Vol. 19 • No. 2 • 2025 THE WORLD OF NEW ECONOMY

ISSN 2220-6469 (Print)
ISSN 2220-7872 (Online)

WORLD OF NEW ECONOMY

JOURNAL OF SCIENTIFIC HYPOTHESES AND SUCCESSFUL BUSINESS DECISIONS

DOI: 10.26794/2220-6469

The edition is reregistered
in the Federal Service for Supervision
of Communications,
Informational Technologies and Media Control:
PI No. ФС77-82263
of 23, November, 2021

Publication frequency — 4 issues per year

**Founder: Financial University
under the Government of the Russian Federation**

Indexed in databases: CrossRef, DOAJ, Ebsco, Dimensions, EconLit, EconBiz, RePec, eLibrary.ru, Russian Index of Science Citation (RINTs), etc.
A journal included in the first category of the List of the VAC's peer-reviewed scientific publications of the Higher Attestation Commission (K1) on scientific specialties:
5.2.1. — Economic theory (economic sciences),
5.2.3. — Regional and sectoral economics (economic sciences),
5.2.4. — Finance (economic sciences),
5.2.5. — World Economy (Economic Sciences),
5.2.6 — Management (economic sciences)
All articles of journal "The World of the New Economy" are published with a digital object identifier (DOI)
The Journal is distributed by subscription.
Subscription index: 42131 in the consolidated catalogue "The Press of Russia"

Журнал входит в Перечень периодических научных изданий, рекомендуемых ВАК для публикации основных результатов диссертаций на соискание ученых степеней кандидата и доктора наук

The journal is included into the list of periodicals recommended for publishing doctoral research results by the Higher Attestation Commission

© Журнал
МИР НОВОЙ ЭКОНОМИКИ /
THE WORLD OF NEW
ECONOMY
Свидетельство
ПИ № ФС77-82263
от 23 ноября 2021 г.
Издается с 2007 г.
Учредитель: Финансовый
университет

Т. 19, № 2/2025

Учредитель журнала
и главный редактор
с 2007 по 2015 год
д-р экон. наук, профессор
Н.Н. Думная

Главный редактор
С.Н. Сильвестров

*Заведующий редакцией
научных журналов*
Д.В. Онегов

Выпускающий редактор
Ю.М. Анютина

Переводчик
М.А. Ларионова

Референс-менеджер
В.М. Алексеев

Корректор
С.Ф. Михайлова

Верстка
Е.А. Смирнова

**Оформление подписки
в редакции
8 (499) 553-10-71
(вн. 10-80)**
e-mail: **sfmihajlova@fa.ru
С.Ф. Михайлова**

Адрес редакции:
125167, Москва,
Ленинградский пр-т,
д. 53, к. 5.6
Тел.: +7(499) 553-10-74
(вн. 10-88).
E-mail: julia.an@mail.ru;
wne.fa.ru

Подписано в печать
03.06.2025
Дата выхода в свет
17.06.2025
Формат 60 × 84 1/8
Заказ № 750
Печ. л. 18,5

Отпечатано
в отделе полиграфии
Финансового
университета (Москва,
Ленинградский пр-т, 51)

ЭКОНОМИКА XXI ВЕКА

ЭКОНОМИКА РЕГИОНОВ

ЭКСПЕРТНЫЙ ДОКЛАД

ФИНАНСОВАЯ АНАЛИТИКА

ЭКОНОМИЧЕСКАЯ ПОЛИТИКА

РЕАЛЬНЫЙ СЕКТОР

МИРОВАЯ ЭКОНОМИКА

ЭКОНОМИЧЕСКАЯ ТЕОРИЯ

Journal Certificate PI No. ФС77-82263. of 23, November, 2021. Issued since 2007. Founders: Financial University

Vol. 19, No. 2/2025

Founder and editor of the magazine from 2007 to 2015 Doctor of Economics, Professor N.N. Dumnaya

Editor-in-chief
S.N. Silvestrov

Science journal editorship manager
D.V. Onegov

Publishing editor
Yu.M. Anyutina

Translator
M.A. Larionova

Reference Manager
V.M. Alekseev

Proofreader
S.F. Mihaylova

Makeup
E.A. Smirnova

Editorial office address: 125167, Moscow, Leningradskiy prospekt, 53, room 5.6
Tel.: +7(499) 553-10-74 (internal 10-88).
E-mail: julia.an@maul.ru; wne.fa.ru

Signed off to printing 03.06.2025
Publication date 17.06.2025
Format 60 × 84 1/8
Order № 750
Printer's sheet 18,5

Printed in the Department of Polygraphy of the Financial University (Moscow, Leningradskiy prospekt, 51)

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-6-21
UDC 339.9(045)
JEL F51

The Model of Strategic Confrontation Between the USA and Russia in the 21st Century

E.V. Balatsky
Primakov National Research Institute of World Economy and International Relations, Russian Academy of Sciences (IMEMO RAS), Moscow, Russian Federation

ABSTRACT

The article examines the military-strategic confrontation between the USA and Russia, with a growing tendency toward conflict escalation in Ukraine. It is demonstrated that the observed paradox — the West's diminishing fear of a "thermonuclear Armageddon" — is driven by the duality of Russia's position after 1991. On the one hand, Russian elites fell under Western influence, yet on the other, they retained the potential to "rise" and restore the country's political sovereignty, leveraging its military-strategic capabilities. As a result, another unique phenomenon emerged: the ambiguity of Russia's "red lines" in foreign policy, as they were either left undefined or continuously shifted. This led to the West becoming accustomed to Russia's excessive caution and failing to "hear" its new signals. The situation is further reinforced and exacerbated by the United States' lack of foreign policy flexibility due to its adherence to a mental model of global dominance, which comprises four key elements: the presumption of America's divine exceptionalism, the doctrine of irreconcilability, the strategy of totality, and the refusal-to-accept-unacceptable-costs syndrome. The effect of power indivisibility, as described by S. Lukes, compounds this model and heightens the insensitivity of the American establishment to the escalation of tensions in Ukraine. The study highlights that the U.S. administration employs two intellectual "legacies" of John Foster Dulles in its strategy: the doctrine of "brinkmanship" and the doctrine of "bearable cost." Since Russia has not inflicted any tangible damage on the United States, there is no incentive for the latter to abandon Dulles' legacy or to de-escalate the confrontation. The author argues that to change the situation, it is necessary to ensure unacceptable costs for the U.S. in this confrontation. Specific measures to increase the "cost" of American hegemony are discussed, which could shift the focus from unilateral pressure on Russia toward a more favorable environment for constructive negotiations.

Keywords: geopolitics; conflict; nuclear deterrence; economic sanctions; damage

For citation: **Balatsky E.V. The model of strategic confrontation between the USA and Russia in the 21st century.** ***The World of New Economy*****. 2025;19(2):6-21. DOI: 10.26794/2220-6469-2025-19-2-6-21**

INTRODUCTION: THE PARADOXES OF MODERN TIMES

During the course of the special military operation (SMO) in Ukraine, the confrontation between Russia and the West has continually escalated through so-called "raising the stakes." The West, represented by the European powers under the leadership of the United States, is prepared to send contingents of its armed forces to Ukraine, while military aid is being expanded. Strikes on Russian territory with long-range ATACMS missiles resulting in civilian deaths have already been carried out with NATO's involvement.[1] It is therefore unsurprising that in Russia, as well as in other countries, the issue of using tactical nuclear weapons is being voiced ever more actively. Moreover, this topic was openly discussed by S. Karaganov and V. Putin during the plenary program at the St. Petersburg International Economic Forum (SPIEF) in 2024,[2] after which Russia adopted a new nuclear doctrine. These discussions have also spilled over into the pages of academic journals [1].

It seems that the political establishments of the countries involved in the conflict have accepted the possibility of a direct nuclear confrontation and are prepared to go all the way.[3] All of this brings to the forefront a number of important questions. First: why has the leadership of Western countries lost its fear of Russia, which possesses a nuclear arsenal sufficient to destroy the entire planet? Second: what are the fundamental causes of the escalating military tension between Russia and the countries of the Western alliance? Third: what is the deeper meaning of this escalation, given all the associated risks? And finally, fourth: what line of behavior is advisable for the Russian leadership to adopt under these circumstances?

At the heart of the first three questions lies a kind of paradox. For example, why engage in a direct military confrontation with a state capable of destroying the entire planet — and therefore impossible to defeat in principle? On the surface, the situation appears as if the West has lost its instinct for self-preservation, which contradicts all its traditions and principles. The second question is rooted in the paradoxical combination of Russia's political accommodation and its impressive military potential: the country's leadership endlessly promises adequate or symmetrical responses to the West's aggressive actions, but these promises are almost never backed up by concrete measures. The third question is likewise tied to the lack of a logical connection between the extremely dangerous escalation measures taken by Western countries and their apparent lack of existential reasons for such risks. All these paradoxes require systematic explanation based on economic logic and political theory, which defines the relevance of the topic being raised.

The questions and geopolitical paradoxes outlined above generate a cognitive intrigue that lies in the possibility of constructing a coherent model of the emerging confrontation based on the broadest possible methodological principles. In this regard, the aim of this article is to provide comprehensive answers to the four questions posed, with an emphasis on revisiting the principles of Russia's confrontation with the collective West — something that, for various reasons, has not yet occurred. The methodological foundation for these answers is based on the previously proposed mental model of U.S. global dominance [2] and S. Lukes' principle of the indivisibility of power [3]. The novelty of the author's approach lies in integrating geopolitical facts, the mental attitudes of the parties to the conflict, and economic logic, in order to identify the resulting vector.

THE CONFRONTATION BETWEEN THE UNITED STATES AND RUSSIA: ORIGINS AND CURRENT STATE

To address the first paradox — the emergence of immunity in the West and the United States

[1] URL: https://www.vesti.ru/article/4023290

[2] URL: https://ya.ru/video/preview/2507429726905085321

[3] The return of Donald Trump to power in the United States in 2025 has somewhat altered the geopolitical configuration; however, most of the statements made by the American president have not yet been implemented systematically, which prevents us from speaking of a definitive shift in U.S.— Russia foreign relations.

against a nuclear-armed power — it is necessary to take a brief historical excursion. Before 1991, the worldview of the U.S. political establishment, as well as that of the world as a whole, categorically rejected direct confrontation with a country possessing thermonuclear weapons. However, the defeat of the USSR in the Cold War and its subsequent breakup into fifteen pseudo-independent states completely changed the geopolitical balance. After that, only Russia inherited the USSR's nuclear arsenal; the other successor states posed no strategic threat to the United States. Having lost 30% of Soviet territory and more than half its population, the Russian Federation still remained far too large, challenging the United States with its sheer size. As such, it continued to represent a potential threat to American hegemony, and, in the view of U.S. authorities, needed to be weakened further, ideally through division into several parts followed by their complete demilitarization. This objective was quite realistic because after 1991, Russia had lost its political sovereignty and de facto — if not entirely, then to a significant degree — was governed externally, from the United States. (In 2022, the process of actively restoring Russia's sovereignty began, though it has not yet been completed.) This situation still exists as something of a "semi-fact": on the one hand, it is no longer denied; on the other hand, it has not been fully acknowledged. And precisely this state of affairs requires discussion.

In essence, after 1991, a completely unprecedented situation arose, unlike anything in the history of humanity. Ordinarily, any country defeated in war would lose its political sovereignty for a long time: it would usually face not only reparations but also various political and economic restrictions. For example, Germany and Japan, which fell under the patronage of the victorious power (the United States), were forbidden to possess nuclear weapons or to develop certain strategically important sectors of their economies. Germany was divided into two parts, both placed under the protection of other powers: West Germany under U.S. control, East Germany under the USSR (after reunification, the entire country remained under U.S. influence). From that moment on, Germany and Japan became platforms for their new sovereigns, who exercised almost complete control over their politics and economies. Russia experienced roughly the same fate after 1991: its economy was artificially destroyed, almost all knowledge-intensive sectors of industry were eliminated, and its security services and armed forces were demoralized. Such a situation — for a country defeated in the "third world war" (the Cold War) — created an enduring sense of its weakness and safety.

However, the unique aspect of the situation was that the dependent state in question possessed a military-strategic potential unimaginable by historical standards. Moreover, since the Cold War, which the Soviet Union lost, ended without a direct military confrontation, its military arsenal remained intact, operational, and under the control of senior officials, many of whom were unwilling to fully capitulate to the adversary. This circumstance predetermined the *dual nature* of Russia's *position* after 1991: on the one hand, a ruling elite controlled by the West; on the other, the diffuse nature of that elite, with its capacity to transform and at any moment restore the country's political sovereignty, subsequently employing its military power in foreign policy. Neither the United States nor anyone else could directly suppress an elite coup in Russia, due to the threat of triggering a nuclear conflict. A rough historical parallel would be the situation of Germany after World War I, when it was prohibited from uncontrolled military expansion, conducting military exercises, or pursuing militarization of its economy. Despite these restrictions, relying on its advanced industry and the Nazi elite that came to power, the country once again became a military-strategic leader and carried out another wave of military expansion.

In hindsight, it can be argued that the phenomenon of Russia's dual status after the USSR's collapse contained from the very beginning the

seeds of the current course of events, which sooner or later were bound to occur. Moreover, already in the 1990s, Yevgeny Primakov, while serving as Foreign Minister, tried to convey to the West the idea that Russia was a great power experiencing only temporary difficulties [4]. Even then, the first symptoms of a possible change in the situation regarding the restoration of the country's political sovereignty could be observed. However, this does not change the fact that Russian authorities for decades displayed extremely low activity in both international and domestic affairs. In addition, the dire state of the armed forces and the economic situation in the Russian Federation gave no grounds to expect a strong response to the infringement of its foreign policy interests. The 2014 conflict, which resulted in the annexation of Crimea, was the first serious act of defiance by Russia in response to the excessive activism of the United States and NATO in the former Soviet space; however, this event by itself did not signify much. The military-strategic passivity of the leadership in previous years and the vulnerability of the economy in many areas did not give reason to believe that there was any possibility of a robust pushback from a state that had gradually turned into a raw-material appendage of the developed world.

Thus, the American establishment had every reason not to believe in Russia's willingness to respond firmly to its expansionist actions. As for the Russian Federation, the events of 2014 became a kind of final challenge to which it could not fail to react. Had the planned withdrawal of the Russian military base from Sevastopol taken place, followed by the deployment of a U.S. or NATO base on the peninsula, this would have effectively meant Russia's final capitulation, since in such a case its armed forces and nuclear weapons would have been rendered meaningless due to their non-use even in such a dangerous situation. The subsequent eight years, marked by the implementation of the Minsk agreements, also demonstrated Russia's endless concessions and its inability to act decisively.

All of this once again convinced the U.S. administration of the weakness of the Russian authorities. Russia's decisive actions in 2022 did not change this perception: extremely humane conduct of military operations, endless statements about the inevitability of retaliatory strikes against Ukrainian provocations without actually following through, and a willingness to negotiate peace, among other things, only confirmed to American strategists the correctness of their conclusions. Even Russia's use of the "Oreshnik" hypersonic missile in 2024, in response to ATACMS missile attacks on its territory, had an ambiguous character: the time and place of the strike were announced in advance, and its questionable results failed to make the desired impression on the American administration. At the same time, the damage inflicted on Russia over the years of the special military operation has been enormous — in this respect, the United States has confidently outplayed its opponent without any harm to itself, apart from the costs of financing military aid to Ukraine. By shifting the military operation onto neutral territory, and partly even onto Russian soil, the Americans acted strictly in line with their political traditions of indirect engagement [5].

The phenomenon of Russia's dual status after 1991, and its total geopolitical weakness (including military, political, economic, and ideological dimensions), manifested over more than 30 years since the collapse of the USSR, has given rise to another unique phenomenon — the *uncertainty of "red lines."* The foreign policy of any state is built on the principle that there are limits to the tolerance of national authorities toward infringements of their interests by other countries, and crossing these lines threatens open military confrontation. However, throughout all these years, Russia's "red lines" were either not defined at all or were voiced vaguely and ambiguously, leaving room for free interpretation. Moreover, such uncertainty led to the U.S. political establishment in many cases determining these "red lines" themselves, then violating them, and celebrating the lack of serious consequences. However, the

situation is changing — one of S. Lavrov's recent statements highlights the dialectic of foreign policy relations: the West follows the mistaken logic that Russia's "red lines" exist, but will once again be shifted.[4] Thus, there is a clear absence of, or unwillingness on the part of, the American authorities to understand our country's intentions and plans.

In summary, one can state the following: an unprecedented situation in world history — the defeat of a nuclear power in a hybrid war, followed by its catastrophic economic weakening — forced the U.S. administration to reassess Russia's willingness to defend its strategic interests. It was precisely the geopolitical weakness of the Russian Federation that provoked the paradox of losing fear toward a nuclear state.

The statement of this fact does not imply a value judgment: it would be absurd to place blame on Russia — its weakness was a historical fact and became a tragedy for its peoples. Over 30 years of existence, the country transformed from a superpower into a semi-periphery of the world system, with a tendency toward becoming its periphery. It would have been unreasonable to expect that, during this period, everything would proceed smoothly and that the ruling elites would quickly react to the existential challenges they faced — time was needed, and when that time came, it became a revelation for the American establishment, which still has not abandoned the stereotypes of the 1990s. One might recall Woodrow Wilson's thesis from the time of World War I: "We must finance peace seriously, and whoever pays must *understand* peace and *lead* it.[5]" Today, the United States still wants to lead the world, and it needs to understand it, but apparently, the precedents of the 21st century and the radically changed geopolitical situation do not yet fit within the worldview of its political elite.

At present, Russia has adopted a new nuclear doctrine and is gradually entering into a more realistic dialogue with its adversary [1]. However, many questions remain unanswered.

U.S. FOREIGN POLICY STRATEGY: A MODEL OF GLOBAL HEGEMONY

Let us now attempt to clarify the fundamental reasons for the escalation of military tensions between Russia and the countries of the Western alliance. Why has the United States clung to Russia with a death grip, while its main strategic rival — China — continues to strengthen its position against the backdrop of this destructive escalation? Does America have existential reasons for pursuing such a campaign?

The answer to these questions lies in the mental model of global domination held in the minds of the American establishment. Its essence can be reduced to four principles [2]. First is the *presumption (mythologeme)* of the *God-chosen nature* of the American state and nation, postulating their exceptionalism, righteousness, infallibility, and permissiveness. Second is the *doctrine of intransigence*, which implies political uncompromisingness regarding the maintenance of cultural homogeneity and the elimination of all undesirable social elements. Third is the *stratagem of totality*, presupposing the conduct of war against a strategic adversary by any available means, based on the practice of double standards. Fourth is the *syndrome of rejection of unacceptable costs*, according to which all human and financial losses must be strictly justified, and all special operations must be highly profitable. These principles developed gradually and were reinforced by facts from American history — in the book "America Against Everyone: Geopolitics, Statehood, and the Global Role of the United States: Past and Present",[6] examples are provided of the practical application of the four elements of the U.S. hegemony model to specific circumstances.

Despite the obvious artificiality of these principles, they retain lasting significance for both

[4] URL: https://tass.ru/politika/22591299?ysclid=m4cx8zy494898208377

[5] America against everyone. Geopolitics, statehood, and global role of the USA: history and the present. M. Sodruzhestvo kultur LLC. 2023. 588 p.

[6] ibid.

American politicians and ordinary citizens, consolidating the nation and serving as a source of its pride and strength. The most important aspect of the hegemony model is the practical counterproductivity of any diplomatic negotiations the United States conducts with its counterparts. For the American establishment, any discussions and disputes with opponents are meaningless, since it is clear from the outset that they are wrong; moreover, it is foolish to waste resources on conversation when everything can be resolved by force or money. The only argument that can be taken into account is the cost of a decision: only when these costs become patently unacceptable are politicians prepared to abandon their chosen course.

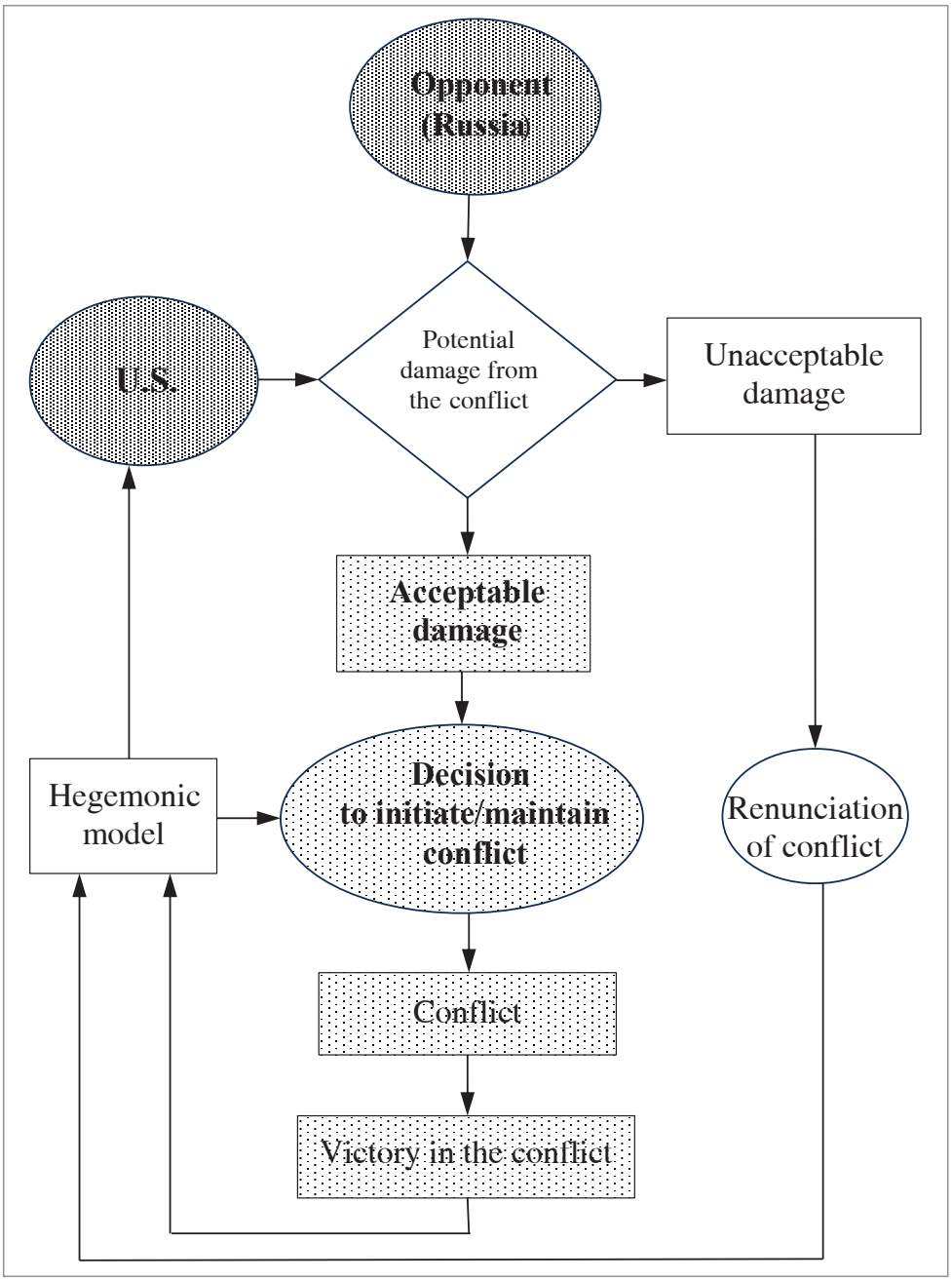


Fig. **Algorithm of Political Decision Making in the USA**

Source: compiled by the author.

The history of the United States is replete with examples in which the country's authorities escalated situations and engaged in military conflict, but this was always done under conditions of initial and absolutely clear superiority in their favor. A typical example is one of the most dramatic chapters of the country's history — the Civil War between the North and the South. The Northerners initiated this war under conditions of complete dominance: 22 million versus 5.5 million white Southerners, i.e., a ratio of 4:1; the North mobilized 2.1 million soldiers against 880,000 Southerners; for every rifle produced in the South, there were 32 from the North [6, p. 319]. Under such a balance of power, the victory of the North was predetermined, which allowed it to apply the first three provisions of the hegemony model, requiring the unconditional suppression of the adversary.

The decision-making algorithm for starting or continuing a conflict is shown in the *figure*. Thus, everything depends on the scale of the anticipated damage, with entry into a conflict proceeding on the basis of the hegemony model, with all its consequences for the opponent. The evaluation of whether the criteria for acceptable damage are met is carried out continuously, so the initial decision may be adjusted. For example, during the wars in Korea, Vietnam, and Afghanistan, a situation of unacceptable damage was diagnosed at a certain stage, which led the United States to withdraw from further participation in these campaigns.

However, it would appear that the logic shown in the *figure* is universal and applies to virtually all countries — but this is not the case. In one of the author's earlier works [7], the difference in historical decision-making models for Russia and the United States was emphasized: in Russia, political authorities often act on the principle of "at any cost," whereas Americans' low "pain threshold" for losses produces a principle of "minimal bloodshed." Refusing to accept unacceptable damage is a U.S. tradition sanctified by 250 years of history, and it is therefore not customary to disregard it.

America's hegemony model and its algorithm for political decision-making (see the *figure*) fully explain the phenomenon of the U.S. political establishment's insensitivity to Russia's arguments during the conflict in Ukraine. This will continue until the United States diagnoses the possibility of unacceptable damage to itself from continuing the conflict. In this regard, no strikes — even a nuclear bombardment — on Ukrainian territory will increase the sensitivity of representatives of the American political class, since these do not directly affect them, which is precisely the paradox of the stalemate in the confrontation between Russia and the United States.

It should be added that, for both Russia and the United States, the situation in Ukraine is existential in nature. For Russia, defeat threatens the collapse of its very statehood, while for America it is associated with the loss of global hegemony, which would entail the destruction of the entire previous model of the country's existence. The collapse of U.S. hegemony would mean the end of its monopoly over all political and economic markets, which in turn implies a fall in the profit rate across every sector of the economy (with all the ensuing consequences), as well as the transformation of the country into an ordinary participant in the world economic system — without economic privileges and political bonuses. But then this would be a different America: in such a situation, the American political class is confronted with the phenomenon of the *indivisibility of power*, the essence of which is that any power is supported by its corresponding structure, and it cannot be redistributed but only destroyed and built anew [3]. Any concession of power by the United States would require a complete dismantling of the existing architecture of global power networks, which threatens a total loss of the country's positions. This circumstance does not make the American establishment more receptive to Russia's arguments. As a result, both sides will go to the end.

U.S. FOREIGN POLICY TACTICS: THE POLITICAL LEGACY OF JOHN DULLES

Let us now examine in more detail the question of the deeper meaning behind the escalating conflict — who benefits from it, and how. To do this, it is necessary to start from the fact that escalation is an American tactic of exerting pressure on an adversary, rooted in the political views of John Foster Dulles.

In American politics and diplomacy, the figure of John Foster Dulles holds a special significance. This is due to several factors, among which the deep entrenchment of the Dulles family in the U.S. political establishment plays a considerable role. It is enough to recall that Dulles's grandfather, John Foster, was Secretary of State under President Benjamin Harrison; his uncle, Robert Lansing, was Secretary of State under Woodrow Wilson; John Dulles himself served as Secretary of State under Dwight Eisenhower; and his younger brother, Allen Dulles, worked in diplomacy and intelligence, heading the Central Intelligence Agency (CIA) from 1953 to 1961. Another reason for the role John Dulles plays in American politics lies in his two distinctive intellectual "legacies."

The first of these is known as the *doctrine of "brinkmanship"* — Dulles is considered one of its authors. According to this doctrine, in international negotiations one should approach as closely as possible to an outcome that is undesirable and, as a rule, catastrophic for both sides, in the expectation that at the last moment the adversary, for reasons of self-preservation, will concede, thereby achieving a double benefit: avoiding catastrophe while gaining unilateral advantages. In diplomacy, the catastrophic outcome is usually war, which in Russian gave rise to the stable phrase "balancing on the brink of war" to describe policies aimed at heightening the military threat. At present, U.S. policy toward Ukraine is a pure reproduction of the doctrine of brinkmanship, with the stakes rising to the point of possible use of thermonuclear weapons of mass destruction. In other words, the first political legacy of John Dulles has not been forgotten and is fully manifest.

The second legacy can be called the *doctrine of an "acceptable price,"* the essence of which is fully captured in his statement: "We want for ourselves and other free nations the maximum means of deterrence at an acceptable price.[7]" This principle requires that all U.S. political campaigns lead to its hegemony and dominance, but not at the cost of excessive losses. In turn, this means that the United States is prepared to make political concessions, but only when the alternative entails unacceptable damage in any form. The country's history is full of such concessions: the refusal to continue the war in Korea, despite the establishment of a communist regime in the northern part of the peninsula; the end of the war in Vietnam, despite the communist victory in the country; withdrawal from Afghanistan, despite the Taliban[8]'s return to power, and so on. There is no doubt that the U.S. authorities are ready to exit the confrontation in Ukraine if the damage from its continuation becomes unacceptably high. But — and this is fundamental! — not before that moment; otherwise, the "Ukrainian game" will continue.

It is easy to see that Dulles's second legacy represents none other than the fourth element of the American domination model — the principle of avoiding unacceptable damage. Thus, Dulles's "acceptable price" doctrine is a political remake of this principle and continues to be fully operational in Ukraine.

History shows that both of Dulles's legacies serve as guiding principles in all aspects of U.S. foreign policy, and it is precisely the presence of this pair of ambivalent principles that provides the American establishment's actions with the necessary balance between aggression and peacefulness. There are currently no apparent reasons to believe that the U.S. political leadership will abandon its foreign policy principles without serious cause. This becomes especially clear when considering that the stakes involve a victory over Russia, which

[7] ibid.

[8] A religious — political organization banned in Russia.

could allow the United States to restart the cycle of its global hegemony.

THE MODEL OF GLOBAL HEGEMONY: BIOLOGICAL AND PSYCHOLOGICAL FOUNDATIONS

In addition to the economic and geopolitical foundations of the U.S. hegemony model and the resulting logic of behavior, there is also an emotional aspect that cannot be overlooked. The logic of confrontation has deep evolutionary (biological) roots, and to understand them, let us consider several facts from myrmecology (the study of ants).

One of the fundamental laws of sociobiology and ant military strategy states: the more suitable a habitat is for the population's survival and defense, and the better it is equipped with valuable resources, the more intensely and fiercely it is defended [8, p. 66]. We will henceforth call this Law Principle 1: the richer the ecological niche, the fiercer its defense. Another important fact is the following: fertilized queens constantly face the risk of being killed by ants from rival colonies, which leads them to group together in clusters of 10–15 individuals for mutual protection; however, when the offspring mature, they mercilessly kill the surplus queens one by one, dragging them by the legs and stinging them to death, until only the most fertile queen remains [8, p. 73]. From this, two more principles of biological evolution emerge: Principle 2 — excessive competition is unacceptable and is deliberately eliminated up to the establishment of monopoly, and Principle 3 — a maternal structure is destroyed by its own offspring if it yields to a more efficient one. These formulated principles can be projected onto the geopolitical system, resulting in the following picture.

Principle 1: A country that has acquired hegemon status, with its high level of public prosperity and vast geopolitical advantages for its major national businesses, is compelled to aggressively and uncompromisingly maintain its position. This is exactly what the U.S. political establishment does, employing all available means to preserve its status quo. Principle 2: Countries that create excessive and dangerous competition for the hegemonic state must be eliminated along with the threat they pose. This is precisely the goal pursued by the United States, which imposes all sorts of obstacles to the normal existence and development of Russia, while simultaneously escalating the stakes in Ukraine. Principle 3: In countries that lose the global competition to the hegemon, their own elites and populations often contribute to their downfall in favor of the hegemon [9]. Russia faced this problem at the beginning of the Special Military Operation (SMO), when a broad layer of political opposition and a "fifth column" emerged — not only among the business elite and politicians, but also among ordinary citizens, the academic community, and cultural workers.

All of the above indicates that, alongside the logic of objective events, there is an effect of deep archetypal human behavior in given situations. Thus, the foreign policy strategy and tactics of the U.S. receive reinforcement at the psychological level of their political establishment. At the same time, the lack of unity within the Russian elites and population is also largely predetermined by evolutionary behavioral patterns among different social groups. Of course, in human societies, these original biological behavioral models are significantly weakened, yet they still persist, create a psychological background, and exert certain pressure on decision-makers. Overall, these innate behavioral tendencies confirm the established stereotypes of the U.S. dominance model and provoke its sharp confrontation with Russia. Invisible, deep-rooted biological survival instincts cement the asymmetry in the behavior of the political classes of America and Russia: in the former, an aggressive, uncompromising, and largely irresponsible model of confrontation; in the latter, an overly cautious, prudent, and excessively responsible one. This circumstance may not even be consciously recognized by decision-makers themselves, yet it consistently drives them toward a very specific line of behavior.

CHECKS AND BALANCES: THE POWER OF PLUTOCRACY

Although the political situation in Ukraine today is at an impasse with gradually increasing stakes, it would be wrong to think it is "frozen" and "immovable." Within the American establishment, there are forces that consider the balance of interests — at least domestically.

To understand their attitude toward a possible nuclear conflict, even beyond the American continent, it is useful to recall that the very form of government in the U.S. is a *plutocracy* — that is, rule by the wealthy or, in other words, the economic elite. Unlike countries with military (militocracy), ideological (theocracy), or bureaucratic (administrative) forms of governance, plutocracy places the interests and preferences of corporate magnates above all else. It is noted that after the U.S. Civil War, plutocracy became firmly established as part of the nation's "cultural genotype" [6, p. 184].

Since plutocrats hold decisive influence over policy in the U.S., it is reasonable to ask: is it in their interest to unleash a nuclear war? Two distinct questions deserve separate discussion here — those of total and limited nuclear conflict.

To answer them, one should start from an undeniable economic axiom: the primary motive of wealth owners is to preserve and increase their wealth [6, p. 170]. The destruction of hated countries and peoples is not strictly part of this calculus. A total nuclear conflict between the U.S. and Russia, which would lead to planetary devastation, holds no benefit for the American plutocracy — nor does triggering a limited war in Europe. For example, today the U.S. supplies energy resources to Europe, primarily Germany, at prices two to three times above market rates. This means a profit margin of at least 300–500% annually on such operations [10, p. 73]. Undermining the integrity of Germany's economy through a localized nuclear conflict would lead to Europe rejecting American liquefied natural gas and deprive U.S. plutocrats of these superprofits. Such a price for "taming" Russia appears excessive rather than "tolerable," as John Dulles "bequeathed."

This passage does not exhaust the political logic of plutocracy — historical analogies are also relevant. For instance, history clearly demonstrates a pattern: lost external wars lead to revolutions and massive civil wars [6, p. 297]. The deeper and harsher the U.S. defeat in the proxy war in Ukraine, the greater the social protest and chaos within the country will be. The use of nuclear weapons only increases the risk of this outcome — all amid a social crisis in America marked by widespread impoverishment and intensifying elite and counter-elite conflicts within the plutocracy. This situation is well captured by Peter Turchin's rule: "Nothing affects the collective mind of the ruling class better than a double existential threat — when the subjugated population expresses dissatisfaction and when geopolitical rivals press hard" [6, p. 295]. Indeed, mistakes in such circumstances carry dire consequences, primarily for the elites themselves. Most likely, the current situation will lead to a reasonable consensus regarding the confrontation in Ukraine.

The rise of Donald Trump to power in the United States in 2025 will likely contribute to a long-term search for conditions to reach a deal on Ukraine. This does not necessarily mean that the strategy and tactics of his administration will differ fundamentally from those under Joe Biden. However, a stronger focus on profit and cost reduction may broaden the range of possible solutions. Pressure and "balancing on the brink" by the U.S. will continue, but as a result, a final "price of the deal" may emerge, allowing progress to be made from the current deadlock.

