weak, even if it means going without something oneself ($M \pm SD = 6.01 \pm 2.94$)		.712	
19.8. People and the state should care above all for children ($M \pm SD = 7.89 \pm 2.24$)		.710	
19.7. The main focus in life should be on establishing good family and friendly relations ($M \pm SD = 8.19 \pm 2.07$)	.454	.542	
19.10. A person should strive above all to have power and the ability to influence others ($M \pm SD = 3.94 \pm 3.02$)			.774
19.3. There are circumstances when a person may, of their own free will, encroach upon another person's life ($M \pm SD = 3.74 \pm 3.50$)			.687
19.12. The most important thing is initiative, enterprise, and the search for something new in work and life, even if one finds oneself in the minority ($M \pm SD = 6.93 \pm 2.49$)			.465
19.1. Under any circumstances, beauty makes a person better and purer ($M \pm SD = 6.73 \pm 2.90$)			.390
Cronbach's Alpha	.728	.703	.591
% of variance explained	18.941	15.991	12.213
Mean of items	8.140	7.542	5.336
Range of items	1.327	2.735	3.185
Variance	.198	1.197	2.988
Source: own compilation.			

variance. The Kaiser – Meyer – Olkin (KMO) measure of sampling adequacy for the presented solution was 0.817 with $p < 0.001$.

The first factor (18.94% of variance) can be interpreted as reflecting an orientation toward individualistic values. The second factor (15.99% of variance) is associated with traditional values. The third factor (12.21% of variance) corresponds to respondents' orientation toward values of power, dominance, and enterprise.

Next, we assessed the variables that may influence respondents' particular value orientations. For this purpose, linear regression analysis was performed using the ordinary least squares method with stepwise variable selection. The dependent variables in the models were the previously extracted factors, which characterize the value-reflexive attitudes of the surveyed citizens.

The indicators of the linear model linking the orientation toward individualistic values with the independent variables are presented in *Table 4*. This

model has an extremely low coefficient of determination ($R^2 = 0.058$). At the same time, the model exhibits no multicollinearity among the variables ($VIF < 4$), and the absence of heteroscedasticity is confirmed by the lack of autocorrelation in the model's residuals (Durbin – Watson = 1.935). Overall, the model possesses a high degree of significance ($p < 0.001$), which attests to the reliability of the obtained result.

Let us note the characteristics of several independent variables included in the model.

1. The respondents would not want their children to move to smaller Russian cities. They hold an extremely positive view of their children moving abroad for permanent residence.

2. This group believes that their life is highly dependent on the actions of the Russian authorities and is, on the whole, characterized by more oppositional attitudes. At the same time, they lack strong ties with their close friends and those around them, believing that the improvement of their

Table 4. Regression model for assessing the relationship between “individualistic” value orientations and social behavior

Model 1	Unstandardized coefficients		T	Significance	Collinearity statistics	
	B	Standard error			Tolerance	VIF
(Constant)	.394	.137	2.885	.004		
8.3. I would like my children to move to a smaller town/village and live there	-.144	.027	-5.365	.000	.884	1.132
14. Are you satisfied with your job?	.104	.029	3.584	.000	.992	1.008
9.3. In your opinion, to what extent does the improvement of your life today depend... (on friends, fellow countrymen)?	-.096	.026	-3.705	.000	.888	1.126
8.4. I would like my children to move abroad, to another country	.059	.022	2.643	.008	.912	1.097
9.6. In your opinion, to what extent does the improvement of your life today depend... (on the federal authorities)?	.068	.026	2.591	.010	.948	1.055
<i>R</i>	.240					
<i>R square</i>	.058					
Standard error of the estimate	.976					
Durbin – Watson	1.935					
<i>F</i>	12.964					
<i>p</i>	.000					

Source: own calculations.

daily life does not depend in any way on building interpersonal relationships.

3. At the same time, a significant positive correlation was found between high satisfaction with all aspects of one's job and individualistic values.

The indicators of the linear model linking the population's traditional values with the independent variables are presented in *Table 5*. This model has a substantially higher coefficient of determination ($R^2 = 0.251$) and also a high level of significance ($p < 0.001$).

Let us note the characteristics of several independent variables included in the model.

1. Respondents with traditional value orientations would like their children to continue living in their hometown. They hold a negative attitude toward the idea of their children and relatives moving abroad.

2. This group is characterized by a high level of religiosity, which substantially reinforces their orientation toward traditional Russian values. They are also characterized by a higher average age than all other groups.

3. They believe that the improvement of their life today depends directly on their interpersonal relationships with friends and fellow countrymen.

Table 5. Regression model for assessing the relationship between "traditional" value orientations and social behavior

Model 2	Unstandardized coefficients		T	Significance	Collinearity statistics	
	B	Standard error			Tolerance	VIF
(Constant)	-.645	.176	-3.670	.000		
8.1. I would like my children to build their lives in their hometown – right here, where we live	.197	.027	7.258	.000	.875	1.143
33. What can you say about your religiosity?	.216	.027	8.078	.000	.925	1.082
8.4. I would like my children to move abroad, to another country	-.132	.021	-6.416	.000	.846	1.182
Age groups (youth, adults, older adults)	.224	.038	5.947	.000	.919	1.088
9.3. In your opinion, to what extent does the improvement of your life today depend... (on friends, fellow countrymen)?	.069	.022	3.098	.002	.948	1.054
<i>R</i>	.501					
<i>R square</i>	.251					
Standard error of the estimate	.862					
Durbin – Watson	2.044					
<i>F</i>	70.928					
<i>p</i>	.000					
Source: own calculations.						

The indicators of the linear model linking voluntarism and the orientation toward dominance with the independent variables are presented in *Table 6*. This model has a fairly low coefficient of determination ($R^2 = 0.126$) and also a high level of significance ($p < 0.001$).

Let us note the characteristics of several independent variables included in the model.

1. This group is characterized by high confidence in their future. They also tend to be relatively young people.

2. These respondents believe that the improvement of their life depends primarily on their immediate social circle, which unites them with the representatives of the “traditionalists”.

3. The main distinguishing feature of these respondents was the desire to improve their own situation and that of their family by any means

possible, including through the potential relocation of their children to another large Russian city or, even better, to any foreign country.

Thus, based on the findings of the factor analysis, we distinguish three groups of respondents whose dominant values determine important orientations in their social behavior: migration attitudes, priorities for interacting with social actors, social well-being, job satisfaction, and so forth.

Functionally orienting clusters of values

N.I. Lapin distinguishes between terminal values-goals and instrumental values-means. The traditional terminal values-goals include tradition and family; the universal ones include order, well-being, and work; the modern ones include life and freedom. Among the instrumental values, traditional (self-sacrifice and willfulness), universal (sociability, morality, and power), and modern (independence

Table 6. Regression model for assessing the relationship between “voluntarist” value orientations and social behavior

Model 3	Unstandardized coefficients		T	Significance	Collinearity statistics	
	B	Standard error			Tolerance	VIF
(Constant)	-.329	.147	-2.235	.026		
8.4. I would like my children to move abroad, to another country	.137	.022	6.102	.000	.842	1.187
11. To what extent are you confident or not confident about your future today?	.122	.026	4.769	.000	.977	1.024
9.3. In your opinion, to what extent does the improvement of your life today depend... (on friends, fellow countrymen)?	.107	.024	4.363	.000	.921	1.086
Age groups (youth, adults, older adults)	-.122	.040	-3.040	.002	.955	1.047
8.2. I would like my children to move to other large cities in our country and live there	.066	.026	2.559	.011	.837	1.194
<i>R</i>	.354					
<i>R square</i>	.126					
Standard error of the estimate	.935					
Durbin – Watson	1.856					
<i>F</i>	30.499					
<i>p</i>	.000					

Source: own calculations.

and initiative) are also identified. Thus, according to N.I. Lapin's methodology, three functionally orienting clusters are theoretically constructed from the fourteen values studied – five values in each cluster (with the value of “freedom” being included in two clusters) (Lapin, 2010, p. 28). Let us examine the system of value preferences of the Moscow population in the spheres of life sustenance, the regulation of people's behavior, and communication between the individual and the social and cultural structures of society (*Tab. 7*).

Table 7. Functionally orienting clusters of basic values of the Moscow population

Value	Score
1. Life-sustaining cluster	
Independence	8.14
Well-being	7.96
Family	7.89
Work	7.41
Initiative	6.94
2. Institutional-regulatory cluster	
Order	8.61
Freedom	7.91
Tradition	6.86
Power	3.94
Willfulness	3.74
3. Anthropic-communicative cluster	
Human life	8.74
Sociability	8.19
Freedom	7.91
Morality	6.74
Self-sacrifice	6.01
Source: own compilation.	

The life-sustaining cluster encompasses values closely related to the life-sustaining functions of individuals and households, organizations and settlements, regions and society. Paradoxically, the dominant value in this cluster among Muscovites is the value of independence. Well-being and family follow. It is also paradoxical that in a dynamic city that offers numerous opportunities for professional fulfillment and initiative, the values of work and initiative are not dominant within the life-sustaining cluster.

The value system of the institutional-regulatory cluster of the Moscow population is similar to that of Russia as a whole. “This uniformity attests to the high stability of the hierarchy within this value cluster, a result of Russia's long historical development that also takes into account the transformational processes of recent decades. Indeed, the value of order has long been fused in the consciousness of Russians (as it is among the peoples of many countries) with adherence to traditions, while rebellious-revolutionary events are perceived either as short-lived outbursts or as a new order that will soon become traditional. Power and willfulness have also become components of political life and everyday behavior in Russia – partly in conflict with each other, partly coexisting; yet the majority of the population rejects them”⁸.

In the capital, as in other Russian regions, the anthropo-communicative cluster places the value of “human life” at the apex of the hierarchy, followed “as its immediate, closest prerequisite by the value of sociability, which is exercised primarily in accordance with the norms of freedom, as well as self-sacrifice... and morality...”⁹.

Discussion of findings

What, then, are the reasons behind the findings that characterize the value orientations of Muscovites? While making no claim to an exhaustive list, since the question requires further observation and study, these reasons can be tentatively divided into three groups: changes in the socio-cultural space of humanity, of Russia as a whole, and of the capital itself.

⁸ Regions in Russia: Sociocultural Portraits of Regions in the All-Russian Context. Institute of Philosophy. Center for the Study of Sociocultural Changes. Scientific-Coordination Council of the Section of the FSPP UN RAS “Problems of Sociocultural Evolution of Russia and Its Regions”; comp. and gen. ed.: N.I. Lapin, L.A. Belyaeva. Moscow: Academia, 2009. 807 p. P. 679.

⁹ Ibidem. P. 681.

It should be noted that Moscow's socio-cultural space is being transformed under the influence of globalization, internationalization, and cultural assimilation in the context of the integration of the economic, political, cultural, and spiritual-informational spheres of life in most countries of the world, growing intercultural ties, the rapid proliferation of various technologies and means of communication, and the formation of a unified information space for all (Grigorieva, 2011, p. 97).

This space is characterized by the presence of axiorhizomes – “value formations that constitute a degenerated system and contain within their structure several equipollent value vectors-directions”¹⁰. Axiorhizomes are marked by non-equilibrium wholeness, organizational disorder, continuous fluidity, value relativism, traumatic potential, nonlinear development, paradoxicality, extreme-crisis social riskogenicity, temporal ruptures of meaning, and the destruction of meanings. “In such a society, owing to the multiplicity of value ‘roots’-foundations of the rhizomatic axiosphere, value relativism reaches its highest degree, and uncertainty attains its maximum value. The crisis is characterized by the loss of supporting components and the departure of the socio-cultural space beyond boundary points ... The Russian socio-cultural space of today is a space of permanent confrontation between disorganizing and self-organizing forces”¹¹. As L.A. Tsyganova emphasizes, the modern world is becoming a world “of relatively simple socio-cultural identifiers, whose original meaning is frequently lost” (Tsyganova, 2022, p. 174).

The population's value orientations are changing not only under the unifying influence of globalization but also under the impact of the emerging information society, accompanied by

the rapid spread of electronic communications, particularly the internet. The internet environment aspires to become “a new socio-cultural space for the life and development of the modern individual, a sphere of self-realization, agency, and self-fulfillment” (Kramarenko, 2016, p. 39). Yet the manipulative nature and anonymity of online communication, along with the absence of system-forming factors within the avalanche-like flows of information, leave users unprepared to filter that information or to undergo resocialization. This amplifies the tendency toward the spread of various forms of deviant behavior and addictions prompted by the situation of anomie in traditional culture¹². Such a situation often manifests itself in the ambivalence and vagueness of moral attitudes. It should be noted that this situation may also activate certain forms of traditional culture, since electronic culture – which, like culture in general, sets the vectors and meanings of human activity – is still in its formative stage and, within its framework, stable models of personal identification have yet to be offered. At the same time, however, the electronic screen environment is scaling up, and its embeddedness in the everyday practices of the majority of people is intensifying the process of information-communication globalization (Berleva, 2022). The electronic screen environment directs the individual's cognitive activity outward, toward visual (virtual) screen images, thereby distracting from self-knowledge, the exploration of the inner world, and the building of the deep interpersonal relationships that constitute the foundation of spiritual experience.

This leads, on the one hand, to a deficit of productive pursuits and interests, and on the other, to contradictions “between the values of society, dictated by the current pace of economic development, and the insufficient internalization

¹⁰ Shakirova E.Yu. (2015). *Axiological Rhizomorphism of the Contemporary Socio-Cultural Space: Abstract of Doctor of Sciences (Philosophy) Dissertation. Specialty 09.00.11 – Social Philosophy. Ufa. 43 p. P. 11.*

¹¹ Ibidem. Pp. 11–13.

¹² Shamykina V.M. (2012). *Managerial Interactions in the Socio-Informational Blogosphere: Abstract of Candidate of Sciences (Sociology) Dissertation. Specialty 22.00.08 – Sociology of Management. Moscow. 22 p.*

of universally significant values”¹³, as well as between goals and the strategies for achieving them, and between an adherence to the values of pleasure and passively entertaining activities and the values of effort and achievement¹⁴. This adherence to such goals is one reason why, according to research findings not only in Moscow but also in other regions of Russia, the category of “morality” occupies an unstable position within the population’s system of value orientations, hovering on the lower boundary between the opposing differential and the conflictogenic periphery.

The findings of the empirical study of Moscow’s value orientations also reflect the characteristics of Russia’s socio-cultural space, whose principal mechanisms of change are “fixation, conflict, integration, de-actualization, and actualization” (Khrapov, 2016, p. 834). The population’s value orientations are shifting under the influence of the institutional transformations that have taken place in Russia in recent decades, engendering a situation of anomie in the life of virtually an entire generation. The vector of these institutional transformations pointed away from collectivism toward individualism, replacing traditional values with Western, individualistic ones, and moving from service to society and the state toward a focus on achievement and the intrinsic value of the individual person¹⁵ (Davydova, 2012; Gulyaikhin, 2013; Ilyin,

Morev, 2022). At the same time, the difficulties of institutional reform “resulted in the activation of reverse social mechanisms that push society back toward its past. In essence, an impulse was given within the country to the development of a process of demodernization and archaization. Large masses of people began, spontaneously and unconsciously, to turn back to archaic cultural meanings and the corresponding social practices” (Kogai, 2023, pp. 3–4).

Empirical studies of the value orientations of various social groups in contemporary Russia – young people in particular – have begun to record a contradictory combination of modern and traditional values¹⁶ (Dulina et al., 2015; Kogai, 2023). The eclecticism and internal contradictoriness of the value-orientation system are reflected in the findings of the Moscow survey. It should also be noted that, according to the findings of our study, the shift of the value of self-sacrifice into the conflictogenic periphery among young people and adults – especially among women – may signal a dangerous symptom, since self-sacrifice constitutes a system-forming component of collectivism and forms part of the national socio-cultural code.

The socio-cultural space of the contemporary city is characterized by “fluidity, transitivity, porosity, rhythmicity, and an unsystematic nature” (Kostko, 2021, p. 54). Within the contemporary city as a complex system, “processes of generation, concentration, development, decay, and innovation of material-physical and non-material elements of the reproduction of human life activity are taking place simultaneously, under conditions of permanent risk, conflicts, clashes of interests, and transformational changes in society – all of which cannot but influence the value orientations of city

¹³ Makhyanova A.V. (2013). *Personality Socialization in Modern Conditions: Internalization Imbalance and Ways to Overcome It* (Based on Materials from the Republic of Tatarstan): Abstract of Doctor of Sciences (Sociology) Dissertation. Specialty 22.00.04 – Social Structure, Social Institutions and Processes. Saransk. 43 p.

¹⁴ Pshishok A.A. (2012). *Norm and Deviation in Youth Subculture: Problems of Socialization in Contemporary Russia: Abstract of Candidate of Sciences (Sociology) Dissertation. Specialty 22.00.06 – Sociology of Culture. Maikop. 25 p. Available at: <http://www.dslib.net/sociologia-kultury/norma-i-deviaciya-v-molodezhnoj-subkulture-problemy-socializacii-v-sovremennoj.html>*

¹⁵ Zakharkin R.A. (2013). *Communication Activity in the Structure of the Social Process of Forming the Life Values of Youth: The Case of the Primorye Territory: Candidate of Sciences (Sociology) Dissertation. Specialty 22.00.04 – Social Structure, Social Institutions and Processes. Khabarovsk. 170 p.*

¹⁶ Davydova M.A. (2012). *The Influence of Electronic Media on the Formation of Individualism in the Youth Environment: Abstract of Candidate of Science (Sociology) Dissertation. Specialty 22.00.06 – Sociology of Culture. Maikop. 22 p. Available at: <http://edu.of.ru/attach/17/199451.doc>*

dwellers” (Kostko, 2021, p. 54). In this regard, continuing our analysis of the reasons behind a certain weakness in the value bonds of Muscovites, we note that Moscow is not merely a large city but a megalopolis.

Contemporary megalopolises are characterized by their own specific socio-cultural space. According to researchers, megalopolises serve as microcosms of globalization, in which personal interaction between citizens with cosmopolitan and multicultural identities takes place within localized spaces. This gives rise to a host of urban problems, including the privatization of public space, intensive management aimed at maximizing financial gain, consumerism, environmental issues, population segregation, and economic inequality (Ghahremani et al., 2021; Houshmand et al., 2026). The changes occurring in the space of the contemporary megalopolis are so dynamic, diverse, complex, and spatially extended that scholars regard it as an entirely new phenomenon (Ford, 1965; Barnes, 2002; Bourdeau-Lepage, Huriot, 2005; Akubue, 2019; Hussaini, Hussaini, 2023; Garau, Frankhauser, 2026). Randomness becomes an everyday mode of existence, while touristification and post-digital transformations turn the city into a space of phantasmagoria and a striving for a more meaningful existence (Han, 2026; Jansson et al., 2026).

Megalopolises are being transformed into specialized mechanisms for extracting profit – profit that is overwhelmingly concentrated in the service sector (Brenner et al., 2009). This is a city of consumption and consumers, not of production and producers. As A.G. Golova observes, income and consumption become the meaning of life for the inhabitant of a megalopolis, insofar as the city relinquishes its creative mission and turns into a center for the disposal of masses of products manufactured beyond its boundaries: “This destructive function is reflected in its residents: a distinctive personality type takes shape, one actively

engaged in the consumption of goods or services. Consumption becomes a form of self-realization, a form of identity construction, a form of leisure, and a form of communication... The format of retailtainment stores has emerged (from the English words retail and entertainment)... As a result, sales volumes in shopping-and-entertainment centers substantially exceed those in facilities that lack a leisure zone. Entertainment enters education (edutainment), sports (sportainment), information services (infotainment), and so on. In the city, frequency of interaction replaces depth of relationship. Consequently, human relations are formalized and depersonalized, and traditional social ties are destroyed. This trend is profitable for the consumer market. According to various data, single people spend 20–30% more on food, clothing, personal care products, and medicine than those with families. People unencumbered by family ties are more socially active, they have no deferred demand, and they spend heavily on entertainment” (Golova, 2013).

The contemporary megalopolis is losing the features of the polis as a space of common endeavor. The environment of the second nature predominates over the first (for instance, natural zones are destroyed and replaced with parks, and parks with flowerbeds, etc.). The dominance of the artificial, technogenic environment leads to a shift in the focus of personal existence – from “to be” to “to appear”, that is, toward performativity, image-making, and the formation of new (often extreme) types of corporeality as an attempt to find the meaning of life in the urban jungle. The researcher E.A. Ivanenko interprets this phenomenon as follows: “If the polis is an environment of order, then the megalopolis is an environment of excess. In this sense, the megalopolis is indeed akin to a Leviathan – chaotic, elemental ... True, this Leviathan is a monster equipped with a ‘user-friendly interface’, and the Jonahs it has swallowed are in no hurry to leave its quite comfortable innards, submitting to

its pull and adapting themselves to this habitat” (Ivanenko et al., 2009, pp. 37–38).

The model of the hypermarket or fast-food restaurant, in the view of Yu.A. Lankinen, is becoming a model of new social relations – one that reduces the time and effort required to satisfy any given need, is oriented toward the calculation of money, time, and effort, toward predictability, and toward “control over people by means of humanized technologies: signs, indicators, barriers designed to organize queues, fixed menus that limit choice, and the like” (Lankinen, 2009, pp. 161–162). This may explain why, for Moscow’s youth, the value of order is somewhat more important than it is for adults and older adults.

The socio-cultural space of Moscow can also be considered from two perspectives: as the space of the capital, the reference point for the country’s space, and as a space in its own right. As the space of the capital, Moscow was regarded as the coeval of the nation-state, the national spiritual center (Vershina, Polyakova, 2014, p. 123); “in the image of a primordial, pious, heartfelt city, a home for every Russian person,... a knot in which all the living nerves of the country are intertwined, where the thoughts, aspirations, and hopes of all working humanity converge, where the brain of the Party lives and works, as the newspapers used to write”. The researcher goes on to emphasize the city’s special mission: “‘The Watchtower of World History’ – Moscow became the symbol of a new world, the battle cry of the proletariat fighting under the leadership of the great Stalin for the victory of socialism. The capital of the USSR personified the city of the future, a city of happiness and abundance, fertility and joyous vitality. The monumentality of Stalinist architecture and the ritualism of the Soviet song – everything was dedicated to ‘Mother Moscow’” (Bayandina, 2009, pp. 51, 53).

As its own distinct space, Moscow can be viewed as a natural monopoly: “in terms of the size of its budget and its significance in Russia’s politics and

economy, Moscow resembles Gazprom... a privileged region and one of the many elements of the power vertical” (Bayandina, 2009, p. 53). A number of scholars characterize the Russian capital as a global city – one of those cities that will eventually supersede the capitals of nation-states (Isolde, Rudolph, 2004). “The current stage of Moscow’s development is a process of further, virtually uncontrolled population growth, the ‘migrantization’ of the population, and the emergence of attendant social problems that demand specialized study. These include the structure of contemporary Moscow immigration, the changing social differentiation of the population, the growth of the middle class and the expansion of the lower stratum (at the expense of migrants and pensioners), the complexities of social welfare provision, transportation problems, public utilities issues, and problems within the education and cultural systems. And this is far from an exhaustive list of the challenges facing such an ancient yet thoroughly modern megalopolis as Moscow” (Vershina, Polyakova, 2014, p. 129).

M.G. Anokhin and D.S. Chumakov argue that the era and ideology of postmodernism presuppose the emergence of new actors and subjects of public life, including political life, among which they count globally interconnected cities that are linked politically, economically, and organizationally: “Among them, a prominent place is occupied primarily by the capital megalopolises of the so-called Group of Twenty (G20) countries, which serve as the key centers of globalization processes and form a worldwide network of international cooperation in the economic, political, social, and spiritual spheres. At the same time, contemporary megalopolises are also centers of international rivalry and even confrontation” (Anokhin, Chumakov, 2014, p. 8). These researchers compare Moscow – which, according to various estimates, concentrates more than 75% of the country’s financial flows in its hands – to a large transnational

corporation (TNC), as they do other global cities: “The socio-political activity of the Moscow megalopolis on the Russian and international stage is precisely subordinated to solving the problems it faces. As a constituent entity of the Russian Federation, a territorial interest group, and a political actor all at once, Moscow strives to increase its significance in the adoption and implementation of political decisions at all levels, both within the country and beyond its borders. In this regard, Russia’s capital is now actively working to enhance its political weight and authority, create a positive international image, and attract and accumulate political and financial capital. All of this must be largely subordinated to a single goal – improving the lives of the people residing within the Moscow megalopolis” (Anokhin, Chumakov, 2014, pp. 6, 10).

Conclusion

Thus, the findings of the study of Muscovites’ value orientations reveal a certain degree of fragmentation of moral bonds along lines of gender, age, and dominant value attitudes – attitudes that, in turn, determine the orientations of social behavior. To a certain extent, these findings are shaped by the homogenizing pressure of globalization and by the rapid development of virtual, mediatized spaces that stand as an alternative to the real world – spaces

filled with axiorhizomes, consumerism, and the cult of momentary whims and pleasures.

The condition of the capital megalopolis’s socio-cultural space, differentiated along value lines, also reflects the broader process of differentiation within Russian society as a national idea is being forged and as the country searches for the ideological foundations and developmental goals of Russia as a state-civilization. Values are gradually ceasing to be infused with deep meaning: they turn into simulacra, or are interpreted in markedly different ways by various groups. For a segment of the population, survival becomes life’s priority – and if not survival, then consumption – while the notion of an interconnection between collectivism, morality, and a harmonious existence remains only weakly articulated.

The moral and ethical foundations of Russian society as a whole – and especially of its capital, Moscow – require further strengthening, so that a citizen rather than a mere consumer may be cultivated. Amid a situation of acute geopolitical confrontation, the capital must return to its role as the spiritual center that draws together the Russian land, rather than serving as the embodiment of a Tower of Babel in which people not only fail to understand one another but are even mutually hostile.

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An Indicator Model for Measuring the Innovative Potential of an Urban Community



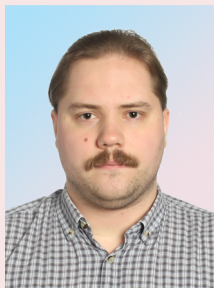
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Abstract. The article presents the results of a study aimed at developing and testing tools for quantifying the innovation potential of urban communities. The relevance of the work is determined by the need to move from abstract concepts of innovation potential to measurable parameters that allow making informed management decisions. The scientific task solved within the framework of this study was to develop and substantiate a methodology for quantifying and evaluating the innovation potential of a territorial community. The authors proposed a theoretical justification for the indicator model, described in detail the process of its construction and presented the experience of its practical application through the calculation of the integral index of innovation, which made it possible to operationalize this socio-cultural phenomenon. Empirical testing of the methodology was carried out on the data of two large cities of the Vologda Region – Vologda and Cherepovets. The results confirmed the diagnostic capabilities of the toolkit for detecting inter-urban differences. It was found that the population of Cherepovets demonstrates

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a higher willingness to technological changes, whereas Vologda is characterized by the predominance of respondents with medium and low values of the innovation index, which correlates with conservative attitudes and employment structure. It is concluded that the proposed model can serve as a basis for monitoring the dynamics of innovation attitudes, evaluating the effectiveness of development strategies and timely adjustment of management impacts. The toolkit allows authorities to move to targeted work with various segments of the population: to support innovation leaders, involve pragmatists, and reduce anxiety among conservative groups through differentiated communication strategies. The possibility of scaling the methodology for the analysis of professional and youth communities, as well as for the typologization of municipalities, is substantiated. The study proves that measuring innovation potential is an effective tool for managing territorial development, allowing combining technological modernization with reliance on the social capital of local communities.

Key words: innovation, innovativeness index, indicator model, measurement methodology, bearer groups, social capital, urban community.

Introduction

Innovativeness is emerging as a contemporary paradigm of social development, and this is fueling a growing research interest in the field. Innovation processes, having first made their mark very visibly in the economy and industry, have reshaped institutional arrangements, given impetus to the development of science and education, and affected the infrastructure of society and its social structure, giving rise to new professional and educational strata.

It has also become clear that innovation-driven transformations depend heavily on the sociocultural characteristics of a community: existing values and behavioral norms determine the degree to which a population is ready for change, and the successful introduction of innovations hinges not only on how well thought-out and timely they are, but also on the readiness of the individual worker or of the population at large to embrace them (Rogers, 2023). Research on innovation, therefore, cannot be confined to purely technological or economic boundaries, which mainly address the material side of innovation processes, whether a product or a service (Petrakov et al., 2022). It is becoming essential to study the social dimensions of innovation in the broadest sense of the term.

In this respect, the sociological approach emerges as a priority line of research, since it is society's readiness to embrace change that ultimately determines whether innovations take root.

This raises the question of how to measure quantitatively the innovative potential of an urban community while taking into account its socio-cultural nature — readiness for change, attitudes toward the new, paternalism, cooperation, and trust — given that existing approaches either remain abstract or focus largely on technological and economic indicators, ignoring the human factor.

Drawing on this understanding, there emerged a hypothesis that a city community's innovative potential is a measurable parameter that can be operationalized through a composite index, which opens up the possibility of assessing a population's level of innovativeness and reveals a community's development potential. Proceeding from this, we formulate the aim of our study, which is to develop a comprehensive methodological framework for identifying and analyzing the innovativeness of a territorial community, understood as readiness to introduce innovations and measured through concrete practices and attitudes. The first necessary step in this direction is a theoretical analysis, which

will make it possible to construct a cognitive model that serves as the basis for an indicator model. On the basis of this indicator model, a composite innovation index will be built, and this index will, in turn, make it possible to describe the innovative potential of a territorial community.

Theoretical foundations of the analysis

The formation and development of the category of “innovation” has drawn on neoclassical, institutional, evolutionary, and systems approaches, modern management theory, and a number of other strands. It is generally accepted that the foundations of contemporary innovation research were laid by Joseph Schumpeter (Schumpeter, 1939) and Nikolai Kondratiev (Kondratiev, 2002). The link they identified between socio-economic progress and innovation became a powerful stimulus for the study of this social phenomenon.

Understanding innovation as a complex process made it possible to break it down into stages, from the initial phase – most often triggered by fundamental scientific research – to successful implementation in the sphere of consumption (Korostyshevskaya et al., 2018). Another outcome of this research was the introduction into academic parlance of such concepts as “innovation activity”, “innovation process”, “innovation cycle”, and the like (Barneva, 2007). Attention should also be drawn to the sheer diversity of innovations, which has allowed scholars to construct classifications based on a whole range of criteria. This was an important step forward in their study and opened up new research opportunities (Goldyakova, 2006).

Beginning in the second half of the twentieth century, the work of economists increasingly tended to treat innovation as a social phenomenon rather than a purely economic one. These ideas appear in the writings of P. Drucker, C. Freeman, G. Mensch, A. Kleinknecht, and a number of other scholars, who began to explicitly identify connections between innovation and the progress of society in all its spheres. Developing these ideas

further, contemporary authors raise the issues of responsible innovation directed toward the public good (Zhou et al., 2026), examine the role of innovation in a post-growth society (Isacson et al., 2026), and consider the part played by invasive rapid innovations in the everyday life of modern society (Lasarov, Hoffmann, 2026).

Proceeding from a sociological perspective on innovation, one must take into account the existing conceptual approaches to interpreting it, the most fundamental of which can be regarded as structuralist analysis, structural-functional analysis, and sociocultural analysis. Drawing on these approaches makes it possible to treat innovation as a form of social action invested with specific social meanings. At the same time, the realization of such action is shaped by cultural norms and attitudes, which, in turn, can serve not only as drivers of novelty but also as obstacles to it.

Viewed through the lens of systems analysis, within the framework of the structural-functional approach developed by T. Parsons (Parsons, 1997), institutions and the institutional environment can be seen as a factor that determines both the feasibility and the success of innovations. In the Parsonian tradition, institutions are understood as stable complexes of norms, values, and behavioral patterns, making them regulators of social action. For an innovation to be successfully adopted, therefore, it must be taken up by the existing institutional system – that is, it must either fit into the established normative structures or set in motion their gradual adaptation. It is precisely through the process of institutionalization – when an innovation becomes embedded in the formal and informal rules, standards, and role expectations that are shared by members of society and that ensure the reproduction of the social system – that it becomes socially significant (Parsons, 2002). Extending this tradition, P. Sztompka, in his analysis of social change, stressed that institutions act not only as a stabilizing factor but also as a structural opportunity

for the creative activity of individuals, who can redefine and transform institutional frameworks in the course of introducing novelties (Sztompka, 1993).

Contemporary research fleshes out this theoretical insight along two lines. First, at the macro level, “readiness for innovation activity” is linked to the quality of the institutional environment, operationalized through such parameters as the stability of regulatory policy and the effectiveness of public administration – an approach reflected in the methodology of the Global Innovation Index¹. Second, empirical studies focusing on high-tech sectors (notably the artificial intelligence industry) show that the institutional environment acts as a significant moderator of innovative activity: government subsidies and intellectual property protection regimes can either amplify or redistribute the effect of networking among innovators (Yang et al., 2025).

Contemporary Russian research confirms and extends this idea. Thus, V.S. Mikhailov and G.R. Islakaeva show that informal institutions specific to Russia (rent-seeking behavior, conservatism, and an aversion to change) continue to exert a negative influence on entrepreneurial conduct and innovation readiness, despite active government measures to strengthen formal institutions (Mikhailov, Islakaeva, 2025). M.G. Allabyan conceptualizes barriers to innovation readiness as phobias, procrastination, hedonic adaptation, and innovation nihilism, which evolve into threats to technological sovereignty – threats that can only be overcome by building an “antifragile national innovation system,” which is inconceivable without a comprehensive, institutionally grounded approach (Allabyan, 2025). In turn, L.N. Drobyshevskaya and K.M. Isakov demonstrate that proactive enterprises capable of institutional adaptation face a 36%

lower risk of liquidation and achieve significantly higher profits (Drobyshevskaya, Isakov, 2024). Contemporary researchers also devote particular attention to the role of innovativeness in sustainable development. Scholars are refining the methodology for designing innovation roadmaps (Mukha, 2024), examining the part played by innovation in fostering sustainable regional development (Khamidova, Babaeva, 2024), and proposing solutions for introducing innovations that aim to meet the Sustainable Development Goals (Ragulina, 2024).

Moving beyond institutional analysis in the interpretation of innovative practices is made possible by the sociocultural approach, the foundations of which were laid by P.A. Sorokin. This approach draws attention to extra-institutional factors that shape attitudes toward innovation, such as culture and tradition. Possessing considerable heuristic potential, the sociocultural approach offers a key to understanding the paradoxical situation in which some innovations become seamlessly woven into the social fabric, while others encounter resistance even under the most favorable institutional conditions. The explanation for this phenomenon lies in a fundamental tenet of Sorokin’s theory: any changes at the level of practices, everyday life, tools, or social organization become possible only insofar as they are preceded by a transformation of the human being’s “inner world”. As Sorokin stressed, “a change in practices, everyday life... occurs only after a corresponding change in the psyche, in ideas, knowledge, and beliefs, and without a prior mental change it cannot occur” (Sorokin, 1992). In other words, culture, as a system of meanings, acts as a filter that either allows an innovation to enter everyday life or blocks it.

In the Western scholarly tradition, the line of sociocultural analysis of innovation has been most consistently developed by G. Hofstede, whose model of cultural dimensions made it possible to verify empirically the influence of value orientations

¹ Available at: <https://www.wipo.int/web-publications/global-innovation-index-2025/en/appendix-iii-sources-and-definitions.html>

on innovative activity (Hofstede, 2001; Hofstede et al., 2010). Hofstede demonstrated that such dimensions of national culture as power distance, uncertainty avoidance, and long-term orientation correlate directly with a society's capacity to generate and adopt novelties: low uncertainty avoidance fosters greater tolerance for risk and experimentation, while a high long-term orientation creates a favorable environment for the introduction of gradual but sustainable innovations (Hofstede, 2001). Advancing this research vector within the framework of post-industrial value-shift theory, R. Inglehart showed that the transition from survival values to self-expression values creates a fundamentally different sociocultural environment, one in which innovativeness becomes not a departure from the norm but a mass behavioral practice (Inglehart, 1997; Inglehart, Welzel, 2005). In turn, Sh. Schwartz, drawing on large-scale cross-cultural studies, established that value priorities of "openness to change" (self-direction, stimulation) directly predispose individuals and groups toward innovative activity, whereas the dominance of "conservation" values (security, conformity, tradition) creates a cultural barrier to novelties (Schwartz, 2006; Schwartz, 2014).