CONCLUSIONS AND RECOMMENDATIONS

The analysis reveals a highly asymmetrical geopolitical situation in the confrontation between the United States and Russia. In fact, while America delivers very sensitive blows to Russia without suffering any damage itself, our country is engaged in active hostilities — including

on both new and old territories. The economy of border regions has significantly declined and, apparently, will continue to weaken. International sanctions have caused colossal trade and production problems, many of which may only be resolved in the long term. Russia's financial and human losses remain unknown but are undoubtedly substantial. All this happens against the backdrop of zero damage to the U.S.: their arms supplies to Ukraine appear more like disposal than any weakening of military potential, and financial aid, given America's currency hegemony through dollar printing, is not overly burdensome. Thus, our country is currently losing the geopolitical confrontation with America, bearing a far heavier burden of costs — material, human, and financial — while the U.S. feels no significant discomfort from the ongoing conflict. If we strive to win this war and avoid a full-scale nuclear conflict, a change in confrontation tactics is imperative.

The rise to power of Trump signals another swing toward plutocracy in U.S. foreign affairs, but this alone is insufficient to resolve the problem in Ukraine. As a representative of plutocracy, Trump must clearly see the unacceptable losses entailed by continuing the campaign against Russia, and preferably the benefits of ending the active phase of confrontation. Here, the necessity of corresponding initiatives from Russia becomes evident.

In this context, it is legitimate to pose the fourth question raised at the start of the article: what should Russia do under the evolving circumstances?

As noted above, it is advisable for Russia to pursue an ambivalent policy regarding the escalation of unacceptable damage for the U.S. while simultaneously creating potential benefits for them. This leads us into a zone of highly speculative hypotheses and proposals, so we will briefly touch upon possible Russian solutions, fully aware of their controversial nature.

To demonstrate the seriousness of its intentions, sooner or later Russia will have to take unpopular measures, which may involve various courses of action:

1. *Partial disruption of global infrastructure.* For example, in 2023, due to unintended actions by the Chinese vessel Newnew Polar Bear in the Baltic Sea between Finland and Estonia, the Balticconnector[9] gas pipeline was damaged. In 2024, damage was recorded to the C–Lion1 submarine communication cable between Finland and Germany.[10] It is unsurprising that Washington suspects Moscow of potentially conducting sabotage operations aimed at disabling critical parts of the global communications infrastructure. However, until now Russia has excluded this path for itself. Apparently, the time is coming when such operations should not only become an integral part of Russia's special military operation policy but also be scaled up significantly so that the United States and European countries can feel the costs associated with the confrontation in Ukraine.

2. *Blocking maritime trade routes.* In 2024, actions by the Houthis in the Red Sea and Bab-el-Mandeb Strait led to a gradual curtailment of navigation there.[11] The Houthis are under the patronage of Iran, with which Russia cooperates on many fronts, so there is no obstacle to supplying them with modern weapons to enhance their capabilities and effectively paralyze global trade in the region. Dissatisfaction with this fact could become a signal for the U.S. and EU countries to reconsider their position on Ukraine. It is also worth noting that accidents sometimes occur in the Red Sea: in 2021, the tanker Ever Given ran aground and blocked the Suez Canal, with the cost of unblocking operations estimated at $ 9.6 billion per day; similar blockages happened in 2022 due to the tanker Affinity V, and again in 2023 because of the dry cargo ship Xin Hai Tong.[12] Such block-

[9] URL: https://www.rbc.ru/politics/12/08/2024/66ba08b99a7947bcc6483fc9

[10] URL: https://www.rbc.ru/society/18/11/2024/673b4a109a7947637be77c0a?ysclid=m4bi6oplwe428930601

[11] URL.: https://www.ng.ru/world/2024–01–16/1_8923_redsea.html

[12] URL: https://oilcapital.ru/news/2023–05–25/v-suetskom-kanale-vnov-chp-2937680

ages could be artificially reproduced, and Russia has all the means to do so. A skillful alternation of Houthi actions and "friendly" tankers could block this vital trade route for a prolonged period.

3. *Strikes on decision-making centers in Ukraine.* Another permissible tool to deter the aggressive stance of the American establishment and its allies could be devastating strikes on decision-making points in Ukraine, with an emphasis on causing maximum damage to foreign advisors and military personnel. It is not excluded that Russia may have to strike the territory of a NATO country supplying weapons to Ukraine. Naturally, such actions will provoke mass protests but would overall have a sobering effect on Western political elites.

4. *Complete ban on the supply of strategic raw materials to unfriendly countries.* Another potentially painful gap for the U.S. is the import of strategic goods from Russia. For example, in both 2022 and 2023, Russia actively supplied America with pearls, precious stones, coins, mineral fertilizers, fuels, oils, distillation products, platinum group metals, aluminum, and uranium,[13] thereby supporting its energy and electronics sectors during the active phase of the special military operation. In 2024, Russia introduced restrictions on the export of enriched uranium to the U.S. but made exceptions for shipments under one-time licenses issued by the Federal service for technical and export control.[14] While there may be some economic rationale behind such decisions, they clearly contradict the war regime and reduce the damage inflicted on the United States, so Washington is unlikely to respond to any signals.

5. Expropriation of foreign companies' assets on Russian territory. Although the process of acquiring foreign companies leaving Russia continued in 2024, it appears excessively liberal. Since 2022, transactions involving the sale of Russian assets belonging to residents of unfriendly countries require approval by a government commission, and the asset's value is determined by independent appraisal. In 2024, the minimum discount that foreign owners must offer Russian buyers increased from 50% to 60%, and the size of the "voluntary contribution" to the budget rose from 15% to 35% of the market value of the asset. While these measures reduce the burden on local business, they are clearly insufficient in the current conditions. For example, the French company Danone, which left Russia in 2024, sold its business to the Russian company Vamin R for 17.7 billion rubles, despite its valuation being approximately 80 billion rubles — that is, 4.5 times below market value.[15] However, nothing prevents Russia from fully expropriating such assets — in the absence of this, buyouts appear as a sign of weakness and reduce investment resources for domestic entrepreneurs who could otherwise develop the local economy.

6. *Developing business proposals for the U.S. in the event of conflict resolution.* As noted above, measures to increase the sensitivity of the American establishment should include not only direct damage but also potential incentives. This topic warrants separate, in-depth research, but already one promising direction can be identified: Arctic development in cooperation with the United States. For example, current estimates suggest that cargo traffic along the Northern Sea Route is expected to increase eightyfold from 2010 to 2024 — from 1 million to 80 million tons.[16] The Arctic is claimed not only by Russia and the U.S., but also by China, allowing us to skillfully leverage competing interests among these partners. Russia could offer the Americans various incentives: quotas for passage through the Northern Sea Route, access to northern Russian ports, opportunities for American capital participation in specific Arctic projects, and so forth. These would constitute a significant motivation for the U.S. to reconsider its support for Ukraine in favor of a strategically important economic partnership.

Without further elaboration, it should be emphasized that the purpose of all the proposed actions is

[13] URL: https://tsargrad.tv/articles/russkij-uran-dlja-ukrainskih-snarjadov-vskrylas-neprigljadnaja-tajna-torgovli-s-ssha-2_857662?utm_referrer=https%3a%2f%2fya.ru%2f

[14] URL: https://vz.ru/economy/2024/11/16/1298314.html?ysclid=m4bkfrfxna538161307

[15] URL: https://journal.tinkoff.ru/news/foreign-business-sale/?ysclid=m52d3zi9om936178046

[16] URL: https://tass.ru/mezhdunarodnaya-panorama/8679505?ysclid=m4bljliwbu471021957

at least to partially shift the burden currently borne by Russia onto Western — and primarily American — assets. Otherwise, the U.S. will neither relinquish its claims regarding Ukraine

RESULTS AND DISCUSSION

In conclusion, it is worth reflecting on the relevance and demand for the proposed recommendations. Currently, the scholarly literature actively debates the phenomenon of the decline of U.S. hegemony and its consequences. A widely held view is that the era of U.S. geopolitical monopoly is ending, giving way to an oligopoly characterized by the rising power of China and the BRICS organization — which, according to available estimates, is expected to become the leading force in the G20 by the late 2030s — as well as the concept of Afrocentrism, embraced by many countries (e.g., South Africa) as a theoretical foundation in their efforts toward decolonization [11]. In this context, some argue that U.S. foreign policy under the Trump administration's first term ("Trump Doctrine") represented a withdrawal from global leadership in favor of reactive populism [12].

Conversely, some analysts use the example of Argentina to demonstrate that Trump, contrary to popular belief, did not weaken U.S. hegemony in Latin America but rather strengthened it by relying on traditional American "dollar diplomacy" tools [13]. Other researchers point out that the so-called "realpolitik" succeeding liberal imperialism tends to provoke proxy wars without creating new institutions, practices, or norms to mitigate their consequences, potentially becoming a new source of international disorder [14]. Building on this idea, leading political scientists highlight the inability of the successive Trump and Biden administrations to abandon the goal of U.S. supremacy, resulting in a state of "dominance without hegemony," where America plays an increasingly dysfunctional role — its foreign policy has shifted from a mid-20th-century regime of "legitimate defense" to an early 21st-century regime of "protective racketeering" [15].

The literature identifies three potential paths for the U.S. to preserve its hegemony: 1) defensive protectionism; 2) fragmentation of the international system; and 3) launching a new wave of innovation ("rejuvenation"). However, since China demonstrates both the capability and willingness to become the technological leader, the third option appears doubtful, making the first two more likely — and these carry the risk of war over control of technology and its ownership [16]. Nevertheless, some authors emphasize China's mistakes related to its pursuit of dominance, which alarms its neighbors, while the U.S. retains the experience of building extensive networks of influence [17].

The identified trends and factors in the restructuring of the global economic system create a favorable environment for more active Russian actions in the conflict in Ukraine. For example, there is an opinion that the main reason for the sharp deterioration in relations between Moscow and Washington was Russia's new role in addressing critical global issues, which laid the foundation for effective strategic bargaining [18]. Although some publications note that in the past decade of confrontation between the U.S. and Russia, Russia's actions have largely been forced, reactive responses to hostile moves by the hegemon [19]. In other words, it is emphasized that Russia lost strategic initiative at the outset of the conflict.

At the same time, there are prerequisites for active bargaining between Russia and America. For instance, some experts argue that the Arctic is a zone of strategic interest for all states, and severing ties with Russia beyond the Arctic Circle for the U.S. and NATO countries is unjustified; it not only increases the risk of escalation in the geopolitical conflict but also hinders progress on climate change mitigation [20]. According to Russian analysts, the Northern Sea Route project, on the contrary, could become a powerful stimulus for Russian-American economic cooperation[17].

[17] Russia – U.S. relations after the "reset": on the way to a new agenda. A view from Russia. Report by Russian participants of the Working group on the future of Russian – American relations. M.: Valdai; 2011. 48 p.

Meanwhile, Chinese expert Gu Fengli rightly points out that the conflict in Ukraine is part of a long-prepared hybrid war aimed at preserving U.S. hegemony, and until that goal is achieved, the opponent will not allow Russia to easily "break free," which is a key factor in the continuation of the confrontation and rising stakes [21]. It is suggested that the current events are a direct continuation of the Cold War, which immediately transitioned into a new phase [22]. At the same time, analysts stress that Russia and the U.S. find themselves in the same civilizational boat—they are losing, and will continue to lose, their relative weight in the global economy and politics[18].

One study correctly notes that the way for the U.S. to return to a historical norm of behavior involves increasing the country's foreign policy costs and raising the price of maintaining the American empire. However, a deterrence measure such as the last warning signal in the form of a ground detonation of a super-large nuclear warhead (over 50 megatons) seems unjustified [1]. A detonation on Russian territory (for example, at Malaya Zemlya) would only damage Russia itself, but would not affect the U.S.—in fact, it would be a costly yet ineffective demonstration shot.

All these factors indicate that both Russia and the U.S. are in an extremely precarious situation, which will only worsen due to mutual confrontation. In this context, the recognition of the clear and painful damage that could be inflicted on the U.S. if the conflict in Ukraine continues—alongside potential benefits from its resolution—could serve as a serious motive for the American establishment to abandon the escalation strategy.

CONCLUSION

The analysis of the military-strategic confrontation between the United States and Russia allows us to outline several important theses that should serve as a basis for contemporary political analysis. First and foremost is the understanding of the West's loss of fear regarding a thermonuclear Armageddon, which could occur if control over the situation in Ukraine is lost. This is connected to a unique phenomenon in the history of human civilization—the *duality of* Russia's *position* after 1991, when its ruling elites were, on one hand, under Western influence, but on the other hand, their ambiguity and uncertainty contained the potential to "rise up" and restore the country's political sovereignty, relying on its military-strategic capabilities, including its nuclear arsenal. This situation gave rise to another unique phenomenon—the *uncertainty of* Russia's *"red lines"* in foreign policy, which were either unspoken or constantly shifted. Although Russia has begun to change its policy in this regard, the West has already become accustomed to its excessive caution and no longer hears these new signals.

The United States' lack of flexibility in responding to Russia's statements and actions is largely tied to its mental model of global dominance, which includes four elements: the presumption of the American state's divine chosenness, the doctrine of irreconcilability, the stratagem of totality, and the syndrome of refusal to accept unacceptable costs. The indivisibility effect of power compounds this model and exacerbates the American establishment's insensitivity to the escalating tensions in Ukraine.

At the same time, the U.S. administration employs two distinct "legacies" of John Dulles in its tactics: the doctrine of "balancing on the edge" and the doctrine of the "tolerable price." Since Russia has so far caused no significant damage to the United States, the American authorities have no reason to abandon these political principles. However, the return of Donald Trump to power in the U.S. in 2025 signals a strengthening of plutocratic principles in government and creates conditions for a deal on Ukraine—one that will require inflicting unacceptable damage on America.

For this the following measures are proposed: partial destruction of global infrastructure; blockade of maritime trade routes; strikes on decision-making centers in Ukraine; a complete

[18] ibid.

ban on the supply of strategic raw materials to unfriendly countries; expropriation of assets belonging to foreign companies from hostile states located on Russian territory; and the development of business proposals for the U.S. in the event of conflict resolution. These measures should be implemented by the Government of the Russian Federation, relying on its existing administrative apparatus. Ideally, all major actions should be completed by the end of 2025 and begin to yield results within that timeframe. Without going into details, it can be asserted that the country's highest authorities possess the necessary forces, resources, and means for this; however, their effective use requires generating creative and largely unconventional management decisions. Carrying out these actions will help shift away from unilateral strikes against Russia and create a more favorable environment for constructive negotiations.

REFERENCES

1. Trenin D., Avakyants S., Karaganov S. From deterrence to intimidation. Moscow: Molodaya gvardiya; 2024. 152 p. (In Russ.).
2. Balatsky E. The American model of global dominance. *Terra Economicus*. 2024;22(2):96–113 (In Russ.). DOI: 10.18522/2073–6606–2024–22–2–96–113
3. Lukes S. Power: A radical view. London: Palgrave Macmillan; 2005. 192 p. (Russ. ed.: Lukes S. Vlast': Radikal'nyi vzglyad. Moscow: HSE Publ.; 2010. 240 p.).
4. Mlechin L. The country's top intelligence officer could have become president: The career of Evgeny Primakov. Moscow: Argumenty nedeli; 2021. 304 p. (In Russ.)
5. Lukyanovich N.V., Silvestrov S.N. The strategy of indirect approach in the U.S. foreign policy. *Mir novoi ekonomiki = The World of New Economy*. 2023;17(3):18–31. (In Russ.). DOI: 10.26794/2220–6469–2023–17–3–18–31
6. Turchin P.V. The end of times. Moscow: AST; 2024. 432 p. (In Russ.).
7. Balatsky E.V. Nuclear apocalypse is postponed for now. Kapital strany. Oct. 17, 2024. URL: https://kapital-rus.ru/articles/article/yadernyi_apokalipsis_poka_otkladyvaetsya/?ysclid=m48rn8ixh3859171059 (In Russ.).
8. Wilson E.O. Tales from the ant world. New York, NY: Liveright Publishing Corp.; 2020. 240 p. (Russ. ed.: Wilson E. Planeta murav'ev. Moscow: Alpina Non-Fiction; 2022. 211 p.).
9. Gershenkron A. Economic backwardness in historical perspective. Moscow: Delo; 2015. 535 p. (In Russ.)
10. Balatsky E.V. Russia in the epicenter of geopolitical turbulence: The hybrid war of civilizations. *Economic and Social Changes: Facts, Trends, Forecast*. 2022;15(6):52–78. DOI: 10.15838/esc.2022.6.84.3 (In Russ.: *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz*. 2022;15(6):52–78. DOI: 10.15838/esc.2022.6.84.3).
11. Rapanyane M.B. The new world [dis] order in the complexity of multi-polarity: United States of America's hegemonic decline and the configuration of new power patterns. *Journal of Public Affairs*. 2021;21(1): e2114. DOI: 10.1002/pa.2114
12. Yom S. US foreign policy in the Middle East: The logic of hegemonic retreat. *Global Policy*. 2020;11(1):75–83. DOI: 10.1111/1758–5899.12777
13. Rowley J. Business as usual? Donald Trump and US hegemony through the lens of dollar diplomacy in Argentina. *Latin American Policy*. 2023;14(2):217–230. DOI: 10.1111/lamp.12297
14. McKeil A. The limits of realism after liberal hegemony. *Journal of Global Security Studies*. 2022;7(1):1–11. DOI: 10.1093/jogss/ogab020
15. Payne C.R., Silver B.J. Domination without hegemony and the limits of US world power. In: Young K.A., Schwartz M., Lachmann R., eds. Trump and the deeper crisis. Bingley: Emerald Publishing Limited; 2022:159–177. (Political Power and Social Theory. Vol. 39). DOI: 10.1108/S 0198–871920220000039009

16. Schutte G.R. The challenge to US hegemony and the "Gilpin dilemma". *Revista Brasileira de Política Internacional*. 2021;64(1): e004. DOI: 10.1590/0034–7329202100104
17. Foot R. China's rise and US hegemony: Renegotiating hegemonic order in East Asia? *International Politics*. 2020;57(1):150–165. DOI: 10.1057/s41311–019–00189–5
18. Tonkikh V.A., Kondratenko L.I. Russia — U.S.A.: From cold peace to cold war. *Vestnik Voronezhskogo gosudarstvennogo universiteta. Seriya: Istoriya. Politologiya. Sotsiologiya = Proceedings of Voronezh State University. Series: History. Political Science. Sociology*. 2021;(1):86–91. (In Russ.).
19. Kosov A.P. Russia's policy towards the United States during Vladimir Putin's third presidency: From "reset" to a new confrontation. *Zhurnal mezhdunarodnogo prava i mezhdunarodnykh otnoshenii = Journal of International Law and International Relations*. 2022;(3–4):28–36. (In Russ.). DOI: 10.33581/2072–0513–2022–3–4–28–36
20. Seleznev P.S. The Arctic as a new zone of confrontation between Russia and NATO. *Ekonomicheskie nauki = Economic Sciences*. 2024;(233):487–495. (In Russ.). DOI: 10.14451/1.233.487
21. Go F. Hybrid war of the United States and its allies against Russia in the context of the special military operation. *Grazhdanin. Vybory. Vlast' = Citizen. Elections. Authority*. 2023;(2):146–155. (In Russ.).
22. Khoroshev A.A., Bespalko G.N. "Cold war": Political thinking and practice of confrontation between two world systems. *Voprosy natsional'nykh i federativnykh otnoshenii = Issues of National and Federative Relations*. 2022;12(7):2629–2636. (In Russ.). DOI: 10.35775/PSI.2022.88.7.032

ABOUT THE AUTHOR

Evgeny V. Balatsky — Dr. Sci. (Econ.), Professor, Chief Researcher, Primakov National Research Institute of World Economy and International Relations of the Russian Academy of Sciences, Moscow, Russian Federation
http://orcid.org/0000-0002-3371-2229
evbalatsky@inbox.ru

Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was received on 10.01.2025; revised on 03.03.2025 and accepted for publication on 12.03.2025. The author read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-22-32
UDC 336.74:004(45),347.73:004(45),336.743(045)
JEL K22, G23, G28, E42, O33

Cryptocurrencies and Digital Assets in the Modern Legal and Financial System of Russia: Problems of Terminology and Classification

A.V. Krupochkin, I.P. Khominich
Plekhanov Russian University of Economics, Moscow, Russian Federation

ABSTRACT

The article is devoted to the problem of terminological uncertainty and the lack of a unified classification of cryptocurrencies and digital assets in modern Russian legislation. Despite the adoption of Federal Law from 31.07.2020 No. 259-FZ "On Digital Financial Assets, Digital Currency and Amendments to Certain Legislative Acts of the Russian Federation", there are many controversial issues in law enforcement practice regarding the legal status of cryptocurrencies and their place in the financial system. The article analyzes existing approaches to defining digital assets in Russian and international regulations, as well as in scientific literature. The variety of classifications and the variety of functional characteristics inherent in different types of cryptocurrencies and tokens are noted. Key contradictions between the decentralized nature of cryptocurrencies and attempts at government regulation are identified. The author's definitions of digital currency, cryptoasset and cryptocurrency are formulated, taking into account technological, economic and legal aspects. Recommendations are proposed for improving legislation and developing agreed standards in the field of digital financial assets. The authors emphasize the need to balance the interests of the state, business, and society to ensure the successful development of the digital economy in Russia.

Keywords: cryptocurrency; digital asset; digital currency; blockchain; distributed ledger; legal regulation; classification; decentralized finance

For citation: **Krupochkin A.V., Khominich I.P. Cryptocurrencies and digital assets in the modern legal and financial system of Russia: Problems of terminology and classification.** ***The World of the New Economy.*** **2025;19(2):22-32. DOI: 10.26794/2220-6469-2025-19-2-22-32**

INTRODUCTION

The development of distributed ledger technologies and the emergence of cryptocurrencies have led to the formation of a new layer of economic relations requiring adequate legal regulation. However, the dynamic and cross-border nature of digital assets (DAs) conflicts with traditional approaches to financial regulation, which are based on principles of centralization and national sovereignty.

The dynamics of cryptocurrency development over the past decade demonstrate their transformation from a niche technological experiment into a global financial phenomenon. The total capitalization of the crypto market exceeded USD 3 trillion[1] in 2025, with more than 20% of cryptocurrency users coming from CIS countries, including Russia. This creates unique challenges for national regulation, especially under conditions of sanctions pressure and Russia's pursuit of digital sovereignty. For example, in 2023, the share of ruble pairs on P2P platforms grew by 35%, highlighting the increasing demand for alternative financial instruments among Russians. However, unlike China, which has introduced the digital yuan, or the EU, which adopted the MiCA Regulation,[2] Russia remains in a "grey zone," where the legal status of crypto-assets is limited by Federal Law No. 259-FZ of July 31, 2020, "On Digital Financial Assets, Digital Currency, and on Amendments to Certain Legislative Acts of the Russian Federation[3]" (hereinafter — 259-FZ), while their actual use continues to expand. This duality increases legal risks and slows the integration of blockchain technologies into key sectors of the economy.

The lack of unified terminology and generally accepted classification of digital assets complicates the development of consistent rules and creates legal uncertainty for market participants.

This article attempts to systematize existing approaches to defining cryptocurrencies and digital assets, as well as to propose the authors' own formulations that take into account the specifics of the phenomena under consideration. The authors analyze key problems associated with the application of current Russian legislation to cryptocurrency transactions and provide recommendations for its improvement.

METHODOLOGY

The study is based on a theoretical analysis of existing doctrine, taking into account various positions within the scholarly discourse, as well as precedents from law enforcement practice. Using a systemic and functional approach, an attempt is made to link technological characteristics (decentralization, blockchain, tokens) with economic and legal aspects in order to propose the authors' own definitions and classification criteria. To achieve this, several dimensions are examined sequentially: the technological dimension (features of distributed ledgers, smart contracts), the economic dimension (the function as a means of payment, the problem of token valuation), and the legal dimension (legal regime, prohibition of use as a means of payment, registration requirements).

The article applies a content analysis method to normative and doctrinal sources, which allows the identification of terminological inconsistencies and legislative gaps. A comparative method (contrasting Russian and international positions) further helps to highlight contradictions in approaches to legal regulation, while the systemic method ensures a comprehensive view of the problem: it considers not only the texts of laws themselves but also their application in the real financial sphere. The authors aim for a comprehensive classification, referring to the diversity of viewpoints and recognizing that a unified formula must reflect at least three key aspects — legal, economic, and technological.

[1] URL: https://coinmarketcap.com

[2] URL: https://eur-lex.europa.eu/eli/reg/2023/1114

[3] URL: https://www.consultant.ru/document/cons_doc_LAW_358753/?ysclid=m8hgtpsoks151221684

ANALYSIS OF THE PROBLEM OF TERMINOLOGICAL UNCERTAINTY

One of the main problems in regulating digital assets is the lack of a unified approach to their definition and classification, both in Russian and international law. Legislative definitions of digital assets in Russia do not take into account their functional polysemy, and the legal system retains terminological uncertainty that hinders the development of universal classification criteria [1–3]. Federal Law No. 259-FZ first introduced into Russian legislation the concepts of "digital financial assets" and "digital currency"; however, as noted by A.V. Gabov, these definitions were primarily developed to regulate centralized digital currencies (for example, the digital ruble) and do not reflect the specifics of decentralized cryptocurrencies, which leads to excessive formalization of the rules [1]. They do not fully capture the technological, economic, and functional features of cryptocurrencies, remain largely declarative in nature, and fail to provide the flexible regulation needed for the digital economy.

In particular, digital currency (DC) is defined as a set of electronic data contained in an information system, which is offered and/or may be accepted as a means of payment. However, cryptocurrencies based on decentralized blockchains generally do not have a single issuer or operator who could guarantee the fulfillment of obligations [4]. According to O.V. Loseva, the lack of a clear classification complicates not only the valuation of digital assets but also their integration into the legal framework, since regulators cannot rely on uniform criteria [5].

Moreover, 259-FZ explicitly prohibits the use of digital currency as a means of payment on the territory of the Russian Federation, which contradicts already established practices of using cryptocurrencies to pay for goods and services on the Internet and in the darknet [6]. This creates a legal conflict where the actual use of cryptocurrencies outpaces legislative regulation and is not covered by existing norms. As A.V. Gabov emphasizes, the Russian legislator conflates the concepts of "digital currency" (for example, the digital ruble) and "cryptocurrency," which creates terminological confusion and prevents the formation of clear classification criteria [1].

This problem is relevant not only for Russia but also for other jurisdictions. For example, in the United States, the Securities and Exchange Commission classifies Bitcoin as a commodity and Ethereum as a potential security, which has led to disputes in legal practice.[4] MiCA introduces a clear distinction between "electronic tokens" and "utility tokens," which simplifies regulation. In contrast, 259-FZ lumps all digital assets under general definitions, ignoring their functional diversity.

A striking example of the consequences of such uncertainty occurred in 2022, when a court in Moscow refused to recognize Bitcoin as a means of payment in a debt collection case, citing the absence of "legal status.[5]" However, in Dubai in 2023, cryptocurrencies were legalized as a means of payment for government services, which stimulated an influx of investment into the UAE.

In the academic literature, considerable attention is paid to distinguishing between the concepts of "virtual currency," "electronic money," "digital currency," and "cryptocurrency." For example, the European Central Bank considers virtual currencies to be a type of unregulated digital money created by private individuals or organizations and used among members of a virtual community.[6] At the same time, the Financial Action Task Force (FATF) defines virtual currency as a digital representation of value that can be digitally traded and functions as a medium of exchange, a unit of account, or a store of value, but does not have legal tender status.[7]

[4] URL: https://www.sec.gov/newsroom/press-releases/2020–338

[5] URL: https://sudact.ru/arbitral/doc/4cASe7Q2ZX5z/

[6] URL: https://www.ecb.europa.eu/pub/financial-stability/fsr/html/ecb.fsr202211~2c387cac68.en.html

[7] URL: https://www.fatf-gafi.org/publications/fatfrecommendations/documents/guidance-rba-virtual-assets-2021.html

It is clear that, based on their technical characteristics, cryptocurrencies fall under all these definitions. But is it correct to equate them with electronic money (EM)? According to Federal Law No. 161-FZ of June 27, 2011, "On the National Payment System[8]" (hereinafter — 161-FZ), EM must be denominated in rubles or a foreign currency, and the operator is obliged to redeem their balance at the client's request. Decentralized cryptocurrencies, by contrast, do not have any redemption obligations and are freely convertible at the market rate.

Some researchers propose classifying cryptocurrencies as "digital goods" or "intangible assets[9]" [7]. However, even this does not seem to fully account for all the nuances of their circulation, since cryptocurrencies can not only be an object of purchase and sale but can also be used as a payment instrument or a store of value, which clearly goes beyond the traditional understanding of a commodity.

CLASSIFICATION OF CRYPTOCURRENCIES AND DIGITAL ASSETS

One of the main challenges in systematizing cryptocurrencies and digital assets lies in the diversity of grounds and approaches for their classification. For example, A.V. Gabov points out that the digital ruble, as a centralized instrument, requires a fundamentally different regulatory approach compared to decentralized cryptocurrencies; however, current legislation does not clearly distinguish between them [1]. In particular, Russian legal doctrine is dominated by a fragmented approach that fails to take into account the multifunctionality of crypto-assets [2]. Classification criteria can include technological design, economic purpose, legal status, or the functional features of specific instruments. Nevertheless, cryptocurrencies and tokens often have a hybrid nature, combining properties of different asset classes. As O.V. Loseva notes, for valuation purposes, digital assets require a special classification that takes into account not only their technological characteristics but also their market liquidity, volatility, and monetization potential. Therefore, a universal systematization approach is still lacking [5].

In some classifications, depending on the mechanism of creation and circulation, the following types are distinguished:

- native cryptocurrencies, with their own blockchain (e.g., Bitcoin, Ethereum, Litecoin);
- equity tokens, which grant ownership rights in a company or entitlement to dividends. As noted by the U.S. Securities and Exchange Commission, such tokens fall under the definition of securities and must comply with regulatory norms[10];
- debt tokens, secured by assets and granting claims on the underlying asset (real estate, securities, commodities);
- unsecured payment tokens, which function as a means of payment;
- utility tokens, providing access to a project's products or services;
- stablecoin tokens, whose exchange rate is pegged to fiat currencies, precious metals, or a basket of assets [4, 8].

O.V. Loseva proposes an alternative classification oriented toward value parameters, where digital assets are divided into:

- highly liquid digital assets (e.g., Bitcoin);
- digital assets pegged to real assets (stablecoins);
- instruments with an uncertain value (utility tokens) [5].

However, not all cryptocurrencies clearly fit into the proposed schemes. For example, Ethereum successfully combines the properties of a means of payment with those of a platform for creating utility tokens and decentralized applications. Eq-

[8] URL: https://www.consultant.ru/document/cons_doc_LAW_115625/

[9] URL: https://www.chainalysis.com/blog/2024-crypto-crime-report-introduction/

[10] URL: https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets

uity tokens are often traded on crypto exchanges alongside classic cryptocurrencies, performing a speculative function. Meanwhile, some utility tokens have effectively turned into full-fledged digital currencies after the corresponding projects grew in popularity.

By the degree of centralization and transaction anonymity, public, private, and hybrid blockchains[11] are distinguished [4]. Public blockchains (such as Bitcoin and Ethereum) allow any user to read and write data, maintaining a certain degree of privacy through the pseudonymity of addresses. Private blockchains involve a single operator or a consortium of participants who set the consensus rules and admit new members at their discretion. Hybrid blockchains combine public and private functionality by connecting closed clusters to an open network.

Finally, in terms of intended purpose and basic characteristics, some authors classify cryptocurrencies as:

- means of payment, characterized by high liquidity, divisibility, and portability (e.g., Bitcoin, Litecoin, Dash);
- platform-based assets, used to create decentralized applications and launch initial offerings (e.g., Ethereum, EOS, Tron, NEO);
- investment tokens, representing digital analogues of securities or shares in a company's charter capital;
- stores of value and volatility hedging instruments, such as Bitcoin or stablecoins [9].

It should be recognized that these classifications are not mutually exclusive. In practice, many cryptocurrencies and tokens combine payment, investment, and speculative functions, making it difficult to develop a unified regulatory approach. The categories proposed in academic literature are largely theoretical and do not fully reflect all the technological and economic nuances of digital asset operation.

With the development of Web3 and metaverses, new forms of digital assets have emerged that require a reassessment of existing classifications:

- Soulbound tokens (SBTs) — non-transferable tokens that record a user's reputation or achievements in decentralized communities, for example, within Decentralized Autonomous Organizations (DAOs[12]). Their legal status remains unclear, as they do not fall under traditional categories of securities or goods.
- Non-fungible tokens (NFTs) with utility functions, such as tokens granting access to exclusive content or physical assets (for example, in Porsche NFT projects[13]). In Russia, such attempts face taxation challenges since the Russian Tax Code does not distinguish between NFTs and cryptocurrencies.
- Hybrid stablecoins, for example, tokens backed by a combination of algorithmic mechanisms and reserves (like the decentralized stablecoin DAI). Their dual nature creates risks for financial stability, as demonstrated by the collapse of TerraUSD in 2022.[14]

Moreover, classifications based on the current state of the market are becoming outdated almost in real time. New types of tokens and hybrid instruments constantly appear, combining features of different asset classes. The technological and organizational structures of blockchain projects also continue to evolve, rendering most existing formal criteria inadequate.

Given the complex and dynamic nature of cryptocurrencies and digital assets, *it seems reasonable at this stage to refrain from trying to force them into rigid universal classification frameworks*. Instead, a differentiated approach to analysis and regulation is needed, depending on the specific technological and economic characteristics of each instrument.

RISKS AND THREATS ASSOCIATED WITH CRYPTOCURRENCIES AND DIGITAL ASSETS

The integration of cryptocurrencies and digital assets into Russia's financial system creates a

[11] URL: https://www.bis.org/publ/arpdf/ar2023.pdf

[12] URL: https://decentraland.org/dao/

[13] URL: https://newsroom.porsche.com/en/2023/company/porsche-nft-collection-ethereum-web3–31868.html

[14] URL: https://www.sec.gov/newsroom/press-releases/2023–32

set of risks that require a multifaceted analysis, as they affect both the micro-level (individual market participants) and macroeconomic stability, posing challenges for regulators, financial institutions, and society as a whole.

Risks for Private Investors

The primary threat for individuals remains the extreme volatility of cryptocurrency markets. For example, in 2021, the price of Bitcoin fell by 65% within three months, leading to significant losses for investors [3, 10]. Such fluctuations are exacerbated by the absence of fundamental pricing mechanisms, turning crypto assets into a high-risk instrument for inexperienced market participants.

A serious problem is the spread of fraudulent schemes: phishing attacks, financial pyramids (such as the Russian "Finiko" scheme in 2021), and fake initial offerings [11, 12]. One study notes that more than 30% of cryptocurrency projects positioning themselves as investment funds do not correspond to their declared objectives, with their structures often imitating classic pyramid schemes [11]. The decentralized nature of the blockchain complicates the identification of malicious actors, and the lack of regulation increases investor vulnerability.

Cyber threats are also a critical risk factor. In 2023, total losses from cryptocurrency exchange hacks reached USD 3.8 billion, including incidents involving Russian users [13]. The loss of funds due to the compromise of private keys or smart contracts is irrecoverable, since decentralized systems exclude the possibility of warranty obligations [14].

An additional barrier is legal uncertainty. Russian banks block accounts suspected of cryptocurrency-related transactions, referring to the provisions of Federal Law No. 259-FZ, creating legal and financial difficulties for investors [15].

Threats to Financial Stability

At the macro level, cryptocurrencies have the potential to destabilize traditional financial institutions. According to estimates by the Bank of Russia, up to 40% of digital asset transactions go undeclared, facilitating tax evasion and reducing fiscal revenues.[15]

A mass migration of capital into cryptocurrencies could weaken central banks' control over the money supply. Decentralized finance (DeFi) creates an alternative payment ecosystem that competes with fiat currencies, thereby threatening the monetary sovereignty of the state.[16]

The growth of DeFi platforms, such as decentralized exchanges and lending protocols, reduces demand for traditional banking services, calling into question the profitability of the sector.[17] This requires a reassessment of regulatory strategies to minimize systemic risks.