In the context of studying innovation, P. Bourdieu's structuralist perspective is valuable because it makes it possible to move beyond a simplified understanding of the process of introducing novelties. On the one hand, as Bourdieu himself stressed, innovations can act as objective social structures that set the framework and determine the behavior of actors (Bourdieu, 2007). On the other hand, these external structures must be "appropriated" by the subject – that is, translated to the level of internal dispositions. This occurs through the formation of specific attitudes, or *habitus*. It is *habitus*, as internalized social experience, that generates the practices and behavioral strategies – acceptance or rejection – through which people respond to novelty. *Habitus*

thus serves as a conceptual tool that allows one to investigate the process of "habitualization": it reveals the mechanism by which an innovation is transformed from something alien into a natural component of the everyday world (Rostova, Zhelnina, 2016).

In the international research tradition, the perspective grounded in Bourdieu's approach has been fruitfully developed in studies analyzing innovation processes. For instance, B. Frère, examining the limitations of *habitus* theory, has proposed ways of conceptually expanding it to account for the creative activity and radical innovations exhibited by actors in new social movements (Frère, 2011). Frère demonstrates that *habitus* can function not merely as an inertial structure but also as a generator of practices that transform the social field from within. Innovation thus appears not as an external intrusion into the social fabric but as the product of a specific configuration of dispositions – shaped by prior experience and activated in response to the challenges of the current situation.

Among Russian approaches, the one advanced by N.I. Lapin merits particular attention. His interpretation of innovation represents one of the most profound and systematic in the Russian sociological tradition, making it possible to move beyond a narrowly economic or technological understanding of the phenomenon. For Lapin, innovation is not simply a novelty or the final product of implementation. It is a rather complex, multidimensional, and dynamic sociocultural process that encompasses not only the creation, diffusion, and use of a new practical tool but also the potential changes this brings about in the surrounding environment². In Lapin's view, innovation contains not only all the tendencies of a culture's present but also certain orientations

² Lapin N.I. (2008). People in innovation. In: Theory and Practice of Innovation: A Textbook. Moscow: Universitetskaya kniga, Logos.

toward the future; temporal duality is thus the most essential characteristic of an innovation³. This ambivalence makes innovation a powerful driver of sociocultural dynamics, simultaneously a product of its time and its potential transformer (Lapin, 2011). The distinctiveness of Lapin's approach lies in the way it fuses two aspects – the environmental and the processual – making it indispensable for a comprehensive analysis of innovations.

This understanding opens up broad prospects for integrating the ideas of various theoretical schools. The processual character of innovation makes it possible to examine its institutional embeddedness, which is close to Parsons's ideas: any novelty inevitably passes through the filters of existing rules and norms, either adapting to them or setting their transformation in motion. The dependence of an innovation's success and trajectory on cultural codes and value structures chimes with Sorokin's tradition: an innovation must resonate with the fundamental values of a society in order to be accepted and become widespread. Finally, Lapin's approach accentuates the role of innovation agents, whose dispositions, habits, and practices (*habitus*, in Bourdieu's terms) play a decisive part in the acceptance or rejection of the new. In this context, innovation appears not as an abstract process but as a field of tense interaction between the bearers of different *habitus*, institutional rules, and cultural meanings. In other words, innovation is situated at the intersection of institutional rules, cultural meanings, and the everyday practices of social agents. Lapin emphasizes that innovation processes are not always exclusively positive. They can also generate dysfunctional consequences, come into conflict with the established system of interests, and become a source of social conflicts. Recognizing this risk is an integral part of his systemic approach, which demands taking into account not only the development potential but also the possible negative

effects of novelties. Thus, Lapin's interpretation of innovation creates a solid theoretical foundation for understanding this phenomenon in all its sociocultural complexity.

One further aspect should be added to set the stage for the presentation of our own model. A productive point of reference here is the work of a number of international researchers who have proposed frameworks for measuring innovative potential. Notable among these is the concept developed by B. Asheim and A. Isaksen (Asheim, Isaksen, 2002), which focuses on the innovative capacity of a territory, grounded in the existing configuration of institutions, knowledge, and network interactions. This makes it possible to take both formal and informal practices into account.

Before advancing our own approach, it is necessary to examine the models that already exist. Such models are indeed available, at a variety of levels. The first and best-known level of measurement is the macro level. Global innovation indices are hierarchical indicator models that aggregate dozens of indicators into a single composite index. They make it possible to rank countries, identify the strengths and weaknesses of national innovation systems, track trends over time, and conduct cross-country comparisons. Two major players dominate this space. The Global Innovation Index (GII), published by the World Intellectual Property Organization, covers more than 140 countries and identifies the world's 100 best innovation clusters (among them Moscow)⁴. The second model is the European Innovation Scoreboard (EIS), a tool developed by the European Commission and focused on the member states of the European Union. The EIS is built on a different logic, adapted to the European context⁵. On the

³ Ibidem.

⁴ Global Innovation Index. Available at: <https://www.wipo.int/en/web/global-innovation-index> (accessed: 02.02.2026).

⁵ European innovation scoreboard. Available at: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en (accessed: 02.02.2026).

basis of its composite index, all countries are divided into four groups: Innovation Leaders, Strong Innovators, Moderate Innovators, and Emerging Innovators. It should be noted that both approaches have similar limitations: statistical lags, problems of cross-country data comparability, and, above all, the fact that the human factor, that is, sociocultural specificities, is left entirely out of the picture.

At the meso level, several models geared toward regions and clusters can be identified (*Tab. 1*). The Regional Innovation Systems (RIS) model emphasizes the inclusion of informal practices (trust, paternalism, readiness for change) as the foundation of innovative capacity. The cluster model focuses attention on cooperation and network interactions, capturing them through a cooperation and trust index. The Triple Helix model assesses institutional trust in government, business, and civil society organizations. The Smart Specialisation (S3) concept is built on the principle of place-specificity: understanding the distinctive features of a territory in order to enable targeted governance.

Our interest in the innovative potential of territorial communities made it necessary to assess what the meso-level models can offer. Doing so brought their specificities and orientations into relief. The analysis revealed that there is room for yet another meso-level model – one that shares certain features with the models discussed above but also possesses substantial differences that make it an original contribution. For instance, what our proposed model has in common with the RIS approach is that it takes informal practices (trust, paternalism, readiness for change) into account as a bedrock of innovative capabilities. With the cluster model, it shares an attention to cooperation and network interactions (captured through an index of cooperation and trust). With the Triple Helix, it shares an assessment of institutional trust in government, business, and public organizations. And with Smart Specialisation, it shares the principle of place-specificity: understanding the

unique character of a territory in order to govern it in a targeted manner. The key differences, however, lie in the object of measurement, the methods used, the types of data obtained, and the practical orientation. The object our model measures is the population of a territorial community which is the bearer of innovative potential. By contrast, RIS, the cluster model, and S3 focus on institutions and structures. Our model collects data through mass surveys that capture individuals' subjective attitudes, which sets it apart from statistical data. This, in turn, yields a different type of data. Instead of “number of patents” or “volume of investment”, what comes to light is the sociocultural code: readiness for change, locus of control, levels of trust and cooperation, and a number of other indicators. Analyzing these data makes it possible to formulate practical recommendations that serve as tools for targeted governance: understanding the attitudes with which people live in a city allows policymakers to develop measures that work with the grain of the local context, rather than against it. Thus, if one compares the three approaches, the macro level (GII, EIS) measures institutions and infrastructure on the basis of statistics, the micro level (e.g., the Balanced Scorecard) measures finances and processes on the basis of reporting data, while the author's meso-level model measures the sociocultural code and attitudes on the basis of mass surveys. Each level addresses its own set of tasks, and only together can they provide a complete picture.

The authors' meso-level model is grounded in an indicator model, which serves as the methodological basis for translating abstract theoretical constructs into specific, measurable indicators, thereby providing an objective picture of a territory's innovative development.

Materials and methods

In measuring and assessing the innovativeness of a territorial community, we drew on our earlier work on constructing an indicator model of social

capital⁶. An indicator model provides the methodological foundation for translating abstract theoretical constructs into concrete, measurable indicators, making it possible to obtain an objective picture of a territory's innovative development (Guzhavina et al., 2022). Using an indicator model to measure innovativeness offers a number of methodological advantages, including the ability to quantify a range of characteristics: tracking the dynamics of innovative development, identifying problem areas and development potential, conducting comparative analysis across different territorial communities, capturing existing innovative practices of the population, and revealing cultural codes and value structures, among others.

An indicator model is "...a set of indicators constructed on a specific conceptual foundation and capable of yielding systematized information about a phenomenon or process and of revealing the interrelationships among its constituent elements" (Afanas'ev, 2016). Building an indicator model requires following a certain algorithm. In our study of innovativeness, this algorithm comprises the following steps: 1) identifying an umbrella concept that unites a set of operational concepts; 2) specifying these concepts; 3) selecting the requisite number of indicators on the basis of the research hypothesis.

Proceeding from the theoretical interpretation of the category of innovation, we treat it as an action that is sociocultural in its essence and social in its character. The operational concepts that characterize innovativeness are readiness for change, attitudes toward the new, paternalism, cooperation, and trust. These concepts are then translated into index-based indicators, which are built into the research instrument. This makes it possible to

incorporate into the model's structure groups of indicators that represent its constituent elements. The approach is embodied in the development of a *cognitive model* of the object under study. Let us examine the elements that comprise it in greater detail.

Readiness for change is not merely openness to the new but also the ability to adapt to new conditions, the willingness to undertake something to bring about transformations, and active engagement in change. Readiness for change acts precisely as the antithesis of opportunism and passivity, being an integral attitude that synthesizes awareness, a positive disposition, and active involvement. A number of studies define readiness for organizational change through the beliefs, attitudes, and intentions of an organization's members and emphasize that it is these cognitive and affective preconditions that precede active support for change and distinguish readiness from passive resistance (Naumtseva, 2016; Armenakis et al., 1993).

Another variable in the innovativeness index is *attitude toward the new*. An integral psychological characteristic, attitude toward the new captures an individual's capacity to perceive, evaluate, and respond to new ideas, technologies, processes, and objects. This indicator serves as a major predictor of innovative behavior. A positive attitude toward the new acts as an internal catalyst of innovative activity (Ponukalin, 2010), whereas a negative attitude blocks innovation at the individual or group level (Kudrin, Khabarov, 2025). In the international research tradition, this concept is operationalized through closely related constructs (Gavin, 1984).

The connection between *paternalism* and an orientation toward innovation is not unambiguous. On the one hand, paternalism acts as a barrier, constraining creativity and demanding obedience. In closed communities, it can give rise to a mindset incapable of adapting to change, a sign of sociocultural inertia. On the other hand, under certain conditions paternalism can become a

⁶ The methodology for constructing the indicator model was tested within the framework of the grants "Project No. 16-03-00188-OGN 'Regional Social Capital under Crisis Conditions'" and "Project No. 20-011-00326 A 'Collective Action and Social Capital in Russian Society'." The research findings have been published in monographs and articles.

genuine catalyst of innovation. This is characteristic of cultures with high power distance (Baranova, 2018). This duality is corroborated by contemporary studies of paternalistic leadership (Lu et al., 2022).

For Russian practice, the more pertinent scenario is one in which state paternalism serves as a trigger mechanism for developing strategic directions. In this case, the state assumes the risks of the initial stage, acting as a co-financier or co-founder of a project. The crucial point here is that, during the period of support, horizontal ties between actors should take shape (Vasyukov, 2025) – ties that must be preserved for the subsequent implementation of the innovative project. It is precisely this interpretation of paternalism that is closest to our model.

Cooperation and trust can be seen as the fundamental mechanism on which the success of innovations in many spheres of life rests (Yusupova, 2021). This is especially important for social innovations, which arise above all within networks of interaction among diverse actors. Cooperation in the innovation sphere is a form of joint activity among heterogeneous participants aimed at creating new knowledge, products, or relationships. Cooperation creates a space for the reproduction of trust, and trust, in turn, makes collaboration possible. This is connected with the fact that trust, as a set of socially grounded and socially confirmed expectations that actors hold toward one another, constitutes the fundamental content of social life and sustains the stability and integration of society (Guzhavina, 2014). Trust reduces the risk of opportunistic behavior and broadens the basis for cooperation within the framework of collective action. Cooperation and trust are dialectically linked: trust is the foundation of any cooperation, and successful cooperation strengthens trust.

The cognitive model serves as the foundation for constructing the indicator model proper, which consists of a set of basic indices. In our case, these are the following indices.

The readiness for change index brings together indicators that measure a respondent's practical and psychological disposition to embrace concrete novelties in everyday and professional life. The questions cover attitudes toward digital services and technologies (online services, smart devices, telemedicine), new formats of employment and leisure, and ecological practices. The index also separately records the respondent's assessment of the impact of technological changes on the professional sphere, an inclination toward creative and inventive activity, and the dominant strategy of work behavior (materialistic, innovative, adaptive, or family-oriented).

The attitude toward the new index incorporates questions aimed at uncovering the respondent's value-motivational stance toward socio-economic change, novelty, and freedom. The indicators capture the extent to which an individual perceives change as an opportunity for growth and improved well-being, or as a threat requiring the abandonment of a familiar way of life. In addition, the index assesses the importance of freedom, meaningful work, initiative, and enterprise in the respondent's life, along with the place of tradition and stability in his or her value system.

The paternalism index is based on indicator questions that diagnose locus of control and the degree of personal responsibility the respondent assumes versus that which he or she assigns to external agencies. The indicators reveal the extent to which individuals link their material situation, career, and quality of life to their own efforts rather than to the actions of managers or authorities at various levels. The index additionally captures attitudes toward the idea of active state care for citizens' welfare and the demand for external guidance and support in difficult situations. High scores on this sub-index (rejection of paternalism) are interpreted as an orientation toward self-reliance and self-determination, both necessary for innovative behavior.

The cooperation and trust index is designed to assess the level of interpersonal and institutional trust – from the respondent's immediate circle to state and civic structures. It also captures the individual's readiness to join with others for collective action, whether in solving everyday problems, defending rights, participating in self-governance, or engaging in environmental initiatives and creative projects. Actual involvement in the activities of public organizations is additionally taken into account.

Based on the selection of indicators, a variable model of innovativeness was constructed as a multidimensional phenomenon whose quantitative assessment is carried out using the following formula:

$$I_{\text{innov}} = (I_{\text{read}} + I_{\text{pat}} + I_{\text{coop}} + I_{\text{new}}) / 4,$$

where:

I_{innov} – innovativeness index;

I_{read} – readiness for change sub-index;

I_{pat} – paternalism sub-index;

I_{coop} – cooperation and trust sub-index;

I_{new} – attitude toward the new sub-index.

To measure the level of innovativeness, a sociological survey of the population was employed, with respondents' answers serving as the indicators. The research instrument included indicator questions designed to assess the population's level of innovativeness, as well as questions that make it possible to characterize the actors of innovative behavior and to identify the conditions under which such behavior is formed and realized.

The data analysis employed the index method, which aggregates indicators into partial indices corresponding to the identified structural components of innovativeness. Calculating an index for each block prevents the overall index from becoming blurred, and the equal weighting of the sub-indices follows from the interpretation of innovativeness as a multidimensional sociocultural

phenomenon that emerges at the intersection of four dimensions: readiness for change, attitude toward the new, paternalism (as an inverse indicator of self-reliance), and cooperation with trust. According to the synthesis of institutional, sociocultural, and structuralist approaches, none of these components dominates the others. This approach is fairly widespread and is used both by international researchers – for example, in the United Nations' calculation of the Human Development Index⁷ – and by Russian scholars, for instance, in measuring the level of social capital (Guzhavina et al., 2022). Each variable within a block was standardized to a five-point scale to make the calculations possible. In interpreting the results, it is not so much the numerical value of the index itself that matters as its fluctuations and changes over time. The index method makes it possible both to take a point-in-time measurement of a property of a social object and to monitor its condition. The methodology demonstrated a high level of internal consistency for the resulting index. The consistency and reliability of the selected variables in the model are evidenced by a Cronbach's alpha of 0.7, meeting the threshold value of 0.7.

The additive indicator model for measuring innovativeness, constructed on the basis of the authors' general theoretical framework and the index method, opens up the possibility of measuring the innovativeness level of each respondent. The composite innovation activity index is calculated for every surveyed individual. All respondents were divided into five groups, making it possible to construct a balanced scale (very low – below average – average – above average – high). This ensures a sufficient degree of differentiation while preserving the clarity of the conclusions. Dividing the respondents into fewer groups would lead to excessive aggregation, whereas a larger number of groups would generate needless detail.

⁷ Available at: <https://hdr.undp.org/data-center/documentation-and-downloads>

The first group comprised respondents with the lowest innovativeness index, conditionally designated as possessing a minimal innovativeness index (provisionally, Type 1). In answering the indicator questions, members of this group predominantly chose responses such as “I cannot adjust to changes”, “the future does not depend on me”, “I do not trust”, “I am not ready to join with others”, “I do not belong”, “I do not participate”, “traditions should be observed”, and “the problems of individuals should be solved by the state”. They generally take a negative view of innovations and are characterized by attitudes of distrust and rejection of the new. An orientation toward state paternalism predominates. These are *steadfast conservatives*.

The second group included respondents with a higher index, designated as having a low innovativeness index (provisionally, Type 2). Members of this group are wary of the new. Their attitudes are more conservative and closer to those of the first type, but their stance is less categorical. A potential for adaptation is already discernible. These can be described as *paternalist traditionalists*.

The third group brought together respondents with a medium-level innovativeness index (provisionally, Type 3), who made up a substantial share of those surveyed. These individuals accept the new and are ready for it if they see personal benefit, which allows them to be characterized as pragmatists. This group enables the diffusion of innovations in society. They understand the utility and convenience of adopting innovations in their lives but may also resist imposition, opposing external pressure to one degree or another. These are *pragmatists*.

The fourth group consists of those with a relatively high innovativeness index (provisionally, Type 4). In essence, the fourth group represents *social activists*. They adapt to change easily, have like-minded people around them, are the first to embrace a novelty, see change as a resource, and perceive it positively. In many respects, they block oppositional behavior on the part of their colleagues.

Respondents with a high-level innovativeness index were assigned to the fifth group (provisionally, Type 5). In answering the indicator questions, its members were more likely than others to choose responses such as “changes bring opportunities”, “my future is in my own hands”, “I am ready to trust and join with others”, “I belong and participate”, “problems should be solved independently”, and the like. The fifth group encompasses *innovator-leaders*. Those in this group actively construct the future; they are the main conduits and initiators of change and perceive the future as a field of opportunity. These are individuals with a high level of social capital who are capable of taking responsibility upon themselves. The distribution of respondents across the groups reveals their attitudes toward innovations in the most diverse spheres of life.