Expansion of Illegal Activities

Cryptocurrencies are actively used for illicit purposes: 23% of Bitcoin transactions are linked to illegal operations, including money laundering and dark web trading. The anonymity of clients and the cross-border nature of blockchain make it difficult to identify participants, posing a threat to national security [6].

Particular concern arises regarding the financing of terrorism. Crypto assets allow prohibited organizations to circumvent sanctions and move funds outside the traditional banking system [15]. Sanctions pressure on Russia further encourages the use of stablecoins (such as USDT) for the illegal transfer of capital, thereby undermining the effectiveness of currency controls [16].

The risks associated with cryptocurrencies are multidimensional, affecting legal, economic, and technological spheres. To mitigate these threats, it is necessary to develop a balanced regulatory system that combines investor protection, counteraction to illegal activities, and the integration of innovations into the financial system. As

[15] URL: https://www.cbr.ru/finstab/review/

[16] URL: https://www.bis.org/publ/othp33.htm

[17] URL: https://www.bankingsupervision.europa.eu/press/supervisory-newsletters/newsletter/2023/html/ssm.nl230215_1.en.html

experts emphasize, ignoring these challenges may lead to systemic crises, whereas addressing them could create conditions for the sustainable development of the digital economy.

AUTHOR'S DEFINITIONS OF DIGITAL ASSETS

Based on the analysis of terminology and legal regulation, it seems necessary to distinguish between the concepts of "digital currency," "cryptoasset," and "cryptocurrency" as follows:

Digital currency is a virtual asset that exists in electronic form and is based on technological solutions involving both centralized and decentralized accounting systems. It enables payments for goods and services both domestically and in cross-border transactions, serves as a store of value, and acts as a unit of account for determining and expressing prices.

This category includes projects involving national digital currencies issued by central banks on state-backed blockchain platforms (such as digital rubles, yuan, or dollars). Their key feature is a centralized issuance process and the existence of legally established rules governing their circulation. As a rule, central bank digital currencies are recognized as legal tender on par with traditional fiat money.

Cryptoasset refers to a digital asset created and operating by means of cryptographic technologies and distributed ledger systems, which may serve as a medium of exchange, an investment object, or be used to confirm rights within an ecosystem.

Here, the emphasis is placed not on its payment function but on the technology of storing and recording rights to the asset. Any tokens issued on a blockchain may be classified as a type of cryptoasset, regardless of their economic essence. This definition covers the majority of existing cryptocurrencies and tokens, as well as derivative financial instruments such as cryptocurrency futures and options.

Cryptocurrency is a decentralized digital form of money, created and secured through cryptographic methods based on distributed ledgers, which allows network participants to directly exchange value without the involvement of traditional financial intermediaries or the need to open a bank account.

The defining features of cryptocurrency are the decentralized nature of its infrastructure, the use of cryptographic methods to secure transactions, and the absence of backing by traditional assets. The primary economic purpose of classic cryptocurrencies is to act as a means of exchange, payment, and savings.

It should be particularly emphasized that the definitions proposed here are the authors' own and do not claim universality. In the context of legal regulation and state oversight, they may be supplemented by additional features reflecting the position of the regulator.

The authors' proposed definition of "**cryptoasset**" correlates with the FATF approach ("digital representation of value"), but adds the technological criterion of "use of distributed ledger technology." This, for example, makes it possible to exclude from this category centralized in-game tokens (such as V-Bucks), which are regulated differently.

In our interpretation of the concept of "**cryptocurrency**," the emphasis is placed on decentralization, which distinguishes it from the digital ruble but aligns with the position of the Bank of Russia, which prohibits private payment tokens. However, this contradicts the practice in Kazakhstan, where since 2021 cryptocurrencies have been recognized as digital assets, allowing the legalization of mining. Such differences highlight the need to adapt terminology to national priorities while maintaining compatibility with global standards.

RECOMMENDATIONS FOR IMPROVING LEGISLATION

Based on the conducted analysis of the problems related to terminology and classification of digital assets, the following proposals can be formulated for the further development of Russian legislation in this area. To this end, it is necessary to:

1. Unify the conceptual framework at the level of federal laws and subordinate regulatory acts, eliminating contradictions between different definitions of digital assets, cryptocurrencies, and tokens. In particular, it is advisable to clarify the relationship between digital assets and digital currencies within the framework of prospective cryptocurrency market regulation.

2. Provide in the regulatory framework for the possibility of functional differentiation of digital assets depending on their actual use in civil circulation (payment tokens, utility tokens, investment tokens, etc.). This will allow differentiation of requirements for issuers and operators, taking into account the risks and specific features of each type of asset.

The authors' classification of cryptocurrencies and digital assets by type of functioning, considering the provisions of the regulatory documents currently in force in Russia, is presented in the *figure*.

According to the authors, the classification based on IFRS IAS 32 is more accurate, and electronic money (EM) and digital currency (DC) should be included in the category of digital financial assets. Therefore, it is proposed to make the corresponding amendments to Federal Laws No. 259-FZ and No. 161-FZ.

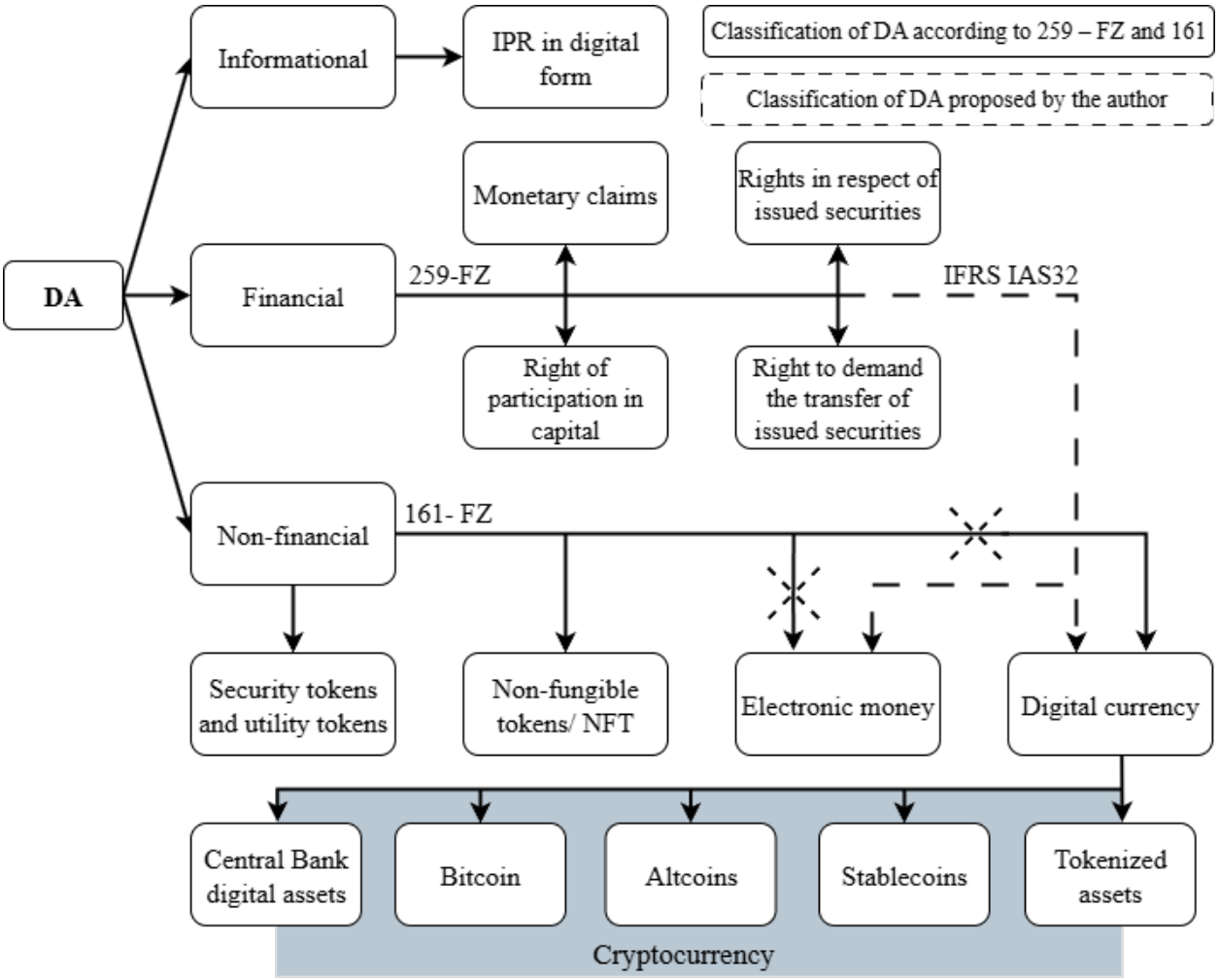


Fig. **Classification of cryptocurrencies and digital assets by type of functioning**

Source: compiled by the authors.

Note: solid line — classification according to 161-FZ and 259-FZ; dotted line — contradictions with IFRS IAS 32.

3. Develop a coordinated system of accounting and taxation for operations with digital financial assets (DFAs) and cryptocurrencies that ensures a balance between combating illegal transactions and creating favorable conditions for the development of the digital economy. In particular, it is important to establish procedures for reflecting cryptoassets in the balance sheets of organizations and individuals, as well as mechanisms for calculating and paying taxes on income from their circulation.

4. Create legal conditions for integrating smart contracts and other distributed ledger–based technological solutions into the existing system of contractual relations. This implies clarifying the legal status of smart contracts, defining requirements for their form and content, and addressing issues of liability and applicable law.

5. Intensify cooperation with international organizations and foreign regulators to develop common standards and unify approaches to the regulation of cryptoassets. Given the cross-border nature of most blockchain projects, it is important to ensure the compatibility of Russian legislation with global rules governing the crypto market.

6. Implement investor protection mechanisms. It is proposed to create legal conditions for licensing cryptocurrency exchanges, similar to the MiCA regulation, which sets requirements for transaction transparency, platform capitalization, and client asset protection. It is also advisable to develop a state platform for verifying initial coin offerings (ICOs), providing legitimacy checks of projects, analysis of white papers (foundational technical documents for crypto instruments), and compliance with disclosure standards. As noted by the European Central Bank, such an approach reduces fraud risks and increases investor confidence in digital assets.[18]

7. Strengthen control over illegal operations. A key regulatory element should be the introduction of mandatory KYC (Know Your Customer) and AML (Anti-Money Laundering) procedures, requiring user identification at all stages of interaction with crypto platforms. These measures, enshrined in the Rosfinmonitoring Agreement, have already proven effective in the traditional financial system.[19]

8. Develop a methodology for stress testing to assess systemic risks, analogous to the approach of the European Central Bank, which analyzes the impact of cryptoassets on bank liquidity, capital volatility, and the resilience of payment infrastructure. Such analysis will enable forecasting crisis scenarios related to mass adoption of cryptocurrencies by the population and timely adjustment of regulatory norms.

Implementation of these proposed measures, aimed at synchronizing Russian legislation with international standards, will help not only to eliminate existing legal gaps and conflicts but also to create a foundation for the balanced integration of cryptoassets into Russia's financial and economic system. This will ensure the harmonization of innovative digital economy development with the protection of national interests and promote the sustainable integration of new technologies into the legal framework.

CONCLUSION

The conducted analysis has shown that currently there is no clear and consistent system of terms and classifications regarding cryptocurrencies and digital assets in Russian legislation and law enforcement practice. Federal Law No. 259-FZ has not fully resolved the existing legal uncertainties and conflicts. The concepts introduced in the law, such as "digital currency" and "digital financial assets," insufficiently reflect the technological and economic features of cryptocurrencies and tokens and contradict established practices of their use.

At the same time, the diversity of approaches to systematization and the multiplicity of characteristics of digital assets in academic literature complicate the development of universal criteria for their differentiation. Most cryptocurrencies and tokens have a hybrid nature, combining the proper-

[18] URL: https://www.ecb.europa.eu/press/financial-stability-publications/fsr/html/index.en.html

[19] URL: https://www.consultant.ru/document/cons_doc_LAW_275858/

ties of payment means, speculative instruments, and utility units within blockchain systems. Attempts to classify them as electronic money, uncertificated securities, or digital rights face significant limitations.

Given the rapid development of distributed technologies and the constant emergence of new types of digital instruments, it seems impractical to fix all possible types of cryptoassets within a closed list. Instead, a flexible risk-oriented approach is necessary, allowing regulatory requirements to be differentiated depending on the specific purposes of issuance and circulation of the digital asset, its technological implementation, and actual usage by participants in civil turnover.

Ignoring the risks associated with cryptocurrencies could lead to systemic crises, including loss of control over financial stability and growth of the shadow economy. The implementation of the proposed measures, on the contrary, will create conditions for sustainable development of the digital economy, combining the innovative potential of blockchain technologies with the protection of the interests of the state, business, and society. Achieving this balance requires not only legal reforms but also active dialogue among regulators, market participants, and the academic community.

The authorial definitions of digital currency, cryptoasset, and cryptocurrency proposed in this article aim to clarify the key characteristics of the studied phenomena, taking into account legal, economic, and technical aspects. They can serve as a guideline for the further development of regulatory frameworks in the absence of established approaches. At the same time, it is important to ensure terminological unity across various regulatory acts and the integration of Russian norms with international standards.

Further improvement of Russian legislation should follow the path of establishing legal foundations for the issuance and circulation of digital assets (considering their functional specifics) as well as removing excessive restrictions on the use of distributed ledger technologies in the financial sector. Special attention should be paid to issues of taxation, accounting, and reporting related to the ownership and transactions with cryptoassets. It is important to develop a balanced approach that, on one hand, counters the use of cryptocurrencies for unlawful purposes, and on the other hand, does not hinder digital innovation and the development of the domestic blockchain industry.

Achieving clarity in basic definitions and regulatory principles will create conditions for the formation of a mature digital asset market in Russia, capable of attracting investments and technological expertise while respecting the rights and legitimate interests of all participants.

REFERENCES

1. Gabov A.V. A digital ruble of the Central Bank as a civil rights object. *Aktual'nye problemy rossiiskogo prava = Actual Problems of Russian Law*. 2021;16(4):55–65. (In Russ.). DOI: 10.17803/1994-1471.2021.125.4.055-065
2. Savelyeva M.V. On the formation of the mechanism of legal regulation of relations related to cryptoassets in the era of global digitalization. *Akademicheskii yuridicheskii zhurnal = Academic Law Journal*. 2022;23;(1):78–86. (In Russ.). DOI: 10.17150/1819-0928.2022.23(1):78-86
3. Kochergin D. Crypto-assets: Economic nature, classification and regulation of turnover. *Vestnik mezhdunarodnykh organizatsii: obrazovanie, nauka, novaya ekonomika = International Organisations Research Journal*. 2022;17(3):75–130. (In Russ.). DOI: 10.17323/1996-7845-2022-03-04
4. Narayanan A., Bonneau J., Felten E., et al. Bitcoin and cryptocurrency technologies. Draft. Princeton: Princeton University Press; 2015. 29 p. URL: http://vis.usal.es/rodrigo/documentos/papers/Narayanan2015.pdf
5. Loseva O.V. Types and classification of digital assets for valuation purposes. *Imushchestvennye otnosheniya v Rossiiskoi Federatsii = Property Relations in the Russian Federation*. 2022;(2):45–57. (In Russ.). DOI: 10.24412/2072-4098-2022-2245-45-57

6. Foley S., Karlsen J.R., Putniņš T.J. Sex, drugs, and Bitcoin: How much illegal activity is financed through cryptocurrencies? *The Review of Financial Studies*. 2019;32(5):1798–1853. DOI: 10.1093/rfs/hhz015
7. Frolov I.V. Cryptocurrency as a digital financial asset in Russian jurisdiction: On the issue of corporeal or legally binding concept. *Pravo i ekonomika*. 2019;(6):5–17. (In Russ.).
8. Yazman E., Sharif H. Categorization of cryptoassets. In: Munoz J.M., Frenkel M., eds. The economics of cryptocurrencies. Abingdon: Routledge; 2020:34–50.
9. Zetzsche D.A., Buckley R.P., Arner D.W., Föhr L. The ICO gold rush: It's a scam, it's a bubble, it's a super challenge for regulators. *Harvard International Law Journal*. 2019;60(2):267–315. URL: https://journals.law.harvard.edu/ilj/wp-content/uploads/sites/84/3_ICO_60.2.pdf
10. Katsiampa P. Volatility estimation for Bitcoin: A comparison of GARCH models. *Economics Letters*. 2017. DOI: 10.1016/j.econlet.2017.06.023.
11. Bianchi D., Babiak M. On the performance of cryptocurrency funds. *Journal of Banking & Finance*. 2022;138:106467. DOI: 10.1016/jjbankfin.2022.106467
12. Shahzad S.J.H., Anas M., Bouri E. Price explosiveness in cryptocurrencies and Elon Musk's tweets. *Finance Research Letters*. 2022;47B:102695. DOI: 10.1016/jfrl.2022.102695
13. Conlon T., Corbet S., McGee R.J. Are cryptocurrencies a safe haven for equity markets? An international perspective from the COVID-19 pandemic. *Research in International Business and Finance*. 2020;54:101248. DOI: 10.1016/jribaf.2020.101248
14. Narayanan A., Bonneau J., Felten E., et al. Bitcoin and cryptocurrency technologies: A comprehensive introduction. Princeton: Princeton University Press; 2016. 336 p.
15. Kinsburskaya V.A. Identifying cryptocurrency holders for the purposes of counteracting laundering of illegally obtained moneys and financing of terrorism. *Natsional'naya bezopasnost' / nota bene = National Security / nota bene*. 2019;(3):1–14. (In Russ.). DOI: 10.7256/2454-0668.2019.3.29720
16. Eskindarov M.A., Maslennikov V.V., Maslennikov O.V. Risks and chances of the digital economy in Russia. *Finance: Theory and Practice*. 2019;23(5):6–17. DOI: 10.26794/2587-5671-2019-23-5-6-17

ABOUT THE AUTHORS

Anatoly V. Krupochkin — chief specialist, Salym Petroleum Development LLC, Moscow, Russian Federation
http://orcid.org/0009-0003-5004-9814
Corresponding author:
9683601984@mail.ru

Irina P. Khominich — Dr. Sci. (Econ.), Professor of the Global Financial Markets and Fintech Department of the Plekhanov Russian University of Economics, Moscow, Russian Federation
http://orcid.org/0000-0001-9033-4669
Khominich.IP@rea.ru

Conflicts of Interest Statement: The authors have no conflicts of interest to declare.

The article was received on 20.01.2025; revised on 14.02.2025 and accepted for publication on 27.02.2025. The authors read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-33-49
UDC 332.1(045)
JEL P25, P28

Development of Regional Innovation Potential under the Influence of the Oil and Gas Industry

I.L. Beilin
Kazan branch of the Russian State University of Justice named after V.M. Lebedev, Kazan, Russian Federation

ABSTRACT

Relevance In the context of a nationally oriented economy, the formation of innovative potential for regional economic development based on the industrial determinant of the budget-forming oil and gas industry is the most important driver of structural and technological shifts, modernization of modern industrial production and "energy transition 4.0" taking into account the challenges of the latest geopolitical reality. The economic production efficiency of an oil and gas region has a high impact on the functioning of the national economic system due to a number of large taxes transferred to the federal budget. At the same time, the profitability of the regional petrochemical complex is dependent on international commodity and stock markets. Income taxes on profit, personal income and property of the oil and gas industry, as well as its servicing sectors of the economy, contribute significantly to the formation of regional budgets, meanwhile, sustainability and energy security of the economy of oil and gas regions to overcome external shocks can be supported by innovative interregional and intersectoral industrial clusters with "anchor" enterprises for hydrocarbon extraction and processing. **The objective** of the study is to assess the formation problems and disclose the innovative potential of the regional oil and gas industry as a set of scientific and technological achievements and investment climate of the oil and gas region in the conditions of transformation of the global energy balance, technological and financial independence, sanctions restrictions on oil and gas exports. **The result of the study** is the development of an equilibrium cyclic model of the system of priority conditions and optimal results of formation and disclosure of the innovation potential of regional development under the influence of the industrial determinant of the budget-forming oil and gas industry and aimed at maintaining the economic resilience of the region.

Keywords: industrial economy; oil and gas region; regional economy; innovation activity; petrochemical complex; high-tech development; energy sovereignty

For citation: **Beilin I.L. Development of regional innovation potential under the influence of the oil and gas industry.** ***The World of the New Economy*** **2025;19(2):33-49. DOI: 10.26794/2220-6469-2025-19-2-33-49**

INTRODUCTION

Systemic transformations in the Russian fuel and energy complex have potential to develop in conditions of growing innovation activity of the industry. The transformations are aimed at solving the problem of demonopolisation and development of an inclusive competitive environment, as well as liberalisation of economic processes and institutional and structural remodeling in order to eliminate economic dependence in rent and raw materials. The implementation of oil and gas innovative industrial potential in regions can contribute to such significant results in the regional industrial development, as the following:

- certain definiteness of economic conditions for the entire time period of development of natural resources, enabling to intensify oil production in the long-run extraction fields and exploitation of its satellites;
- increasing the depth of oil extraction up to 99 per cent, the yield of light oil products up to 89 per cent, and the utilisation rate of processed petroleum gas up to 95 per cent;
- stimulating investment potential of industrial sector of gas and oil regions in view of achieving a compromise between a high capital intensity of the oil and gas industry and comfortable payback periods for oil and gas projects;
- developing new technological models in view of taking into account the forthcoming probability of a long-term, sustainable reduction in global hydrocarbon consumption.[1]

The author has accomplished the following research work:

- theoretical analysis of the potential for regional economic development influenced by innovations in high-tech industries and services in the oil and gas chemical complex taking into account the problems of producing and processing high viscosity, hard-to-recover oil, as well as the management of innovative industrial activities in clusters, and the environmental agenda;
- theoretical analysis of problems related to spatial location of innovative industries, in view of global trends of decarbonisation and circular economy, digital modernisation in the manufacturing industry and the institutional framework of innovation-resource industrially developed oil and gas regions, in the context of changing technological and global economic patterns;
- regression analysis and forecasting of dynamics of production volume, work and services of oil and gas regions in accordance with economic activity type, such as "Mining and quarrying" and "Manufacturing industries", analysis of the structure of the shipped products and the volume of services rendered by regional oil and gas chemical complexes, as well as profitability of assets and products of industrial enterprises in oil and gas regions;
- analysis of level of innovation activity, potential of companies that have implemented technological innovations compared to the total number of surveyed enterprises in the oil and gas regions, as well as the ratio of costs and expenses on their innovation activities to the volume of innovative products, works and services, expressed as a percentage of the total volume.

THEORETICAL REVIEW

The main sources of regional budget revenues, which ensure regional economic development (involving the social sphere, infrastructure, science and innovations), become taxes on organisational profits and property, as well as the individual income taxes.[2] Oil and gas companies are among the most profitable entities, sometimes they are regarded budget-forming companies and some of their employees earn the highest salaries. This fact determines the paramount significance of developing the innovation potential of the oil and gas industries and their interrelated regional supply chains,

[1] URL: https://www.mnr.gov.ru/docs/gosudarstvennye_doklady/gosudarstvennyy_doklad_o_sostoyani_i_ispolzovani_mineralno_syrevykh_resursov_rossiyskoy_federatsii/

[2] Regions of Russia. Socio-economic indicators. 2023: Statistical compendium. Moscow: Rosstat; 2024. 1126 p.

which is also affected with challenges aggravated by the technological embargo and the transformation of the global energy balance.

In view of such issues, the priority institutional drivers of regional economic dynamics in production and processing territories of high-viscosity and hard-to-recover hydrocarbon raw materials could become a programme indicative management, which takes into account the operational specific features of the changing resource base and innovative investments in the oil and gas industry [1, 2]. Innovative approaches and resource-based strategies for the evolution of regional industry become effective solutions to overcome existing and projected challenges to the economy of the oil and gas region. It is quite realistic, taking into account the modern trends in the transition to noonomics and technological sovereignty, in order to achieve the fundamental principles and criteria of the long-term sustainable development of raw material regions [3–5].

Revealing the innovative potential of regional economic development under the influence of a determinant of budget-forming oil and gas industry requires the intensification of digital transformation processes. For this matter, it is required to take into account the material and technical bases of industrially developed regions, the impact of foreign policy on the structure and dynamics of the Russian fuel and energy complex, as well as the capability of adaptation of industry to new technological and global economic patterns [6–8]. An economy operating in sanctions requires a specific feature: innovative industrial development of the oil and gas region involving a systematic effort to analyse transformations in financial and socio-economic field, as well as enhancement of mechanisms for attracting investment capital to modernise the structure and technology of economic activity. In order to achieve this, among all measures, introducing cluster-type innovation activities should be taken in industry at regional, interregional, sectoral, and inter-sectoral levels. [9–11]

Oil and gas regions display the dominant presence in the sectoral structure of gross value added for the economic activity, such as "Mining and quarrying" (including the section "Manufacturing industries"). This reduces the significance of other types of economic activity, which determines the main directions of technological inversion of resource-intensive industry prior to energy transition 4.0 [12–14]. Highly profitable oil and gas extraction, as well as processing activities can become an effective means to unfold the innovation potential by introducing a proper norm to make the region's industrial complex eco-friendly, using agent-oriented approaches to management in order to solve problems of regional economic security, as well as to create a sustainable innovation and investment climate [15–17].

Regional innovation systems, which operate with their own mineral and raw material resources, determine the territorial conditions for locating production forces based on the fundamental strategies of budget-forming industries, in the context of the paradigms of the new Russian industrialisation generated by the evolving structure of international trade turnover of innovative goods and technological innovations [18–20]. Global carbon neutrality requires developing methods to increase the profitability of "green" investment capital and, at the same time, to reduce material and energy intensity of regional industrial complexes. It also requires the adaptation of entire national economic systems to the most current geopolitical conditions, which make a strong impact on the economies of oil and gas regions particularly sensitive to the consequences of oil embargoes, technological deficits and financial deficiency [21–23].

Digital transformation makes an important component of productivity growth and interconnection between extractive and manufacturing industries in oil and gas regions.

Table 1

Oil and gas activity coefficient of the region

Region	SSGVA[a], %		ONGE[d], %	MCPPRPP[e], %	ROGAC[f] = (A*C + B*Д)* 10^{-3}	Relative indicator of ROGAC
	MQ[b], %	PI[c], %				
	A	B	C	Д		
1	2	3	4	5	6	7
Volga Federal District	17.4	22.4	86.9	19.5	1.95	0.47
Republic of Bashkortostan	4.3	30.3	54.1	41.7	1.50	0.36
Republic of Mari El	0.2	24.9	-	2.1	0.05	0.00
Republic of Mordovia	0	28.6	-	2.1	0.06	0.00
Republic of Tatarstan	29.6	18.9	90.7	36.4	3.37	0.82
Udmurt Republic	29.6	17	90.4	2	2.71	0.66
Chuvash Republic	0	24.2	0	2.3	0.06	0.00
Perm Krai	26.5	26.8	92.6	9.7	2.71	0.66
Kirov Oblast	0.2	33.6	-	3.1	0.10	0.01
Nizhny Novgorod Oblast	0.1	26.5	-	7	0.19	0.04
Orenburg Oblast	44.5	11.3	85.7	24.4	409	1.00
Penza Oblast	0.4	18.7	-	2	0.04	0.00
Samara Oblast	20.6	21.5	92.9	9	2.11	0.51
Saratov Oblast	4.4	20.7	88	5.1	0.49	0.11
Ulyanovsk Oblast	3.2	23.6	88	9.8	0.51	0.12

Source: compiled by the author.

Note: [a] Sectoral structure of gross value added; [b] Mining and quarrying; [c] Processing industry; [d] Oil and gas extraction in the structure of shipped products (works, services) by type of economic activity "Mining and quarrying"; [e] Manufacture of coke and petroleum products, rubber and plastic products in the structure of shipped products (works, services) by type of economic activity "Manufacturing"; [f] Regional oil and gas activity coefficient.

This can invigorate achieving economic resilience on the basis of the development of regional adaptive mechanisms of resistance to economic shocks, in addition to the resilience mechanisms of economic systems, which reinforce permanent preparedness against imminent crises [24, 25]. The systemic efficiency of such mechanisms can contribute to the growth of endogenous regional economy, which involves a targeting impact on the process of organisation of the spatial structure of the national economy. It also determines projected trends in the innovative modernisation of the oil and gas industry by means of macroeconomic balances in the context of the evolving structure and dynamics of international demand for extraction of fossil fuels [26, 27].

METHODOLOGICAL APPROACHES

The principal formalised criterion for properly classifying entities in oil and gas regions is the "Regional Oil and Gas Activity Coefficient" (ROGAC), which has been developed by the author earlier. ROGAC includes two components: 1) percentage share of oil and natural gas production compared to the volume of shipped products (works and services) in the economic activity sector "Mining and quarrying", 2) percentage share of production of coke, oil products, rubber and plastic products compared to the volume of shipped products (works and services) in the economic activity sector "Manufacturing industries".

Consequently, if the determination of the coefficient is more than 1 (one), the region is classified as an oil and gas region. The higher its absolute value, the greater the dependence of the region's budget system on the oil and gas industry. The Volga Federal District takes the second place in the country in terms of production and the leading position in terms of the physical and advanced refining chemical processing of oil and gas resources. The Orenburg Oblast has the highest oil and gas activities coefficient in the region (4.09), followed by the Republic of Tatarstan (3.37). The Perm Krai with the Udmurt Republic follow them, each with a coefficient of 2.71. The Samara Oblast and the Republic of Bashkortostan close the list with their coefficients amounting to 2.11 and 1.50 respectively (see *Table 1*).

Considering the data reflected in *Table 1,* the coefficient of oil and gas activities is significantly less than 1 in the other subjects of the federal district under consideration, ranging from 0.51 and 0.49 in the Ulyanovsk and Saratov regions respectively, to 0.04 and 0.06 in the Penza region, the Republic of Mari El, the Republic of Mordovia, and the Chuvash Republic respectively.

The abovementioned coefficient developed by the author of the article has become a quantitative tool for a selective regional economic policy. If its absolute values projected into relative form, it provides additional indicators for analysing the impact of the industrial determinant of budget-forming oil and gas industry on the innovation potential of oil and gas regions.

Another effective methodological approach towards studying the innovation potential of regional economic development is to assess the dynamics and the forecast of the volume of production, work and services in oil and gas regions by type of economic activity. Such types include "Mining and quarrying", "Manufacturing industries", the structure of the volume of products and services shipped by regional oil and gas chemical complexes, as well as the profitability of assets and products sold by industrial companies in the region. The choice of methods between the paired regression and the single-factor dispersion analysis is justified by the structure and quantity of the information available for the study, the temporary nature of the data series, the preliminary non-obviousness of the null hypothesis, as well as compliance of the methods with the set goal. All of this is determined by an entire complex modern scientific research through econometric

modelling of the spatial effects of innovation-industrial growth of the region's economy. The objectivity and scientific significance of the methodology is determined through correlation of the obtained data with the relative coefficient of oil and gas activity in the region, as well as with innovation activity, the business level of enterprises, which have introduced technological innovations, and the volume of expenditure on innovation activity and innovative products in oil and gas regions.

RESEARCH FINDINGS AND THEIR DISCUSSION

The volume of production, activities and services of oil and gas regions (OGRs) significantly exceeds the average value of this indicator throughout all subjects in the Volga Federal District (VFD), not only in the economic activity type of "Mining and quarrying", but also in manufacturing industries. This illustrates a stable trend towards a further growth in both absolute and relative terms compared to regions of no oil and gas industry.

Evidently, the reason is not only the impact of the highly profitable oil and gas industry on the situation of the domestic economy, which is clearly noticeable in the most resource-dependent regions, such as the Orenburg Oblast (OO) and the Udmurt Republic (UR). It is also determined by the processes of re-industrialisation aimed to achieve sustainable energy perspectives in the future, which can be significantly supported by oil and gas revenues in federal and regional budgets, as well as by oil and gas companies.

Consequently, despite very different structures of their industry, the Republic of Bashkortostan (RB), Samara Oblast (SO) and Perm Krai (PK) display similar dynamics and forecast of their volume of production, works and services in the type of economic activity "Manufacturing industries". The unchallenged leadership of the Republic of Tatarstan (RT)

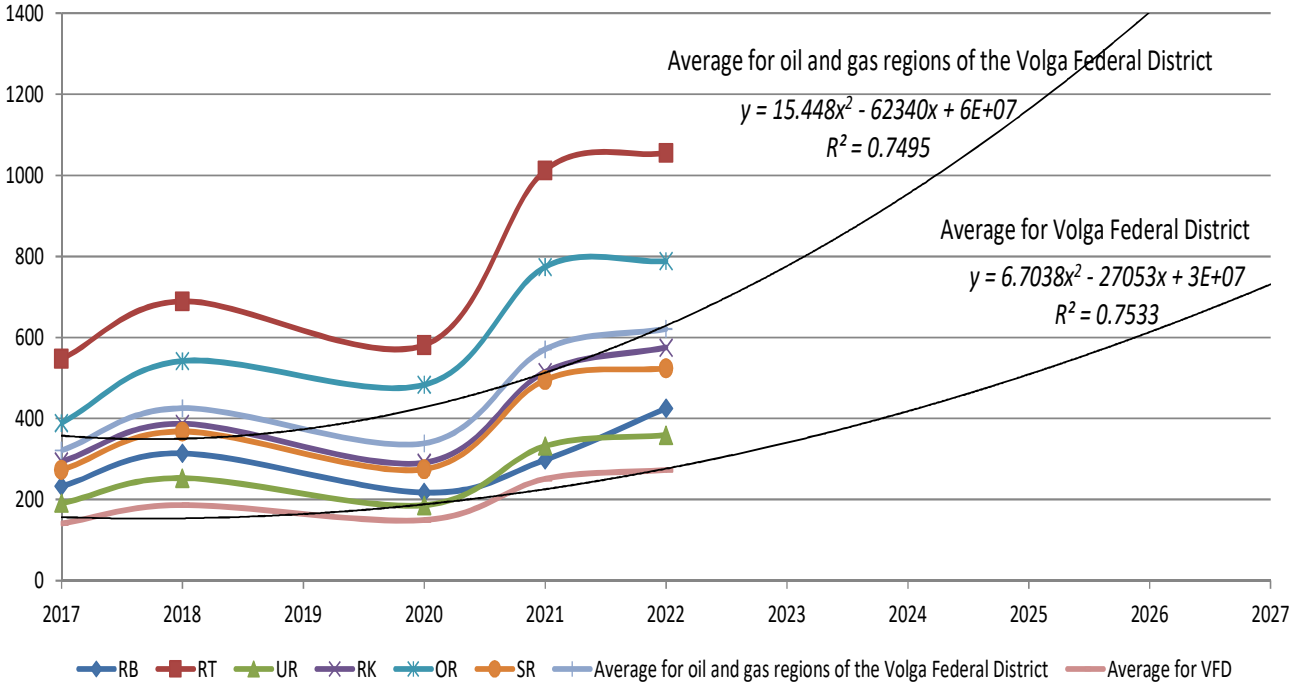


Fig. 1. **Dynamics and forecast of the volume of production, works and services of oil and gas regions of the Volga Federal District by the type of economic activity "Mining" (billion Roubles)**

Source: compiled by the author.