The empirical base for the study was provided by research conducted in 2025 on the territory of the Vologda Region as part of the projects “Genius Loci and the Spirit of the Times” (Leontief Center for Social and Economic Research) and “Sociocultural Development and Sociodynamics of Public–State Relations in Russian Regions” (VolRC RAS, state assignment No. FMGZ-2025-0015). The project was carried out within the paradigm of quantitative research. The methodology rests on a mass survey of the population of large cities of the Vologda Region. The sample consisted of 800 people aged 18 and over. The sample was a two-stage quota sample with territorial control, with districts selected within the region’s large cities and covering different types of residential development. At the second stage, interviewers followed a random-walk procedure with a fixed sampling step.

Results and discussion

The surveys carried out in the large cities of the Vologda Region – Vologda and Cherepovets – yielded sufficient material for calculating the innovativeness index. The integration of conceptual perspectives creates a theoretical and methodological framework for constructing an index capable of capturing the characteristics of

a territorial community's innovativeness. This task requires turning to empirical methods of data collection and their analytical generalization, with the possibility of developing an innovativeness index for a territorial community that provides a quantitative assessment of the situation.

The analysis of the data identified groups of respondents who possess different innovativeness indices and who demonstrate marked differences in their attitudes toward innovations in various spheres of life; it also revealed the actual balance of polar attitudes and the specific features of the two cities' sociocultural landscape (*Tab. 1*).

Table 1. Urban residents' innovativeness level, %

City	Innovativeness level				
	1	2	3	4	5
Vologda	5	35	42	17	1
Cherepovets	4	20	50	20	7
Source: sociological survey data, April–May 2025, Vologda Region.					

A comparison of the low-innovativeness groups (Types 1 and 2) with the high-innovativeness groups (Types 4 and 5) in Vologda shows that the share of the population holding paternalistic-conservative attitudes exceeds the share of those who display innovative activity. The situation in Cherepovets is somewhat different: there, innovators (groups 4 and 5) enjoy a slight edge over conservatives (groups 1 and 2). In both cities, the most numerous group is that of the pragmatists (Type 3), which occupies an intermediate position and represents a potential resource for the diffusion of innovations, provided the innovations are perceived as practically useful. Thus, the sociocultural landscape of the urban population is characterized not so much by polarization as by a moderate predominance of low-innovativeness attitudes, together with a critical mass of a pragmatic majority.

Within the confines of an article, we have limited scope to demonstrate the application of the

index we have developed. Nevertheless, let us consider a few examples. We will focus on urban residents' attitudes in the professional sphere, since this is the domain in which opportunities for self-fulfillment and initiative are most likely to arise (*Tab. 2*). In this sphere, the differences between the two city communities are quite substantial along a number of parameters.

The level of innovativeness substantially differentiates work-related priorities. The shift from low to high values of the index is accompanied by a drift from the need for safety, stability, and hierarchical relations toward the need for autonomy, influence, creativity, and adequate material reward. At the same time, the profile of the “innovative worker” can take on particular local shades, pointing to the importance of such a factor as the city's sociocultural environment. Even so, the broad trends are clearly discernible: a movement from survival to development. For groups 1 and 2, where basic, essentially protective values predominate, the most important considerations are occupational safety, stability, and good relations with management; initiative and the ability to influence the enterprise carry virtually no weight (5–13%). This is a strategy of adaptation and holding on to one's job. The third group is something of a tipping-point zone: here, the highest values are attached to job stability and pay. There is already a readiness for the new, but the need for a solid foundation remains quite high. A high innovativeness index (groups 4 and 5) is associated with a drift toward autonomy and influence and toward the importance of job content. Maximum values are reached on the scales “ability to influence the enterprise,” “work independently,” and “show initiative.” The need for “safety” and “relations with the manager” drops sharply.

A rise in innovativeness invariably increases the demand for freedom and influence. Yet whereas in Vologda, the region's administrative center, the

Table 2. Distribution of answers to the question “Which of the following characteristics of your workplace are most important to you?” by innovativeness index, %

Response option	Innovativeness level				
	1	2	3	4	5
	Vologda				
Safety (minimal risk to life and health)*	29	22	39	39	20
Ability to influence the enterprise's operations**	5	6	18	30	40
Opportunity to benefit society	14	18	19	18	20
Opportunity to show initiative and creatively solve tasks	19	11	22	20	20
Opportunity to work independently	33	21	21	26	60
Opportunity to realize one's abilities, skills, and knowledge	33	21	26	39	20
High wages*	38	56	67	52	80
Reliability and stability of the workplace	43	56	51	41	40
Relations with managers	43	36	27	23	40
Relations with co-workers	24	42	31	26	60
Prospects for professional and career advancement**	0	12	27	14	40
Work leaves time for leisure and personal life	14	18	14	17	0
The job is respected in your social circle**	5	4	7	20	0
Job content (that the work is interesting)	14	11	11	15	20
	Cherepovets				
	1	2	3	4	5
	Cherepovets				
Safety (minimal risk to life and health)**	56	64	47	47	19
Ability to influence the enterprise's operations	13	9	6	9	22
Opportunity to benefit society**	6	6	6	17	22
Opportunity to show initiative and creatively solve tasks**	6	8	5	22	41
Opportunity to work independently*	19	27	29	46	44
Opportunity to realize one's abilities, skills, and knowledge**	19	18	35	57	30
High wages	50	60	69	72	56
Reliability and stability of the workplace**	25	63	73	58	33
Relations with managers**	56	42	17	19	22
Relations with co-workers**	50	51	31	22	48
Prospects for professional and career advancement	38	17	17	19	26
Work leaves time for leisure and personal life**	13	37	48	27	11
The job is respected in your social circle**	6	4	17	16	30
Job content (that the work is interesting)	38	18	27	24	26

* Variable significant at $P < 0.05$; Kruskal – Wallis test $\chi^2 > 10.9$, $df = 4$.
** Variable significant at $P < 0.01$; Kruskal – Wallis test $\chi^2 > 10.9$, $df = 4$.
Source: sociological survey data, April – May 2025, Vologda Region.

“innovator” tends to be an autonomous, career-minded professional who is ready to work for himself and for a higher salary, in Cherepovets, the industrial hub, what is more in demand are initiative-oriented team members for whom both the opportunity to be creative and the recognition of co-workers matter. This points to a more collectivist character of work, in which even innovative tasks are tackled in teams – likely project groups at large enterprises. The industrial context suggests the importance of horizontal prestige and of one's

reputation within the professional milieu, which is typical of long-established factory workforces with a strong presence of occupational dynasties and communities.

No less interesting are the findings we obtain when we examine the choices of alternatives in response to the question “What kind of work would you prefer today if you could choose?” (Tab. 3). The innovativeness index makes it possible to see the link between readiness for the new and attitudes toward stability, risk, income, and free time.

Table 3. Distribution of answers to the question “what kind of work would you prefer today if you could choose?” by innovativeness index, %

Response option	Innovativeness level				
	1	2	3	4	5
	Vologda*				
To have a modest but steady income and confidence in tomorrow	24	19	30	21	20
To have a small income but more free time and an easier job	33	42	14	18	20
To earn a lot, even without special guarantees for the future	14	24	25	29	20
To have one's own business and run it at one's own risk	29	7	9	13	0
To earn a lot by devoting oneself entirely to work	0	9	21	21	40
	Cherepovets**				
	1	2	3	4	5
To have a modest but steady income and confidence in tomorrow	44	40	26	4	7
To have a small income but more free time and an easier job	25	22	12	10	11
To earn a lot, even without special guarantees for the future	13	18	37	34	26
To have one's own business and run it at one's own risk	0	5	10	24	22
To earn a lot by devoting oneself entirely to work	19	14	16	28	33

* Variable significant at $P < 0.01$; Fisher's exact test = 52.275.
 ** Variable significant at $P < 0.01$; Fisher's exact test = 70.460.
 Fisher's exact test with Monte Carlo approximation (10,000 samples, 99% CI) was used to analyze the association because some cells in the table had an expected frequency of less than 5.
 Source: sociological survey data, April – May 2025, Vologda Region.

As the innovativeness index rises, a regular shift is observed from conservative employment models toward more active and entrepreneurial ones. When the index is low (groups 1–2), the demand for certainty predominates. People prefer a modest but steady income and confidence in tomorrow, or are prepared to sacrifice income for free time and an easier job. Risk and total dedication to work are alien to them.

The middle index (group 3) once again proved to be a tipping-point zone. The appeal of an “easy job” drops sharply, while interest in high earnings without guarantees grows. Individuals begin to bet on income, even if it entails instability. At a high index (groups 4–5), a demand for an intensive work model and independence takes shape. The highest values are reached for the strategy “to earn a lot by devoting oneself entirely to work”. At the same time, the share of those wishing to have their own business increases (especially in Cherepovets), whereas the need for guarantees and free time recedes into the background. It is entirely possible that such attitudes bring about tangible results. In Cherepovets, the

median salary is 60,000 rubles⁸, whereas in Vologda it is 50,000 rubles⁹.

The urban environment leaves a significant imprint on these preferences, which is reflected in the profile of the “innovative worker”. The groups of respondents identified on the basis of the index displayed clear differences in their work-related priorities, revealing substantial distinctions in the structure of the innovative potential of the two city communities. Residents of Cherepovets show a greater readiness for technological changes and novelties, which is expressed in a larger share of groups with a high or relatively high innovativeness index. In Vologda, by contrast, respondents with medium and low scores predominate, a pattern that may be linked to conservative attitudes and the specific features of the city's occupational structure. The proposed toolkit not only captures the current

⁸ GorodRabot.ru. Available at: <https://cherepovets.gorodrabot.ru/salaries#salary-statistics-chart-item-3> (accessed: 26.04.2026).

⁹ GorodRabot.ru. Available at: <https://vologda.gorodrabot.ru/salaries#salary-statistics-chart-item-1> (accessed: 26.04.2026).

distribution of attitudes but also makes it possible to uncover the link between innovativeness and life strategies.

A curious finding of the study was the discovery of a high share of those wishing to start their own business among the least innovative group of Vologda residents. This appears to be a contradiction only at first glance. Among the respondents in this group there is a considerable share of self-employed individuals. This category has no desire to change its stance in life (conservatism), and its members really are prepared to run their own business at their own risk. What matters here is that this information can serve as a basis for formulating specific managerial decisions targeted at this particular category.

Conclusion

The indicator model developed in the course of this study and the innovativeness index calculated on its basis represent an attempt not only to operationalize the complex sociocultural phenomenon of innovativeness but also to translate it into the realm of quantitative measurement. Testing the methodology on data from large cities of the Vologda Region has confirmed the diagnostic capacity of the model. The index makes it possible to identify the main features of a respondent's "innovativeness profile", which is a particular configuration of sociocultural attitudes and behavioral dispositions that characterizes readiness for change and attitudes toward the new. The group with a low index value – Type 1 (*inertial-paternalistic profile*) – exhibits an extremely low capacity to adapt to changes, often perceiving them as a threat to the established order. Its members are characterized by an external locus of control, generalized distrust, a low level of readiness to join with others and cooperate, and an absence of involvement in collective action. Their value focus is oriented toward the preservation of tradition and stability.

Type 2 (*wary-conservative profile*) displays a restrained, guarded attitude toward novelties, though without rejecting them outright; yet there

is no initiative either. The conservative attitudes are tempered by an adaptation potential that has not yet been activated. Paternalistic expectations are less categorical than in the first type. The profile is characterized by a situational readiness to accept the new, provided that there is external reinforcement and a demonstration of clear advantages. Type 3 (*pragmatic-adaptive profile*) accepts the new not on value grounds but on utilitarian ones. When changes bring practical benefit, convenience, or advantage, this type acts as an active user of innovations, ensuring their diffusion in everyday and professional practices. This type is emotionally neutral toward novelty or moderately positive. Readiness to cooperate is instrumental in nature. This profile acts as the main conduit of innovations in society, not generating them but effectively assimilating them.

Type 4 (*social-activist profile*) perceives change as a resource and a source of opportunities for growth. This makes the type adaptive, capable of finding like-minded people and building cooperative networks. It is the first to embrace novelties and can act as an agent of their promotion; it is characterized by an internal locus of control and a readiness to take responsibility for itself and those around it. This, in turn, enables it, to a certain extent, to neutralize oppositional and inertial attitudes within a collective. The high index value distinctive of Type 5 (*innovation-leader profile*) reveals it as an initiator and conduit of change, highlighting its capacity to generate new knowledge, make decisions, and assume responsibility under conditions of uncertainty. This profile sets the vectors of innovative development, acting as a driver of sociocultural and technological transformations, and is capable of actively constructing its own future, perceiving it as a field of personal opportunity.

The practical significance of the developed approach can be seen on several levels. First, the indicator model opens up possibilities for

monitoring the dynamics of innovative potential. Regular measurements make it possible to assess the effectiveness of the strategies being implemented, to track shifts in the population's value orientations, and to adjust managerial decisions in a timely manner. This takes on particular value in the context of large-scale infrastructure or technological projects, where the success of implementation directly depends on a community's readiness for change.

Second, the proposed toolkit enables authorities and development institutions to move from "blind" stimulation of innovation to targeted work with specific population groups. Understanding which segments of a community are the bearers of innovative attitudes and which adopt a conservative stance makes it possible to design differentiated communication strategies: creating spaces for self-fulfillment and horizontal ties for the "innovator-leaders"; demonstrating the concrete benefits of novelties to the "pragmatists"; and helping to lower anxiety among the "traditionalists" through social protection mechanisms and their gradual involvement in the orbit of change.

Third, the methodology can be scaled to other levels and objects. Its application appears promising for analyzing the innovativeness of professional and sectoral communities, youth cohorts, as well as for comparative studies of small towns and rural areas. The patterns identified can serve as the basis for a typology of municipalities by the character of their innovative potential, which would lay the groundwork for a more finely tuned regional policy.

Thus, the study has confirmed the hypothesis that innovative potential is a measurable parameter that can be effectively used in the practice of managing territorial development and shaping an innovation environment.

Further research in this direction is capable not only of deepening the theoretical understanding of the mechanisms of social development but also of offering practical solutions aimed at the harmonious combination of technological modernization with the preservation and strengthening of a community's social fabric. Innovations stripped of their human dimension remain mere technique; innovations that draw on living social capital become a genuine driver of development.

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In Search of Patriotic Activism: Between Declaration and Reality



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Abstract. The historical period marked by a shift in the world order and the transition from a unipolar to a multipolar system presents the world's key nations with a set of existential challenges related to spiritual, moral, and cultural self-determination over the strategic horizon. This challenge is especially urgent for Russia, which, since the start of the special military operation in Ukraine, has been undergoing a comprehensive transformation of all spheres of life. At the heart of this transformation lies a rejection of the liberal-capitalist paradigm and the adoption of a sovereign course of national development, based on traditional cultural and moral values and on the country's self-definition as a civilization-state. Although recent legislation has outlined the contours of Russia's desired future, these contours still require further specification, as evidenced by ongoing debates around such concepts as ideology, the image of the future, and so forth. One such concept is patriotism — a term that Presidential Decree 809 of November 9, 2022,

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includes in the list of traditional values that shape the worldview of Russia's citizens. This circumstance lends urgency to scholarly inquiry into the content and key characteristics of patriotism and into how it is perceived today by various groups of Russian society. The present study aims to contribute to this inquiry. Its objective was to identify the relationship between the level of patriotic self-identification and subjective assessments of the population's civic engagement – including people's sense of responsibility for the state of affairs at different levels of social life – drawing on the case of the Vologda Region, one of Russia's federal subjects. The empirical basis of the paper includes the findings of a sociological survey conducted by the Vologda Research Center of the Russian Academy of Sciences in the region in April 2025 (N = 1,500). The data were processed using cross-tabulation analysis, with Cramér's V coefficient computed to gauge the strength and significance of the associations among the nominal variables. The analysis yielded a socio-demographic profile of the respondents who identify themselves as patriots, and an assessment was made of the relationship between the degree of patriotic self-identification across different categories of citizens. In substantive terms, people's perceptions of patriotism were found to be dominated by the worldview component, which prevails over the activity component – a pattern manifesting itself in the combination of a high degree of patriotic self-identification with a relatively low level of civic engagement. The study also compares the data obtained with the results of similar surveys conducted at both the federal and regional levels. Our contribution lies in developing a methodological approach to investigating the characteristics and perceptions of citizens regarding patriotism that rests on empirical data, thereby making it possible to use this approach for comparative analysis in similarly themed research projects, as well as in the practice of public administration.

Key words: patriotism, activism, responsibility, civic engagement, attitudes, homeland, region, identity, values.

Introduction

The Special Military Operation, always aimed at protecting people who, for eight years, “have been facing humiliation and genocide perpetrated by the Kiev regime...” as well as the demilitarization and denazification of Ukraine¹, effectively became a trigger for global transformations, initiating an active phase of the irreversible shift from a unipolar to a multipolar world order. During this “transitional” period, key countries worldwide face the question of civilizational choice, which will determine their fate for decades, perhaps even centuries, to come.

This challenge is doubly relevant for the Russian Federation, as the civilizational conflict, active

phase of which began in 2022, is accompanied by a radical restructuring of the country's internal development, driven by the rejection of the liberal-democratic model that existed for the past 30 years. Essentially, Russia has known no other model since the dissolution of the USSR; however, it has been publicly acknowledged today at the highest level of state governance that this “path involved covert interventions aimed at subordinating Russia to the interests of other nations that believed they had the right to do so”².

Nevertheless, although it has been determined that Russia is no longer “the West”, the question “who are Russians?” remains relevant. It is logical

¹ Address by the President of the Russian Federation on February 24, 2022. Official website of the RF President. Available at: <http://www.kremlin.ru/events/president/news/67843>

² Speech by V. Putin at the plenary session of the Valdai International Discussion Club on November 7, 2024. Official website of the RF President. Available at: <http://www.kremlin.ru/events/president/transcripts/75521>

that there are heated debates in scientific and public areas regarding concepts such as “ideology”, “vision of the future”, “social contract”, and so on. Crucially, the framework of this discourse has been delineated by the state – not only in public statements but also at the legislative level³. This framework can be defined by the concepts of national sovereignty, patriotism, Russia as a “state-civilization”, traditional spiritual and moral values.

Our research focuses on the concept of “patriotism”. Although Russian legislation lacks a clear definition, the President has repeatedly stated that “we do not have and cannot have any other unifying idea other than patriotism”⁴, that “solidarity and patriotism have always been the greatest values”⁵ for Russians, and that “being a patriot means not only to treat one’s national history with love and respect, although, of course, that is very important, but first and foremost to serve one’s country and society”⁶.

Patriotic sentiments in society have always been the subject of special research in Russian humanities; however, the Special Military Operation in Ukraine shifted the focus, initiating a new body of work dedicated to this phenomenon. These studies document the “rally-under-the-flag”

effect (Vinogradova, 2024; Kosygina, 2023) and note the prevalence of “committed” patriots over “moderate” ones. Comparing data from 2020 and 2024 on the prevalence of various types of patriotism suggests a qualitative transformation: in 2020 the system of patriotic attitudes among Russians was in a stable state with a dominance of modernist tendencies, while in 2024 a “flip” of the entire system of patriotic beliefs into a qualitatively different but equally stable state was recorded, this time with a dominance of traditionalist tendencies (Kuznetsov, 2024).

The results of recent nationwide sociological surveys confirm that the vast majority of citizens identify themselves as patriots. According to VCIOM 2024 polls, 94% of Russians call themselves patriots of Russia⁷. The dynamics of indicators is also positive: in 2025, 61% of citizens noted that in the past year they felt they were proud of Russia more frequently than before⁸. Patriotism ranks among the top three key values of the population⁹. Moreover, every second respondent (52%) believes that the Special Military Operation has rather contributed to the consolidation of Russian society¹⁰. A significant role in maintaining this trend is played by state and public institutions implementing relevant projects, programs, and public events (Borshchevskiy, 2024; Polyakov, 2025).

At the same time, a body of theoretical and empirical research indicates the existence of substantial differences between patriotism as an emotional attitude and patriotism as an activity.

³ See, for example: RF Constitution amended on July 4, 2020; On the approval of basic principles of national policy on the preservation and strengthening of traditional Russian spiritual and moral values: Presidential Decree 809, dated November 9, 2022; On the approval of the concept of the foreign policy of the Russian Federation: Presidential Decree 229, dated March 31, 2023; On the approval of basic principles of national policy of the Russian Federation in the field of historical education: Presidential Decree 314, dated May 8, 2024, etc.

⁴ Speech by V. Putin at a meeting with the core group of the Leaders Club on February 3, 2016. Official website of the RF President. Available at: <http://kremlin.ru/events/president/news/51263>

⁵ Speech by V. Putin at the ceremony of presenting Hero of Labour medals and Russian Federation National Awards on June 12, 2026. Official website of the RF President. Available at: <http://kremlin.ru/events/president/news/80016>

⁶ Address of the RF President to the Federal Assembly on December 12, 2012. Official website of the RF President. Available at: <http://www.kremlin.ru/acts/bank/36699>

⁷ On modern Russian patriotism. 2024. VCIOM. URL: <https://wciom.ru/analytical-reviews/analiticheskii-obzor/o-sovremennom-rossiiskom-patriotizme>

⁸ Russians are proud of their country! VCIOM. 01.09.2025. Available at: <https://wciom.ru/analytical-reviews/analiticheskii-obzor/u-rossiiskikh-sobstvennaja-gordost>

⁹ Traditions in the era of change. VCIOM. 29.12.2023. Available at: <https://wciom.ru/analytical-reviews/analiticheskii-obzor/tradicii-v-ehpokhu-peremen>

¹⁰ Our strength is unity! VCIOM. 01.11.2025. Available at: <https://wciom.ru/analytical-reviews/analiticheskii-obzor/sila-v-edinstve>

A patriotically inclined citizen may express verbal support for patriotic values and attitudes while avoiding active practices in everyday life (Chang, Guo, 2022). However, true patriotism includes not only an emotional attitude or understanding of the value of national identity but also its active defense through deeds (Ivchenkova, Bukhanskii, 2024). Based on this, we consider it necessary to quantitatively assess the gap between patriotic attitudes and their potential realization in people's behavior.

The subject of this study is the relationship between patriotic self-identification and behavioral manifestations (activism, responsibility, influence) at different levels of social organization. The aim of the work was to identify the relationship between the level of patriotic self-identification and self-assessed parameters of civic engagement, responsibility, and subjective perceptions of one own's influence at various levels of social organization, using one of Russia's regions – the Vologda Region – as a case study.

Theoretical framework of the study

In the foreign research tradition, the works of R.T. Schatz and E. Staub made a significant contribution to understanding active patriotism, distinguishing between “blind” and “constructive” patriotism (Schatz et al., 1999; Staub, 2015). “Constructive” patriotism implies critical reflection on the country's problems and readiness for active action to solve them, whereas “blind” patriotism is limited to emotional attachment and uncritical loyalty. This distinction is directly relevant to our research subject, as it allows differentiating passive forms of patriotic identity from those that have the potential to translate into activity.

It is important to note the evolution of Western discourse, associated with its prolonged convergence with nationalism (national-patriotism), which was expressed in the idealization of the nation, a sense of national superiority, and aspirations for

dominance (Viroli, 1997), subsequently giving rise to the concept of “cosmopolitan patriotism” as a reaction to these tendencies (Bader, 1999). In the context of patriotism, cosmopolitanism is based on loyalty to humanity as a whole and is contrasted with local/national patriotism (Nussbaum, 1996; Kuznetsova, Kuznetsov, 2015; Karnyshev, 2017). On the contrary, D. Miller argues that civic democracy is impossible without patriotism as a mechanism of social solidarity, and cosmopolitan identity cannot substitute national attachment (Miller, 1995).

The features of Russian patriotism include its rootedness in traditional values and strong connection with the local level (Polomoshnov, Polomoshnov, 2024), which substantiates reference to domestic research.

The sociological approach in Russian academic discourse is oriented toward the study of patriotism in all its aspects empirically captured in public consciousness. Within this framework, patriotism is viewed as a form of social attitude with emotional, value-based (cognitive), and activity-based (behavioral) components in its structure (Ivchenkova, Bukhanskii, 2024; Šuvaković, Trotsuk, 2013). From the perspective of the present study, the activity-based component is central, and it requires analyzing not only perceptions of proper behavior but also actual practices. In this regard, it is necessary to consider the theory of social action. According to the activity-based approach, developed by A. Touraine (Touraine, 1998), patriotism is revealed through helping relationships in the objective environment (Reshetnikov, Reshetnikova, 2020), which allows patriotic activity to be viewed not as an abstract category but as actual practices of human interaction with the surrounding world.

From a methodological viewpoint, the approach of I.A. Khalii (Khalii, 2017a; Khalii, 2017b) is of great value for this study. Based on the results of an empirical study conducted in nine regions of

European Russia in 2013–2015, the author proposes a typology of attitudes toward motherland, which includes three types: unconditional patriotism, transformative love, and indifferent attitude. The second type – transformative love – is essential for our research. It includes not only an emotional attitude but also a readiness for active action for the greater good of the country, region, or local community. This type is closest to understanding patriotism as an active position, as it combines value-based attitudes with practical involvement. It is worth noting that transformative love can be directed toward objects of different levels – from the whole country to one’s own yard or city – and it manifests itself most clearly at the local level (Khaliy, 2017b).

Also key is the concept of social action by O.V. Aksenova, a colleague of A.I. Khaliy, who distinguishes between “actor action”, “actor social action” (initiative, meaningful activity in which the individual acts as a full-fledged actor), and “technological social action” (activity based on following external prescriptions and administrative algorithms) (Aksenova, 2020; Aksenova, 2016). This dichotomy corresponds to our task of differentiating patriotic activism from ritualized loyalty.

Although the present study does not focus on youth, theoretical developments in this area are important for understanding the dynamics of patriotic attitudes in general. The works of Yu.A. Zubok, V.I. Chuprov, and colleagues show that patriotism and civic identity are formed not linearly but through mechanisms of self-regulation of life purpose values in the cultural space, with collectivist attitudes important for patriotic identity being closely linked to an active life position, and the nature of this relationship varying across different age cohorts (Zubok et al., 2021; Zubok, Chuprov, 2019).

Furthermore, the concept of patriotism is connected with value studies. According to

M. Rokeach’s classification of values, patriotism belongs to terminal values, as it can be considered a value associated with the goals of individual existence aimed at prosperity of the country, its history, culture, population, and other aspects significant to the individual or society (Rokeach, 1973). R. Inglehart classified patriotism as a traditional value. Within his theory and methodology based on World Values Survey (WVS) data, he identified two main axes of classification. The first axis – traditional values versus secular-rational values – reflects the shift from religiosity, strong family, and national pride toward greater secularization and rationality. The other axis – survival values versus self-expression values – involves a transition from an emphasis on safety, material goods, and survival to values of self-realization, minority rights, participation in decision-making, and environmental responsibility. Patriotism falls into the group of traditional values, which are contrasted with secular-rational ones. So, for Inglehart, patriotism is associated with conservative, historically established attitudes that may persist in society if priority is given to traditions and national interests (Inglehart, 1997).

As A.P. Pavlov notes, “the object of patriotism has changed depending on the individual’s social environment and the stage of social evolution” (Pavlov, 2018, p. 176). The classification proposed by the scholar is based on the concept of “object of loyalty”, understood as an element of reality connected with a social feeling. Within this classification, the researcher identifies types of patriotism (tribal; local; national; state; class-based; corporate) corresponding to specific objects of loyalty (family, tribe; village, city; nation, people; state; social class; organization). This classification demonstrates the dynamic nature of the perception of patriotism and allows for an expanded interpretation of its object of attention, creating foundations for a multidimensional and

differentiated understanding of the essence of patriotism. This is particularly important for empirical research, as it allows considering the varying orientations of patriotic activity – from care for one's yard to service to the state.

At the same time, a methodological problem is the distinction between patriotic activity and related forms of activity. Many researchers tend toward a broad interpretation, integrating diverse practices of social participation into the concept of patriotic activity (Lubsky, 2019; Chuprov et al., 2014). In this context, patriotic activity substantively converges with civic/social activity, defined as actions by citizens aimed at addressing socially significant problems (Patrushev, 2009). R.V. Parma, based on empirical data, identifies the leading motives of social activity: the opportunity to be useful to others, fulfill one's civic duty, solve common problems together, and achieve self-realization (Parma, 2022). Unlike civic activity, patriotic activity in the strict sense is based on the dominance of patriotic motives in the motivational structure, which significantly narrows the range of practices which correspond to this category. However, in actual citizen behavior, patriotic and civic motives are often intertwined, requiring a more flexible approach to their conceptualization.

Researchers have demonstrated the staged nature of patriotic activity development. For example, Yu.N. Trifonov and A.V. Kuz'min note that at the final stage of forming love for motherland, the patriotic attitude is realized in practice through specific actions and deeds, which become the content of patriotic activity (Kuz'min, Trifonov, 2016). Similarly, D.E. Yakovlev and G.F. Shilova think that "contemporary patriotism should be based on activities, transforming feelings and emotions into social action for the benefit of motherland" (Yakovlev, Shilova, 2016, p. 93). Their

research allows patriotic activity to be viewed not as an isolated element but as a natural stage in the development of patriotic consciousness, which is of fundamental importance for understanding the gap between declarative patriotism and the real involvement of citizens.

For the purposes of this study, it seems beneficial to adopt a broad approach to patriotic activity, which substantively converges with civic engagement and extends to multiple objects of care, including the local community, the birthplace, and the social environment. In this case, patriotic activity is understood as diverse, active participation in improving the living conditions of society and individual citizens, where patriotic values may be present among other motivational bases.

The research question (hypothesis) is as follows: is there a statistically significant relationship between the level of patriotic self-identification and actual civic engagement, or does high self-identification coexist with passivity, suggesting a predominance of declarative patriotism over activity-based patriotism?

Materials and methods

The study is empirically based on data from a sociological survey conducted in April 2025 by the Vologda Research Center of the Russian Academy of Sciences in the Vologda Region. A quota sampling method was employed, controlling for proportions across three criteria: type of settlement (urban/rural), gender, and age of respondents. This design allows representing the general adult population of the region. The sample size was 1500 respondents. The research tool was a standardized questionnaire, with blocks of questions aimed at identifying socio-political attitudes, value orientations, and practices of civic and patriotic participation. Questions that allow analyzing key indicators in stages were selected from the general dataset.

At the first stage, patriotic self-identification was determined through respondents' answers to the question: "Do you consider yourself a patriot?" (response options: "definitely yes", "rather yes", "rather no", "definitely no"). Based on this question, four groups were constructed. For the analysis of the socio-demographic profile, these categories were aggregated into two broad groups: "patriots" and "non-patriots".

At the second stage, respondents' perceptions of patriotism were identified by analyzing responses to questions about concepts of motherland and patriotism, satisfaction with life in Russia, and actions that manifest patriotism, divided into active and passive forms.

At the third stage, behavioral manifestations of patriotism were assessed: self-assessment of social activity (10-point scale), sense of responsibility, and self-assessment of respondents' influence at different levels (from home to the country). A limitation related to the measurement of the activity-based component of patriotism should be noted. The research tool measures not actual practices of civic participation but attitudes toward these practices and respondents' self-assessments of their own activity, responsibility, and influence. For example, the questionnaire records opinions on whether military service is a manifestation of patriotism but does not record actual service experience. Similarly, respondents assess their degree of participation in public life on a subjective scale and their sense of responsibility for the state of affairs, rather than their involvement in specific actions. The distinction between declared attitudes and actual behavior is the key subject of analysis, but the study itself, due to its design, is focused on examining attitudes and self-assessments.

The study employed cross-tabulation analysis to identify relationships between patriotic self-identification and the attitudes and practices under study. To assess the value and significance of the

relationship between nominal variables, Cramér's V was used, with statistical significance assessed at $p < 0.05$. This coefficient is taken due to its robustness to violations of normality and its applicability to contingency tables of any size. This approach allowed not only recording differences between groups with various levels of patriotic self-identification but also to determine the statistical significance of these patterns.

Results

Before turning to the identification of relationships, it is necessary to examine the profile of patriots and non-patriots. Among patriots, there is a slight predominance of women (57%). Middle-aged and older individuals are more patriotically inclined. At the same time, age is not a differentiating factor in identifying oneself as a patriot: the gap between the two groups is minimal. Material well-being and level of education are pronounced markers of difference between the groups. In total, 83% of self-assessed patriots consider themselves to be people with average or high incomes. Among the "non-patriot" group, the proportion of badly-off citizens is significantly higher. In addition, there is a pronounced territorial polarization: patriots are more likely to reside in large cities (Vologda and Cherepovets). Among those who do not consider themselves patriots, the majority are residents of districts and municipalities of the region (66%; *Tab. 1*).

A relationship was identified between the level of patriotic self-identification of the regional community and the concept of motherland. The Cramér's V ($V = 0.200$, $p < 0.001$) indicates the presence of a statistically significant relationship between the two nominal variables: self-assessment of patriotism and motherland identification. The higher the level of patriotic self-identification, the more often respondents name Russia as their unconditional motherland. Conditional patriotism is most widespread among groups with moderate or

unstable identity. Respondents who lack confidence defining their patriotic attitude are more likely than others to associate the feeling of motherland with the possibility of improving living conditions. A pragmatic approach to defining motherland prevails among those who do not consider themselves patriots. For this group, key factors are personal comfort and quality of life, rather than territorial or

cultural belonging. There is an increase in reflexive uncertainty as patriotic identity decreases. Those who rather do not consider themselves patriots are more likely to either not think about their personal motherland or find it difficult to answer, which may indicate a gap between official patriotic discourse and respondents' personal meanings (Tab. 2).

Table 1. Socio-demographic profile of groups with different levels of patriotic self-identification, %

Socio-demographic feature	Do you consider yourself a patriot?		Gap patriots / non-patriots, p.p.
	Patriots (Definitely yes or rather yes)	Non-patriots (Definitely no or rather no)	
Gender			
Male	43.5	49.3	-6
Female	56.5	50.7	+6
Age			
under 30	14.0	14.4	0
30–55	46.3	45.8	1
over 55	39.7	39.8	0
Education			
High school or middle school	31.9	50.2	-18
Vocational school	37.7	30.3	+7
Higher and incomplete higher education	30.4	19.4	+11
Income groups			
Bottom 20%	16.8	36.1	-19
Middle 60%	61.2	54.1	+7
Top 20%	22.0	9.8	+12
Place of residence			
Vologda	29.7	19.4	+10
Cherepovets	28.6	14.4	+14
Districts / okrugs	41.7	66.2	-25
Vologda Region average	85.2	13.4	-72
Source: VolRC RAS sociological survey data.			

Table 2. Distribution of responses to the question “Where is your motherland?” by patriotic self-identification, %

Response option	Do you consider yourself a patriot?			
	Definitely yes	Rather yes	Rather no	Definitely no
How would you answer the question “Where is your motherland?”				
I think Russia is my motherland	86.9	66.5	40.6	41.7
I would like to consider Russia my motherland, provided that living conditions there are better than in other countries	4.1	10.9	14.5	11.1
I think motherland is where I feel comfortable and live well, regardless of where I was born	1.7	7.8	19.4	30.6
I've thought about it, but I'm still undecided	1.8	3.7	7.9	5.6
I haven't thought about this question	5.4	11.1	17.6	11.1
Cramér's V = 0.200 (p < 0.001) – moderate relationship. Source: VolRC RAS sociological survey data.				

Table 3. Satisfaction with life in the Russian Federation by patriotic self-identification, %

Response option	Do you consider yourself a patriot?			
	Definitely yes	Rather yes	Rather no	Definitely no
How do you assess satisfaction with your life in the Russian Federation?				
Fully satisfied	39.7	10.3	5.5	5.6
Rather satisfied	37.8	50.9	24.2	22.2
Rather dissatisfied	7.8	16.2	29.7	44.4
Completely dissatisfied	1.7	5.6	7.3	13.9
Not sure	13.0	17.0	33.3	13.9
Cramér's V = 0.220 ($p < 0.001$) – moderate relationship. Source: VolRC RAS sociological survey data.				

Developing this topic, it is worth noting that a comparative analysis of perceptions of quality of life in Russia among groups of respondents with different levels of patriotism is of particular interest. A relationship is observed: as patriotic feelings intensify, the level of satisfaction with one's life in Russia increases. For example, among those who definitely consider themselves patriots, the absolute majority (78%) are "fully or rather satisfied". In contrast, among those who deny their patriotic identity, a negative assessment of the quality of life in Russia dominates (*Tab. 3*). Thus, patriotism and life satisfaction are not isolated but closely interrelated socio-psychological characteristics, where stronger patriotic identity correlates with a sense of higher levels of social well-being.

The results of the study reveal an association between the population's self-assessment of their patriotism and the specific actions and deeds they identify as manifestations of patriotism. The higher the level of patriotic self-identification, the more often respondents tend to associate patriotism with concrete, institutional, and emotionally charged forms of activity. Conversely, among those who do not consider themselves patriots, the proportion of those who are not sure is significantly higher, which may indicate either a critical rethinking of the concept or a dissociation from official rhetoric.