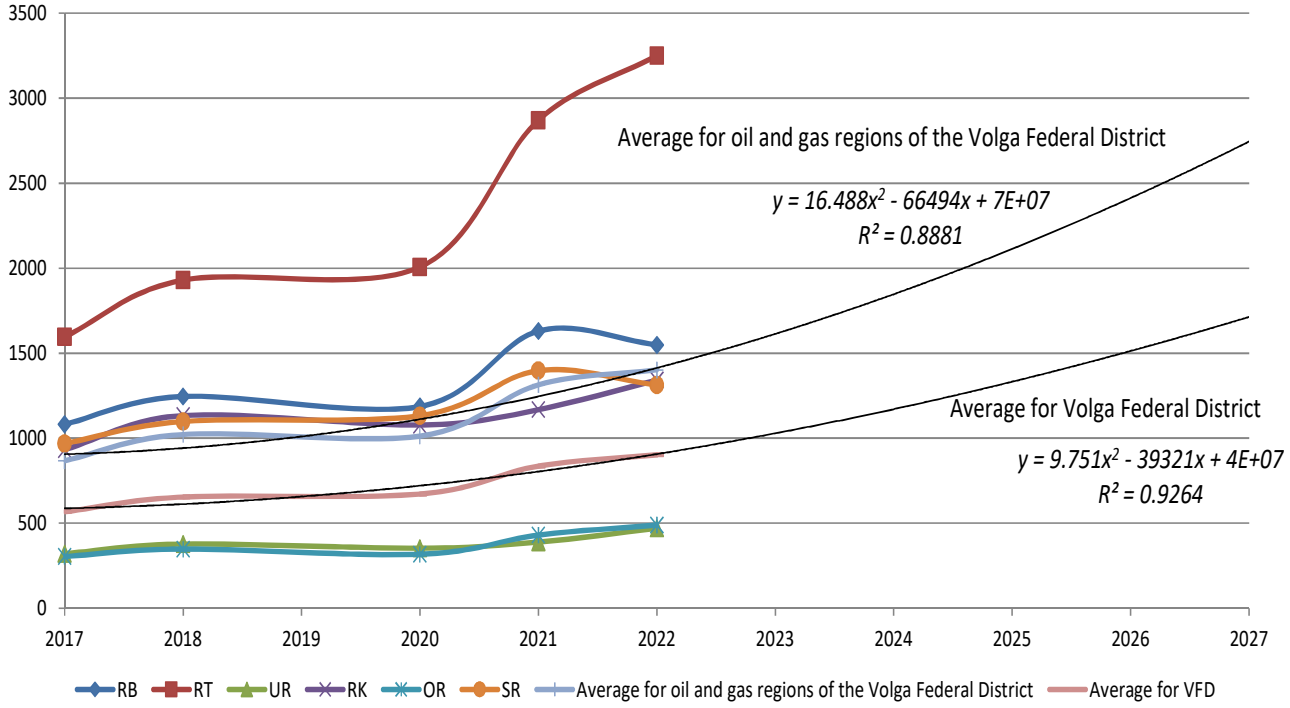


Fig. 2. **Dynamics and forecast of the volume of production, works and services of oil and gas regions of the Volga Federal District by the type of economic activity "Manufacturing" (billion Roubles)**

Source: compiled by the author.

in the considered indicator of the activity "Mining and quarrying" is even more impressive indicated in the manufacturing industry, which, among other reasons, can be attributed to the innovative production policy coordinated with regional administration (*Fig. 1, 2*).

Transformation of pairwise regression equations from polynomial into their logarithmic form leads to the following system of equations for the model of economic activity "Manufacturing":

$$Y\,\text{OGR in VFD} = 201776\ln(x) - 2E + 06,$$

$$Y\,\text{Average in VFD} = 127046\ln(x) - 966179.$$

The research work has indicated that the lowest coefficient value of the oil and gas activity in the Republic of Bashkortostan correlates both with the smallest ratio of oil production in the industrial structure of the region and with the lowest profitability of sold products in three of the four integral components of the industrial sectors. The region with the highest value of this coefficient is the Orenburg Oblast, which in turn has an average value of asset and product profitability. However, their maximum values of asset and product profitability are observed in the Republic of Tatarstan and the Perm Krai for two main types of industrial economic activity: "Mining and quarrying" and "Manufacturing industries". This can be attributed to the above-the-average level of the coefficient of oil and gas production activity in these regions, as well as to other internal economic and innovation-investment factors. Such factors turned out predominant in the Samara Oblast and in the Udmurt Republic, which have an average or below-the-average level of the studied profitability, respectively, however, both reached a significant share of shipped products from the extractive industries (see *Fig. 3* and *Tables 2* and *3*).

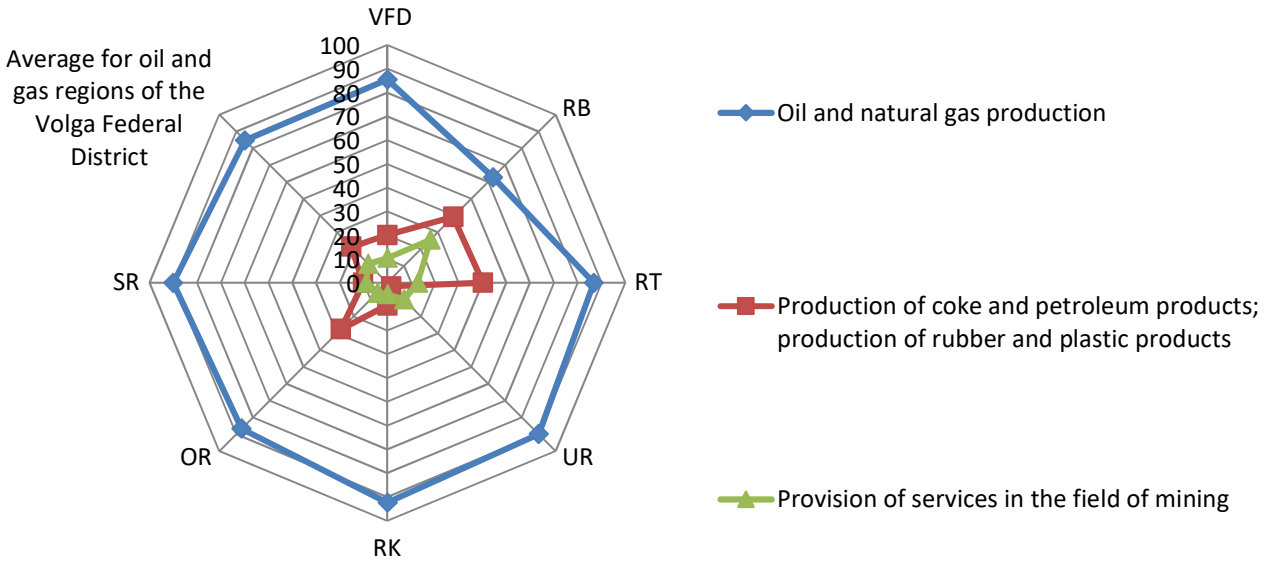


Fig. 3. **Structure of the volume of products shipped and services provided by the regional oil and gas chemical complexes in 2022, in % of the total volume**

Source: compiled by the author.

Table 2

Return on assets of industrial organisations in the oil and gas regions of the Volga Federal District in 2022, in % of the total volume of assets

Region	Mining and quarrying	Manufacturing industries	Provision of electricity, gas and steam; air conditioning
VDF	13.5	11	6.5
RB	7.2	13.2	7.3
RT	24.1	11.2	8.1
UR	5.4	5.2	5.8
PK	19.4	15.5	7.3
OO	7.1	10.9	6
SO	9.6	7.8	6.1
Average of OGR in VFD	12.1	10.6	6.8

Source: compiled by the author.

Table 3

Profitability of sold goods, products (works, services) of industrial organizations of oil and gas regions of the Volga Federal District in 2022, % of the total volume

Region	Mining and quarrying	Manufacturing industries	Provision of electricity, gas and steam; air conditioning
VDF	18.8	18	6.5
RB	12.3	9.5	8.4
RT	30.8	19.8	7.8
UR	8.9	10.7	2,7
PK	16.3	49	3.1
OO	12.6	20.1	33.1
SO	11.6	17.1	4.4
Average of OGR in VFD	15.4	21.0	9.9

Source: compiled by the author.

Regional scientific and technological development predominantly reflects the level of innovation activity and the scale of enterprises that have implemented technological innovations. As to the dynamics of these indicators in oil and gas regions and in the non-oil and gas regions, they are practically of the same level. This circumstance reveals the issue of identifying the innovative potential of regional economic development under the influence of the determinant of budget-forming oil and gas industry, which can be influenced by various factors. Among the cost-related factors could be expenditure on R&D, generation or use of intellectual property, as to analytical factors, such as the study of the life cycle of innovative products or technologies, or among structural factors, such as the transformation of organisational structures for innovative purposes. At the same time, the exponential growth of both indicators in the Republic of Tatarstan, as well as the stable non-increasing curve demonstrating that the given region lags significantly behind other oil and gas regions in the Orenburg area, brings down the author to conclusion, that the optimal relative value of the regional oil and gas activity coefficient is nearly 0.8. Notably, if this coefficient increases, the region's innovation potential considerably reduces (see *Figures 4* and *5*).

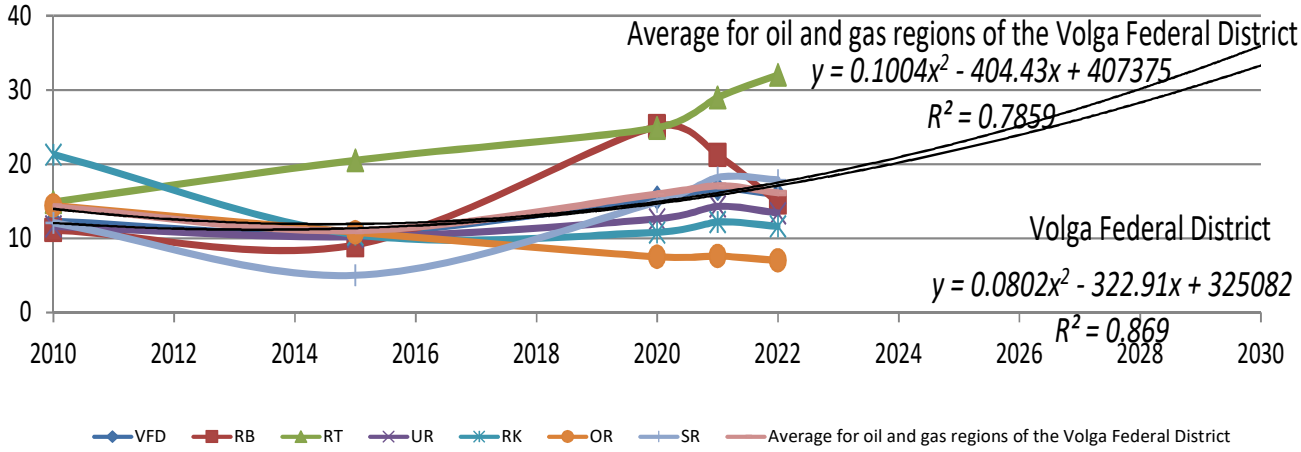


Fig. 4. **The level of innovation activity of the organizations in the oil and gas regions of the Volga Federal District**

Source: compiled by the author.
Note: From 2019 onwards, statistical information on the indicator was provided in accordance with the updated methodology (The Rosstat Decree No. 818 of December 27, 2019).

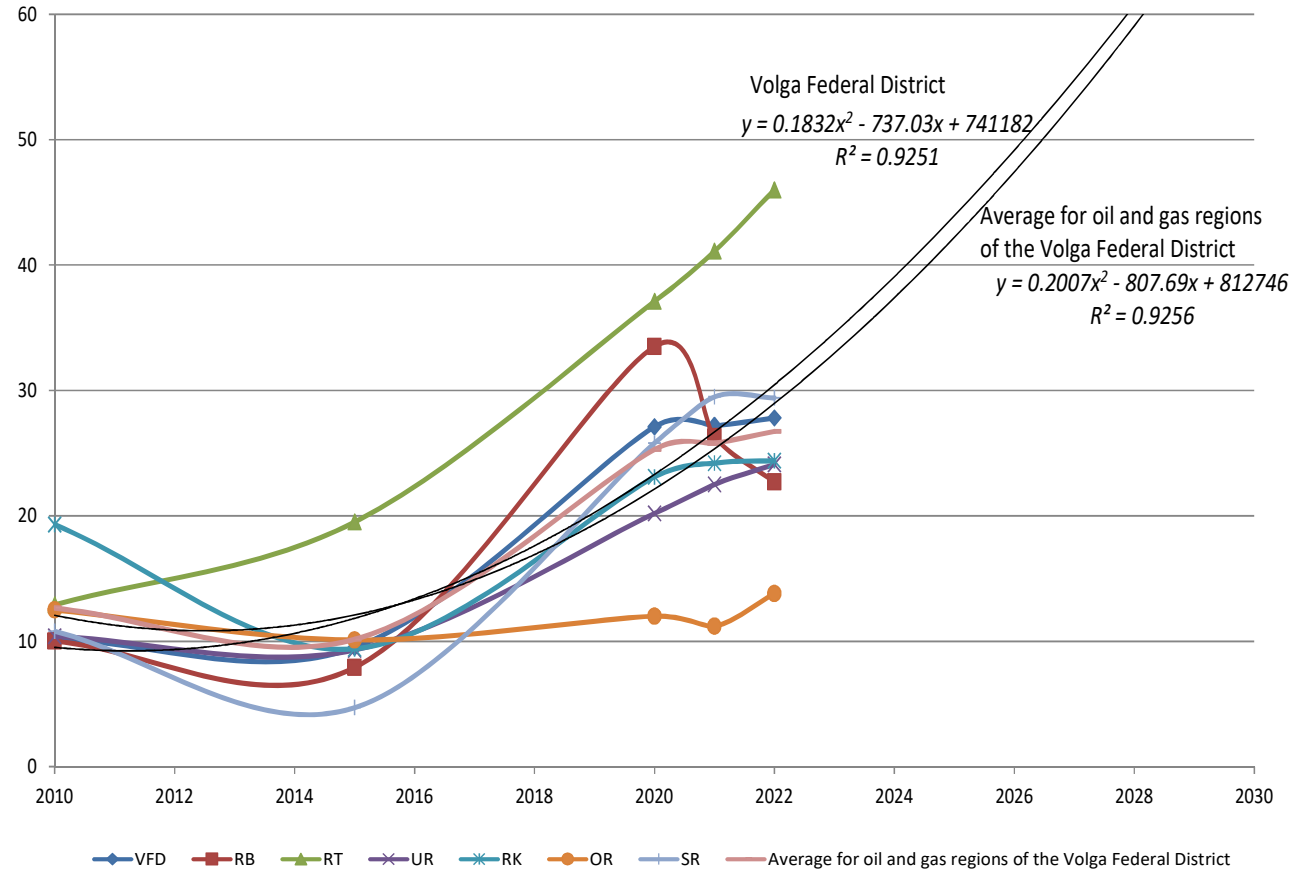


Fig. 5. **The share of organizations that implemented technological innovations in the total number of surveyed organizations in the oil and gas regions of the Volga Federal District**

Source: compiled by the author.
Note: From 2019 onwards, statistical information on the indicator was provided in accordance with the updated methodology (The Rosstat Decree No. 788 of December 20, 2019 with amendments No, 813 of December 18, 2020).

Transformation of pairwise regression equations from polynomial form into their logarithmic form leads to the following system of equations for the model of the level of innovation activity of regional enterprises:

Transformation of the paired regression equations from polynomial into their logarithmic form leads to the following system of equations for the model of the share of enterprises that implemented technological innovations in the total number of surveyed enterprises:

$$Y\,\text{OGR VFD} = 2857.8\ln(x) - 21726,$$

$$Y\,\text{average in VFD} = 3537.6\ln(x) - 26900.$$

Consequently, the average cost of innovation activities for enterprises in the oil and gas regions of the Volga Federal District was lower than the average for all regions. This is determined by the expenditure levels significantly below the standard in the Republic of Bashkortostan, the Orenburg Oblast and the Udmurt Republic, which respectively have the lowest, highest and average oil and gas activity coefficients in the region. The structure of costs and expenses on innovation activities by enterprises in oil and gas regions showed a close mutual dependence on the volume of their innovative goods, works and services. In both cases, the Republic of Tatarstan has become in a predominant position, meanwhile the three above mentioned regions lagged behind, which could lead to an institutional trap in the conditions of a technological embargo (see *Figures 6* and *7*).

The transformation of pairwise regression equations from polynomial form into their logarithmic form leads to the following system of equations for the model of the volume of innovative goods, works and services of regional enterprises:

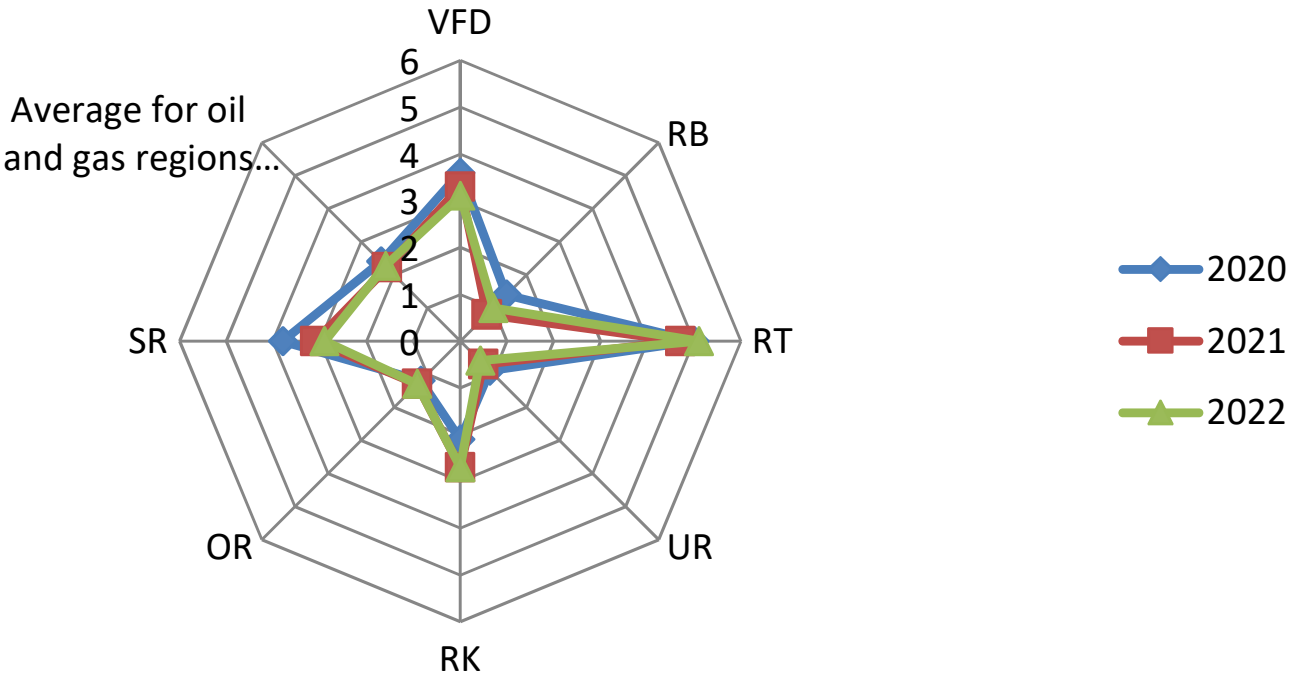


Fig. 6. **Expenditure on innovation activities of organisations in the oil and gas regions of the Volga Federal District, % of the total volume of goods shipped, works performed and services rendered**

Source: compiled by the author.

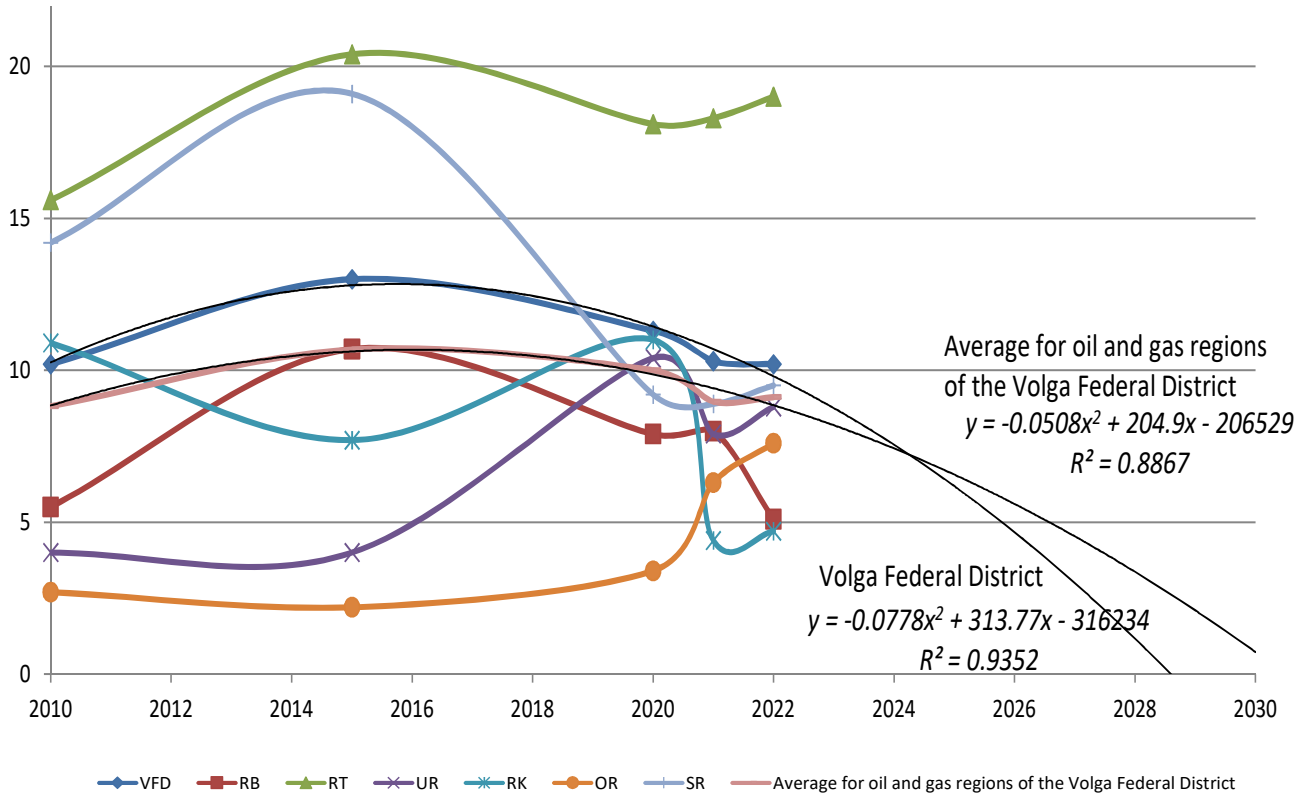


Fig. 7. **Volume of innovative goods, works, services of organizations of oil and gas regions of the Volga Federal District, % of the total volume of goods shipped, works performed and services rendered**

Source: compiled by the author.

$$Y\,\text{OGR in VFD} = -3.433\ln(x) - 35,638,$$

$$Y\,\text{average in VFD} = -85.32\ln(x) - 660,29.$$

Nationally oriented economic policy can include a wide range of conditions and factors, which can make an impact on the formation of the innovative potential of regional economic development, under the influence of the budget-forming oil and gas industry determinant. Probably, among the first of them become the principles of balancing technological and reproductive innovation investments aimed to increase refunding of regional capital stock. To achieve these principles, enterprises should elaborate their strategies of innovation for commercialisation focused on transitioning to new technological models, and cost-effectively influencing the structure of innovation capital on the regional property complex, in view of the problems of scientific and technological development, as well as the institutional entrapments of the highly profitable oil and gas chemical complex. Advancing in these designed areas in the context of transformation of the global energy balance is possible only by means of development of mechanisms for simple and expanded innovative reproduction of fixed assets in the oil and gas sector. The basic contribution is the methodology of indicative programme management of regional economic system of cyclicality in view of the optimisation and strategic planning of interregional and foreign trade turnover, based in their turn on the fundamentals of interaction between industrial and trade policy (*Fig. 8*).

The formation and disclosure of the innovative potential of regional economic development,

influenced by the budget-forming oil and gas industry, can attract additional investments for reproducing fixed assets and achieving economic and technological independence within the industry.

Besides, within the framework of the problem under consideration, innovation process of inclusive institutional transformations is essential, which is developing in primary and aggregated industrial structures, as well as a liable tariff policy for restructuring regional oil and gas industry in the context of external shocks to the fuel and energy complex.

Due to uncertainty in the global demand for fossil fuels, as well as in the consumption of raw materials and energy, the industries require profitability forecasting of assets and products in

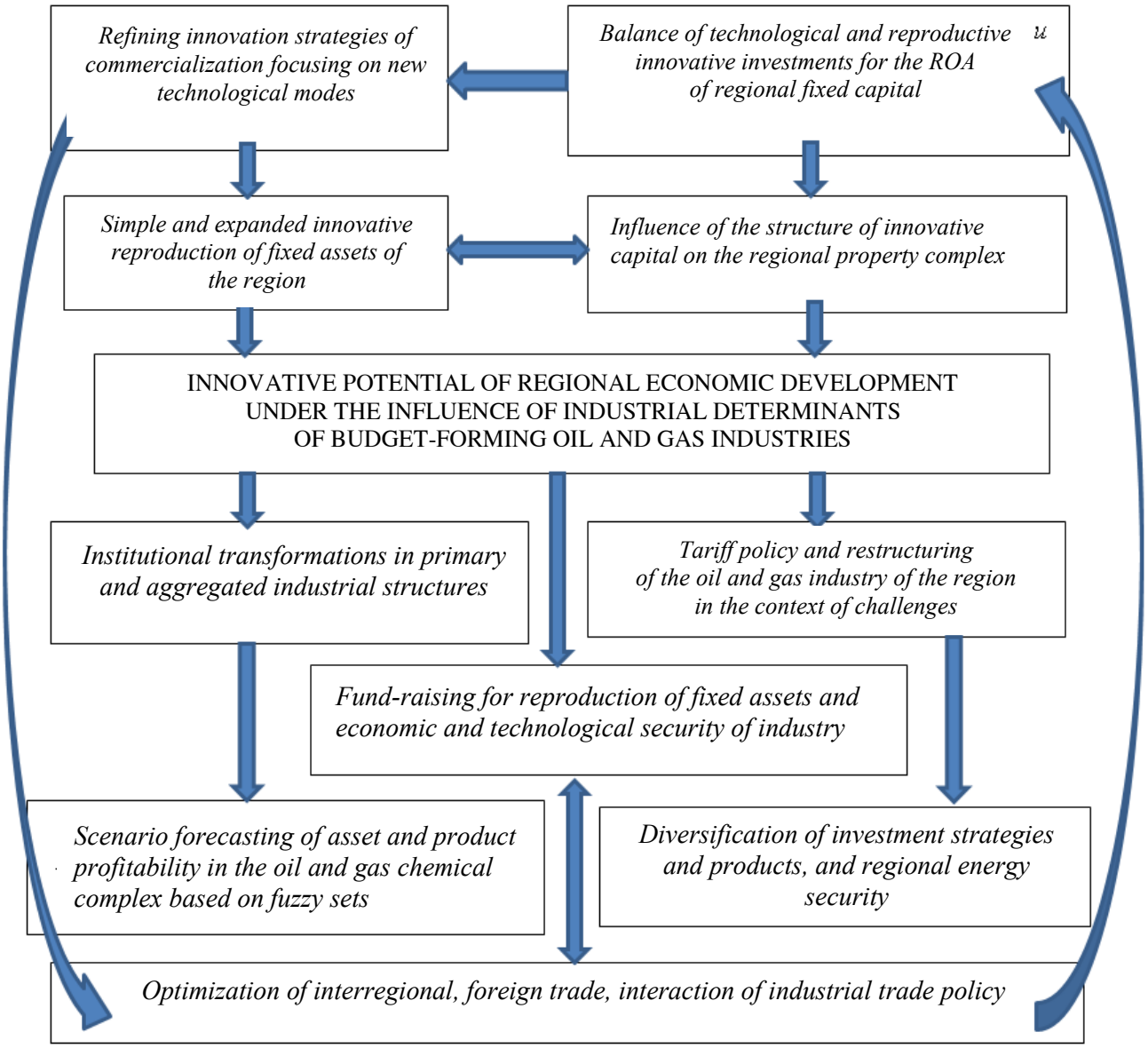


Fig. 8. **Equilibrium cyclic model of the system of priority conditions and optimal results to determine and disclose the innovative potential of regional economic development under the influence of the industrial determinant of the budget-forming oil and gas industry**

Source: compiled by the author.

the oil and gas complex developed on the basis of fuzzy set theory methods. This method appears to be an important factor in diversification of investment strategies and innovative products for regional energy security.

Under the influence of the industrial determinant of the budget-forming oil and gas industry, the equilibrium of the developed cyclical model of the system of priority conditions and optimal results contributes to determine (by the balance and pairing of the included indicators) the formation and disclosure of the innovation potential of regional economic development. The cyclicality character of the model is substantiated by the necessity that combined technological and reproductive innovation investments are essential for the growth of refunding of capital stock in the region, through advanced innovation commercialisation strategies and new industrial models. They also become a direct condition for optimising interregional and foreign trade turnover, as well as the interaction mechanisms between industrial and trade policy.

CONCLUSIONS

The obtained results of the given research work take into account the specific feature of oil and gas region management, which is substantiated by:

- the presence of a budget-forming regional oil and gas complex, which requires the encouragement of regional programmes;
- high volatility of oil quotations and, subsequently, depending on it gas quotations on world commodity markets, which leads to uncertainty regarding oil and gas revenues in the regional budget.

In the context of the Russian economy, the major problems of management of oil and gas regions can be summarised as follows:

- additional diversification tasks of the regional budget's oil and gas revenues;
- ecological issues: contamination of the atmosphere and agricultural land, as well as the problem of the coherent use of associated petroleum gas.

Theoretical significance of the given research work is substantiated by its focus on tackling a neo-institutional scientific approach to the economic mechanisms of an innovative industrial development model, taking in consideration of market competitive advantages and the issues related to the concept of the so-called "oil curse" in highly profitable oil and gas industries and their related regional economic sectors.

In practice, the results obtained in the given article are applicable for the industries involved in activities related to natural resources, as well as in areas of territorial concentration of high-tech industries and knowledge-intensive services [28–32]. This leads to the subsequent research work into developing a comprehensive strategy for managing the economic development of oil and gas regions, based on the management of their financial and industrial systems, as well as the social and environmental responsibility mechanisms in oil and gas production and processing territories, taking into account the factors and consequences of using the regional industrial innovation potential model. Besides, the study of the problems of regional regulation during the transition to new business models in foreign trade is of current scientific interest as well. Specifically, due to a focus on the development of inter-sectoral approaches and horizontal industrial policies in the production of raw materials and industrial goods, as well as the import substitution of products with a high added value, resulting from the deep chemical processing of hydrocarbons.

ACKNOWLEDGEMENT

The research work was funded by a grant from the Russian Science Foundation No. 23-28-00189.

REFERENCES

1. Kryukov V.A., Borisova Yu.A. Comparative analysis of approaches to the formation of an institutional framework for the development of a changing resource base for hydrocarbon production (on the example of high-viscosity oils in Alberta (Canada) and the Republic of Tatarstan (Russia)). *Georesursy = Georesources*. 2024;26(1):71–77. (In Russ.). DOI: 10.18599/grs.2024.1.6
2. Kryukov V.A., Tokarev A.N. Opportunities for the development of Tyumen oblast based on innovations for the oil and gas sector, production of high-tech equipment, and high-tech services. *Regional Research of Russia*. 2024;14(1):77–85. DOI: 10.1134/S 2079970523600373 (In Russ.: *Region: ekonomika i sotsiologiya*. 2023;(3):32–54. DOI: 10.15372/REG20230302).
3. Kryukov V.A., Tokarev A.N. Innovative-resource directions of industrial development: The example of the South of the Tyumen oblast. *Studies on Russian Economic Development*. 2023;34(1):25–32. DOI: 10.1134/S 1075700723010100 (In Russ.: *Problemy prognozirovaniya*. 2023;(1):42–52. DOI: 10.47711/0868-6351-196-42-52).
4. Kryukov V., Tokarev A. Hard-to-recover oil reserves in the context of sustainable development of resource regions. *E 3S Web of Conferences*. 2023;470:01026. DOI: 10.1051/e3sconf/202347001026
5. Bodrunov S.D., Zolotarev A.A. Transition to noonomy, problems of technological sovereignty and regional development. *Ekonomika Severo-Zapada: problemy i perspektivy razvitiya = Economy of the North-West: Issues and Prospects of Development*. 2024;(1):75–79. (In Russ.). DOI: 10.52897/2411-4588-2024-1-75-79
6. Lavrikova Yu.G., Bodrunov S.D., Akberdina V.V., Korovin G.B. Digital transformation of the economy: Peculiarities of industrialized regions. *Ekonomicheskoe vozrozhdenie Rossii = Economic Revival of Russia*. 2024;(1):5–24. (In Russ.). DOI: 10.37930/1990-9780-2024-1-79-5-24
7. Aganbegyan A.G. The Russian fuel and energy complex is the future, taking into account the requirements of sustainable development and the geopolitical situation. *Nauchnye trudy Vol'nogo ekonomicheskogo obshchestva Rossii = Scientific Works of the Free Economic Society of Russia*. 2022;236(4):359–383. (In Russ.). DOI: 10.38197/2072-2060-2022-236-4-359-383
8. Glaz'ev S. Yu. Adaptation of the Russian economy to the change in technological and world economic structures. *Nauchnye trudy Vol'nogo ekonomicheskogo obshchestva Rossii = Scientific Works of the Free Economic Society of Russia*. 2023;244(6):95–102. (In Russ.). DOI: 10.38197/2072-2060-2023-244-6-95-102
9. Grinberg R.S., Belozyorov S.A., Sokolovska O. Effectiveness of economic sanctions: Assessment by means of a systematic literature review. *Economy of Regions*. 2021;17(2):354–374. DOI: 10.17059/ekon.reg.2021–2–1 (In Russ.: *Ekonomika regiona*. 2021;17(2):354–374. DOI: 10.17059/ekon.reg.2021-2-1).
10. Porfiriev B.N., Shirov A.A. Structural and technological shifts and modernization of the Russian economy: Mid-term and long-term prospects. *Vestnik Rossiiskoi akademii nauk = Herald of the Russian Academy of Sciences*. 2024;94(3):255–265. (In Russ.). DOI: 10.31857/S 0869587324030085
11. Golov R.S., Myl'nik A.V. Classifying development tasks for innovative industrial clusters in regional innovation systems. *Russian Engineering Research*. 2024;44(1):122–124. DOI: 10.3103/S 1068798X24010143 (In Russ.: *STIN*. 2023;(12):43–45.).
12. Kostygova L.A., Golov R.S. Modern problems of technological development of industry: Resource aspect. *Nauchnye trudy Vol'nogo ekonomicheskogo obshchestva Rossii = Scientific Works of the Free Economic Society of Russia*. 2024;246(2):228–253. (In Russ.). DOI: 10.38197/2072-2060-2024-246-2-228-253
13. Golov R.S., Myl'nik A.V. Energy transition 4.0 principles in industrial production. *Russian Engineering Research*. 2023;43(2):221–222. DOI: 10.3103/S 1068798X23030103 (In Russ.: *STIN*. 2023;(1):50–52.)
14. Lavrikova Yu.G., Buchinskaia O.N., Wegner-Kozlova E.O. Green energy transition of Russian industry: Barriers and ways to overcome them. *AlterEconomics*. 2022;9(4):638–662. (In Russ.). DOI: 10.31063/AlterEconomics/2022.19–4.5

15. Lavrikova Yu.G., Buchinskaia O.N., Wegner-Kozlova E.O. Greening of regional economic systems within the framework of sustainable development goals. *Economy of Regions*. 2021;17(4):1110–1122. DOI: 10.17059/ekon.reg. 2021–4–5 (In Russ.: *Ekonomika regiona.* 2021;17(4):1110–1122. DOI: 10.17059/ekon.reg.2021–4–5).
16. Akberdina V.V., Shorikov A.F., Korovina G.B., Sirotin D.V. Parameter identification of the agent-based model for managing a regional industrial complex *Economy of Regions*. 2024;20(1):48–62. DOI: 10.17059/ekon.reg.2024–1–4 (In Russ.: *Ekonomika regiona.* 2024;20(1):48–62. DOI: 10.17059/ekon.reg.2024–1–4).
17. Akberdina V.V., Smirnova O.P. Evaluating economic security threats to the regional industrial complex. *Finansy i kredit = Finance and Credit*. 2023;29(11):2592–2617. (In Russ.). DOI: 10.24891/fc.29.11.2592
18. Akberdina V.V., Vasilenko E.V. Basic strategies for the behaviour of industry as a participant in regional innovation ecosystems. *AlterEconomics*. 2023;20(3):548–569. (In Russ.). DOI: 10.31063/AlterEconomics/2023.20–3.4
19. Lazhentsev V.N. Mineral resources in Northern regions in the context of Russia's industrial transformation. *Sever i rynok: formirovanie ekonomicheskogo poryadka*. 2023;26(3):7–21. (In Russ.). DOI: 10.37614/2220–802X.3.2023.81.001
20. Pilyasov A.N., Goncharov R.V. Location of productive forces in Russia in an innovation economy. *Regional Research of Russia*. 2023;13(1):129–141. DOI: 10.1134/S 207997052270054X (In Russ.: Challenges and policy of spatial development of Russia in the 21st century. Moscow: Scientific Publications Association KMK; 2020:194–213.).
21. Uzyakov M.N., Kolpakov A. Yu., Porfiryev B.N., Galinger A.A., Yantovskii A.A. Materials and energy intensity of the global carbon neutrality. *Studies on Russian Economic Development*. 2023;34(3):335–341. DOI: 10.1134/S 1075700723030164 (In Russ.: *Problemy prognozirovaniya.* 2023;(3):80–89. DOI: 10.47711/0868–6351–198–80–89).
22. Porfiryev B.N. Decarbonization vs. adaptation of the economy to climate change within the sustainable development strategy. *Studies on Russian Economic Development*. 2022;33(4):385–391. DOI: 10.1134/s1075700722040074 (In Russ.: *Problemy prognozirovaniya.* 2022;(4):45–54. DOI: 10.47711/0868-6351-193-45-54).
23. Romanova O.A., Ponomareva A.O. Tactics and strategy of regional industrial complexes' development in the latest geopolitical conditions. *Regional'naya ekonomika: teoriya i praktika = Regional Economics: Theory and Practice*. 2023;21(4):604–634. (In Russ.). DOI: 10.24891/re.21.4.604
24. Romanova O., Ponomareva A. Impact of digital transformation on labor productivity growth in the manufacturing industry in Russia. In: Kumar V., Leng J., Akberdina V., Kuzmin E., eds. Digital transformation in industry: Digital twins and new business models. Cham: Springer-Verlag; 2022:433–445. (Lecture Notes in Information Systems and Organisation. Vol. 54). DOI: 10.1007/978-3-030-94617-3_30
25. Romanova O.A., Sirotin D.V., Ponomareva A.O. From resistance economy to resilient economy (the case of an industrial region in Russia). *AlterEconomics*. 2022;19(4):620–637. (In Russ.) DOI: 10.31063/AlterEconomics/2022.19–4.4
26. Mikheeva N.N. Spatial structure and directions of modernization of the Russian economy. *Regional Research of Russia*. 2023;13(1):101–128. DOI: 10.1134/S 2079970522700526 (In Russ.: Challenges and policy of spatial development of Russia in the 21st century. Moscow: Scientific Publications Association KMK; 2020:148–193.).
27. Suvorov A.V., Ivanov V.N., Budanova A.I. A system of macroeconomic balances for forecasting the economies of Russian regions. *Studies on Russian Economic Development*. 2021;32(2):123–132. DOI: 10.1134/S 1075700721020131 (In Russ.: *Problemy prognozirovaniya.* 2021;(2):6–18. DOI: 10.47711/0868-6351-185-6-18).