The most pronounced difference between groups is observed regarding traditional, ritualized forms of patriotism. For example, military service and

readiness to defend motherland as a key attribute of patriotism is highlighted by 58% among those who definitely consider themselves patriots, whereas among those who rather do not consider themselves patriots, this figure drops to 29%, and among those who definitely do not, it stands at 25%. A similar, though less pronounced, trend is recorded regarding support for the president and Russia's leadership: 36% versus 17%, respectively. Essentially, for respondents with high patriotic self-identification, patriotism is closely associated with loyalty to state institutions and readiness to defend them.

At the same time, emotional-value components remain significant for all groups. Love and pride for the country are among the most frequent responses across all categories; however, as the level of self-identification decreases, their significance diminishes. We suggest that even the population that denies its patriotism does not exclude an emotional connection with the country but interprets patriotism differently – more as an internal feeling that does not require external expression.

The division of perceptions into active and passive forms shows that the group of those who definitely consider themselves patriots is more likely to name both active and passive manifestations. At the same time, active forms – such as military service, active citizenship, or preservation of historical memory – are most characteristic of this group. Meanwhile, for those who do not consider themselves patriots, either passive forms or the

absence of a definite position is more significant. The response option “good, conscientious work for the benefit of the country” stands out, with higher values among “definitely not patriots” (25%). It is notable that forms such as participation in patriotic events or support for Russian athletes receive minimal support across all groups, suggesting that these are perceived as secondary or temporary.

Cramér’s V coefficients calculated for the most frequent variables demonstrate a statistically significant, though weak, relationship between patriotic self-identification and perceptions of patriotism manifestations (Cramér’s V ranging from 0.151 to 0.188, $p < 0.001$ in all cases). Therefore, differences between groups are not random; however, patriotic self-identification is not the sole or determining factor in shaping these perceptions. The strongest relationship is recorded for the variable “military service, readiness to defend motherland” ($V = 0.188$), confirming its role as a marker distinguishing groups with different levels of patriotic self-identification (*Tab. 4*).

Due to the methodological characteristics of the research tool, the analysis of patriotic activity was based on a broad interpretation of the concept, encompassing manifestations of social and civic engagement of the region’s population. It was established that respondents with pronounced patriotic self-identification are more likely to be involved in socio-political practices. For example, among those who confidently consider themselves patriots, 27% assess their participation in social life as “active” or “rather active”, whereas among those who doubt their patriotism, this figure drops to 12–15%. However, even among committed patriots, the proportion of those actively engaged in public affairs remains relatively small. Moreover, 46% of respondents in this group openly state their social passivity. Self-assessment of participation is weakly but statistically significantly related to self-assessment of patriotism (Cramér’s $V = 0.122$, $p < 0.001$). The data obtained do not allow us to argue that patriotism is a key driver of political activity (*Tab. 5*).

Table 4. Perceptions of manifestations of patriotism by patriotic self-identification, %

Response option	Do you consider yourself a patriot?			
	Definitely yes	Rather yes	Rather no	Definitely no
If we talk about residents of Russia, what actions and deeds do primarily demonstrate patriotism?				
Active forms of patriotism				
Military service, readiness to defend motherland	57.8	38.5	21.8	25.0
Active citizenship, participation in the affairs of Russia	29.0	17.8	17.0	19.4
Good, conscientious work for the benefit of Russia	14.2	18.4	10.3	25.0
Participation in elections, rallies	13.5	12.8	5.5	8.3
Preservation of historical and cultural memory, participation in commemorative events	21.6	23.4	17.0	25.0
Participation in patriotic events, concerts	6.0	4.6	1.2	2.8
Passive forms of patriotism				
Lack of desire to leave Russia	47.8	34.6	23.0	30.6
Love, respect, pride for Russia	57.3	48.2	35.2	41.7
Support for the President and Russia’s leadership	36.0	24.0	18.2	16.7
Interest in events in Russia, participation in their discussion	16.2	22.1	11.5	27.8
Resilience, readiness to overcome hardships	8.8	11.4	9.7	2.8
Support for domestic producers	17.5	16.6	13.9	11.1
Support for Russian athletes	5.1	9.3	9.1	2.8
Not sure	15.6	18.6	45.5	33.3
Note: Cramér’s V coefficients range from 0.151 to 0.188, indicating a weak relationship between patriotic self-identification and perceptions of patriotism manifestations. In all cases, $p < 0.001$, the relationship is statistically significant. Source: VolRC RAS sociological survey data.				

Table 5. Self-assessments of participation in public and political life by patriotic self-identification, %

Response option	Do you consider yourself a patriot?			
	Definitely yes	Rather yes	Rather no	Definitely no
How would you assess the degree of your participation in public and political life?				
Active or rather active	27.1	15.5	12.1	22.3
Rather passive or passive	46.1	64.0	76.4	61.1
Not sure	26.8	20.5	11.5	16.7
Cramér's V = 0.122 ($p < 0.001$) – weak relationship. Source: VolRC RAS sociological survey data.				

A logical next step in the study was to analyze the degree and intensity of social activity. Analysis of self-assessed activity in the local community (on a 10-point scale) by patriotic self-identification revealed a positive relationship. The highest average participation score was recorded in the group of those who definitely consider themselves patriots (4.8), which predictably demonstrates their inclination to combine high patriotic identity with involvement in the local environment. At the same time, the group of absolute non-patriots shows an average score (4.4) exceeding that of groups with “mixed” identity: “rather yes” – 4.1 and especially “rather no” – 3.4¹¹. Also, the level of patriotism is higher among those engaged in socially significant practices (connected with sports, charity, volunteering, professional activities). Among non-participants, the share of “non-patriots” is maximal – 83%, while the proportion of committed patriots is 65%.

The study analyzed the relationship between the level of patriotic self-identification and perceptions of one's own responsibility, as well as the ability to influence the state of affairs at various levels of social organization: from the local to the national level.

Analysis of responses to the question about sense of responsibility reveals a general pattern across all groups of respondents: regardless of the level of patriotic identity, the sense of responsibility predictably diminishes as the object moves further

from the individual's immediate living space. The most pronounced sense of responsibility across all categories of respondents is recorded at the level of the house or yard (from 36 to 44%). At the same time, the sense of responsibility for the immediate environment is not related to patriotic self-identification (differences are statistically insignificant, $p > 0.05$). At the level of the city or district, the association becomes statistically significant but weak. Respondents who completely deny their patriotic identity are more likely than others to feel responsibility for their city or district. Contrary to expectations, those who unconditionally consider themselves patriots are not leaders in terms of sense of responsibility at any level. Overall, patriotic identification does not become a significant factor in the sense of responsibility at practically any level, except for the city and district (*Tab. 6*).

Respondents were asked whether they could personally influence the state of affairs (potential ability to influence). Unlike the sense of responsibility, a statistically significant, though weak, relationship with patriotic self-identification is recorded at most levels. At the house/yard level, the highest assessments are demonstrated by patriots. The differences are statistically significant (Cramér's V = 0.081, $p < 0.05$). In this context, patriotic identification is positively associated with belief in one's ability to influence at the local level. At the city/district level, the gaps become more pronounced. At the regional and national levels, the same pattern persists: among those who definitely

¹¹ The question was: “On a 10-point scale, assess your participation in the life of your community (yard, village, city) (where 1 – not involved at all, 10 – actively involved)”.

Table 6. Self-assessments of responsibility for the state of affairs at different levels by patriotic self-identification, %

Object of patriotism	Do you consider yourself a patriot?				Cramér's V
	Definitely yes	Rather yes	Rather no	Definitely no	
Do you feel responsible for the state of affairs?					
House/yard	41.5	39.8	35.8	44.4	0.056 (p > 0.05)
City/district	18.9	16.4	12.7	25.0	0.082 (p < 0.05)
Region	12.1	12.8	7.9	19.4	0.061 (p > 0.05)
Country	11.4	13.1	6.1	19.4	0.069 (p > 0.05)
Source: VoIRC RAS sociological survey data.					

Table 7. Self-assessments of potential ability to influence the state of affairs at different levels by patriotic self-identification, %

Object of patriotism	Do you consider yourself a patriot?				Cramér's V
	Definitely yes	Rather yes	Rather no	Definitely no	
Do you think you personally can influence the state of affairs today?					
House/yard	37.2	34.0	33.3	22.2	0.081 (p < 0.05)
City/district	13.5	11.0	4.2	13.9	0.109 (p < 0.001)
Region	9.1	8.3	4.8	8.3	0.079 (p < 0.05)
Country	9.2	8.5	5.5	8.3	0.077 (p < 0.05)
Source: VolRC RAS sociological survey data.					

and rather consider themselves patriots, similar indicators are observed (8–9%), while “rather non-patriots” show the lowest (5%; *Tab. 7*).

When assessing actual rather than potential influence, differences between groups become even more pronounced, especially at the local level. At the house/yard level, a predominance of patriotically inclined groups is observed. The differences are significant (Cramér's $V = 0.121$, $p < 0.001$) and confirm that patriotic identification

is a predictor, though weak, of the perception of real influence on affairs in one's house or yard. The most intriguing result is recorded at the regional and national levels. Here, the group of those who do not consider themselves patriots demonstrates high indicators of real influence (25% each), more than double the indicators of those who definitely consider themselves patriots (11% each), and these differences are also statistically significant (*Tab. 8*).

Table 8. Self-assessments of real influence on the state of affairs at different levels by patriotic self-identification, %

Object of patriotism	Do you consider yourself a patriot?				Cramér's V
	Definitely yes	Rather yes	Rather no	Definitely no	
Do you think you personally influence the state of affairs today?					
House/yard	34.8	31.9	13.3	22.3	0.121 (p < 0.001)
City/district	18.9	19.3	7.3	19.4	0.114 (p < 0.001)
Region	11.4	12.0	7.2	25.0	0.089 (p < 0.001)
Country	11.2	11.0	7.1	25.0	0.087 (p < 0.001)
Source: VolRC RAS sociological survey data.					

It can be concluded that patriotic self-identification is weakly or absolutely not related to the sense of responsibility and the perception of influence on the state of affairs at different levels. It cannot be said that patriots differ significantly from non-patriots on these indicators.

Discussion

The findings generally correspond to the main trajectory identified in nationwide and regional studies of recent years. First, the thesis of the predominance of the worldview (emotional) component of patriotism over the activity-based component is confirmed (Chang, Guo, 2022). In the Vologda Region, the overwhelming majority of the population identifies as patriots (85% total); however, regular and initiative-driven civic engagement is characteristic of a minority. Even among those who definitely consider themselves patriots, only 27% assess their participation as active, while 46% report passivity. The predominance of the emotional component is also confirmed by data from an all-Russian survey conducted by the HSE Center for Studies of Civil Society and the Nonprofit Sector (2020). According to the survey results, two-thirds (67%) of respondents understood patriotism as love for motherland, whereas only one in four (26%) associated patriotism with concrete actions for the benefit of the country¹². In mass consciousness, patriotism is primarily a feeling, not an action.

Second, there is a regional specificity of the Vologda Region. It demonstrates a lower level of activity-based involvement compared to the Far Eastern regions (Republic of Buryatia, Trans-Baikal Territory, Primorye Territory), where researchers record a pronounced activity-based character of patriotism (24–32% of respondents are ready to personally defend the country, a significant portion

participates in patriotic events, with interregional variation of 43–65%) (Petrova, 2025). This may be related to the border location of the Far Eastern regions and, consequently, the activation of security factors, which is less typical for central Russia. The Vologda Region is located near metropolitan centers and, accordingly, is more influenced by state patriotic discourse, which stimulates initiative-driven action (“actor social action” in O.V. Aksenova’s terminology) more than ritualized forms of loyalty (“technological social action”).

The comparison of the survey results from the Vologda Region with data from a study in the Republic of Sakha (Yakutia) reveals some common patterns and differences. In both regions, education and material well-being are significant factors of patriotism, while age is not a determinant factor. The key difference is observed in the proportion of “pragmatic patriotism”. O.V. Vasil’eva identifies in Yakutia “unconditional patriots” (54%) and “pragmatic patriots” (47%). The latter are those willing to live in any country with better conditions (Vasil’eva, 2024). In the Vologda Region, the proportion of “pragmatic patriots” (motherland is “where I feel comfortable”) is only 7–11%. This difference can be explained by the more challenging climatic and economic conditions of Yakutia, where the quality of life factor plays a greater role.

Contrary to expectations, ethnic belonging does not significantly influence patriotism in multi-ethnic Yakutia: among Yakuts, 75% are patriots; among Russians, 76% (Vasil’eva, 2024). In mono-ethnic Vologda Region (97% Russian according to survey data), the ethnic factor is not relevant.

In Yakutia, the proportion of “non-patriots” is extremely small (5.5%) and cannot be analyzed in detail. In the Vologda Region, on the contrary, an interesting feature was identified: respondents who definitely do not consider themselves patriots demonstrate higher indicators of responsibility and influence (both at the regional and national

¹² Patriotism: Emotions or action? Center for Studies of Civil Society and the Nonprofit Sector, HSE University. 24.02.2021. Available at: <https://www.hse.ru/news/science/446471871.html>

levels) compared to those who definitely identify as patriots. This is one of the distinctions of the Vologda Region.

Third, a result requiring cautious interpretation was recorded. The group of those who definitely do not consider themselves patriots in a number of cases demonstrates relatively high indicators (e.g., regarding sense of responsibility). However, the relationships in these cases are weak, and the size of this subgroup in the sample is small. With a high degree of probability, the observed differences are due to the small size of the sub-sample. We are inclined to interpret this result as requiring additional verification on a more representative sample of respondents with low patriotic identity.

Conclusion

To sum up the results of the study, we note several features that require careful consideration and further investigation.

We interpret patriotism as one of the foundational spiritual and moral values constituting citizens' worldview (at least in the desired image of Russia's future), and it should be noted that our findings indicate a predominance of the worldview component over the activity-based component in its perception, confirming the hypothesis formulated earlier. The majority of the population with high patriotic self-identification demonstrates patriotic feelings and attitudes; however, regular and initiative-driven civic engagement is characteristic of a minority. At the same time, the absence of activity is also not recorded: at the local level, representatives of the patriotic group perceive themselves as having real influence on the state of affairs. So, patriotism is realized more as a potential, situational position connected with local activities than as systematic civic engagement.

Contrary to expectations, the differences recorded in the study between the “definitely not

patriots” group and other groups do not reveal a systematic pattern. The high indicators of responsibility and influence in this group have weak relationships (Cramér's $V = 0.087-0.089$) and can be explained by the small size of the sub-sample. Additional research is required to confirm or deny the existence of a distinct “critically minded but socially responsible” group.

The study also revealed an asymmetry in the distribution of the “responsibility” and “influence” indicators. While the sense of responsibility is not statistically significantly related to patriotic self-identification at most levels (except for the city/district, where the relationship is very weak), confidence in the ability to influence at the local level (house/yard) are weakly but statistically significantly related to patriotic identity. This is likely due to the fact that patriotic identity is closely associated with a sense of self-efficacy in the immediate social environment but does not correlate with a global sense of responsibility.

It was established that the most passive group is the “rather not patriots”. Across all dimensions and at most levels, this category demonstrates the lowest indicators of civic activity, responsibility, and belief in their influence. So, the gap in civic position is not between “patriots / non-patriots” but between “rather not patriots” and all other groups.

Overall, the patterns identified in this study require going beyond the quantitative logic of the research. Further development of the work includes the integration of qualitative methods, the expansion of behavioral indicators, a longitudinal design, and interregional comparisons. Such an approach will not only allow verification of the findings but also facilitate the transition to understanding the causal mechanisms linking patriotic identity with civic agency and responsibility, civic engagement.

It should also be noted that further research not only on patriotism (its understanding and perception by various socio-demographic groups) but also on all other traditional spiritual and moral values recorded in Presidential Decree 809, dated November 9, 2022, is a vital task for Russian science which, in our view, can (and has to) make a significant contribution to the unification and specification of the interpretation of these rather complex, multidimensional concepts which are nevertheless crucial elements of the image of Russia's future.

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Public Opinion Monitoring of the State of the Russian Society

Continuing the tradition of our journal, we present the results of public opinion monitoring on the state of Russian society, conducted by the Vologda Research Center of the Russian Academy of Sciences (VolRC RAS) in the Vologda Region¹.

The tables and figures below show the dynamics of a number of indicators of social well-being and socio-political attitudes among the region's population based on the most recent wave of the monitoring (June 2026), as well as over the period from June 2025 to June 2026 (the last seven surveys, i.e., one year of measurements).

The survey results are compared with the average annual data for 2000 (the first year of V.V. Putin's first presidential term), 2007 (the last year of his second presidential term, when presidential performance ratings reached their highest), 2012 (the first year of his third presidential term), 2018 (the first year of his fourth presidential term), and 2023 (the last full year of his fourth presidential term).

Annual data for 2007–2025 are also presented².

In April–June 2026, public opinion about the head of state's performance did not change substantially: the share of positive assessments stands at 62%, negative at 23%³.

Compared with June 2025 (i.e., over the past 12 months), the approval rating of the President of the Russian Federation declined slightly (by 4 percentage points, from 66% to 62%)⁴.

¹ The surveys are conducted six times a year in the cities of Vologda and Cherepovets and in the Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Tarnogsky, Kirillovsky, Nikolsky, and Sheksninsky municipal okrugs of the region. The survey is carried out through face-to-face questionnaire interviews at respondents' places of residence. The sample size is 1,500 people aged 18 and over. The sample is purposive and quota-based. The representativeness of the sample is ensured by maintaining the proportions between the urban and rural populations, between residents of different types of settlements (rural settlements, small and medium-sized towns), and by the gender and age structure of the region's adult population. The sampling error does not exceed 3%.

More detailed information about the results of surveys conducted by VolRC RAS is available at <http://www.vsecc.ac.ru>.

² In 2020, four waves of the monitoring were conducted. The surveys scheduled for April and June 2020 were not carried out due to quarantine restrictions during the spread of COVID-19.

³ Here and below, in all tables and in the text: positive changes are highlighted in green, negative changes in red, and no change in blue. Since changes of ± 3 percentage points fall within the sampling error, they are considered non-significant and are marked in blue.

⁴ Here and below, the results of the comparative analysis of the June 2026 survey data with the results of the monitoring wave conducted in June 2025 are presented in a box.