28. Andersen A. D., Marin A., Simensen E. O. Innovation in natural resource-based industries: A pathway to development? Introduction to special issue. *Innovation and Development*. 2018;8(4):1–27. DOI: 10.1080/2157930X.2018.1439293
29. Boschma R., Martín V., Minondo A. Neighbour regions as the source of new industries. *Papers in Regional Science*. 2017;96(2):227–246. DOI: 10.1111/pirs.12215
30. Crespi G., Katz J., Olivari J. Innovation, natural resource-based activities and growth in emerging economies: The formation and role of knowledge-intensive service firms. *Innovation and Development*. 2018;8(1):79–101. DOI: 10.1080/2157930X.2017.1377387
31. Jin L., Liu Z., Xu F. Research on the measurement of the technical innovative capabilities of oil and gas industry clusters and their factors of influence: Empirical analysis based on eight provinces in China. *Sustainability*. 2018;10(12):4833. DOI: 10.3390/su10124833
32. Scholvin S. Obstacles to linkage-based diversification in the oil and gas sector. *The Extractive Industries and Society*. 2022;11:100996. DOI: 10.1016/j.exis.2021.100996

ABOUT THE AUTHOR

Igor L. Beilin — Doctor of Economics, Professor of the Department of Economics of the Kazan branch of the Russian State University of Justice named after V. M. Lebedev, Kazan, Russian Federation
http://orcid.org/0000-0002-5878-4915
i.beilin@rambler.ru

Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was received on 19.02.2025; revised on 10.03.2025 and accepted for publication on 20.03.2025.
The author read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-50-61
UDC 338.28(045)
JEL E69

Quantitative Changes and Transformation of the SME Sector after the Shocks of 2022

A.A. Blokhin[a], K.V. Glukhov[b]
[a,b] Institute of Economic Forecasting of the Russian Academy of Sciences, Moscow, Russian Federation;
[a] Financial University under the Government of the Russian Federation, Moscow, Russian Federation

ABSTRACT

The aim of the article is to dentify structural changes in the SME sector, indicating positive dynamics and qualitative transformations of the sector during the adaptation of the Russian economy to the shocks of 2022. **The methods of the research** is based on a rapid analysis of a representative sample of companies in the SME sector over the past five years. It considers its industry and institutional parameters, such as the type of activity, company scale, interaction with large businesses, belonging to individuals or legal entities. **The relevance of the topic** is determined by the need for a holistic understanding of the role and interaction of sectors in the development of the Russian economy in the current conditions. **The significant role** of the SME sector is confirmed in generating income for large-size dominant companies, which thus receive institutional rent. Such a vision is necessary both for forecasting the development of sectors and for restructuring public policy from paternalistic support to the logic of transformation management.

Keywords: SME sector; structural shifts; institutional transformations; dominance; institutional rent

For citation: **Blokhin A.A., Glukhov K.V. Quantitative changes and transformation of the SME sector after the shocks of 2022.** ***The World of the New Economy*** **2025;19(2):50-61. DOI: 10.26794/2220-6469-2025-19-2-50-61**

INTRODUCTION

Within the timeframe period between 2022 and 2024, each sector of the Russian economy, from large businesses to small enterprises, not only demonstrated its resilience but also developed a variety of distinctive strategies of adaptation in response to a range of external shocks. The studies, which covered this issue, focus on import substitution, changing in cooperation ties (shifting from Western partnership to other friendly countries), development of the military-industrial complex, options for state support of companies, sectors and industries, and the growing innovation activity [1–4]. Special attention has been given to the process over the last two or three years related to the general restructuring of the institutional environment for business development and changes in the system of state regulation [5, 6]. However, the researchers have not paid enough attention to the sensitivity of different sectors and the "margin of safety" to the abovementioned impacts, as well as differences in adjusting ability. Nevertheless, many examples point to significant changes in consumer demand, cooperative relations and investment activity [1, 3, 5]. Dynamic processes are evident in local markets and in the ecosystems of banks or digital platforms. Sanctions and other restrictions, as well as the increased inflation resulting from them, have made an impact on large, medium-sized and small companies differently. The system of inter-relations between them is transforming as well, likewise the nature and strength of the dominance of the larger entities over the smaller ones [7]. These contradictory processes indicate a change in the role and quantitative proportions of the small and medium-sized business sectors in the Russian economy. They remain scarcely studied to date.

Making no claim to try a comprehensive analysis of this issue, the authors of this article have defined the objective to identify new features of sector dynamics for small and medium-sized business entities as a result of the shocks of the year 2022, to evaluate their significance, and to offer an interpretation of the evolving characteristics from the perspective of the theory of economic dominance in a multilevel economy [8]. Thus, the following research objectives were designed to achieve:

1. To confirm the emergence of new, sustainable quantitative trends and qualitative transformations in the sector of small and medium-sized enterprises over the last three years, and to demonstrate their high significance for the Russian economy as a whole.

2. To justify interpreting such processes using the theory of economic dominance in a multilevel economy.

3. To identify approaches to researching, forecasting and regulating in the sector of small and medium-sized business entities, taking into account the identified trends.

When setting goals and objectives, the authors of the article assumed that the external shocks of 2022 generated strong impulses for both a distinguishable structural adjustment of the sector, as well as an acceleration of its positive dynamics. At the same time, significant changes could have influenced the following: the size of companies related to their belonging to the small, medium-sized, or micro-enterprise sectors, their links with big business in terms of ownership and main customers, as well as their affiliation to different industries.

Academic literature has paid scarce attention to the dominance of small and medium-sized enterprises over larger structures (such as corporations, infrastructure and information companies, banks and municipal or transport system companies). However, it may become quite important for analyses of adaptation processes, since the 2022 shocks themselves has brought institutional transformations, so that responses to them from the business activities seem to be significant from an institutional point of view as well.

LITERATURE SURVEY

Traditionally, the issue of the sector of small and medium-sized enterprises has attracted a great

deal of Russian and foreign researchers since it comprises entities that play a considerable creative role in GDP and fill market niches that are, so-to-say, "insignificant" to larger businesses, such as the invention development, the establishment of start-ups and the creation of new jobs [9–11].

In essence, description of this sector comprises companies that perform vital economic functions but require state support. Thus, V.A. Barinova and S.P. Zemtsov, among others, point out the importance of a comprehensive approach to improving the investment climate aimed to enhance entrepreneurial activities and remove various hindrances to the growth of the sector, in which the state should play a role of paramount importance [12, 13]. There are also some research works which describe the dynamics and logic of development of small and medium-sized entities in the traditional way, independently from the 2022 shocks, including some of which that have already become classics [14–17].

However, it is worth pointing out, that mainly the largest domestic businesses were affected by the sanctions of the recent years, including restrictions on capital flows, the withdrawal of Western companies and the voluntary or forced transfer of the management of businesses with foreign participation to Russian companies or sole proprietors. In view of this, the sector of small and medium-sized entities gained some advantages after 2022 as it began to fill in the vacated niches. However, high inflationary pressure offset these advantages over time. Besides, the external shocks described above formed a notable interest among large companies in establishing new cooperation within the state and with partners from currently friendly countries.

After the year of 2022, scholarly publications presented numerous research works, focusing on macroeconomic [1, 4, 18] or sectoral analyses [2, 19, 20]. Many works display specific aspects of adjustments, such as import substitution or the innovative activities of companies, including small and medium-sized entities [1, 3, 21–23]. However, in the recent years, the issue of the latter entities' adaptation to external shocks has not yet received adequate coverage.

The theory of economic dominance describes the small and medium-sized entities as a single sector logically embedded in the model of economic development, which generates revenues for larger businesses and redistributing them in its favour in the form of institutional rent. According to this theory, it acquires the functional role of a gamma-business, subordinated in its economic activities to alpha- and beta-businesses [8].

However, this theory has so far paid more attention to the larger-level and more influential companies. It does not precisely relate the small and medium-sized enterprises sector to the gamma business sector, which may also include larger entities. Last year, the authors of this article made the first attempt to present this sector in the logic of dominance over it by larger companies [24].

The research work substantiated that the sector of small and medium-sized entities comprises dynamically developing economic segments, the revenues of which are redistributed in favour of larger or dominant structures. However, the authors have not covered the issue of its adaptation to external shocks. The present article aims precisely to explore this topic.

SOURCES OF INFORMATION, RESEARCH METHODOLOGY AND INTERPRETATION OF THE OBTAINED ESTIMATES

The objectives and hypotheses of the research determined the choice of sources and methodology. The authors used the SPARK-Interfax information database (hereafter referred to as the "SPARK database").[1] To an extent, this article is based on the previous one [24] and develops the provisions formulated in it. However, in terms of analyses of "post-shock" trends, it presents new material related to both the calculation results and the formulation of research objectives. A similar approach regarding the selection of a

[1] URL: https://spark-interfax.ru/

sample of microenterprises to assess the impediments to their development was described in another research work [25].

For this study, it is important to note, that the SPARK database allows building by such attributes as the company's size or annual revenues, type of ownership (sole proprietor, foreign participant, state or legal entity), fulfilment of orders and supplies on a permanent or irregular basis to large companies or public-law entities, and many other filters, as well as permitted activities in the industry (so-called, OKVED codes). This is significant because the activities of a small or medium-sized company dependent on a large business it is mainly determined by the structures that dominate it. Here, dominance is interpreted as an institutional advantage that allows some companies to redistribute part of the income in their favour [8], whereas the activity of a small or medium-sized company run by a sole proprietor depends on the situation in the market the company operates. While the reliability of the aforementioned characteristics in the SPARK database is far from unquestionable, however, its quality appears adequate for initial express analysis.

The authors accomplished research objectives in the following logical sequence:

Step 1. Creation of a representative[2] sample of small and medium-sized companies

(hereafter referred to as the "base sample") for prompt analysis, enabling to diagnose the changes in different areas of the sector, primarily in terms of industry and organisational-institutional factors.

981 small and medium-sized companies were selected in the SPARK database for 2023 with their information on revenue dynamics for 2019–2022. All data were "cleaned" of inflation by dividing by the growth rate of the consumer price index and adjusting to 2019 indications. Subsequently, each of the remaining companies in the sample list was manually checked for the presence of one of the following attributes:

- owned by a legal entity with 50–100 per cent participation in the registered capital;
- controlled by a legal entity with a blocking stake of 25–50 per cent;
- owned by legal entities and sole proprietors, none of whom owns a controlling or blocking stake;
- owned or controlled by a sole proprietor with a stake of more than 50 per cent or a blocking stake;
- working under a pledge of its fixed or current assets;
- operating under contracts, including long-term contracts, with large companies, including state-owned companies;
- working under a service contract through a marketplace for the distribution of goods and services;
- working only with small and medium-sized enterprises;
- controlling or working with companies with foreign capital participation;
- interacting with other companies predominantly through an offshore structure.

The SPARK system does not account for the self-employed, besides, the survey was not methodology designed to identify small and medium-sized entities operating within the ecosystems of banks or other large companies, or within networks (for example, through franchising agreements). Such a study of specific networks or ecosystems could be useful for complimenting in the future the methodology proposed in this article. The authors do not account for obvious reasons, despite being quite significant, some important attributes, such as involvement in the shadow economy. Neither the cases where business owners are members of the management of large companies and actually run business in the sector of small and medium-sized enterprises. Probably, such situations refer to the attribute "working under contracts with large companies", however, verifying these relationships proved to require much efforts and will be left for future research.

[2] The confidence interval for the sample is 95 per cent, with 10 per cent for probability of error.

In addition to the abovementioned institutional attributes, the companies in the sample list were categorised by industry with tags of permitted activity according to the Russian Classification of Economic Activities (OKVED). Attributes corresponding to a small number of companies in the sample list or a low volume of total revenue were not separately analysed. Instead, they entered the group of some more general categories. It is worth pointing out, that this group included companies with foreign participation or state-owned small or medium-sized entities. In the context of sanctions and the withdrawal of Western businesses, these attributes are significant for large companies but insignificant for the sector of small or medium-sized enterprises.

Step 2: The basic sample had two subgroups of small and medium-sized companies:

- "stable" 767 entities which have been operating throughout the study period (from 2019 to 2023);
- "newly established" 214 entities which appeared in the basic sample at any time during the study period after the first year.

Each of the allocated subgroups required different calculations. Thus, the comparison of "newly established" with "stable" (especially after 2022) indicates which of them provided the impetus of activation for the sector of small and medium-sized entities (see *Table 1*).

It is worth noting, that the "newly established" segment includes around each fifth among small and medium-sized companies, which confirms the well-known fact about their rapid turnover in this sector. However, the "stable" segment accounts for around 80 per cent of entities and their revenue has grown significantly over the past four years, with the greatest increase registered in the last year. The two factors determined a rapid growth of the "newly established" segment: a boosting number of new companies and increased revenues. At the same time, the size of the "stable" and "newly established" segments was approximately the same in 2023, with average revenue per company in each of both sectors amounted to 399,7 and 404,7 million rubles, respectively. In other words, the increase in revenue of "newly established" companies is mainly due to an increase in their number and, to a lesser extent, due to "start-up acceleration" up to a normal level for them. Additionally, al-

Table 1

Population dynamics of 'established' and 'stable' companies in the sample

Type of the company / Year	2019	2020	2021	2022	2023
"Newly established":					
revenue volume (million Rubles per year)	2510.4	8822.2	9772.9	23 944.4	88 600.7
growth rate to 2019.	1	3.514	3.892	9.538	35.293
"Stable":					
revenue volume (million Rubles per year)	160 531	180 413.1	216 983.9	242 286.2	306 938.4
growth rate to 2019.	1	1.123	1.351	1.509	1.912

Source: compiled by the authors.

most half of the fast-growing companies (with an average annual growth rate of more than 10 per cent) were identified in the "stable" sector, indicating a high dynamic in the small and medium-sized sector's (in view that inflation is excluded). Overall, this activity highlights the significant and growing capacity of the companies in the small and medium-sized sector growth in the process of adaptation of the Russian economy to external shocks.

Step 3: Assessing the significance of the scale of the company.

The following sample allows us to determine which of the small and medium sector segments (medium-sized, small, or micro enterprises) were more exposed to changes over the last three years (*Table 2*). Their respective numbers are the following: 132, 397 and 471.

As *Table 2* reveals, that the smaller the company, the faster its corresponding segment grows. Microenterprises have an overwhelming advantage related to of revenue growth, although the total volume of this segment in the sample lags behind the corresponding indicator of small enterprises, and even more so of medium-sized enterprises. In 2023, the growth for each segment accelerated if compared to 2022, but the growth for microenterprises more than doubled. This may indicate the fact, that the adaptation potential of the Russian economy is high and far from exhausted. Despite the high interest rates and limited credit availability, the sector of small and medium-sized enterprises has grown actively searching for new market niches and test development projects. The reinforcement of output in this sector leads to the subsequent takeover and scaling up of successful projects by larger businesses. Therefore, the momentum of its growth can be traced back within the respective segments. By now, this statement may sound only like a hypothesis. The subsequent

Table 2

Dynamics of medium, small, and micro-sized companies within the baseline sample

Small, medium-sized and micro-sized entities / Year	2019	2020	2021	2022	2023
Medium-sized					
revenue volume (million Rubles per year)	75.359.7	91.558.9	116.105.2	125.657.5	150.048.8
growth rate to 2019	-	1.214	1.540	1.667	1.991
Small					
revenue volume (million Rubles per year)	69.887.9	78.892.3	102.445	123.057.6	170.550
growth rate to 2019	-	1.128	1.465	1.760	2.440
Micro-sized companies					
revenue volume (million Rubles per year)	13.410.3	19.520.3		48.756	109.108.1
growth rate to 2019	1	1.455	2.095		8.136
				28.099	

Source: compiled by the authors.

research will have to be fulfilled later in view of the lags within the unfolding of this momentum.

Step 4. Grouping and comparing small and medium-sized enterprises in institutional study.

Since a number of institutional characteristics are represented insignificantly in the sample (*Step 1*), small and medium-sized companies are grouped in the following way:

Group 1: Companies that meet the needs of large businesses. They have the following common attributes, or categories: "Owned by a legal entity with a participation in authorised capital of between 50 and 100 per cent"; "Controlled by a legal entity with a blocking stake of between 25 and 50 per cent"; "Operating under contracts (including long-term contracts) with large companies, including state-owned companies"; "Operating under a service contract through a marketplace for the distribution of goods and services". This sample includes 385 enterprises.

Group 2 includes companies oriented towards competitive markets. It combines the following attributes (categories): "Owned or controlled by a sole proprietor (more than 50% or with a blocking stake)"; "Owned by legal entities and sole proprietors, none of them owns a controlling or blocking stake"; "The entity interacts only with small and medium-sized enterprises". This sample includes 488 entities.

Table 3

Dynamics of SME sector segments identified by institutional characteristics

Entities of the small and medium-sized sector identified by institutional characteristics / year	2019	2020	2021	2022	2023
Group 1					
revenue volume (million Rubles per year)	72.439.65	87.709.16	117.284.00	137.79.80	187.459.49
growth rate to 2019	1	1.211	1.619	1.902	2.588
Group 2					
revenue volume (million Rubles per year)	51.177.28	60.396.97	79.682.81	98.999.98	175.198.69
growth rate to 2019	1	1.180	1.557	1.934	3.423
Group 3					
revenue volume (million Rubles per year)	31.988.87	36.629.78	44 235.50	49.900.66	57.580.11
growth rate to 2019	1	1.145	1.383	1.560	1.800
Group 4					
revenue volume (million Rubles per year)	3.052.07	5.235.50	5.446.83	10.772.55	9.468.57
growth rate to 2019	1	1.715	1.785	3.530	3.102

Source: compiled by the authors.

Group 3: Companies depending on banks. This group unites companies with the attribute (category): "Operates under the pledge of its fixed/current assets". This sample includes 93 companies in this group.

Group 4: Companies related to foreign capital. This group combines the following attributes (categories): "Controlled by or working with companies with foreign capital participation", or "Interacts with other companies mainly through an offshore structure". This sample includes 15 companies s in this group.

A comparison of these groups is presented in *Table 3*.

As can be seen from *Table 3*, the most dynamic development is made by *Group 2*, comprising companies that are less dependent on dominant market players, thus, operating in some more competitive markets. *Group 3*, which comprises companies that depend on banks, exhibits a more constrained dynamics: they are likely to be more heavily leveraged and face some problems with current financing and servicing their debts. The average revenue sizes of companies in these groups in 2023 are as follows: 486.9, 359.0, 619.1 and 631.2 million Rubles per year. *Group 2* has the lowest indicator. This suggests that companies established by sole proprietors and those operating in open, competitive markets are more likely to be microenterprises than the companies in other groups are. They depend more on people's initiative, but they also face barriers related to their ability to scale successful development strategies. *Group 4* is in the limited number of players, so it is difficult to make informed observations and conclusions about it. However, we have noted an unexpected increase in their revenue growth rates in 2022 and 2023, despite their tighter business relationships with the outside world recently. If this is not an accidental measurement error, it could be attributed to the expansion of external relations with partners from friendly countries. In any case, the issue requires further elaboration.

Step 5: Estimation of dynamics of the small and medium-sized entities' sector by industry.

Only those types of activities selected for analysis in the sector have contained the data on these activities, which were considered as "representative" if they are based on data from at least 50 companies, or "expressive" if they are based on data from a smaller number of companies. Their indicators are illustrated in *Table 4*. However, for analyses of a wider sample, it is recommended to obtain a more complete list of activities.

As indicated by *Table 4*, there is considerable variation in dynamics across sectors. This may demonstrate the trends of structural shifts that have begun within the sector of small and medium companies. These shifts are significant, since they are driven more by spontaneous economic processes than political decisions. Companies in the agriculture, manufacturing and construction sectors, as well as other real-sector companies, are growing and filling new niches to meet the consumer market requirements and the needs of large enterprises, which actually has accelerated significantly in 2023 compared to the year of 2022. It looks like the indications in the transport, storage and construction sectors, as well as administrative activities, confirm activity in the construction of new logistics and cooperation links, including those of large and medium-sized businesses through the sector of small and medium-sized companies, which have grown significantly throughout the years of 2022–2023 as well. Information and communication activities, as well as professional, scientific and technical activities, are not represented by a large number of enterprises with revenues of around 350 million Rubles per year. Nevertheless, the accelerated growth of this group confirms that innovation processes in the small and medium-sized entities' sector are developing rapidly, albeit from a low starting point.

CONCLUSIONS

Regarding the conclusions related to the estimation method and its findings, the authors point out the following aspects: in view of the

Table 4

Growth rates of SME companies by type of activity

Small and medium-sized entities sorted by type of activity / Year	2019	2020	2021	2022	2023
Agriculture. forestry. hunting. fishing and fish farming (41 companies)					
Revenue volume (million Rubles per year)	8.334.7	9.831	11.640.3	13.170.3	15.884.9
Growth rate to 2019	1	1.179	1.396	1.580	1.905
Manufacturing (172 entities)					
Revenue volume (million Rubles per year)	37.329	42.360.8	52.707	60.137.4	85.534.7
Growth rate to 2019	1	1.134	1.411	1.611	2.291
Construction (108 companies)					
Revenue volume (million Rubles per year)	8.947.6	11. 284.4	15.048	21.715.4	37.647.3
Growth rate to 2019	1	1.261	1.681	2.426	4.207
Wholesale and retail trade. repair of motor vehicles and motorbikes (394 companies).					
Revenue volume (million Rubles per year)	79.087	98.386	129.918.9	149.768.3	201.539.9
Growth rate to 2019	1	1.244	1.642	1.893	2.548
Transportation and storage (69 companies)					
Revenue volume (million Rubles per year)	7.708.4	9.805.4	13.952.4	19.608.8	34.260.1
Growth rate to 2019	1	1.272	1.810	2.544	4.445
Information and communication activities (24 companies):					
Revenue volume (million Rubles per year)	2.435.9	2.666	3.296.2	4.411.2	8.488.2
Growth rate to 2019	1	1.094	1.353	1.810	3.484
Professional. scientific and technical activities (50 companies):					
Revenue volume (million Rubles per year)	5.165.9	6.580.4	6.898.4	11.445.9	17.105.9
Growth rate to 2019	1	1.273	1.335	2.215	3.311
Administrative activities and related additional services (27 companies)					
Revenue volume (million Rubles per year)	735.3	749.3	1.151.4	3.039.7	5.142.9
Growth rate to 2019	1	1.019	1.565	4.133	6.994

Source: compiled by the authors.

method's imprecision, special attention can be paid to the most "bulging" outcome. Thus, hypotheses can be formed for more precise calculations, for example, by expanding the samples where the rapid method provides "faint" indicators. Furthermore, the large number of "bulging" results for all aspects of the initial sample enables us to gain a comprehensive understanding of changes within the small and medium-sized entities' sector and its active response to shocks, as well as the significant role of the sector's enterprises in shaping a new configuration of interactions with large businesses. Even with a rather crude analysis, it is possible to make conclusions about the method itself and the results of its implementation.

Firstly, the method's productivity to highlight: even with a rapid analysis of the constructed sample of 981 companies, significant changes in the small and medium-sized company's segment dynamics can be observed. Such analysis helps revealing quite a complex structural reorganization of the sector in all aspects considered, such as sectoral and institutional aspects etc. The outpacing growth of micro-enterprises compared to small and medium-sized enterprises, the faster dynamics of small and medium-sized companies involving sole proprietors, and the accelerated development of innovative and IT companies all indicate the sector's advantage in developing new niches. When information for 2024 and beyond becomes available, the research work should continue and we should expect the identified trends confirmed.

Secondly, the "natural" substantive interpretations of the identified changes proves the veracity of these analyses. A more thorough analysis could be carried out by means of a larger selection of samples. However, even the analysis proposed by the authors here, enables us to identify important areas for further in-depth and detailed studies of the small and medium-sized entities of the sector. In particular, the interaction between small and medium-sized entities with large companies requires closer examination.

Thirdly, the analysis reveals, that the sector of small and medium-sized entities indicates high flexibility and sensitivity to adaptation processes in the Russian economy, as well as the new structural shifts emerging "from below", which may eventually spread to wider sectors of the economy. Most of these transformations happen at a noticeable rate of acceleration: the growth rates of certain segments in 2023 expanded to more than twice than in 2022, which in its turn, were already high compared to 2021. The development potential of these sectors is quite high.

Fourthly, the theory of economic dominance in the multilevel Russian economy plays a significant role in explaining and interpreting the identified estimates [8]. The processes of direct absorption of smaller companies by large ones, and the activity of intermediary companies (banks, information structures, digital platforms, etc.) in redistributing income from small to large entities, should become of considerable importance for further research work.

The fifth direction of this research work reveals that important processes in the sector of small and medium-sized entities, such as network development, ecosystem formation and shadow relations, are still remain unexamined. These issues require different methods of analysis and evaluation.

The sixth direction in this study indicates that the sector of small and medium-sized companies appear as a holistic, living object in a state of constant change, which requires from the state the policy of transformation management to achieve significant socio-economic development, instead of just rescuing weak, unsustainable structures.

Finally, the proposed approach can be employed for building scenarios that take into account not only the ongoing qualitative transformations based on the development trends of big business, consumer markets, social processes and state support, rather than the quantitative dynamics of indicators.

REFERENCES

1. Shirov A.A., ed. Russia 2035: Towards a new quality of the national economy: Scientific report. Moscow: Artik Print; 2024. 264 p. (In Russ.). DOI: 10.47711/sr1-2024
2. Degtyarev K. Yu. Assessment of economic sanctions impact on the real sector of the Russian economy. *Gosudarstvennoe upravlenie. Elektronnyi vestnik = Public Administration. E-Journal*. 2024;(102):7–16. (In Russ.). DOI: 10.55959/MSU 2070-1381-102-2024-7-16
3. Kazantsev S.V. Anti-Russian sanctions impact: Aftermath of a reduction in foreign trade and production growth in the Russian Federation. *Mir novoi ekonomiki = The World of New Economy*. 2022;16(4):34–44. (In Russ.). DOI: 10.26794/2220-6469-2022-16-4-34-44
4. Ershov M.V. Russian economy in the face of new sanctions challenges. *Voprosy ekonomiki*. 2022;(12):5–23. (In Russ.). DOI: 10.32609/0042-8736-2022-12-5-23
5. Buklemishev O.V. "Structural transformation" of the Russian economy and economic policy. *Studies on Russian Economic Development*. 2023;34(4):456–463. DOI: 10.1134/S 1075700723040044 (In Russ.: *Problemy prognozirovaniya*. 2023;(4):42–53. DOI: 10.47711/0868-6351-199-42-53).
6. Voloshin V.I. From the raw material to the innovative model of the Russian economy: The role of oil and gas exports. *Beneficium*. 2024;(1):40–46. (In Russ.). DOI: 10.34680/BENEFICIUM.2024.1(50).40–46
7. Blokhin A.A., Sergeev Yu.V. Adaptation ways of different-scaled Russian industrial businesses to external shocks. *Nauchnye trudy: Institut narodnokhozyaistvennogo prognozirovaniya RAN = Scientific Articles: Institute of Economic Forecasting. Russian Academy of Sciences*. 2024;22(1):26–43. (In Russ.). DOI: 10.47711/2076-3182-2024-1-26-43
8. Blokhin A.A. Economic dominance: Basic provisions of theory and measurement approach. *Nauchnye trudy: Institut narodnokhozyaistvennogo prognozirovaniya RAN = Scientific Articles: Institute of Economic Forecasting. Russian Academy of Sciences*. 2023;21(1):6–30. (In Russ.). DOI: 10.47711/2076–3182–2023–1–6–30
9. Amoah J., Belas J., Dziwornu R., Khan K.A. Enhancing SME contribution to economic development: A perspective from an emerging economy. *Journal of International Studies*. 2022;15(2):63–76. DOI: 10.14254/2071–8330.2022/15–2/5
10. Al-Shaikh M.E., Hanaysha J.R. A conceptual review on entrepreneurial marketing and business sustainability in small and medium enterprises. *World Development Sustainability*. 2023;2:100039. DOI: 10.1016/j.wds.2022.100039
11. Elmira M. The evolution of SME and corporate banking services: The influence of modern digital technologies. *The American Journal of Management and Economics Innovations*. 2024;6(12):63–72 DOI: 10.37547/tajmei/volume06issue12–07
12. Barinova V.A., Zemtsov S.P., Tsareva Yu.V. In search of entrepreneurship in Russia. Pt. 1. What hinders the development of small and medium businesses. Moscow: Delo; 2023. 402 p. (In Russ.).
13. Barinova V.A. Institutional conditions for the innovative development of firms. Moscow: Delo; 2012. 153 p. (In Russ.).
14. Eneh O.C., Okezie Y.C. Developing and growing sustainable micro, small, and medium enterprises — global template. *Sustainable Human Development Review*. 2009;1(4):67–92.
15. Podshivalova M.V., Vaisman E.D., Podshivalov D.V. Firm demography in Russian industry in the context of small business specifics: Is there a silver lining? *Voprosy ekonomiki*. 2025;(2):19–38. (In Russ.). DOI: 10.32609/0042-8736-2025-2-19-38
16. Lucas R.E., Jr. On the size distribution of business firms. *The Bell Journal of Economics*. 1978;9(2):508–523. DOI: 10.2307/3003596
17. Boudeville J.R. Problems of regional economic planning. Edinburgh: Edinburgh University Press; 1966. 208 p.
18. Frenkel A.A., Tikhomirov B.I., Surkov A.A. Business activity in the context of Western sanctions and turbulence in Russia's strategic development. *Mir novoi ekonomiki = The World of New Economy*. 2024;18(4):69–80. (In Russ.). DOI: 10.26794/2220-6469-2024-18-4-69-80

19. Kuzyk M.G., Simachev Yu.V. Strategies of Russian companies to adapt to the 2022 sanctions. *Zhurnal Novoi ekonomicheskoi assotsiatsii = Journal of the New Economic Association.* 2023;(3):172–179. (In Russ.). DOI: 10.31737/22212264_2023_3_172-180
20. Simachev Yu.V., Yakovlev A.A., Golikova V.V., et al. Russian industrial companies under the "second wave" of sanctions: Response strategies. *Voprosy ekonomiki*. 2023;(12):5–30. (In Russ.). DOI: 10.32609/0042-8736-2023-12-5-30
21. Furmanov K.K., Turovets Yu.V. Assessing the impact of external shocks on the development of the manufacturing industry. *Studies on Russian Economic Development*. 2024;35(5):697–706. DOI: 10.1134/S 1075700724700230 (In Russ.: *Problemy prognozirovaniya.* 2024;(5):128–140. DOI: 10.47711/0868-6351-206-128-140).
22. Kheyfets B.A. Capital outflow and deoffshorization of the Russian economy in the new reality. *Ekonomicheskaya bezopasnost' = Economic Security*. 2022;5(3):835–852. (In Russ.). DOI: 10.18334/ecsec.5.3.114878
23. Kuvalin D.B., Zinchenko Yu.V., Ibragimov Sh. Sh., Zaitseva A.A. Russian enterprises in the spring of 2024: Significant increase in investment activity under sanctions. *Studies on Russian Economic Development*. 2024;35(6):909–919. DOI: 10.1134/S 1075700724700448 (In Russ.: *Problemy prognozirovaniya.* 2024;(6):201–216. DOI: 10.47711/0868-6351-207-201-216).
24. Blokhin A.A., Glukhov K.V. Institutional transformations of the SME sector and the need to change the priorities of its state support. *Mir novoi ekonomiki = The World of New Economy*. 2024;18(1):104–115. (In Russ.). DOI: 10.26794/2220–6469–2024–18–1–104–115
25. Glukhikh P.L., Shkurin D.V., Shevchenko N.G. Administrative barriers to the growth of microenterprises: Typology and empirical assessment. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz = Economic and Social Changes: Facts, Trends, Forecast*. 2025;18(1):152–169. (In Russ.). DOI: 10.15838/esc.2025.1.97.9

ABOUT THE AUTHORS

Andrey A. Blokhin — Dr. Sci. (Econ.), Chief Researcher at the Institute of Economic Forecasting of the Russian Academy of Sciences, Moscow, Russian Federation; Professor, Financial University under the Government of the Russian Federation, Moscow, Russian Federation
https://orcid.org/0000-0003-2132-4664
Corresponding author:
andraleks@rambler.ru

Konstantin V. Glukhov — applicant at the Institute of Economic Forecasting RAS, Moscow, Russian Federation
https://orcid.org/0000-0002-3305-1643
konstantinglukhov@gmail.com

Conflicts of Interest Statement: The authors have no conflicts of interest to declare.

The article was received on 03.02.2025; revised on 17.02.2025 and accepted for publication on 05.03.2025. The authors read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-62-72
UDC 336.61(045)
JEL G32, O43

Models for Managing Endowment Funds in Russian and Foreign Universities

A.A. Piliposyan
Advisor to the Rector, Lecturer of
Moscow State University of International Relations, Moscow, Russian Federation

ABSTRACT

Subject. Endowment funds worldwide generate a significant portion of financing for higher education institutions. University endowment funds are nonprofit resources with long-term or perpetual operation, whose capital is formed through donations and subsequently invested to generate income channeled into the statutory objectives of universities. **Objective.** This study presents a comparative analysis of endowment capital management models at Russian and foreign universities. Depending on the balance between targeted risk and return indicators, various strategies are employed, ranging from conservative approaches utilizing traditional financial instruments to high-risk strategies with substantial investments in innovative startups. **Relevance.** In Russia, endowment funds are primarily regarded as a mechanism to ensure a stable long-term financial flow with minimal risks, regulated at the legislative level. **Conclusions.** Intensification of the inflow of funds into Russian university endowments by means of investing "long money" into innovative projects of advanced academic institutions (following the Stanford model) may contribute to economic growth. However, in order to achieve this, it is necessary to overcome existing problems, such as the following: instability of incoming cash flow; insufficient experience of intra-university structures in capital accumulation; restrictions imposed on the use of investment instruments, as well as volatility of the level of expenditure of cash flow.
Keywords: endowment fund; target capital; investment activities; profitability and risk.

For citation: **Piliposyan A.A. Models for managing endowment funds in Russian and foreign universities.** ***The world of the new economy.*** **2025;19(2):62-72. DOI: 10.26794/2220-6469-2025-19-2-62-72**

INTRODUCTION

Endowment funds are traditional more commonly in the field of higher education than in other economic sectors, which can be attributed to the presence of a well-developed and diversified network of stakeholders willing to make charity donations for the sake of development of universities [1]. Sometimes graduates and major sponsors show interest in successful functioning and development of their ex-alma mater, so that this additionally motivates them to make donations [2].

Such institutions initially emerged in the USA and Great Britain aimed to use the endowment fund mechanisms in order to create an additional revenue streams to finance their own activities with universities. This has instituted a historical archetype: in the 1970s, endowment funds started to grow rapidly driven by the expansion of the developing financial markets. The evolution of endowment funds proceeded during three stages, each of them directly linked to the development of financial mechanisms and different instruments in various countries of the world.

At the initial stage, different capital foundations were established aimed to maintain the historical heritage without the use of a single national regulatory mechanism in some countries. The end of this stage can be attributed conditionally to the early 1970s. The second formalization stage involved the Anglo-Saxon model of endowment funds in the USA, Great Britain, Canada and Australia. Their number was mushrooming, as fast as primary regulatory documents appeared and diversified entities started emerging, uniting smaller target funds. The third expansion stage manifested the growth of funds throughout the world in Asia, Arab countries and Eastern Europe with their own specific national systems to supervise the activities of their funds, as well as with gradual formation of legislative regulation and regional specifics of functioning. Thus, Asian, Arab and East European models of target capital funds appeared.

Until recently, American universities were considered to have the largest endowments in terms of target capital,[1] however, by 2023 Arab and Asian countries had taken the lead in this sphere. Endowment funds in Asia and the Middle East based on the Anglo-Saxon model of their activities have record volumes of endowment capital. Nevertheless, they operate taking into consideration their regional or religious traditions established in their society, and therefore have specific features.

Currently, changing priorities for the development of university education and new geopolitical challenges have prompted a reassessment of fund management practices.

CAPITAL MANAGEMENT MODELS OF ENDOWMENT FUNDS

The choice of investment models directly depends on the amount of the fund, the objectives of the endowment and the time horizon of achievement of their goals, as well as on the volume of available resources and the level of professionalism of the university management [3]. As we examine the practical experience of funds' investments by university endowment funds, we can conditionally differentiate six of the most common prevalent models depending on the ratio of profitability and risks:

- The Yale Model and Stanford Model used by funds seeking to gain the maximum profitability despite higher risks;
- The Harvard Model and Canadian Model based on ensuring a balance between the level of profitability and risk, which are therefore focused on diversification of assets in the portfolio and on active management;
- conservative Endowment Model and another model based on the principles of Modern Portfolio Theory, both of which are used by the most conservative funds with relatively small volume of target capital and limited availability of alternative financial assets (*Table 1*).

[1] URL: https://www.forbes.ru/education/519546-universitetskie-endaumenty-rassiraut-geografiu

Table 1

Comparative analysis of investment models of university endowment funds

Model	10-year average retrospective return	Risk level	Fund size	Management approach
Yale Model	High (~12%)	High	Large funds	External
Stanford Model	High (~10%)	High	Innovative large funds	External
Harvard Model	Medium (~8%)	Medium	Medium/large funds	Hybrid: external/ internal
Canadian Model	Medium (~8%)	Medium	Medium/large funds	Internal
Endowment Model	Low (~5–7%)	Low	Small funds	Internal
Modern Portfolio Theory	Low (~6%)	Low	Universal funds	External or internal

Source: compiled by the author.

Each of the analyzed models has its own specifics that requires detailed consideration. The Yale model is a strategy for managing large funds, focused on high returns, as a result, of broad asset diversification and the use of alternative investment instruments. Developed by David Swensen, Head of Yale's Investment Office, the strategy is one of the most successful endowment management models [4].

The main idea of the model is to create a balanced portfolio by maximizing long-term returns at a given risk level (the risk limit is usually determined through broad diversification into alternative assets[2]). The portfolio based on the given model is built by means of distributing investments in traditional assets (stocks, bonds) and alternative investments (real estate, venture capital, hedge funds, etc.). For example, the structure of Yale University's endowment portfolio involves allocation of up to 75 per cent of endowment funds in alternative assets [5]: hedge funds, venture capital (investments in start-ups), real estate, and private equity funding (*Fig. 1*).

Such asset allocation allows the endowment to receive high efficiency returns even during unstable economic circumstances. This model is focused on a horizon of over 10 years and allows investing in assets with high volatility and potential return significantly ahead of the market indicator in the long-term perspective. The portfolio value obtains low dependence on the quotes of traditional assets, which protects the endowment capitalization from market recessions.

Besides, professional managers shepherd the portfolio based on their strong experience of administering investments operations, always prepared to implement innovative strategies aimed to "outmaneuver" the market. Despite the high-level risks, they apply systematic approach, which assumes, firstly, broad diversification by asset classes, regions and investment strategies, and secondly, limiting the liquidity risk by covering short-term debts.

Practically, the Yale investment model has demonstrated its reliable performance, producing a high average annual return of nearly 12 per cent [6]. It is regarded as the benchmark for managing operations with large target capital. However, it requires a highly professional approach and excessive costs for administering the investment portfolio due to the complexity of the strategy.

The Harvard model, has also demonstrated established efficacy in terms of the risk-return

[2] Alternative Assets are asset classes that fall outside the traditional investment classes (such as stocks, bonds, and cash). They have unique characteristics and have a low correlation with traditional assets

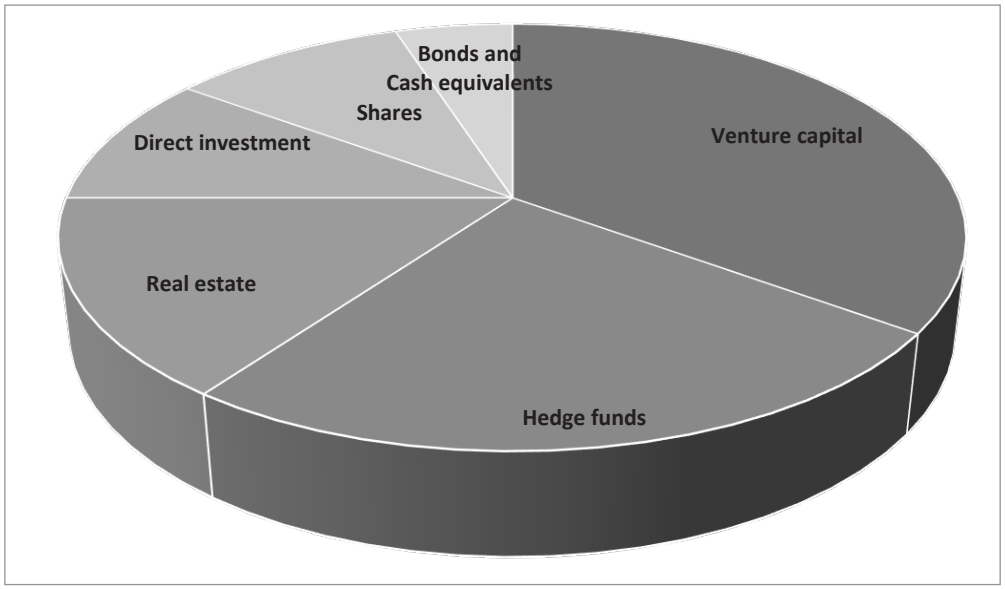


Fig. 1. **Relative proportions of assets in the Yale Endowment Fund portfolio (2023)**

Source: based on Financial Report 2023–2024 Yale University.

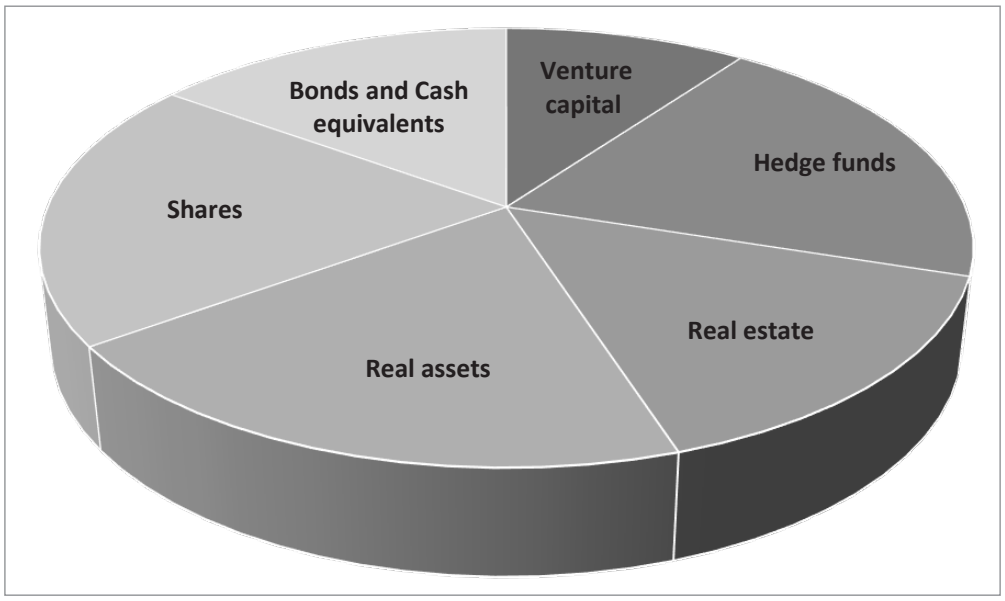


Fig. 2. **Relative proportions of assets in the Harvard Endowment Fund portfolio (2023)**

Source: compiled by the author based on Financial Report 2023 Harvard University.

ratio over the long term, due to broad diversification of assets, including a significant share of alternative investments. However, unlike in Yale until 2010, the management was carried out by Harvard's own internal investment office. In the 2010s, the Harvard model turned out of unsatisfactory efficiency: the internal management did not manage to reach successful operation comparable to external funds. This resulted to transformations and transition to a combined strategy, when part of the assets was entrusted to external outsourcing companies.

In order to reduce risk, the Harvard Endowment seeks to distribute its endowment among multiple asset classes, namely, by choosing traditional and alternative ones for these purposes, as well as

using geographic principle for diversification of funds [7]. A moderate share of the portfolio belongs to stocks and bonds, however, investment in real estate, natural resources (real assets), venture capital and hedge funds make the majority of it is direct and alternative investments. The investment horizon for most assets involves 10–20 years, so that the model allows using the advantages of complex strategies.

Thus, the structure of the Harvard endowment portfolio assumes to allocate up to 65–70 per cent of the endowment funds in alternative assets[3] (see *Fig. 2*).

Such disbursement of endowments allows them to obtain high returns in the long term. Unlike the Yale model, the Harvard model has traditionally emphasized internal management with active investment in real assets (such as natural resources and infrastructure), and this makes it similar to the Canadian model. Besides, unlike other models, the Harvard model uses borrowed funds more intensively and it is oriented on long-term stability through diversification of assets and the use of alternative instruments. It is regarded a benchmark criterion and is used within the framework of copy, or imitative trading practice.[4] Despite the difficulties related to internal management that emerged in 2010, the reform of the structure and the transition to more adaptive strategies made it possible for the Harvard model to maintain a good long-term ratio of risk and return indicators of the portfolio.

The Stanford model is comparable to Yale and Harvard in terms of prioritizing the selection of alternative assets for investment, however, it focuses on high flexibility and adaptability of the strategy in the short and medium perspectives (asset liquidity is considered the third key benchmark). Stanford University heavily invests in innovative sectors, which makes it possible due to close relationship with Silicon Valley. This model involves allocation of a significant portion of the portfolio in high-risk and high-return venture capital.

The structure of the Stanford endowment portfolio involves committing up to 65–70 per cent of the endowment funds in alternative assets with a priority selection of high-tech startups[5] (*Fig. 3*).

The unique location of the Stanford University positioned in Silicon Valley has determined the specifics of endowment investment in promising technology companies, biotechnology, AI, Fintech, etc. A significant share of the endowment capital (approximately 30 per cent) is dedicated to venture funds. The Stanford model brings back an average annual return of about 10–12 per cent, which is comparable to the financial results of the Yale model. In order to minimize risks, the allocation of assets in the portfolio is revised on a regular basis with a frequency depending on market circumstances. During a crisis or high volatility in financial markets, they may decrease the share of venture investments, and on the contrary, the growth of innovative sectors stimulated Stanford's endowment to expand the possibility of investing in venture capital [8]. Thus, for example, Stanford has supported the intensive expansion of activity for Google, Uber and other companies.

Stanford's investment model optimizes the portfolio to maximize returns over more than 20-year horizon. Besides, unlike Harvard, asset management in Stanford is implemented predominantly from the outside within the framework of sectoral distribution for allocations of direct investments and investments in special venture funds.

A comparative review of the most successful models of endowment fund investment in terms of risk/return ratio is presented below in *Table 2*.

The Stanford model has several advantages over the other two models: specifically, its high returns are provided by a strong relationship with the innovative high-tech industries of Silicon Val-

[3] URL: https://finance.harvard.edu/files/fad/files/fy23_harvard_financial_report.pdf

[4] Imitative or copy trading practice implies automatic replication of the strategy of experienced investors following their asset ratio.

[5] URL: https://bondholder-information.stanford.edu/sites/g/files/sbiybj21416/files/media/file/fy23-stanford-annual-financial-report.pdf

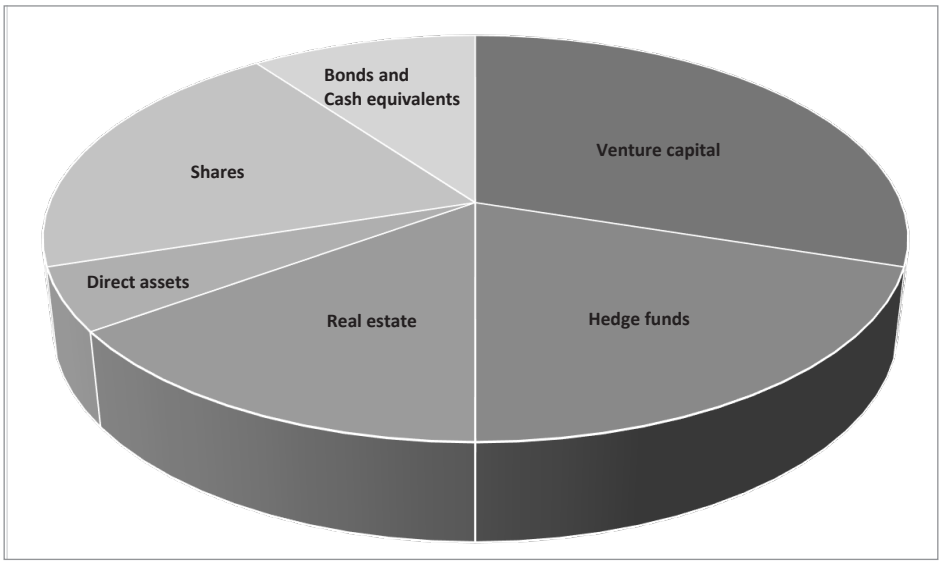


Fig. 3. **Relative proportions of assets in the Stanford Endowment Fund portfolio (2023)**

Source: compiled by the author based on Stanford annual financial report.

Table 2

Relative proportions of investment models of the university endowment funds

Criteria	Stanford model	Yale model	Harvard model
Basic assets in the portfolio	Venture capital: technologies and innovations	Hedge funds	Real investments: natural resources
Venture capital	High (~30%)	Moderate (~20%)	Low (~10%)
Management flexibility	High	Medium	Low
Risk	High	Medium	Low
Profitability	High (~10–12%)	High (~12%)	Medium (~8–9%)

Source: compiled by the author.

ley. However, this factor also determines critical vulnerabilities, which is highly depended on the situation in the technology sectors influencing the portfolio's returns, as well as risks related to a high share of low-liquid assets (venture capital, real estate).

In addition to the three most profitable models considered, there exist a few others, each of which is based on different approaches to asset management, diversification and risk assessment. Before the emergence of innovative models of Yale, Harvard and Stanford, there was a traditional classic

model, namely, the Endowment Model (endowment investment model), which was historically used by most medium and small endowment funds, [9]. This model involves conservative investments (with up to 70 per cent of funds invested in the stock and bond market) with a minimum proportion of alternative investments or even their complete absence. Undoubtedly, this model ensures minimum risks, a high liquidity rate of assets and stable predictable income, which, however, will be considerably lower than that of modern models focused on alternative assets. Before the 2022 crisis, the traditional Endowment Model could provide modest capital growth above inflation, which allowed those using endowments to maintain their endowment capital in real terms and use investment income to achieve the universities' statutory targets. However, this model is completely unsuitable in an environment of rising inflation and declining returns on traditional financial assets.

Another classic model also includes the Markowitz investment model (Modern Portfolio Theory). Within the framework of this model, the optimal disbursement of assets in a portfolio is implemented by solving the problem of finding a balance between profitability and risk. It also requires taking into account the investor's acceptable limit values of such indicators as profitability and risk. The model has a limited application for target capital: since it considers insufficiently its specificity, which is manifested in the perpetuity of the use of funds. Therefore, it determines in most cases the effective multiplicity of portfolios without taking into account any alternative assets. The Swensen Model functions as a combination of classic and innovative strategies focused on long-term investments in inefficient markets.[6]

Besides, likewise in modern high-yield models, the basis encompasses direct and venture investments, as well as investments in hedge funds. However, in order to identify areas, chosen selected managers operate efficiently using their unique experience in conducting research and identifying market imbalances. The Swensen model provides a better ratio between portfolio liquidity and profitability, as it involves the use of less volatile assets through highly professional assessment of risks and identification of inefficiencies.

The abovementioned models are based on portfolio theory, which recommends diversifying assets and creating portfolios with regular rebalancing their structure.[7] Depending on the choice, they select the investment management structure and determine its costs. In contrast to all of the abovementioned models, the Canadian Model was developed, which is used by the largest Canadian endowment of the University of Toronto and involves direct ownership of assets: investing target capital in infrastructure, real estate, natural resources (in particular, in the purchase of airports, highways, commercial real estate, etc.), as well as minimizing managerial costs.

The model is appropriate for complex and large-scale projects with a 10–20-year long payback period, it requires significant capital investments, and is not available to small funds. The endowment of the University of Toronto is actively invested outside of Canada in markets throughout North America, Europe, Asia, and emerging markets. Unlike the Yale or other models, which external managers operate with, the Canadian Model relies entirely on internal teams of professionals. This helps reduce management fees and increase flexibility in decision-making.

Such a highly effective approach for large endowments requires significant resources and professional management. The model also allows participating in global projects and owning assets that provide stable income. Besides, as it is one of the most successful model for large institutional investors, it also demonstrates an excellent balance between risk and return.

[6] Market inefficiency is a situation when an asset is undervalued or overvalued in the market, but the majority of market participants ignore it.

[7] Rebalancing means the process of adjusting assets in an investment portfolio to maintain a balance between different asset classes harmonized with the investment strategy.

University endowments use a variety of investment models depending on their objectives, scale and available resources. Yale's investment model still remains the benchmark for its high yield and broad diversification, meanwhile others, such as Harvard and the Canadian Model, successfully demonstrate, that high returns can be realistic with a moderate level of risk, when they get adapted to the unique circumstances of the endowment.

Over the past few decades, the endowments of the largest universities and organizations have grown considerably: for example, the endowments of Harvard and Yale have increased three and five times, respectively. In the circumstances of increasing capitals, the efficiency of fund management is becoming of paramount importance for their long-term sustainability and fulfillment of current tasks, and this requires more complex and adaptive approaches. Now, traditional asset classes, such as bonds, cannot always be able to provide sufficient returns to compensate for inflation, so the focus has shifted to more advanced investment methods. Asset management practices involve the use of alternative investments (venture capital, real estate, hedge funds) and this have proven to be more effective in the long term perspective: the average level of fund returns has increased to 10–12 per cent.

However, in some countries, including Russia, legislation limits some types of assets available for investment, and this makes managers to develop strategies that maximize returns within the existing regulations. Even with tough legislative restrictions, competent capital management makes it possible to achieve successful results despite the conditions of high volatility of key financial indicators. As endowment funds appeared in the Russian Federation practically only in 2007,[8] foreign experience in this field seems very important.

[8] Notably, there were elements of endowment funds in pre-revolutionary Russia (for example, the Demidov Prize, private award for scientific achievements), but these charitable traditions were lost during Soviet times.

ENDOWMENT FUND MANAGEMENT FOR RUSSIAN UNIVERSITIES

Almost half of all active endowment funds in Russia are university funds, and the top ten of them have assets exceeding 500 million Rubles [10]. In the imminent future, the number of endowments in higher education will presumably grow with the active participation of the authorities. Many university funds in our country facilitate various programs and areas. For instance, the Higher School of Economics (HSE) has deployed resource allocation for 10 defined directions, the Moscow Institute of Physics and Technology allocated funds for 12 direction, and the Ural Federal University named after B.N. Yeltsin funded 14 directions [11].

Frequently, among the founders of higher education endowment funds become either the educational institutions themselves, or associations of graduates of single-profile specialised universities, which are concentrating professionally on specific industries, companies and regions. Graduates exhibit strong coherence, actively back up their universities and demonstrate active participation in management processes.

Nowadays, Russian classical multidisciplinary universities usually develop connections with graduates within the framework of individual faculties or departments with industry specialization. Such effective strategies are often preceding initiatives of the central administration, so that this approach becomes more successful.

However, despite the enhancement of such collaboration, the expansion of endowment capital is restricted due to insufficient number of qualified specialists who are professionally experienced in fundraising. It rarely happens that Russian universities establish separate departments or induce job positions for specialists in charge of fundraising. Most often, employees have to take an additional responsibility to do it, so that the effectiveness of such work is diminishing. Therefore, within the framework of managing the endowment capital of Russian endowment funds, it is very important to have

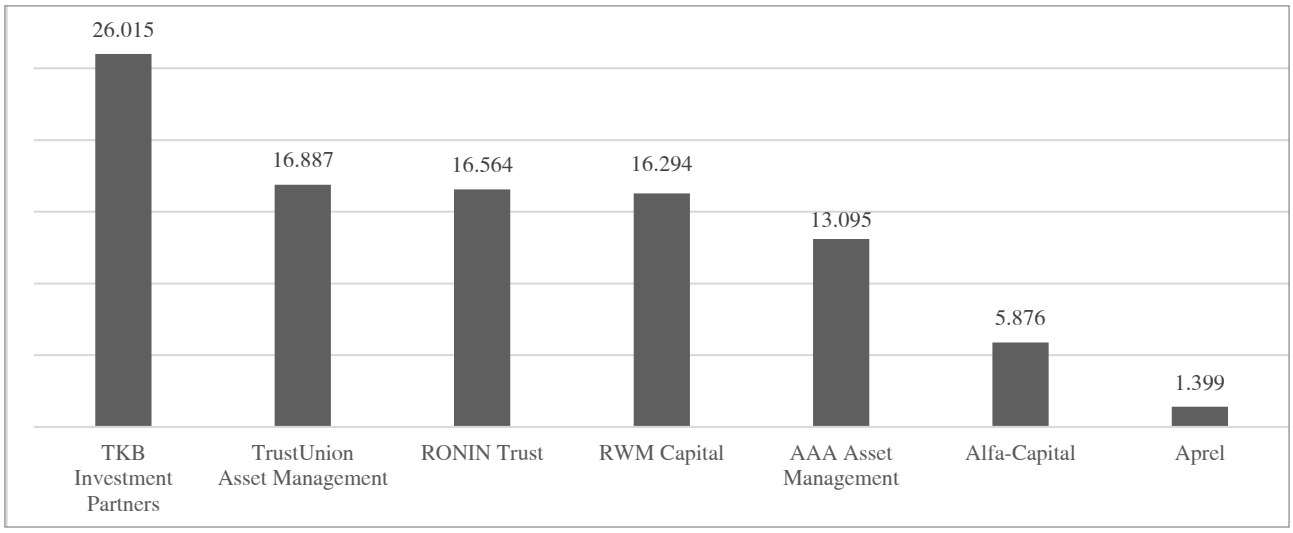


Fig. 4. **Top 7 major Russian management companies by mutual fund assets as of July 30, 2024 in million Rubles**

Source: compiled by the author based on data from the rating agency "Expert RA".

the presence of a key sponsor, or sources, volumes and speed of annual replenishment of the endowment capital, as well as the degree of centralization in management decision-making on accumulated funds.

A significant portion of endowment funds of Russian universities are allocated by private or corporate sponsors and university graduates. In some cases, similarly to global standards, at the initial stage, the state rendered support for capital accumulation, as, for example, this occurred in the Skolkovo Foundation.

In accordance with Russian legislation, professional management companies (MC) are entitled to operate in the sphere of the assets of endowment funds of Russian universities. According to the rating agency Expert RA as of June 30, 2024, the largest of them are "TKB Investment Partners", "TrustUnion Asset Management" and "RONIN Trust" (*Fig. 4*).

Fig. 4 indicates that both specialized financial institutions and companies of the largest banks operate the largest Russian endowment management companies. Since 2021, several new considerably large players have appeared on this market. For example, "Region Asset Management JSC" is actively broadening its portfolio and since 2021, it has launched collaboration with the Moscow City Pedagogical University (MCPU) by means of taking over the management of the endowment capital of the Institute of Psychology and Comprehensive Rehabilitation.[9] The period 2020–2021 demonstrated a rapid increase in the assets of endowment funds: from 29.8 to RUB 44.1 billion Rubles,[10] but in 2022, a significant decrease in its volumes occurred due to the revaluation of assets. Therefore, the growth in 2023 of the total volume of endowment fund assets managed by the above-mentioned companies, compared to 2022, primarily reflects the low base effect,[11] and secondly, the trend towards an increase in the number and size of endowment funds in Russia.

Therefore, in order to select a strategy, it is important to consider the experience of management companies related to endowment capital, in view of their ability to generate an additional

[9] URL: https://www.mgpu.ru/obrazovanie/institutes/ipkr/tselevoj-kapital-mgpu-isop/?utm_source=chatgpt.com

[10] Calculated based on information from the study "Russian Endowment Funds: Quality and Completeness of Information Disclosure", by RAEX-Analytics and The Potanin Foundation, Moscow, 2024.

[11] Low base effect is a situation when the current growth rates (for example, GDP, profit, production, etc.) look too high compared to the abnormally low figures of the previous year. The growth seems significant mainly due to the fact, that the starting point (comparison base) was very low.

premium on long-term invested capital, in other words, their ability to create sustainable returns. Notably, nowadays, Russian management companies primarily focus on the medium-to-short term, which does not allow obtaining full returns from investing the so-called "long money".

The legislation of the Russian Federation strictly regulates the types of assets permitted for investing endowment capital. The funds of endowment funds under management can be allocated exclusively in instruments with a medium and low level of risk, which, definitely, limits the return on investment. Therefore, currently, most of the university endowment funds are invested in the money market, bonds and other low-risk instruments. Alternative assets such as real estate or venture capital are used rarely due to legislative restrictions and a lack of management experience.

The Law "On the Procedure for the Formation and Use of Targeted Capital"[12] also contains restrictions that apply to endowment funds, for example, on the sources of capital formation, which is only possible through cash donations.

Research work of specific management models of Russian university endowment funds is complicated due to the lack of transparency in reporting and/or the lack of complete information publicly available. These funds invest primarily in conservative assets, such as bonds and deposits. As a result, low average annual returns are obtained over a protracted time, however, a high level of capital preservation is realistic. Currently, investment practices in alternative assets have been introduced gradually, for example, in "Skoltech", which actively allocates resources in innovative and high-tech projects, and St. Petersburg State University, which invests in real estate.

[12] URL: https://www.consultant.ru/document/cons_doc_LAW_64939/

CONCLUSIONS

Russian universities furthermore keep refining to develop and enhance efficiency of their investment strategies of endowment funds, following successful experience of global practice. In order to ensure the expansion of endowment funds, it is necessary to elevate the level of professionalism of internal and external endowment management teams, introduce alternative investment instruments, strengthen interaction with donors and gradually foster a culture of philanthropy.

Foreign approaches to endowment management are much more effective due to the use of flexible models that take into account the dynamics of market factors and involve broad diversification of assets. Russian models lead to excessive accumulation of illiquid assets or a loss of fund volumes in real terms: most of them had negative real returns in 2022–2023. For the successful development of endowments in our country, it is necessary to liberalize the legislative framework and implement combined investment strategies based on the best international standards. These solutions can facilitate the development of the higher education system, the promotion of research initiatives and scientific and technological progress in the context of economic restrictions and increased competition in the global arena.

REFERENCES

1. Knyazev E.A., Drantusova N.V. Differentiation in higher education: The main concepts and approaches to study. *Universitetskoe upravlenie: praktika i analiz = University Management: Practice and Analysis.* 2012;(5): 43–52. (In Russ.).
2. Chao-Bushoven K.H. Why do people donate? Motivation of major donors in higher education. Master degree thesis. Arcata, CA: Cal Poly Humboldt; 2021. 81 p. URL: https://digitalcommons.humboldt.edu/etd/462/
3. Dimmock S.G., Wang N., Yang J. The endowment model and modern portfolio theory. *Management Science.* 2024;70(3):1554–1579. DOI: 10.1287/mnsc.2023.4759

4. Longo J.M. Lessons on risk, return, and portfolio construction from the great investors. In: Lee C.F., Lee A.C., Lee J.C., eds. Handbook of investment analysis, portfolio management, and financial derivatives. Singapore: World Scientific Publishing Co Pte Ltd; 2024;4:2023–2050. DOI: 10.1142/9789811269943_0064
5. Chaplinsky S. Investure, LLC: Investing in alternative assets. Charlottesville, VA: Darden Business Publishing; 2021. 19 p.
6. Ceulenaere J., Van Haver S. University endowment funds: exploring their returns and the impact of alternative assets. Master degree thesis. Ghent: Ghent University; 2024. 75 p. URL: https://libstore.ugent.be/fulltxt/RUG01/003/203/401/RUG01–003203401_2024_0001_AC.pdf
7. Fardows N., et al. Enhancing quality assurance in higher education through strategic endowment fund management: Case studies and best practices. *The Business and Management Review*. 2023;14(3):46–53. DOI: 10.24052/BMR/V14NU 03/ART-05
8. Etzkowitz H. Entrepreneurial university icon: Stanford and Silicon Valley as innovation and natural ecosystem. *Industry and Higher Education*. 2022;36(4):361–380. DOI: 10.1177/09504222221109504
9. Gao X., Gu Z., Wang Z. A choice model of university endowments governance. *The B.E. Journal of Theoretical Economics*. 2021;21(1):269–285. DOI: 10.1515/bejte-2019-0136
10. Oshanina O. Philanthropists come to universities. Endowment funds help develop science and education. Vedomosti. Jul. 19, 2023. URL: https://www.vedomosti.ru/science/private_initiative/articles/2023/07/19/986016-filantropi-prihodyat-v-vuzi (In Russ.).
11. Klimanov V.V., Kazakova S.M. Endowments in Russia: Status and prospects. Analytical report. Moscow: Vladimir Potanin Charitable Foundation; 2022. 31 p. URL: https://fondpotanin.ru/upload/iblock/998/h741x8aazn2rvbjh1b60ae0xq9hhtxpc.pdf (In Russ.).

ABOUT THE AUTHOR

Anna A. Piliposyan — Advisor to the Rector, Lecturer of Moscow State University of International Relations, Moscow, Russian Federation
http://orcid.org/0009-0003-3264-2059
pliposyan.a.a@my.mgimo.ru

Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was received on 28.01.2025; revised on 15.02.2025 and accepted for publication on 03.03.2025. The author read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-73-85
UDC 338.24(045)
JEL M21

Scaling Small and Medium-Sized Enterprises at the Macro Level in the Government Support Measures

A.E. Plakhin, E.G. Sheina
Ural State University of Economics, Ekaterinburg, Russian Federation

ABSTRACT

The relevance of the study is due to the fact that small and medium-sized enterprises (SMEs) play a key role in the economy of any country. Therefore, it is important to investigate the factors that significantly influence their scaling. The aim of this article is to identify the presence or absence of a relationship between macro-level factors, government support, and the performance of SMEs across seventeen sectors of the national economy. In this regard, the authors proposed three hypotheses about the impact of government support measures on SME scaling results. **Methods**: the study was conducted using up-to-date data selected from reliable sources. The influence of various factors on the performance of SMEs in different sectors of the economy was assessed by building correlation models. **Scientific novelty** of the research lies in the development of methodological approaches to identifying scaling factors of SMEs and the creation of an assessment matrix for managing SME scaling in sectors of the national economy, taking government support into account. **Research results** revealed the resilience of certain sectors to the government support measures implemented under the national project of the Russian Federation. **Practical significance** of the article is that the findings can help improve the evaluation of how government support measures affect the dynamics of development and scaling indicators of SMEs in strategically important sectors of the national economy.

Keywords: small and medium-sized businesses; scaling; factors; macro-level; government support; correlation; support measures

***For citation*: Plakhin A.E., Sheina E.G. Scaling small and medium-sized enterprises at the macro level in the government support measures. *The World of the New Economy*. 2025;19(2):73-85. DOI: 10.26794/2220-6469-2025-19-2-73-85**

INTRODUCTION

Small and medium-sized enterprises (SMEs) represent one of the important and challenging sectors of the Russian economy. Acting as a driving force for the modernization of economic processes [1], shaping the "industrial and social diversification of society" [2], and positively influencing the sustainable development of certain regions [3], SMEs, at the same time, constitute a vulnerable sector of the economy that develops very unevenly [4] due to limited access to resources and the presence of a number of regulatory and legal barriers. This complicates the process of their scaling in the form of positive transformation of performance indicators, including a qualitative transition from one SME category to another, which accordingly creates the need to build special relations between the state and business aimed at developing priority sectors of the national economy [5].