How would you assess the current work of...?* (% of respondents)

Response	Dynamics of the average annual data										Dynamics of the data for the last 7 surveys							Dynamics (+/-), June 2026 to	
	2000	2007	2012	2018	2021	2022	2023	2024	2025		June 2025	Aug. 2025	Oct. 2025	Dec. 2025	Feb. 2026	Apr. 2026	June 2026	June 2025	Apr. 2026
RF President																			
I approve	66.0	75.3	51.7	66.4	51.5	57.0	61.4	66.7	65.9		66.3	67.4	66.3	64.9	63.7	61.5	61.7	-5	0
I disapprove	14.8	11.5	32.6	21.7	32.0	25.7	22.5	19.7	19.5		20.9	19.2	19.4	20.4	19.9	20.9	22.7	+2	+2
Chairman of the RF Government																			
I approve	–	–	49.6	48.0	39.9	45.4	50.1	54.1	54.4		53.0	55.1	55.7	54.0	51.1	48.9	49.1	-4	0
I disapprove	–	–	33.3	31.6	37.6	32.0	27.6	24.8	22.5		22.9	20.6	23.1	22.2	21.3	22.8	25.1	+2	+2
Vologda Region Governor**																			
I approve	56.1	55.8	41.9	38.4	36.7	40.9	48.1	51.7	42.5		39.9	41.0	41.8	42.8	40.2	38.2	37.3	-3	-1
I disapprove	19.3	22.2	33.3	37.6	40.5	35.8	30.9	28.4	37.2		37.2	39.1	41.3	39.3	39.0	41.2	42.3	+5	+1

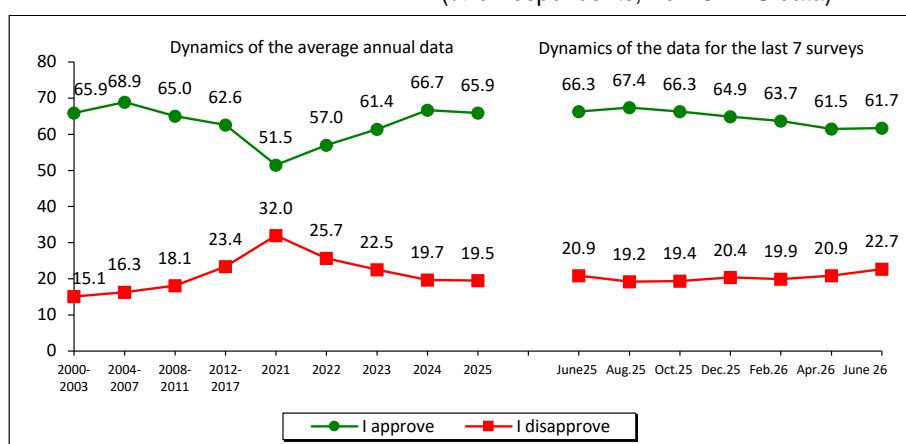
* Here and below: positive changes are highlighted in green, negative changes in red, and no change in blue. Since changes of ± 3 percentage points fall within the sampling error, they are considered non-significant and are marked in blue.

** On October 31, 2023, by Decree of the President of the Russian Federation, Georgy Filimonov was appointed acting governor of the Vologda Region. Following the regional elections held on September 6–8, 2024, Filimonov received 62.3% of the vote and became the elected Governor of the Vologda Region.

Note. The wording of the question: "How would you assess the current work of...?" Respondents were then offered a list of government bodies at various levels to evaluate their work, with the following answer options: "fully approve", "mostly approve", "mostly disapprove", "fully disapprove", "not familiar with their activities", "difficult to answer".

How would you assess the way that the RF President is handling his job?*

(% of respondents, VolRC RAS data)*



Response	Dynamics (+/-), June 2026 to	
	June 2025	Apr. 2026
I approve	-5	0
I disapprove	+2	+2

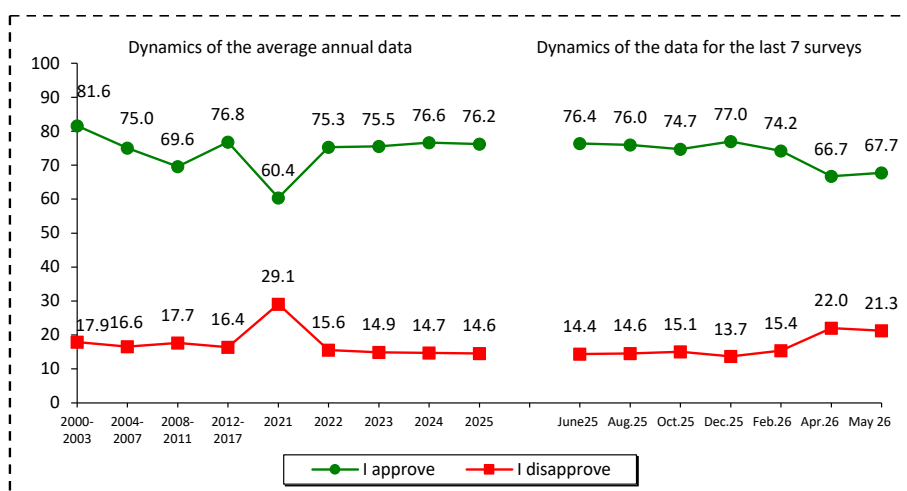
* Here and throughout all figures, annual average data are presented for 2020, 2021, 2022, 2023, 2024, and 2025, as well as annual average data for the periods 2000–2003, 2004–2007, 2008–2011, and 2012–2017, which correspond to the periods of the presidential terms.

For reference:

Data obtained from surveys conducted on the territory of the Vologda Region reflect national trends. According to VCIOM (Russian Public Opinion Research Center), the approval rating of the President of the Russian Federation in April–May 2026 remained at 67–68%, with negative assessments accounting for 21–22%.

From June 2025 to May 2026, the share of positive assessments of the head of state's performance declined by 8 percentage points (from 76 to 68%).

Do you approve or disapprove of the way that the RF President is handling his job?
(% of respondents; VCIOM data)



Response	Dynamics (+/-), May 2026 to	
	June 2025	Apr. 2026
I approve	-9	+1
I disapprove	+7	-1

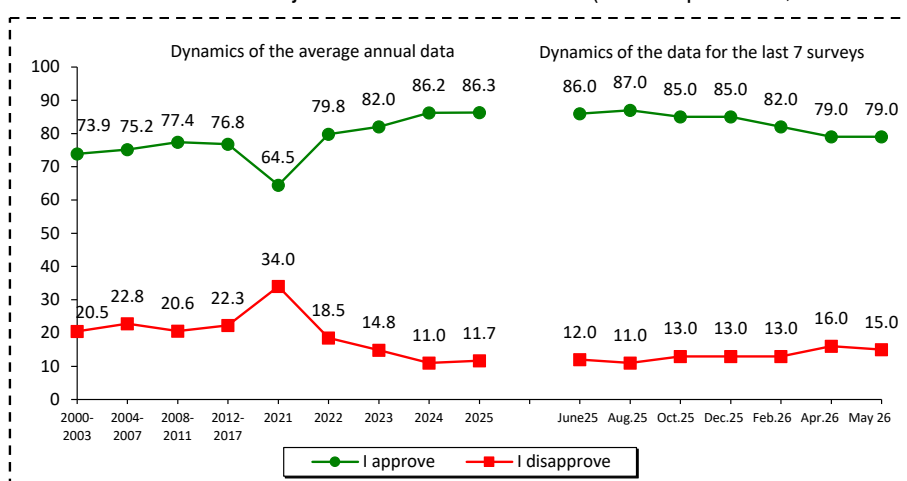
Wording of the question: "In general, do you approve or disapprove of the way that the Russian President is handling his job?"

Source: VCIOM. Available at: <https://wciom.ru/>

According to nationwide polls by Levada-Center*, in April–May 2026 the approval rating of the head of state stood at 79%, with negative judgments at 15–16%.

This is also lower than 12 months earlier: from June 2025 to May 2026, the share of positive assessments of the head of state's performance decreased by 7 percentage points (from 86 to 79%).

In general, do you approve or disapprove of the way that Vladimir Putin is handling his job as President of Russia? (% of respondents; Levada-Center* data)



Response	Dynamics (+/-), May 2026 to	
	June 2025	Apr. 2026
I approve	-7	0
I disapprove	+3	-1

Wording of the question: "In general, do you approve or disapprove of the way that Vladimir Putin is handling his job as President of Russia?"

Source: Levada-Center*. Available at: <https://www.levada.ru/>

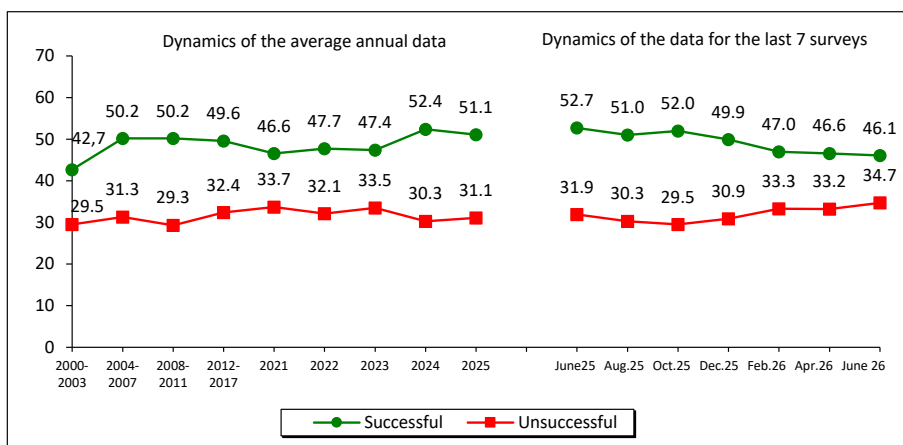
* Included in the register of foreign agents.

In your opinion, how successful is the RF President in handling challenging issues? (% of respondents; VoIRC RAS data)

Public assessment of the President's success in strengthening Russia's international standing has remained stable since February 2026: the share of positive judgments stands at 46–47%, negative at 33–35%.

Over the past 12 months, the share of positive judgments has decreased by 7 percentage points (from 53 to 46%), while the share of negative judgments has risen by 3 percentage points (from 32 to 35%).

Strengthening Russia's international standing

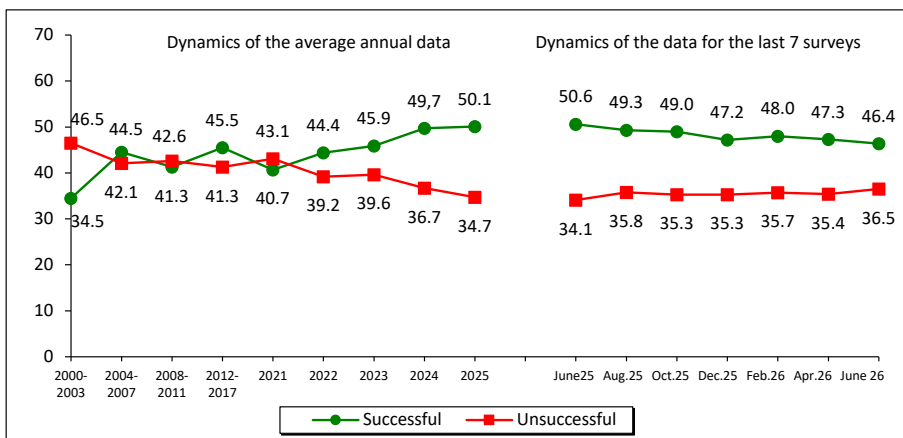


Response	Dynamics (+/-), June 2026 to	
	June 2025	Apr. 2026
Successful	-7	-1
Unsuccessful	+3	+2

The share of regional residents who consider the head of state's efforts to restore order in the country successful stands at 46–47%, as it did two months ago; the proportion of those holding the opposite view is somewhat lower, at 35–36%.

At the same time, a year-on-year comparison also reveals negative changes: compared with June 2025, the share of positive assessments has declined by 5 percentage points (from 51% to 46%), while negative assessments have risen by 3 percentage points (from 34 to 37%).

Restoring order in the country

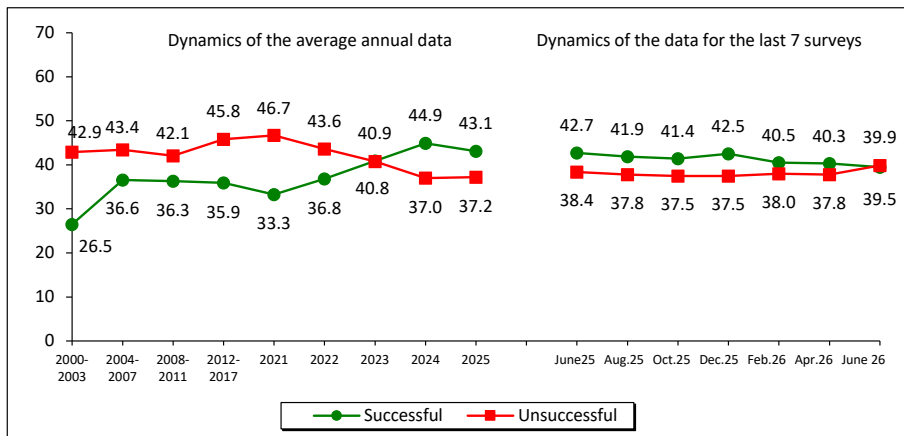


Response	Dynamics (+/-), June 2026 to	
	June 2025	Apr. 2026
Successful	-5	-1
Unsuccessful	+3	+1

The share of positive judgments about the head of state's success in protecting democracy and strengthening civil liberties also remains stable (40–41%), while the share of negative assessments has increased slightly over the past two months (by 2 percentage points, from 38 to 40%).

Over the year of measurements, no substantial changes are observed on this issue: positive assessments range from 40 to 43%, negative from 38 to 40%.

Protecting democracy and strengthening civil liberties

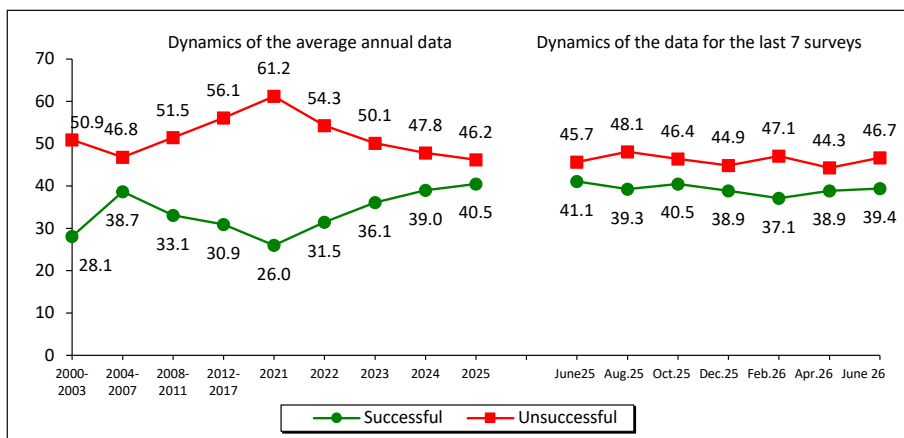


Response	Dynamics (+/-), June 2026 to	
	June 2025	Apr. 2026
Successful	-3	-1
Unsuccessful	+2	+2

In June 2026, the share of regional residents who negatively assess the head of state's efforts to boost the economy and improve citizens' well-being increased slightly (by 3 percentage points, from 44 to 47%). At the same time, the share of positive assessments did not change significantly (39%).

From June 2025 to June 2026, public opinion in the region on this issue did not change significantly: the share of positive judgments stands at 39–41%, negative at 46–47%.

Boosting the economy and improving citizens' well-being



Response	Dynamics (+/-), June 2026 to	
	June 2025	Apr. 2026
Successful	-2	+1
Unsuccessful	+1	+2

The structure of citizens' electoral preferences has remained stable since the beginning of the year: the share of regional residents supporting the United Russia party stands at 37%, the Communist Party of the Russian Federation (CPRF) and the Liberal Democratic Party of Russia (LDPR) at 8–9% each, and the Just Russia and New People at 3–4% each.

Over the past 12 months, support for United Russia has declined slightly (by 5 percentage points, from 42 to 37%), while the share of people who believe that none of the parliamentary parties currently reflects their interests has increased (by 6 percentage points, from 25 to 31%).

Which party expresses your interests? (% of respondents; VoIRC RAS data)

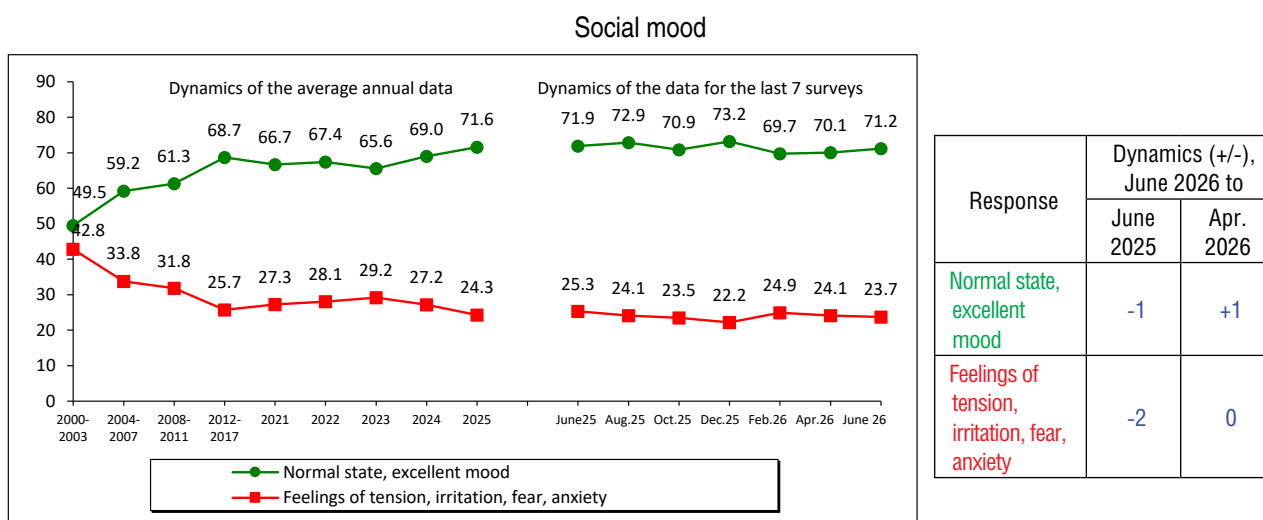
Party	Dynamics of the average annual data													Dynamics of the data for the last 7 surveys							Dynamics (+/-), June 2026 to	
	2011	Election to the RF State Duma 2011, fact	2012	2016	Election to the RF State Duma 2016, fact	2018	2020	Election to the RF State Duma 2020, fact	2021	2022	2023	2024	2025	June 2025	Aug. 2025	Oct. 2025	Dec. 2025	Feb. 2026	Apr. 2026	June 2026	June 2025	Apr. 2026
United Russia	31.1	33.4	29.1	35.4	38.0	37.9	31.5	49.8	31.7	35.2	39.5	42.9	40.3	41.6	41.2	40.5	38.1	36.1	35.7	36.8	-5	+1
CPRF	10.3	16.8	10.6	8.3	14.2	9.2	8.4	18.9	9.3	10.1	9.6	8.9	9.6	9.1	11.5	10.5	9.7	9.2	8.1	8.9	0	+1
LDPR	7.8	15.4	7.8	10.4	21.9	9.6	9.5	7.6	9.9	7.3	7.0	7.1	8.2	9.4	8.7	7.8	8.6	8.9	7.9	7.6	-2	0
Just Russia – Patriots for the Truth	5.6	27.2	6.6	4.2	10.8	2.9	4.7	7.5	4.7	4.9	4.4	3.5	3.5	3.9	4.2	3.4	4.1	3.1	4.3	3.7	0	-1
New People*	–	–	–	–	–	–	–	5.3	2.3	1.5	1.9	2.0	2.5	2.5	1.8	2.2	2.5	2.4	2.3	2.6	0	0
Other	1.9	–	2.1	0.3	–	0.7	0.5	–	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0	0
None	29.4	–	31.3	29.4	–	28.5	34.2	–	33.9	30.6	26.5	25.2	25.8	24.9	23.3	24.3	26.1	29.1	31.5	30.5	+6	-1
Difficult to answer	13.2	–	11.7	12.0	–	11.2	11.1	–	10.0	10.1	11.1	10.3	10.0	8.5	9.2	11.3	10.7	11.0	9.8	9.7	+1	0

* The New People party first won a seat in the State Duma of the Russian Federation following the elections held on September 17–19, 2021.