The high level of debate on this topic is evidenced by numerous studies that devote significant attention to the development of the SME sector, as well as the effectiveness of implemented government support measures [6]. Scholars emphasize the undeniable positive impact of such support on the dynamics of SME development [7], noting the need for a deeper study of their interrelationship [8]. Empirical research confirms the intensity of environmental practices adoption in production as a result of mastering government support funds [9], reveals insufficient transparency in the conditions of their distribution [10], and highlights the lack of aspiration toward achieving market maturity and independence among small and medium-sized enterprises [4].

So, can the Russian small and medium business develop evenly across industries without government support, or is it an indispensable condition for scaling and growth of this economic sector? To address this scientific and theoretical gap, which does not allow a definitive answer to this question, this article structures the complex of factors and assesses their influence on the scaling of SME entities.

By scaling of SME entities, the authors understand a positive response to institutional incentives for the development of micro, small, and medium enterprises in the form of improvements in their key financial and economic performance indicators, including those that form the basis for assessing the transition from one category of business entities to another (a higher one).

The goal set by the authors dictates the need to:

- identify macro-level factors that influence positive changes in SME performance indicators, both with and without government support measures;
- based on the specified criteria, create an information base for conducting an analysis to identify the relationship between the macro-level factors selected by the authors and qualitative changes in SME indicators;
- develop methodological tools to carry out research on the grouped factors based on formulated *hypotheses* aimed at confirming or refuting the scientific idea of the existence of a relationship between various factors of scaling SME entities in the Russian economy and their performance indicators *(Fig. 1)*.

INFLUENCE OF FACTORS ON SME DEVELOPMENT

The stimulation of small and medium-sized enterprises (SMEs) development within the national economy depends on a variety of external (external) and internal factors that either facilitate or hinder this process. This determines the appropriateness of designing and justifying their selection, as well as establishing the relationships and interdependencies between them.

Some researchers highlight internal factors as the main drivers of SME development: the necessity of strategic planning [1, 11], changes in the stages of their life cycle [12, 13], the specific psychological type of the entrepreneur's personality [14], and emphasize the active participatory role of SMEs in various types of support for their activities [15].

At the same time, researchers lack consensus on the positive impact of government support

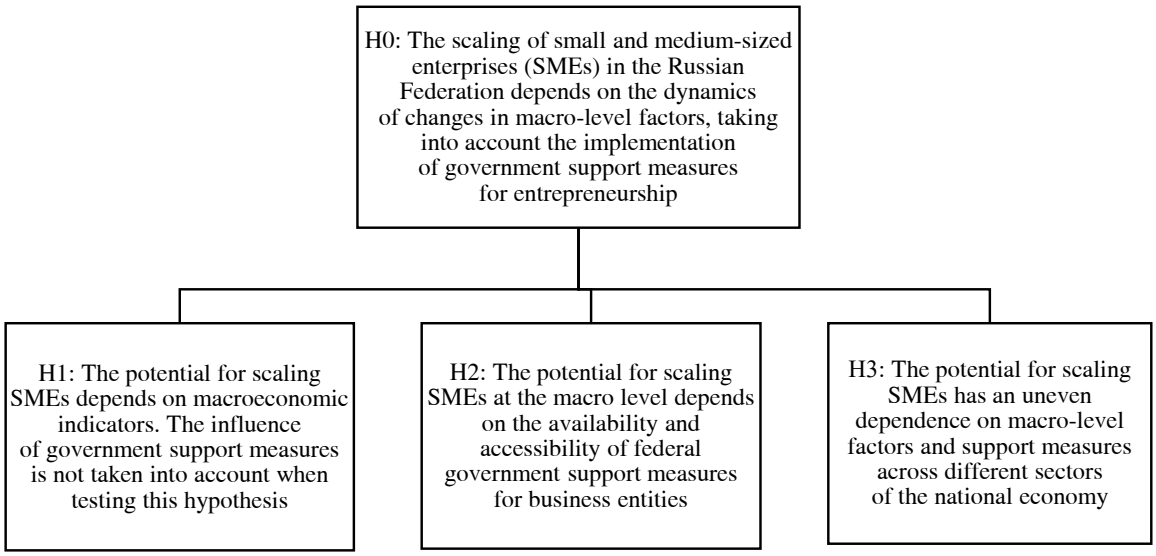


Fig. 1. **Research hypotheses**

Source: compiled by the authors.

measures: their generally favorable influence is noted [7], as well as their focus on "improving the efficiency of the entrepreneurial sphere" [16]. However, there is a body of work criticizing the "aid and subsidization" of existing support measures [4], the lack of a clear focus of state policy on the SME sector [17], the mismatch between objectives and resources in the implementation of national projects [5], and debates on why support goes to enterprises that do not actually need it [8].

Without diminishing the importance of the accumulated experience, it is necessary to note the fragmentation among researchers in addressing the selection of macro-level factors influencing the scaling of SMEs, as well as the lack of studies dedicated to substantiating the extent of the impact of government support measures on their growth indicators across different sectors of the national economy. These circumstances have enabled the authors of this article to contribute to the existing scientific discussion on this issue.

RESEARCH METHODOLOGY

The stated goal predetermines the development and application of a methodology to identify macro-level factors with potential influence on the scaling of SMEs, taking into account both the presence and absence of federal-level government support measures for entrepreneurship. This methodology enables consideration of the overall dynamics of macroeconomic indicators of the national economy, as well as specific support measures outlined in the national project passport of the Russian Federation "Small and Medium Enterprises and Support of Individual Entrepreneurial Initiative,[1]" and includes the following stages:

1. Defining the target vector for scaling SMEs at the national economy level, the justification parameters of which are dynamic and may be adjusted in accordance with changes in the regulatory framework for entrepreneurship support in the Russian Federation, as well as updates to the national development goals of the country in accordance with presidential decrees.

2. Selecting a list of sources containing the most complete and reliable information for assessing macro-level factors affecting the scaling potential of SMEs.

3. Forming an information base for calculations based on data from official websites of the Federal State Statistics Service, the Ministry of Economic Development of the Russian Federation, and the

[1] URL: https://www.economy.gov.ru/material/directions/nacionalnyy_proekt_maloe_i_srednee_predprinimatelstvo_i_podderzhka_individualnoy_predprinimatelskoy_iniciativy/

Bank of Russia, in accordance with the research goal and segmented by micro, small, and medium enterprises.

4. Conducting the study according to the algorithm for determining factors influencing the scaling of SMEs (see *Fig. 2*).

Determining the presence and significance (or absence) of relationships among the selected key indicators from the three analyzed groups: x1, x2, and x3, through correlation coefficients, with the level of association assessed according to the Chedoke.[2] scale.

5. Bringing the data into a methodologically comparable format by applying normalization methods.

6. Testing hypotheses formulated by the authors to confirm or refute the scientific idea of the existence of relationships between various factors affecting the scaling of SMEs.

Hypothesis 1: H1 — The scaling potential of SMEs depends on macroeconomic indicators. The impact of government support measures is not considered when testing this hypothesis.

The authors have identified the following key macro-level factor indicators as having the most significant influence on the scaling of SMEs (see *Table 1*).

In connection with the stated objective — to assess the influence of factors with and without the implementation of state support measures for entrepreneurship within the framework of the national project of the Russian Federation — the analysis covers the research period for all groups of factors and indicators from 2019 to 2023. Selected are specific performance indicators of SMEs as outcome variables.

Hypothesis 2: H2 — The scaling potential of SMEs at the macro level depends on the availability and accessibility of federal state support measures for entrepreneurial entities.

As factors of federal-level state support for entrepreneurship that have the most significant impact on the scaling of SMEs and largely determine their potential, the authors have identified the following (*Table 2*).

Hypothesis 3: H3 — The potential for scaling SMEs has an uneven dependence on macro-level factors and support measures across different sectors of the national economy.

To reflect the development trends of SMEs in Russia, ten indicators were selected that summarize their performance results across various sectors of the national economy (*Table 3*).

DETERMINING THE DEGREE OF INFLUENCE OF FACTOR GROUPS ON THE SCALING OF SME ENTITIES

The list of factors from the three groups (*Tables 1–3*) represents the most comprehensive range of indicators, thoroughly revealing the development trajectory of the SME sector. Therefore, it is reasonable to apply correlation analysis using Excel, which will allow, based on the formed research information base, to determine the presence and significance of the relationships between the indicators of groups x1, x2, and x3—or their absence (*Table 4*).

According to the algorithm (*Fig. 3*), a factor influences the scaling of SME entities if the value of its correlation with the resulting indicators is greater than 0.7. Thus, normalization of the indicators was carried out in order to bring them to a comparable format.

The authors selected the list of macro-level factors for analysis based on their significance for SME development: the key rate of the Central Bank of the Russian Federation affects credit availability, which is one of the main sources of SME financing; the inflation rate, GDP growth rate, average annual ruble exchange rate, and monetary incomes reflect consumption opportunities and influence demand, which in turn is reflected in the revenue and other indicators of SMEs.

However, *Hypothesis 1* was not confirmed: the scaling potential of SME entities depends only on two out of five macroeconomic indicators — x12 and x14—while not all resulting SME indicators prove equally sensitive to them.

[2] URL: https://stepik.org/lesson/424892/step/7?unit=414724

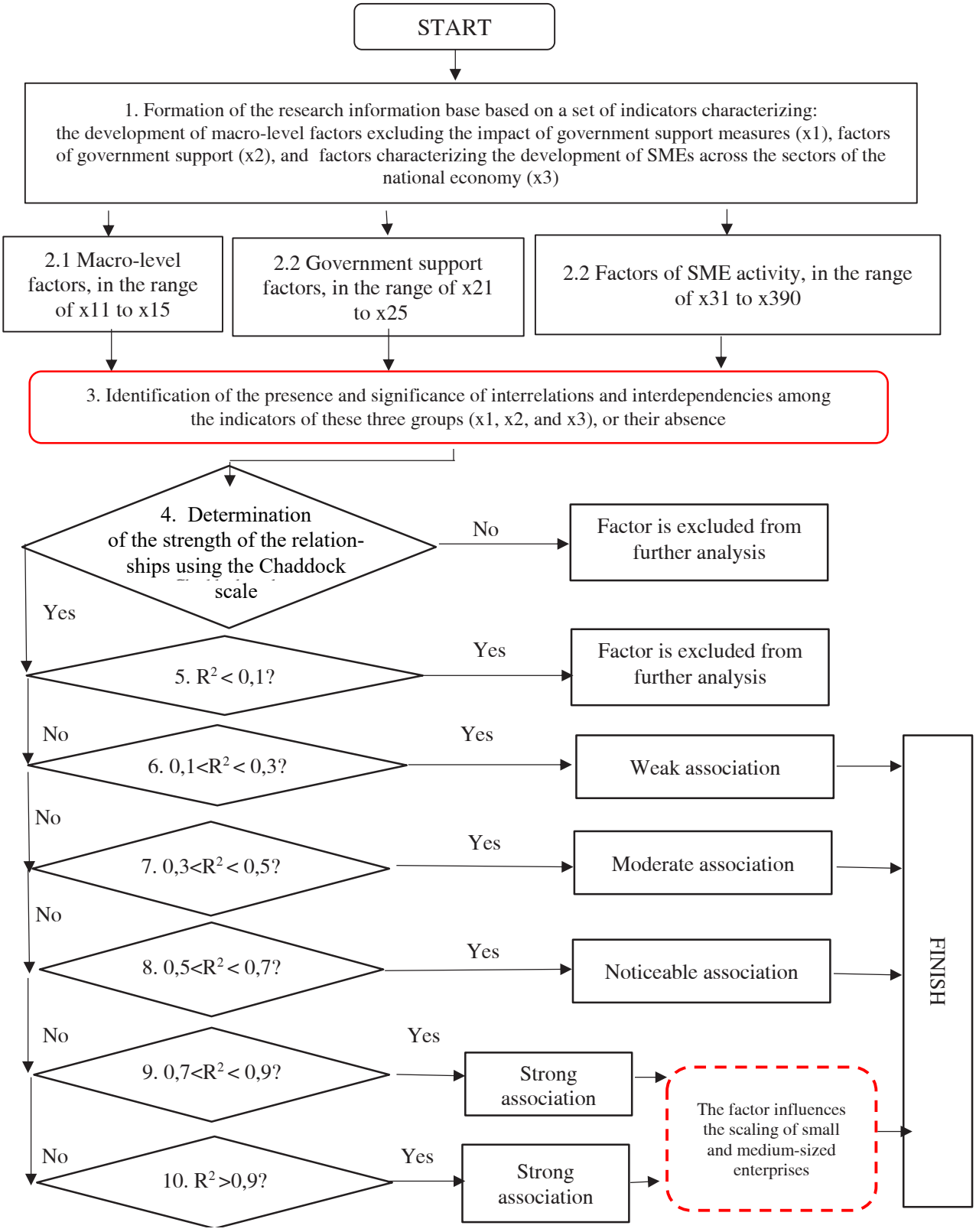


Fig. 2. **Algorithm for Identifying Scaling Factors of SMEs**

Source: compiled by the authors.

Note: R^2 – correlation coefficient characterising the degree of determinism of dependence.

Table 1

Indicators of Macro-Level Factors Group (x1)

Symbol	Indicator	Source of Information
x11	Key rate of the Bank of Russia, %	Central Bank of Russia URL: https://cbr.ru/
x12	Inflation rate in the country, %	Federal State Statistics Service URL: https://rosstat.gov.ru/
x13	GDP growth rate, % compared to previous year	
x14	Average annual RUB/USD exchange rate, rubles	Dollar to ruble exchange rate by year URL: https://infotables.ru/statistika/95-tseny-tarify/1327-kurs-dollara-tablitsa
x15	Real monetary income (average per capita), rubles	Federal State Statistics Service URL: https://rosstat.gov.ru/

Source: compiled by the authors.

Table 2

Indicators of Government Support Factors Group (x2)

Symbol	Indicator	Source of Information
x21	Total budget of the RF national project, billion RUB	Ministry of Economic Development of Russia | URL: https://www.economy.gov.ru/
x22	Volume of guarantees to SME entities, billion RUB	
x23	Growth rate of guarantees to SME entities, %	
x24	Volume of microloans to SME entities, billion RUB	
x25	Growth rate of microloans to SME entities, %	

Source: compiled by the authors.

Table 3

Indicators of SME Activity Factors Group by Economic Sectors (x3)

Symbol	Indicator	Source of Information
x31	Revenue (turnover) from sales of goods, works, services, bln RUB	Federal State Statistics Service (statistical yearbooks) URL: https://rosstat.gov.ru/
x32	Average number of employees, thousand people	
x33	Profitability of sold goods, works, services, %	
x34	Total assets, bln RUB	
x35	Return on assets, %	
x36	Capital and reserves, bln RUB	
x37	Current liquidity ratio, %	
x38	Autonomy ratio, %	
x39	Average monthly accrued wages of SME employees, RUB	
x390	Growth rate of average monthly accrued wages of SME employees, %	

Source: compiled by the authors.

Table 4

Correlation Between Macro–Level Factors and Resulting SME Performance Indicators

Resulting indicators of SMEs / Macrolevel factor group indicator	Bank of Russia's key rate % (x11)	Inflation rate in the country % (x12)	GDP growth rate. % compared to the previous year (x13)	Average annual ruble–to–dollar exchange rate (x14)	Real disposal income. RUB. (x15)
Microenterprises					
Revenue (turnover) from the sale of goods, works, and services, billion RUB. **(x31)**	– 0.4937	0.2278	– 0.6395	0.7875	– 0.9283
Average number of employees, thousand people **(x32)**	– 0.9273	– 0.4089	– 0.7298	0.3394	– 0.4881
Profitability of goods, works, and services sold, % **(x33)**	0.2495	0.8116	– 0.2054	0.8429	– 0.9051
Total assets, billion RUB. **(x34)**	0.3017	0.8034	– 0.1205	0.8661	– 0.8950
Return on assets, % **(x35)**	0.7331	0.3287	0.4602	– 0.6281	0.6553
Capital and reserves, billion RUB. **(x36)**	0.1236	0.6834	– 0.2219	0.9248	– 0.9643
Small enterprises					
Revenue (turnover) from the sale of goods, works, and services, billion RUB. **(x31)**	0.4019	0.8862	– 0.0947	0.7808	– 0.8236
Average number of employees, thousand people **(x32)**	– 0.6728	– 0.8033	– 0.3378	– 0.7462	0.6346
Profitability of goods, works, and services sold, % **(x33)**	0.3089	0.8402	– 0.1597	0.8255	– 0.8783
Total assets, billion RUB. **(x34)**	0.3522	0.8656	– 0.1343	0.8017	– 0.8524
Return on assets, % **(x35)**	0.8459	0.8687	0.2674	– 0.0190	– 0.0076
Capital and reserves, billion RUB. **(x36)**	0.1653	0.7095	– 0.1940	0.9176	– 0.9521
Medium–sized enterprises					
Revenue (turnover) from sales of goods, works, services, billion RUB. **(x31)**	0.5980	0.9880	– 0.0079	0.5398	– 0.5996
Average number of employees, thousand people **(x32)**	– 0.0375	0.6559	– 0.4307	0.8575	– 0.9742
Profitability of goods, works, and services sold, % **(x33)**	0.3152	0.6558	0.0684	0.9483	– 0.8816
Total assets, billion RUB. **(x34)**	0.5946	0.9851	– 0.0050	0.5544	– 0.6109
Return on assets, % **(x35)**	0.5125	0.9655	– 0.0725	0.6282	– 0.6950
Capital and reserves, billion RUB. **(x36)**	0.5793	0.9700	0.0071	0.6120	– 0.6544

Source: compiled by the authors.

Consequently, the obtained result does not reflect qualitative scaling but merely indicates growth in certain SME indicators associated with rising inflation.

The macro-level factor x11 shows a weak correlation with almost all resulting SME indicators, since an increase in the key interest rate makes lending less accessible, which restrains SME growth. The macro-level factors x13 and x15 also have moderate or no correlation with most SME outcome indicators; while factor x15 is logically connected to SME indicators, real incomes declined during the study period (due to the COVID-19 pandemic), resulting in no observable effect.

To confirm *Hypotheses 2* and *3* (see *Fig. 1*), the authors conducted a correlation analysis to identify the presence and significance of relationships by overlaying factors from groups x2 and x3. This made it possible to obtain results from a large-scale study on the activities of all active SMEs in Russia across seventeen sectors of the national economy, broken down by enterprise categories into micro, small, and medium-sized, taking into account five government support factors and ten factors reflecting their performance indicators.

The scope of the present study allows the authors to present only a fragment of the conducted analysis, reflected in *Tables 5 and 6*.

From the group of five government support factors (x2), three are illustrated: the total budget of the Russian Federation's national project (x21), the volume of guarantees (x22), and the volume of microloans provided to SMEs (x24) within the framework of the national project's implementation at the federal level.

For combination with the government support factors, from the ten indicators of SME activity factors by sectors of the national economy (x3), the authors selected the most traditional ones reflecting their transition from one category of entrepreneurial entities to another: revenue (turnover) from the sale of goods, works, and services (x31) (*Tables 5, 6*) and the average number of enterprise employees (x32) (*Table 6*).

Government support factors have a strong or noticeable positive impact on the revenue of small and medium-sized enterprises across most sectors of their activity, except for construction and education (*Table 5*).

There is no impact on the revenue of medium-sized enterprises providing other types of services. For micro-enterprises in many sectors (except for hotel and catering activities; professional, scientific and technical activities; agriculture and forestry; and the provision of other types of services), the influence is weak or moderate, or absent altogether.

Paradoxically, micro-enterprises in wholesale and retail trade are the least sensitive to government support measures, showing a weak or no correlation between revenue (turnover) from sales and government support factors. Accordingly, the state, through development institutions, needs to redirect support resources to those sectors of the national economy where the effect will be more pronounced, both for the country as a whole and for unlocking the scaling potential of SMEs.

The correlation analysis conducted by the authors allows the conclusion that government support factors have a positive impact on the average number of employees in SMEs to a lesser extent than on revenue. Moreover, in many cases, the influence on most sectors of micro and small enterprises is absent, which leads to an unmanaged and support-independent process of payroll tax formation from SMEs to the budget. This also results in employment regulation within sectors of the national economy that does not contribute to reducing social tension in society or increasing incomes in the small and medium business sector, thereby slowing down its scaling (*Table 6*).

RESEARCH RESULTS

The results of the study expand scientific understanding of the variety of factors that have the potential to influence the scaling of SMEs.

Table 5

Correlation Between Government Support Factors and SME Activity Factors by Sector [Using Revenue (Turnover) as an Example)]

Industry	Revenue (turnover) from the sale of goods, works, and services (x31, RUB.)								
	Overall budget of the Russian Federation national project. billion RUB (x21)			Volume of guarantees provided to SME entities. billion RUB (x22)			Volume of microloans to SME entities. billion RUB (x24)		
	Small	Micro	Medium	Small	Micro	Medium	Small	Micro	Medium
Wholesale and retail trade	0.6478	0.0661	0.9559	0.6478	0.0661	0.9559	0.6478	0.0661	0.9559
Manufacturing	0.8460	0.2397	0.9867	0.8460	0.2397	0.9867	0.8460	0.2397	0.9867
Construction	0.0339	−0.0611	0.5655	0.0339	−0.0611	0.5655	0.0339	−0.0611	0.5655
Transportation and storage	0.8129	0.4886	0.9633	0.8129	0.4886	0.9633	0.8129	0.4886	0.9633
Administrative and support service activities	0.3623	0.1900	0.8402	0.3623	0.1900	0.8402	0.3623	0.1900	0.8402
Real estate activities	−0.4761	0.2475	0.8570	−0.4761	0.2475	0.8570	−0.4761	0.2475	0.8570
Hotel and catering activities	0.9848	0.8190	0.9731	0.9848	0.8190	0.9731	0.9848	0.8190	0.9731
Information and communication activities	0.4664	−0.0326	0.9252	0.4664	−0.0326	0.9252	0.4664	−0.0326	0.9252
Healthcare and social services	0.7996	0.6471	0.9552	0.7996	0.6471	0.9552	0.7996	0.6471	0.9552
Professional, scientific, and technical activities	0.5877	0.7664	0.7287	0.5877	0.7664	0.7287	0.5877	0.7664	0.7287
Water supply and sewerage	0.6672	0.2466	0.9951	0.6672	0.2466	0.9951	0.6672	0.2466	0.9951
Agriculture and forestry	0.9536	0.7546	0.9059	0.9536	0.7546	0.9059	0.9536	0.7546	0.9059
Electricity, gas, and steam supply	0.6670	0.2168	0.8937	0.6670	0.2168	0.8937	0.6670	0.2168	0.8937
Arts, sports, leisure, and entertainment activities	0.9572	0.6252	0.5562	0.9572	0.6252	0.5562	0.9572	0.6252	0.5562
Provision of other types of services	0.8633	0.8226	−0.3356	0.8633	0.8226	−0.3356	0.8633	0.8226	−0.3356
Mining and quarrying	0.7817	0.4436	0.9646	0.7817	0.4436	0.9646	0.7817	0.4436	0.9646
Education	−0.1090	0.1914	−0.0811	−0.1090	0.1914	−0.0811	−0.1090	0.1914	−0.0811

Source: compiled by the authors.

Table 6

Assessment Matrix for Managing SME Scaling in National Economic Sectors Under the Influence of Government Support Factors

Industry	Revenue (Turnover)			Average Workforce		
	small	micro	medium	small micro medium	small micro medium	small micro medium
Wholesale and retail trade	7	1	12	1	1	5
Manufacturing	13	6	16	1	1	8
Construction	1	1	4	1	1	1
Transportation and storage	12	10	13	17	17	13
Administrative and support service activities	4	4	6	1	1	1
Real estate activities	1	8	7	1	1	6
Accommodation and food service activities	17	16	15	1	1	17
Information and communication	5	1	10	14	1	10
Health care and social services	11	13	11	15	15	12
Professional, scientific and technical activities	6	15	5	13	14	4
Water supply; sewerage, waste management and remediation	9	7	17	1	13	15
Agriculture, forestry	15	14	9	1	1	3
Electricity, gas, steam and air conditioning supply	8	5	8	1	1	7
Arts, entertainment and recreation	16	12	3	16	12	14
Other service activities	14	17	1	1	11	16
Mining and quarrying	10	9	14	12	16	9
Education	1	11	1	1	1	11

Source: compiled by the authors.

Based on the correlation coefficients obtained through the conducted analysis, the authors assessed the impact of implementing the national project on revenue and average workforce size indicators of all active micro, small, and medium enterprises in Russia, segmented by category and across seventeen economic sectors for the period 2019–2023. This provides a basis for developing a matrix to evaluate the management of SME scaling within national economy sectors under the influence of government support factors (*Table 6*).

The impact was assessed as positive with a correlation coefficient > 0.7, assigning an indicator weight of 1.0.

Moderate impact was assessed for correlation coefficients between 0.5 and 0.7, with a weight of 0.6.

Weak impact corresponded to coefficients from 0.1 to 0.5, with a weight of 0.3.

An absence of impact was identified at correlation coefficients below 0.1, with a weight of 0.

The obtained results were ranked using Excel, with sorting applied in ascending order (*Table 6*).

SMEs operating in sectors marked by red and orange zones demonstrated resistance to the government support measures implemented within the framework of the Russian national project, indicating a need to reconsider managerial decisions to reshape state policy directions in this area.

The obtained conclusions allow us to state that *Hypothesis 2* was not confirmed: the scaling potential of SMEs at the macro level does not depend on the presence and availability of federal government support measures for entrepreneurial entities.

Hypothesis 3 should be considered confirmed, as the results presented in *Tables 5 and 6* indicate that the scaling potential of SMEs in various sectors of the national economy demonstrates an uneven dependence on macro-level factors and government support factors.

CONCLUSIONS

The results obtained:

- confirm the third hypothesis (H3) put forward by the authors, thereby underscoring the need for further research and the development of approaches to study the impact of government support measures on the actual development and scaling potential of SMEs;
- allow us to conclude that the development of key sectors significant to the national economy, as well as one of the most important indicators (average workforce size), exhibit low sensitivity to the current government support measures for SMEs, indicating insufficient focus on the problematic areas of SME development and, consequently, a potential slowdown in achieving the strategic objectives of state policy;
- contribute to the assessment of the influence of government support measures on the dynamics of SME scaling indicators across various sectors of the national economy and reinforce the necessity for research aimed at revising the overall strategic approaches to structuring government support for SMEs.
- develop the conceptual foundations for selecting factors influencing the scaling of SMEs during the implementation of government support measures and for constructing correlation models that reflect the impact of the interrelation between macro-level factors and government support factors on SME performance indicators across sectors of the national economy;
- substantiate the developed algorithm for identifying scaling factors and the matrix for managing SME scaling in sectors of the national economy under the influence of government support factors.

The scientific, practical, and methodological provisions presented by the authors, alongside other widely used research methods, can be applied in the development of strategies and the formulation of state policy objectives in the field of entrepreneurship support, thereby contributing to breakthrough development in sectors of the national economy.

REFERENCES

1. Koroleva E.A. On the prospects of applying strategic planning for effective development of small and medium-sized entrepreneurship sector. *Economic and Social Changes: Facts, Trends, Forecast*. 2024;17(5):95–113. DOI: 10.15838/esc.2024.5.95.5 (In Russ.: *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz*. 2024;17(5):95–113. DOI: 10.15838/esc.2024.5.95.5).
2. Kovalev V.E., Novikova K.V., Dobrovlyanin V.D. ERP systems in small and medium-sized enterprises: Barriers and prospects. *Upravlenets = The Manager*. 2023;14(6):77–90. (In Russ.). DOI: 10.29141/2218-5003-2023-14-6-6
3. Qian H., Wu J., Zheng S. Entrepreneurship, sustainability, and urban development. *Small Business Economics*. 2024;62(2):463–469. DOI: 10.1007/s11187-023-00761-7
4. Bukhval'd E.M. The strategy for development of small and medium entrepreneurship in Russia till 2030: Ambitions and realities. *Economic and Social Changes: Facts, Trends, Forecast*. 2016;(1):66–80. DOI: 10.15838/esc/2016.1.43.4 (In Russ.: *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz*. 2016;(1):66–80. DOI: 10.15838/esc/2016.1.43.4).
5. Sil'vestrov S.N., Krupnov Yu.A., Zolotarev E.V., Lapenkova N.V. Public-private partnership and economic growth strategy. *Natsional'nye interesy: prioritety i bezopasnost' = National Interests: Priorities and Security*. 2022;18(2):341–363. (In Russ.). DOI: 10.24891/ni.18.2.341
6. Kozachenko E., Chepurenko A., Shirokova G. Entrepreneurship in Russia: A systematic overview of domestic publications. *Foresight and STI Governance*. 2024;18(4):51–65. DOI: 10.17323/2500–2597.2024.4.51.65 (In Russ.: *Forsait*. 2024;18(4):51–65. DOI: 10.17323/2500–2597.2024.4.51.65).
7. Rani R., Kumar N. The dynamics of link between entrepreneurship, government support and economic growth: Evidence from BRICS countries. *Journal of Public Affairs*. 2022;22(S 1):e2741. DOI: 10.1002/pa.2741
8. Naidenova Yu.N., Parshakov P.A., Smirnov A.O. Determinants of receiving government support by small and medium-sized enterprises in Russia. *Upravlenets = The Manager*. 2024;15(5):22–37. (In Russ.). DOI: 10.29141/2218-5003-2024-15-5-2
9. Ye P., Cai W., Zhou Y. Can green industrial policy promote the total factor productivity of manufacturing enterprises? *Environmental Science and Pollution Research*. 2022;29(58):88041–88054. DOI: 10.1007/s11356-022-21939-8
10. Bessonova E. Firms' efficiency, exits and government procurement contracts. *European Journal of Political Economy*. 2023;76:102253. DOI: 10.1016/j.ejpoleco.2022.102253
11. Krupnov Yu.A., Silvestrov S.N., Starovoitov V.G. Strategic planning problems and contradictions. *Rossiiskii ekonomicheskii zhurnal = Russian Economic Journal*. 2022;(6):15–30. (In Russ.). DOI: 10.33983/0130-9757-2022-6-15-30
12. Baranova E.I., Yudanov A. Yu. Stylized life cycle of high-growth companies in Russia. *Voprosy ekonomiki*. 2022;(3):77–97. (In Russ.). DOI: 10.32609/0042-8736-2022-3-77-97
13. Aldaas A. The effect of firm life cycle on profitability: Evidence from Jordanian firms. *Management Science Letters*. 2021;(11):1919–1926. DOI: 10.5267/j.msl.2021.1.009
14. Shirokova G., Galieva N., Doktorova D., White J.V., Marino L. Strategic entrepreneurial behaviors and firm performance: The moderating role of narcissism and Machiavellianism. *Journal of Small Business and Enterprise Development*. 2023;31(1):191–225. DOI: 10.1108/jsbed-10-2022-0409
15. Clayton P. Different outcomes for different founders? Local organizational sponsorship and entrepreneurial finance. *Small Business Economics*. 2024;62(1):23–62. DOI: 10.1007/s11187-023-00753-7
16. Leonteva L.S., Golubtsov I.A. Regional initiatives for state support of small and medium-sized enterprises in the Russian Federation. *Vestnik Moskovskogo universiteta. Seriya 21: Upravlenie (gosudarstvo i obshchestvo) = Lomonosov Public Administration Journal. Series 21*. 2024;21(2):93–108. (In Russ.). DOI: 10.55959/MSU 2073-2643-21-2024-2-93-108

17. Blokhin A.A., Glukhov K.V. Institutional transformations of the SME sector and the need to change the priorities of its state support. *Mir novoi ekonomiki = The World of New Economy.* 2024;18(1):104–115. (In Russ.). DOI: 10.26794/2220-6469-2024-18-1-104-115

INFORMATION ABOUT AUTHORS

Andrey E. Plakhin — Dr. Sci. (Econ.), Associate Professor, Head of the Department of Management and Entrepreneurship, Ural State University of Economics, Yekaterinburg, Russian Federation
https://orcid.org/0000-0003-1379-0497
apla@usue.ru

Ekaterina G. Sheina — Cand. Sci. (Econ.), Associate Professor, Department of Management and Entrepreneurship, Ural State University of Economics, Yekaterinburg, Russian Federation
https://orcid.org/0000-0002-4777-5351
Corresponding author:
sheinaeg@usue.ru

Conflicts of Interest Statement: The authors have no conflicts of interest to declare.

The article was received on 10.02.2025; revised on 27.02.2025 and accepted for publication on 10.03.2025. The authors read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-86-93
UDC 339.1(045)
JEL M31

Strategic Changes in Russian Automotive Market (2018–2023)

D.V. Vorobeva, S.V. Shchelokova
Lomonosov Moscow State University, Moscow, Russian Federation

ABSTRACT

Due to the crisis phenomena affecting the automotive industry since 2020 — such as the shortage in microelectronics during the COVID-19 pandemic, the withdrawal of key manufacturers as a result sanctions against Russia in 2022, and the impact of unfavorable economic factor — passenger car sales in 2022 decreased by 979,410 units compared to 2021. This has led to the transformation of the Russian automotive market and the search by its participants for new revenue sources and business models. The aim of this study is to analyze the structure and dynamics of the transformation of the Russian automotive market from 2018 to 2023, focusing on the activities of key players (automakers, distributors, car dealers) and related sectors (carsharing, auto leasing, online sales aggregators, micro-mobility services), as well as to bridge the gap in academic research on this sector. **Methods.** To study the market structure and key trends in Russia and globally from 2018 to 2023, reports from major international consulting firms — AEB, Autostat, AutoBusinessReview — as well as Russian regulatory acts were analyzed. The systematization of business trends in the automotive sector was conducted using a PESTLE analysis, while an assessment of changes in the value chain was carried out through interviews with industry experts.
Keywords: value creation chain; Russian automotive industry; business model; market structure

For citation: **Vorobeva D.V., Shchelokova S.V. Strategic changes in Russian automotive market (2018–2023).** ***The World of the New Economy*****. 2025;19(2):86-93. DOI: 10.26794/2220-6469-2025-19-2-86-93**

INTRODUCTION

Since 2020, the Russian automotive industry has experienced a series of crises that have led to significant transformation. The disruption of global supply chains during the COVID-19 pandemic caused a shortage of microelectronics and semiconductors, highlighting the need to localize companies manufacturing components and materials. This is a crucial part of automobile production, as the share of electronics in a car's cost has steadily increased year after year — from 20% in 2000 to 40% in 2022—substantially affecting the final price of a vehicle.[1] The microelectronics shortage was the first crisis to negatively impact the automotive sector.

The next critical period began in 2022: the exit of European, American, and Japanese automakers caused an even greater rupture in logistics chains, necessitating a rapid market restructuring. Russian car dealers were forced to seek new partners and transform their business models to survive under these conditions. From 2019 to the first half of 2022, the number of passenger car dealership companies declined by 369 units (from 3,450 to 3,081.[2]).

Moreover, unfavorable economic factors — including the key interest rate rising from 6.25% in 2018 to 20% in 2022,[3] and price increases of 106% for new cars and 83% for used vehicles between 2020 and 2023[4]—led to reduced purchasing power and a decrease in sales volume by 979,410 units[5] in 2022 compared to 2021.

Thus, as of today, the rules of the game in the Russian automotive market, which have developed over the past 30 years, have ceased to apply, while the new ones have not yet been fully established. In this context, Russian and Asian players need to rebuild the entire supply chain of the product (vehicles with spare parts) to the consumer, focusing on deeper localization of production and searching for new sources of revenue and business models [1].

Given the influence of trends and shifting preferences of the target audience in the automotive sector, it is advisable to adapt or radically change existing business models in directions related to sustainability [2–4], digitalization [5–7], servitization [8, 9], and shared usage [9–11].