Assessment of social condition (% of respondents; VolRC RAS data)

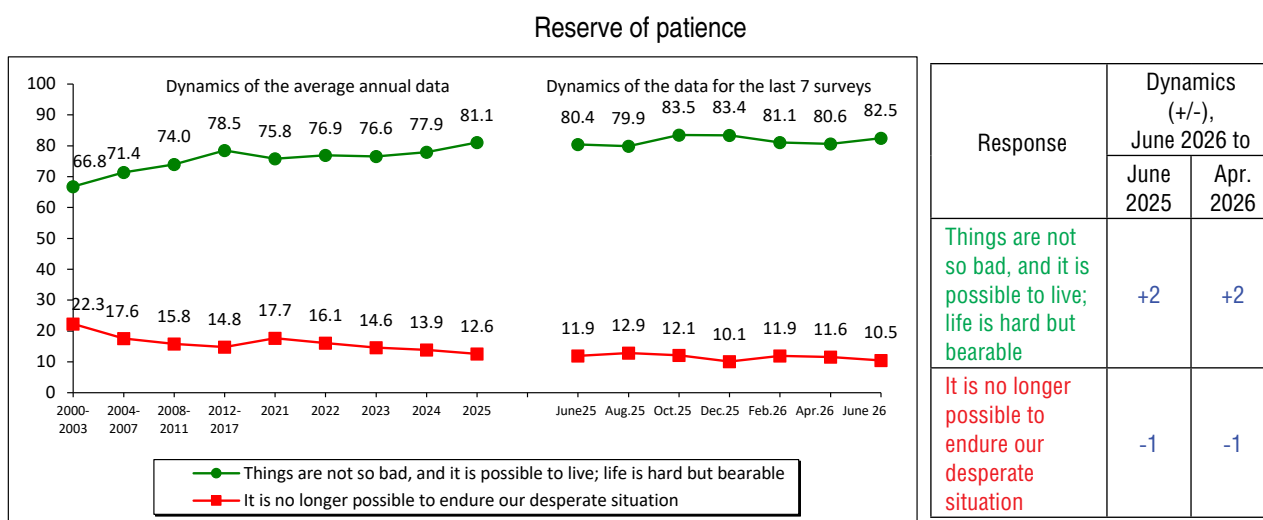
In April–June 2026, the share of regional residents who positively assess their day-to-day emotional state stood at 70–71%, which is considerably higher than the share of negative assessments (24%).

In a year-on-year comparison, no substantial changes are observed in the dynamics of the social mood of the region's residents either.



In June 2026, the share of people with a high social “patience reserve” increased slightly (from 81 to 83%), while the proportion of those who believe that “it is no longer possible to endure our desperate situation” remains at 11–12%.

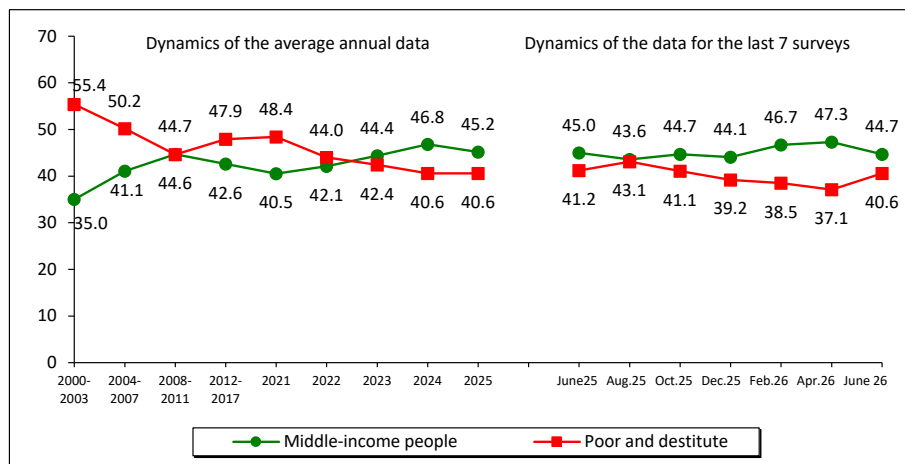
Similar changes have been observed over the past 12 months: the share of people who say that “Things are not so bad, and it is possible to live; life is hard but bearable” rose by 3 percentage points (from 80 to 83%); the share of negative assessments remains stable at 11–12%.



Negative changes are observed in the dynamics of social self-identification. In April–June 2026, the share of regional residents who subjectively place themselves in the “middle-income” category declined by 3 percentage points (from 47 to 44%), while the share of those who identify with the “poor and destitute” strata increased by 4 percentage points (from 37 to 41%).

Compared with June 2025, no significant changes are observed in the dynamics of the population’s social self-identification.

Social self-identification



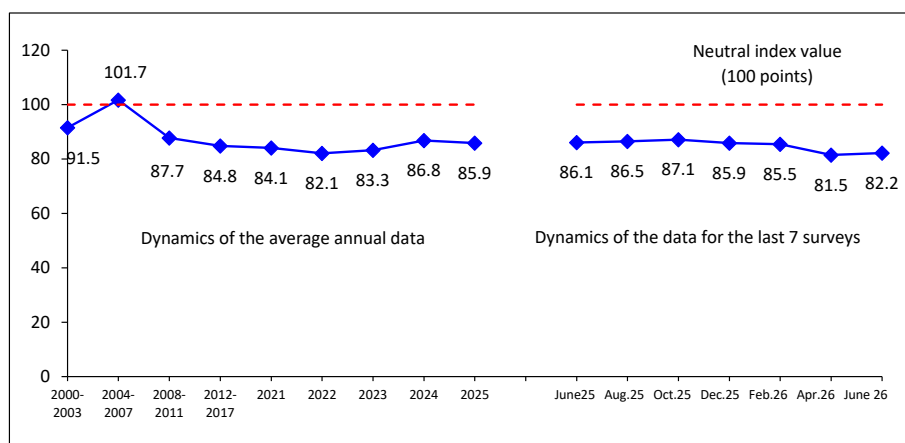
Response	Dynamics (+/-), June 2026 to	
	June 2025	Apr. 2026
Share of those considering themselves middle-income	0	-3
Share of those considering themselves poor and destitute	-1	+4

Question wording: “Which category do you belong to, in your opinion?”.

The Consumer Sentiment Index (CSI) stabilized in June 2026 at 82 points after a noticeable decline in February–April 2026 (from 86 to 82 points).

Nevertheless, its latest value remains markedly lower than 12 months ago (86 points).

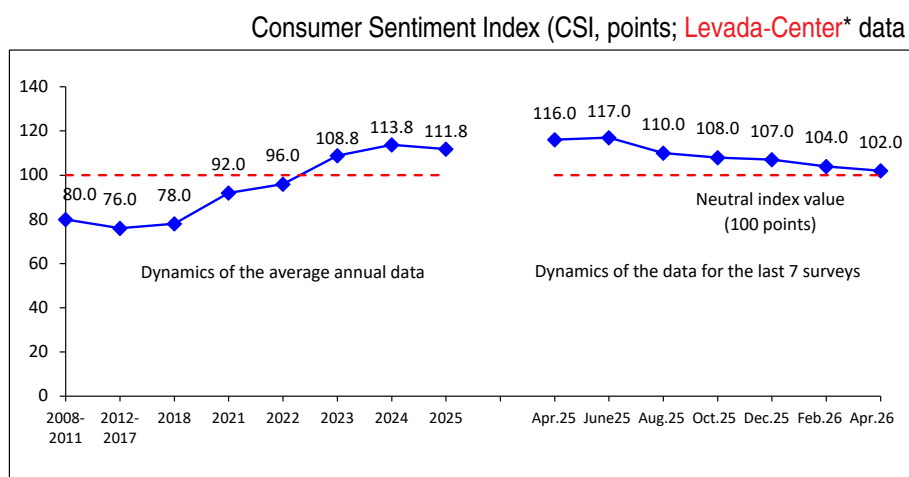
Consumer Sentiment Index (CSI, points; VoIRC RAS data for the Vologda Region)



Response	Dynamics (+/-), June 2026 to	
	June 2025	Apr. 2026
Index value, points	-4	+1

According to nationwide polls by Levada-Center*, the consumer sentiment index in the country has been declining since August 2025. In February–April 2026, it decreased by 2 points (from 104 to 102 points).

Compared with June 2025, the CSI fell by 15 points (from 117 to 102 points).



Response	Dynamics (+/-), Apr. 2026 to	
	Apr. 2025	Feb. 2026
Index value, points	-14	-2

The index has been calculated since 2008.

The latest data – for April 2026.

Source: Levada Center* data. Available at: <https://www.levada.ru/indikatory/sotsialno-ekonomicheskie-indikatory/>

From April to June 2026, no significant changes in the share of positive assessments of social mood are observed in most socio-demographic groups, with two exceptions: among people with secondary and incomplete secondary education, the share of positive assessments increased by 5 percentage points; and in the bottom 20% income group, it rose by 4 percentage points. No negative changes are recorded.

From June 2025 to June 2026, no changes are observed in the socio-demographic groups. The only group with identified negative changes is young people under 30 (a decline in the share of positive assessments by 11 percentage points).

⁵ Since March 2025, Levada-Center* has updated its CSI data. The Consumer Sentiment Index in Russia has been calculated since 1993 based on five questions, following the approach of the index developed in the 1940s by the Institute for Social Research at the University of Michigan. The individual indices for each question are calculated as the difference between the share of positive and negative responses plus 100. The aggregate CSI is the arithmetic mean of the individual indices (range 0–200, where >100 indicates a predominance of positive assessments). In 2009, the CSI was pegged to the values of March 2008 (base 100%), reflecting a change in survey methodology and the economic crisis. However, this meant that the index only reflected changes relative to 2008. In March 2025, the decision was made to return to the original CSI calculation methodology, abandoning the 2008 benchmark, because many indicators in 2023 exceeded the 2008 highs, and the old version of the index no longer adequately reflected the current situation. The return to the original methodology is intended to solve this problem. Source: Updated Consumer Sentiment Index: February 2025 figures. Available at: <https://www.levada.ru/2025/03/26/obnovlennyyj- indeks-potrebitelskhnastroenij-pokazateli-fevralya-2025-goda/>

* Included in the register of foreign agents.

Social mood in various social groups (response option “Excellent mood, normal, steady state”, % of respondents; VoIRC RAS data)

Population group	Dynamics of the average annual data								Dynamics of the data for the last 7 surveys							Dynamics (+/-), June 2026 to	
	2007	2012	2018	2021	2022	2023	2024	2025	June 2025	Aug. 2025	Oct. 2025	Dec. 2025	Feb. 2026	Apr. 2026	June 2026	June 2025	Apr. 2026
Gender																	
Men	65.9	69.1	72.8	65.7	66.8	65.5	66.5	70.7	71.6	72.1	68.2	73.3	69.1	71.9	70.7	-1	-1
Women	61.7	65.8	69.8	67.4	67.9	65.7	70.9	72.3	72.2	73.5	73.1	73.1	70.1	68.7	71.6	-1	+3
Age																	
Under 30	71.3	72.3	79.9	73.5	77.6	75.0	76.6	76.8	76.7	78.1	75.2	74.3	69.5	67.6	66.2	-11	-1
30–55	64.8	67.9	72.6	69.5	69.4	68.8	71.3	74.3	74.1	74.9	73.9	78.4	73.6	73.1	73.5	-1	0
Over 55	54.8	62.1	65.2	60.5	61.1	58.2	63.3	66.5	67.6	68.6	65.9	66.6	64.9	67.5	70.2	+3	+3
Education																	
Secondary and incomplete secondary	58.4	57.2	64.8	62.1	64.6	62.0	64.6	67.2	68.4	70.3	68.4	66.1	60.6	60.4	65.0	-3	+5
Secondary vocational	64.6	66.7	72.1	66.7	68.3	66.1	70.3	73.6	74.1	73.6	71.4	75.6	71.6	74.7	73.4	-1	-1
Higher and incomplete higher	68.6	77.0	76.7	71.5	69.5	68.8	72.3	73.9	73.0	74.7	73.1	77.6	74.7	74.0	75.5	+3	+2
Income group																	
Bottom 20%	51.6	51.5	57.2	54.6	57.0	50.1	53.5	55.2	56.1	58.3	53.3	50.7	48.2	51.3	55.6	-1	+4
Middle 60%	62.9	68.7	72.1	67.3	68.1	67.4	70.7	73.2	74.4	73.1	73.1	75.2	72.2	72.7	72.0	-2	-1
Top 20%	74.9	81.1	82.4	79.9	78.3	73.9	77.6	83.6	84.1	83.8	84.8	89.4	87.7	83.4	84.7	+1	+1
Territory																	
Vologda	63.1	73.6	71.0	60.3	59.8	59.6	66.0	70.2	69.5	72.9	71.4	71.9	68.1	68.8	68.1	-1	-1
Cherepovets	68.1	76.2	75.7	71.0	71.2	68.1	69.8	73.1	72.5	75.0	73.2	76.3	73.0	73.5	75.3	+3	+2
Districts	61.6	59.8	68.6	67.8	69.5	67.7	70.2	71.6	73.1	71.6	69.3	72.2	68.7	69.0	70.8	-2	+2
Region	63.6	67.3	71.2	66.6	67.4	65.6	69.0	71.6	71.9	72.9	70.9	73.2	69.7	70.1	71.2	-1	+1
Total number of groups: positive changes / no changes / negative changes																14: 0 / 13 / 1	14: 2 / 12 / 0

SUMMARY

The latest wave of public opinion monitoring was conducted in May–June 2026. The survey results point to the continuation of trends that Russian sociologists began to identify in late 2025 and early 2026⁶. Overall, these trends are characterized by the emergence of a constructive demand from the public toward the authorities concerning the dynamics of the standard of living and quality of life in the country, partly against the backdrop of the population’s relative “habituation” to everyday life under the ongoing special military operation.

⁶ See, for example: Alfimov V. From paycheck to victory: How Russian society has changed in a year (interview with V. Fedorov, head of VCIOM). Available at: <https://www.kp.ru/daily/27763.3/5191948/?ysclid=mkgituc55z530676123>; Obukhov S.P., Mikhalechuk A.M., Bogachev A.M., Strelkov D.A., Khamadieva T.V., Chervontsev A.V. Results of 2025 from V.V. Putin. Express analysis of the message to the Russian society and foreign opponents. Available at: <https://kprf.ru/politindx/239901.html?ysclid=mlhmrkgap916136109>

Over the past two months, no significant changes have been observed in most public opinion monitoring indicators. The exception is social self-identification. In April–June 2026, the share of regional residents who subjectively place themselves in the “middle-income” category declined by 3 percentage points (from 47 to 44%), while the share of those who identify with the “poor and destitute” strata increased by 4 percentage points (from 37 to 41%).

Over the year of measurements (from June 2025 to June 2026), a number of changes have occurred, some of a negative nature, though the overall picture remains balanced:

- the approval rating of the President of the Russian Federation declined by 4 percentage points (from 66 to 62%), accompanied by a deterioration in assessments of his efforts to strengthen Russia’s international standing: the share of positive judgments decreased by 7 percentage points (from 53 to 46%); at the same time, the share of negative assessments increased only slightly, and support for the head of state remains consistently high, exceeding 60% given the complex and turbulent external environment;
- support for the United Russia party decreased by 5 percentage points (from 42 to 37%), while the share of respondents stating that none of the parties represents their interests increased by 6 percentage points (from 25 to 31%); these survey findings warrant close attention in light of the upcoming elections to the State Duma of the Russian Federation scheduled for September 2026 (the election campaign officially began on June 16, 2026, and the elections are set for September 18–20);
- the Consumer Sentiment Index (CSI) declined by 4 points over the year (from 86 to 82 points), indicating a worsening of public expectations regarding future living standards and the economic situation, despite relatively stable current assessments of social well-being;
- in terms of socio-demographic groups, the most pronounced deterioration in social mood was recorded among young people under 30 (a decline in the share of positive assessments by 11 percentage points).

Despite a number of concerning changes observed in the year-on-year comparison, the level of social consolidation around the president and the nationally oriented strategic development agenda remains high, as evidenced by the generally stable psychological state of society, the persistently large “patience reserve” (83%), and the predominance of a positive emotional state (70–71%). This serves as an important resource of social resilience and enables society to adapt to external challenges while maintaining its internal potential for development.

Further dynamics of public opinion among residents of the Vologda Region will be reflected in the results of upcoming waves of VolRC RAS monitoring. Even at this point, it can be stated that, despite some negative trends, the basic parameters of social stability and trust in state institutions are being preserved.

Materials were prepared by K.E. Kosygina, I.M. Bakhvalova.

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