Currently, there is a scarcity of up-to-date academic research addressing the transformation of the Russian automotive industry in light of recent events and economic factors, although some studies analyze competition among automakers [12, 13], including within the Russian market [14, 15]. This article describes the structure and dynamics of the automotive market transformation from 2018 to 2023, focusing on the activities of key and related players, as well as changes in the supply chain and value chain.

RESEARCH METHODOLOGY

The research methodology consists of four key stages aimed at a comprehensive analysis of the automotive market and its characteristics. The first stage involved an analysis of the Russian and global automotive markets for the period 2018–2023, with a focus on the influence of the external environment and the activities of key and related players. To this end, analytical reports from leading international consulting firms, data from the Association of European Businesses (AEB), the agencies Avtostat and AutoBusinessReview, Russian regulatory acts, the annual reports of ROLF for 2020–2022, as well as interviews with industry experts were studied. This enabled the formation of a representative picture of current trends, challenges, and market opportunities. The second stage examined the activities of major car dealers and related players based on open-source information available on the Internet: official company websites, media publications, industry forums,

[1] URL: http://static.government.ru/media/files/EVXNIplqvhAfF2Ik5t6l6kWrEIH8fc9v.pdf

[2] URL: https://www.rolf.ru/to-investors/

[3] URL: https://cbr.ru/hd_base/KeyRate/? UniDbQuery.Posted=True&UniDbQuery.From=01.01.2022&UniDbQuery.To=10

[4] URL: https://b1.ru/local/assets/surveys/b1-car-sharing-in-russia-survey.pdf

[5] URL: https://aebrus.ru/upload/iblock/101/RUS-Car-Sales-in-December-2022.pdf?ysclid=lz10yjbihn317766954

and other accessible data, facilitating an understanding of market participants' strategies and practices. The third stage was devoted to describing the value chain and the supply chain. This included an analysis of production, logistics, distribution, and sales stages, allowing identification of key links in the chain and their impact on the final outcome. In the final stage, data obtained during the research were verified with the participation of automotive market representatives, ensuring their reliability and relevance, as well as incorporating expert opinions and practical experience from industry professionals.

RESEARCH RESULTS

Changes in the External Environment of the Automotive Market (PESTLE Analysis)

The automotive market of the Russian Federation faced several challenges during 2018–2023, encompassing the following factors:

1. *Political:* The introduction of sanctions led to the exit of the most popular distributors among the Russian audience (European, American, Korean, Japanese), forcing car dealers to seek new vehicle suppliers among Chinese manufacturers, as well as to develop parallel imports and the secondary market for used cars (CAD.[6]).

2. Economic: An increase in the key interest rate and rising inflation caused higher vehicle prices, resulting in a decline in consumer demand.

3. *Social:* The growth of the sharing economy among Generation Z led to a redistribution of demand toward alternative mobility options such as car sharing and vehicle rentals.[7]

4. *Technological*: A trend toward technological sovereignty was set, along with the active implementation of digital transformation among Russian companies across various industries.[8]

5. *Legal:* The implementation of the Russian automotive industry development strategy until 2025, and the concept for the development and use of electric vehicles in Russia until 2030, aims at localization of the production process and stimulation of electric vehicle manufacturing and fast-charging stations.

Changes in the Internal Environment of the Automotive Market (Structure and Dynamics) for 2018–2023

Automakers — foreign or Russian enterprises manufacturing vehicles. Traditionally, the production process is based on cooperation between OEM manufacturers and automakers,[9] who localize production throughout the entire value creation chain in order to obtain tax incentives, optimize costs, and increase the competitive advantages of their brands. In Russia, from 2018 to 2023, Chinese brands significantly increased their market share in terms of sales volume (see *table*).

Before February 24, 2022, the automotive production and sales landscape in Russia consisted of European, American, Japanese, Korean, and Russian companies.[10] After that date, Chinese brands took their place as market leaders — primarily Chery Group, GWM Group, Geely, Changan, FAW, GAC, along with Russian manufacturers such as GAZ, Sollers Group, and KIA.[11]

Distributors (importers) are subsidiaries of car manufacturers whose main role is to establish a vehicle sales system in Russia by selling franchises to official dealers and importing vehicles not produced locally. They are also responsible for developing and implementing brand strategies in the country and handling administrative matters. Prior to 2022, the market leaders were

[6] URL: https://www.garant.ru/products/ipo/prime/doc/405963861/?ysclid=lvdigcwg92192552494

[7] URL: https://kpmg.com/us/en/articles/2023/navigating-future-us-automotive-industry.html

[8] URL: http://static.government.ru/media/files/8JsiO5kSItJA1g5IHhGd5qiQVACelECn.pdf

[9] Original Equipment Manufacturer — a company that manufactures parts and equipment which can be sold by another company under its own brand name..

[10] URL: https://www.autostat.ru/infographics/43540/?ysclid=lsc56if0ec837677931%5C

[11] URL: https://aebrus.ru/ru/media/press-releases/sales-of-cars-and-light-commercial-vehicles.php?ysclid=lsc57qsd93442366023

Table

Sales Volume of Chinese Brands in Russia in 2018 and 2023 as a Share of Total Car Sales

Sales Volume / Year	2018	2023
Total sales volume in Russia (units)	1 800 000	937 081
Sales volume of Chinese brands (units)	33 310	458 389

Source: compiled based on: URL: https://aebrus.ru/ru/media/press-releases/?ysclid=m6o3t5ywgl231279039/

consistently AvtoVAZ, Renault, Nissan, Kia, Hyundai, and Toyota. In 2023, they were replaced by Chery, Haval, Geely, and GAZ.[12] However, LADA has remained an unwavering market leader — its share exceeded 30% in 2023, underscoring its dominant position.

Car dealers are private companies that acquire official franchises from distributors to sell vehicles, as well as used cars, spare parts, and provide service and financial support. In terms of aftersales service and spare parts sales, both official dealers and independent service stations (STOs) play significant roles. The most well-known companies in this sector include FitService, Willgood, Bely Service, TOPSTO, 5th Wheel, EuroAuto, Mobile 1 Center, and Bitstop.[13]

Between 2022 and 2023, the automotive market adapted to new conditions. Dealers began actively cooperating with Chinese manufacturers and expanded parallel imports of familiar brands. The share of parallel imports grew by 2% in 2023, reaching 11%, while official imports increased by 24%, accounting for 44%[14] of the market. Despite the growth of parallel imports, official imports remain the preferred option — especially for dealers — due to significant costs and changes in contractors. Moreover, dealers expanded the share of used cars and aimed to grow the domestic market by 26% over five years by scaling up vehicle buybacks from private individuals in the regions.[15]

Driven by the global trend toward electric vehicles, sales of EVs surged — reaching a record 14,089 new electric cars sold in Russia in 2023, which is 4.7 times more than the previous year.[16]

In terms of service capacity, the volume of technical maintenance (TM) and repair services provided by official dealers is significantly lower than that of independent service stations (STOs), amounting to 48.7 billion rubles compared to 186.4 billion rubles.[17]

Carsharing (as a substitute product for both B 2C clients[18] and B 2B clients[19] such as dealers) is a car rental service with hourly or per-minute payment via a mobile app, with parking, refueling, and mandatory insurance (OSAGO) included in the price. The most popular carsharing services in the market include Delimobil, Yandex Drive, City Drive, Belka Car, and others.[20] According to research by B 1 Company, demand for carsharing is expected to grow as it represents the cheapest mobility alternative compared to taxi services and private car ownership.[21]

Online aggregators for car sales (both new and used) and auto parts serve as additional channels for manufacturers and dealers. The most popular

[12] URL: https://www.ra-national.ru/wp-content/uploads/2023/07/rynok_avto_2023.pdf

[13] URL: https://www.autostat.ru/articles/49327/

[14] URL: https://www.autostat.ru/news/55839/

[15] URL: https://www.autostat.ru/infographics/55722/

[16] URL: https://www.autostat.ru/news/56565/)

[17] URL: https://mims.ru/tpost/8i48os6ad1-itogi-rinka-avtoservisa-za-2023-god-i-pr?ysclid=lsc63u4lps566103721

[18] B 2C (business-to-consumer) — a business model in which a company sells goods to the end consumer or to a private individual.

[19] B 2B (business-to-business) — a business model in which one company sells products to other.

[20] URL: https://b1.ru/analytics/b1-car-sharing-in-russia-survey/?ysclid=lsc6sfsmox756390442

[21] URL: file:///C:/Users/vsb-5/Downloads/b1-car-sharing-in-russia-survey%20(2).pdf

platforms, according to an Avtostat survey, include Avito Auto, auto.ru, drom.ru, Car Price, among others.[22] Car dealers and manufacturers upload vehicle stock to these aggregator platforms to reach their target audience. The best-known auto parts aggregators include Exist.ru, Kolesa-darom.ru, Autodoc.ru, Emex, 4 Tochky, Autopiter.ru, and others.[23]

Auto leasing is an agreement under which the lessor purchases a vehicle at their own expense for the lessee and transfers it for use. The lessee makes payments and may buy the vehicle if stipulated in the contract.[24] Typically, the lessor is a bank or insurance company that buys the car from the dealer. Leasing is essentially a financial tool that primarily allows B 2B clients to quickly and simultaneously acquire a fleet of vehicles, as purchasing outright or via credit is generally more expensive. The most well-known companies in this segment include Gazprombank Leasing, Alfa-Leasing, Sberbank Leasing, Europlan, VTB Leasing, and Reso Leasing.[25] According to a review by Kept, key trends in the leasing sector are the increase in electric vehicles, digitalization of leasing processes, market consolidation by major players (the top 10 companies account for over 80% of business volume and portfolio), and steady growth averaging 17% annually during 2019–2022.[26]

Micromobility (kick-sharing, bike-sharing) involves the use of lightweight vehicles traveling at speeds up to 25 km/h for short trips — usually within urban areas and distances up to 8 km. The most popular companies in this segment are Whoosh, Urent, and E-motion. According to the Russian kick-sharing market review by B 1, key trends include the expansion of transport accessibility for personal mobility devices (PMDs)—a separate category in traffic regulations that does not require a driver's license — and growing demand for micromobility due to congested city roads and consumer preference for more convenient short-distance travel options.[27]

Taxi services have faced several challenges in 2023, including a shortage of drivers (72,000 as of September 2023), caused by migrant outflow and worker shifts to other industries; a 1.5-fold increase in operator expenses since 2021, which has impacted ride prices for end users; a shortage of popular vehicle models and fleet aging; and a 13.6%.[28] reduction in active taxi permits since 2021.

Based on this analysis, the key problem areas are the dependence on imported software and components, highlighting the need for production localization, and intense intra-industry competition, which drives the search for new revenue sources and the creation of competitive advantages.

In 2018, vehicle and auto parts aggregators already existed, enabling dealers and manufacturers to sell online. These aggregators met customer needs by allowing them to search for and compare cars based on desired features and make purchases with one click. For key market players, they created additional trusted sales channels among motorists. Additionally, major Russian banks offered auto leasing by purchasing vehicles and leasing them to both B 2C and B 2B clients.

Regarding the transformation of the supply chain and value chain, changes affected the following aspects (see *figure*):

- Production process. In 2022, following leading automotive companies, foreign OEM manufacturers exited the market, resulting in most of their factories being transferred to the ownership of the Federal State Unitary Enterprise "NAMI." These facilities are being consid-

[22] URL: https://www.autostat.ru/infographics/52031/

[23] URL: https://www.datainsight.ru/sites/default/files/DI_AutoGoods_2019.pdf?oft_id=407521&oft_k=DtZ1CsAH&oft_lk=LbzOrf&oft_d=637232191513900000

[24] URL: https://www.consultant.ru/document/cons_doc_LAW_20780/

[25] URL: https://assets.kept.ru/upload/pdf/2023/11/ru-car-leasing-in-russia-kept-survey.pdf

[26] URL: https://b1.ru/analytics/b1-car-sharing-in-russia-survey/?ysclid=lzbpzq2hqg735796148

[27] URL: https://b1.ru/b1-kicksharing-survey-2022/

[28] URL: https://ac.gov.ru/uploads/publications/taxi_app.pdf

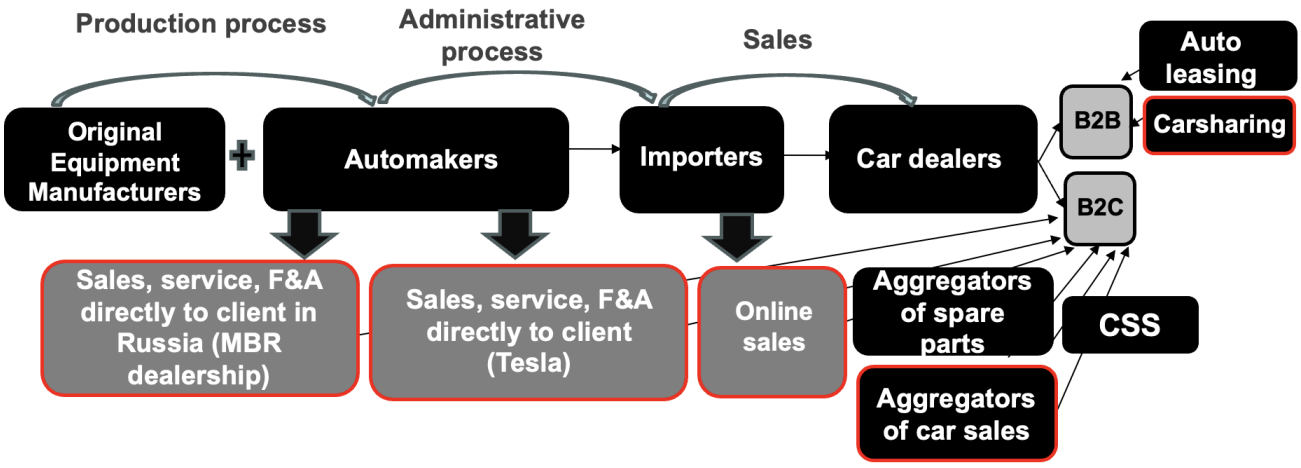


Fig. **Value Chain in 2018–2023**

Source: compiled by the authors.

ered by Asian countries for further deepening of localized production. There was a radical shift in market share actors. Two of the largest importers — Volkswagen Group Rus (VG) and Mercedes-Benz Rus (MBR) — merged with major dealer networks "Avilon" and "Avtodom," respectively, transferring the automakers' assets to dealer ownership. Considering changes in the external and internal environment, current manufacturers focused on developing subscription services, producing hybrids and electric vehicles, as well as deepening vehicle assembly and localization, which requires cooperation with government authorities.

- Administrative process. New formats emerged in the automaker-importer-dealer-customer chain, bypassing dealers. For example, Tesla, operating worldwide, provided direct service and financial offerings to customers without intermediaries. In Russia in 2018, Mercedes-Benz Rus opened a service station in its flagship showroom but had to close it by year-end due to financial constraints limiting project scaling. In response to market transformation, since 2020, dealers have focused on securing uninterrupted parts supplies, sourcing high-quality local substitutes to optimize costs, automating customer journeys and business processes, and developing unique warranty programs that mirror those offered by importers.

Sales channels for key market players. In 2019, due to the pandemic and retail shifting online, subscription models appeared among automakers, alongside online sales, including those by dealers. In 2020, manufacturers and dealers gained the opportunity to sell cars through marketplaces. "Avtomir" was the first to launch sales via Ozon. Audi's distributor ran a special project with Lamoda to attract the marketplace's loyal audience and launch marketing campaigns. In 2022, Tinkoff Bank and the SBER ecosystem began piloting sales projects through their own online platforms targeting motorists, involving dealers and service centers in bonus programs ("Spasibo"), cashback initiatives, and BNPL projects (Plait, Dolyami). The "Lukoil" and "Yandex.Zapravki" gas station networks used special dealer offers as part of pilot projects for booking maintenance and services through mobile apps operating on a "one-stop-shop" principle. For main market players, these partnerships opened new opportunities to expand sales channels, attract new customers, and increase loyalty through collaborative initiatives.

- New B 2B client. Carsharing companies started actively launching pilot projects related to business models and service promotion. To support their core operations, they began purchasing vehicle fleets from major dealers.

Thus, changes affected every aspect of the chain — from production to sales channels — in-

cluding the emergence of new B 2B clients and new players in the automotive market.

CONCLUSION

Currently, the automotive industry — both in Russia and globally — is undergoing significant changes. As a result, the domestic automotive market has transformed across all stages of the value creation chain. Based on the analysis conducted, the following key trends and changes can be identified:

- following the exit of major importers, there is consolidation among certain dealers and automakers, with foreign manufacturers' assets being transferred to state-owned companies;
- government policy is focused on full localization of production;
- share of Chinese brands is increasing among official dealers;
- the domestic market is strengthening due to growth in the used car segment, represented by both official and "grey" dealers;
- in line with the global environmental agenda, production and sales of electric vehicles in Russia are increasing;
- shared mobility and on-demand mobility models have emerged and are actively spreading, reflecting a shift from product-centric to service-centric business models and digital platforms;
- sales channels, amid global digitalization, are transitioning from traditional dealer centers to online sales.

Thus, significant changes occurred in the Russian automotive industry in 2023, compelling all market participants to transform their existing business models to remain competitive under the new conditions.

REFERENCES

1. Lapidus L.V., Shorokhova V.N. Transformation of business models in the automotive industry in the context of the development of unmanned technologies. *Intellekt. Innovatsii. Investitsii = Intellect. Innovation. Investments*. 2023;(2):19–33. (In Russ.). DOI: 10.25198/2077-7175-2023-2-19
2. Reinhardt R. Sustainable business model perspectives for the electric vehicle industry: The case of battery second use. PhD thesis. Barcelona: Universitat Politècnica de Catalunya; 2019. 157 p. URL: https://www.tdx.cat/bitstream/handle/10803/668032/TRR 1de1.pdf?sequence=1
3. Urbinati A., Franzò S., Chiaroni D. Enablers and barriers for circular business models: An empirical analysis in the Italian automotive industry. *Sustainable Production and Consumption*. 2021;27:551–566. DOI: 10.1016/j.spc.2021.01.022
4. Bonsu N.O. Towards a circular and low-carbon economy: Insights from the transitioning to electric vehicles and net zero economy. *Journal of Cleaner Production*. 2020;256:120659. DOI: 10.1016/j.jclepro.2020.120659
5. Lengton M., Verzijl D., Dervojeda K., Probst L., Frideres L. Internet of things. Connected cars. Business Innovation Observatory Case Study. 2015;(43). URL: https://ec.europa.eu/docsroom/documents/9614?locale=en
6. Dombrowski U., Engel C. Impact of electric mobility on the after sales service in the automotive industry. *Procedia CIRP*. 2014;16:152–157. DOI: 10.1016/j.procir.2014.01.022
7. Pérez-Moure H., Lampón J.P., Cabanelas P. Mobility business models toward a digital tomorrow: Challenges for automotive manufacturers. *Futures*. 2024;156:103309. DOI: 10.1016/j.futures.2023.103309
8. Koroth A.K., Mazurek G., Pater P. Disruptive innovation in automotive retailing. *Management and Business Administration Central Europe*. 2019;27(1):1–16. DOI: 10.7206/jmba.ce.2450–7814.238
9. Smania G.S., Arakaki I.R.Y., Oliveira A.F., Cauchick-Miguel P.A., de Sousa Mendes G.H. Car subscription services: Automakers' shift towards servitized and sustainable business models. *Sustainable Production and Consumption*. 2023;36:184–193. DOI: 10.1016/j.spc.2022.12.024

10. Arbeláez A.M.A. Economic impacts, carbon footprint and rebound effects of car sharing: Scenario analysis assessing business-to-consumer and peer-to-peer car sharing. *Sustainable Production and Consumption*. 2023;35:238–249. DOI: 10.1016/j.spc.2022.11.004
11. Belk R. You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*. 2014;67(8):1595–1600. DOI: 10.1016/j.jbusres.2013.10.001
12. Govorova A.V. History and paradoxes of the Chinese car market: Eastern strategies and the Asian regulator. *Studies on Russian Economic Development*. 2023;34(1):150–158. DOI: 10.1134/s1075700723010069 (In Russ.: *Problemy prognozirovaniya*. 2023;(1):217–229. DOI: 10.47711/0868–6351–196–217–229).
13. Spektor S., Vertogradov V. Competition in the Brazilian premium car market in 2007–2021. *Latinskaya Amerika*. 2023;(4):39–52. (In Russ.). DOI: 10.31857/S 0044748X0023732-4
14. Vertogradov V.A., Shchelokova S.V. Premium car brands strategies and regulator's actions in Russia (2009–2021). *Mir novoi ekonomiki = The World of New Economy*. 2022;16(2):64–75. (In Russ.). DOI: 10.26794/2220-6469-2022-16-2-64-75
15. Vertogradov V.A., Shchelokova S.V., Ivanchina A.A. Russian automotive market: Business strategies and regulators' actions (2009–2021). *Strategii biznesa = Business Strategies*. 2022;10(2):33–41. (In Russ.). DOI: 10.17747/2311-7184-2022-2-33-41

ABOUT THE AUTHORS

Daria V. Vorobeva — Head of the partnership department in ROLF Marketing Department, Moscow, Russian Federation
http://orcid.org/0009-0009-5872-3440
Corresponding author:
pr-dvorobyeva@yandex.ru

Svetlana V. Shchelokova — Cand. Sci. (Econ.), Associate Professor at the Faculty of Economics, Lomonosov Moscow State University, Moscow, Russian Federation
http://orcid.org/0000-0002-7233-1322
schelokovasv@my.msu.ru

Conflicts of Interest Statement: The authors have no conflicts of interest to declare.

The article was received on 05.02.2025; revised on 20.02.2025 and accepted for publication on 10.03.2025. The authors read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-94-102
UDC 339.923(045)
JEL C23, L61

Total Gold Reserves in the BRICS Countries: Analytical Study

A.M.A. Hakki
Financial University under the Government of the Russian Federation, Moscow, Russian Federation

ABSTRACT

Relevance of information. In 2015, the total quantities of gold reserves of the major BRICS countries (Russia, China and India) were 3423 tonnes, which had an aggregate value of 131,322 billion USD. In 2024, the overall gold reserves of these three countries totaled 5260 tonnes with the entire value of 304,434 billion USD, which means, the mass index has increased from 1 to 1.54 and the value index has grown from 1 to 2.32 during the period under review (2015–2024). Currently, the combined gold reserves of the BRICS countries account for 17 to 20 per cent of the entire global gold reserves. **Methods.** The given article uses the Orange software to forecast the amount and value of gold reserves of the BRICS countries (Russia, China and India) for the period of 2015–2029 at equal annual intervals. **Findings.** In the course of the study, the author comes to conclusions, that, in the near future, the BRICS countries will play an important role in the global economy, due to their own huge reserves of natural resources. The numerical analytic research presented in this article confirms this conclusion.

Keywords: BRICS countries; gold reserves; precious metals; investments; gold price forecast; world bank

For citation: **Hakki A.M.A. Total gold reserves in the BRICS countries: Analytical study.** ***The World of the New Economy*****. 2025;19(2):94-102. DOI: 10.26794/2220-6469-2025-19-2-94-102**

INTRODUCTION

Precious metals (gold, silver, platinum and palladium) are not just common natural resources. They are vital elements that have a significant impact on international economy. They contribute to economic stability and become an integral part of the global financial system due to their role of investment instrument, saving and trade [1–4].

The BRICS group of countries obtains immense reserves of these precious metals. For instance, Russia and South Africa are among the world largest producers of platinum with combined output reaching nearly 80 per cent of the global total amount. Besides, Russia, China and India own approximately 17 per cent of the world's reserves of gold. We shall focus exactly on this aspect in the given article [5–8].

Gold has become one of the most ancient and most important precious metals, used by the humanity for many centuries. It played a crucial role for developing economic and social systems. It has unique properties and it is a symbol of wealth and stability. Gold represents an inverse correlation with economic fluctuations: investors often use it as a means of protection against inflation [9–13].

The World Bank reports, that gold reserve contributes to consolidation of confidence in national currencies demonstrating its economic and political stability. Besides, gold mining makes an important source of state income: it contributes to economic development of the state, including the growth of employment opportunities. [14–17].

Gold remains the major commodity in international trade and, as the research of OECD has revealed, it is still regarded a stable and considerable asset since it facilitates to maintain national balance of payments and increases economic stability [20–22].

THE MAIN PART

The author used the indicators of the early 2015 as a basis (namely, as 1) for calculation of the average gold reserves of Russia, China and India. At that time, the average mass index of gold reserves of the BRICS countries amounted 3.423 tonnes, and the average value index of 131,322 billion USD.

Table 1

Russia's gold reserves for the period 2015–2024

Year / Indicator	Mass. tonnes	Mass index	Value. billion USD	Cost index
2015	1208.00	1.00	46.088	1.00
2016	1415.00	1.17	48.562	1.05
2017	1615.00	1.34	60.194	1.24
2018	1838.00	1.52	76.647	1.27
2019	2113.00	1.75	86.903	1.44
2020	2271.00	1.88	110.376	2.39
2021	2299.00	1.90	138.754	3.01
2022	2300.00	1.90	133.070	2.89
2023	2333.00	1.93	136.077	2.95
2024	2340.00	1.94	140.415	3.05

Source: compiled by the author from: URL: https://ru.wikipedia.org/wiki/Золотой_резерв_России; https://cbr.ru/hd_base/mrrf/mrrf_m /

Table 1 contains the data on the gold reserves in the Russian Federation, their value, as well as their index value for the period of 2015 through 2024.

Table 1 also illustrates that the Russian Federation has considerably increased its gold reserves within the last ten years. The volume of reserves has nearly doubled (by 94 per cent), and their value has almost tripled, which indicates the active national policy aimed to accumulate the gold as a strategic asset.

Table 2 contains the data on the gold reserves of China for the period of 2015–2024.

The presented data indicates a considerable increase of both physical amount of gold reserves

Table 2

China's gold reserves for the period 2015–2024

Year / Indicator	Mass. tonnes	Mass index	Value. billion USD	Cost index
2015	1658.00	1.00	63.247	1.00
2016	1842.00	1.11	63.237	1.00
2017	1842.00	1.11	68.646	1.09
2018	1864.00	1.12	77.722	1.23
2019	1948.00	1.17	80.103	1.27
2020	1948.00	1.17	94.664	1.50
2021	1948.00	1.17	117.590	1.86
2022	1948.00	1.17	112.686	1.78
2023	2100.00	1.27	122.499	1.94
2024	2100.00	1.27	126.000	1.99

Source: compiled by the author from: URL: https://www.gold.org

Table 3

India's gold reserves for the period 2015–2024

Year / Indicator	Mass. tonnes	Mass index	Value. billion USD	Cost index
2015	557.00	1.00	21.985	1.00
2016	557.00	1.00	24.215	1.10
2017	558.00	1.00	24.0508	1.09
2018	560.00	1.01	24.218	1.10
2019	618.00	1.11	27.696	1.26
2020	687.00	1.23	30.532	1.39
2021	754.00	1.35	33.232	1.51
2022	787.00	1.41	34.403	1.56
2023	800.00	1.44	37.393	1.70
2024	820.00	1.47	38.019	1.73

Source: compiled by the author from: URL: https://www.rbi.org.in

Table 4

Brasil's gold reserves for the period 2015–2024

Year / Indicator	Mass. tonnes	Mass index	Value. billion USD	Cost index
2015	67.20	1.00	2.564	1.00
2016	67.29	1.00	2.309	0.90
2017	67.29	1.00	2.508	0.98
2018	67.36	1.00	2.809	1.10
2019	67.36	1.00	2.770	1.08
2020	67.36	1.00	3.274	1.28
2021	129.65	1.93	7.825	3.05
2022	129.65	1.93	7.501	2.93
2023	129.65	1.93	7.562	2.95
2024	129.65	1.93	7.780	3.03

Source: compiled by the author from: URL: https://tradingeconomics.com/brazil/gold-reserves

Table 5

South Africa's gold reserves for the period 2015–2024

Year / Indicator	Mass. tonnes	Mass index	Value. billion USD	Cost index
2015	125.20	1.00	4.777	1.00
2016	125.25	1.00	4.299	0.90
2017	125.30	1.00	4.670	0.98
2018	125.35	1.00	5.227	1.09
2019	125.40	1.00	5.157	1.08
2020	125.40	1.00	6.095	1.28
2021	125.40	1.00	7.568	1.58
2022	125.45	1.00	7.258	1.52
2023	125.45	1.00	7.317	1.53
2024	125.45	1.00	7.528	1.58

Source: compiled by the author from: URL: https://tradingeconomics.com/south-africa/gold-reserves

(increase in the index to 1.27) and their value (increase in the index to 1.99) within the given period.

Table 3 contains the data on the gold reserves of India and their value for the period of 2015–2024: within this time, the country has indicated a considerable increase in its mass index to 1.47 and the value index to 1.73.

As far as Brazil (*Table 4*) and South Africa (*Table 5*) are concerned, they own much smaller gold reserves, than those three above-mentioned countries.

Table 6 contains the general data on the gold reserves of the BRICS countries: during the period under review, their total mass index increased to 1.53 and the value index to 2.31.

Table 6

Gold reserves of the BRICS countries for the period 2015–2024

Year / Indicator	Mass. tonnes	Mass index	Value. billion USD	Cost index
2015	3615.40	1.00	138.66	1.00
2016	4006.54	1.11	142.62	1.03
2017	4207.59	1.16	160.07	1.15
2018	4454.71	1.23	186.62	1.35
2019	4871.76	1.35	202.63	1.46
2020	5098.76	1.41	244.94	1.77
2021	5256.05	1.45	304.97	2.20
2022	5290.10	1.46	294.92	2.13
2023	5488.10	1.52	310.85	2.24
2024	5515.10	1.53	319.74	2.31

Source: compiled by the author from: URL: http://www.cbr.ru/hd_base/? PrtId=mrrf_m; https://www.gold.org; https://www.rbi.org.in; https://tradingeconomics.com/brazil/gold-reserves

Table 7

Gold reserves of Russia, China, India for the period 2015–2024

Year / Indicator	Mass. tonnes	Mass index	Value. billion USD	Cost index
2015	3423	1.00	131.322	1.00
2016	3814	1.11	136.015	1.04
2017	4015	1.17	152.891	1.16
2018	4262	1.25	178.587	1.36
2019	4679	1.37	194.702	1.48
2020	4906	1.43	235.573	1.79
2021	5001	1.46	289.577	2.21
2022	5035	1.47	280.159	2.13
2023	5233	1.53	295.971	2.25
2024	5260	1.54	304.434	2.32

Source: compiled by the author from: URL: http://www.cbr.ru/hd_base/? PrtId=mrrf_m; https://www.gold.org; https://www.rbi.org.in; https://tradingeconomics.com/brazil/gold-reserves

Table 7 contains the data on the gold reserves of Russia, China and India: within the period under review, the countries had a significant increase in the mass index up to 1.54 and the value index up to 2.32.

Table 8 presents the percentage of the gold reserves of each of the BRICS countries to its total. Obviously, Russia, China and India have the highest results.

Figure 1 presents the following change in the mass of the total gold reserves of Russia, China and India over the period under review.

Using Orange software the author made a forecast of gold reserves of Russia, China and India for the period of 2025–2029 (*Table 9*).

Thus, the gold reserves of these countries will expectedly reach 5,334 tonnes in 2025 (mass in-

dex 1.56) and 5,586 tonnes in 2029 (mass index 1.63). Using the same Orange software the author prognosticated gold reserves in tonnes (*Fig. 3*) and values equivalent (*Fig. 4*) for the countries mentioned above for the period 2015–2024 and the prognosis implied until the end of 2029.

Table 8

Gold reserves of each BRICS country in percentage proportion relative to the entire BRICS group for the period 2015–2024

Year / Country	Russia, %	China, %	India, %	South Africa, %	Brazil, %
2015	33.41	45.86	15.41	3.46	1.86
2016	35.32	45.97	13.90	3.13	1.68
2017	38.38	43.78	13.26	2.98	1.60
2018	41.26	41.84	12.57	2.81	1.51
2019	43.37	39.99	12.69	2.57	1.38
2020	44.54	38.21	13.47	2.46	1.32
2021	43.74	37.06	14.35	2.39	2.47
2022	43.48	36.82	14.88	2.37	2.45
2023	42.51	38.26	14.58	2.29	2.36
2024	42.43	38.08	14.87	2.27	2.35

Source: compiled by the author from: URL: https://www.gold.org

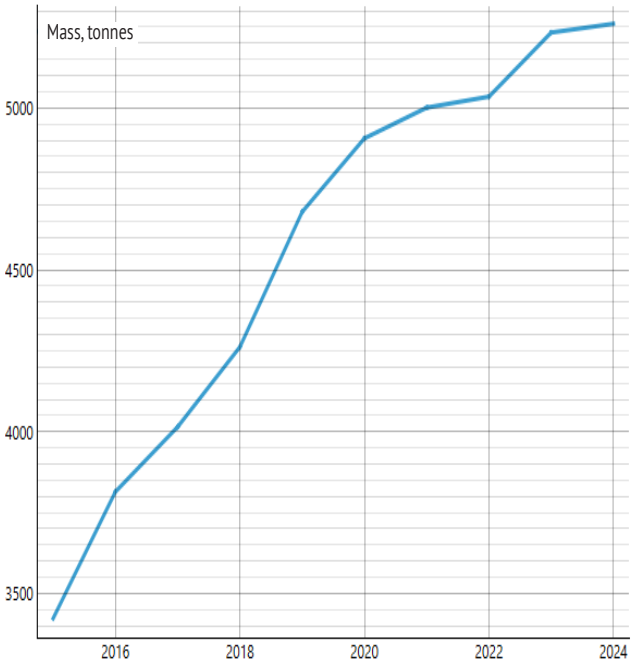


Fig. 1. **Gold reserves of Russia, China, India for the period of 2015 to 2024, in tonnes**

Source: compiled by the author from: URL: http://www.cbr.ru/hd_base/? PrtId=mrrf_m; https://www.gold.org; https://www.rbi.org.in; https://tradingeconomics.com/brazil/gold-reserves

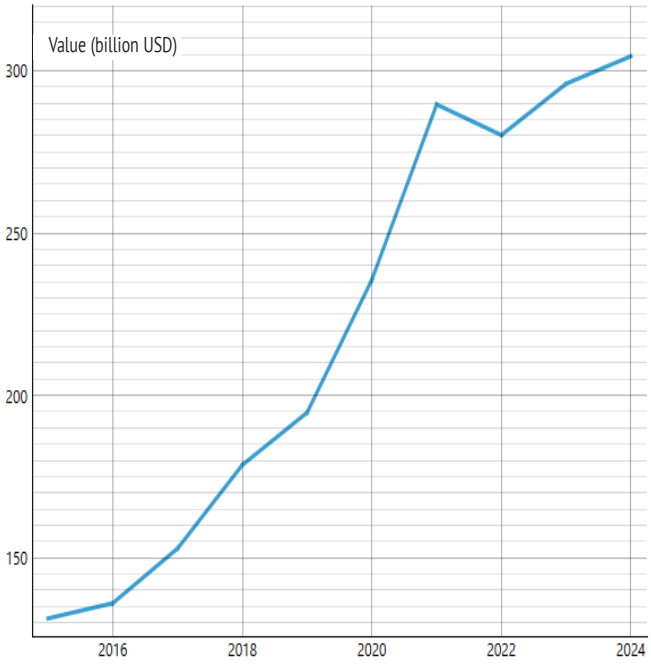


Fig 2. **Gold reserves of Russia, China, India dollars for the period 2015–2024, in billion USD**

Source: compiled by the author from: URL: http://www.cbr.ru/hd_base/? PrtId=mrrf_m; https://www.gold.org; https://www.rbi.org.in; https://tradingeconomics.com/brazil/gold-reserves

Table 9

Forecasted gold reserves of Russia, China, India for the period 2025–2029, in tonnes

Year / Index	Mass, tonnes (average)	Mass index (average)	Mass, tonnes (minimum)	Mass, tonnes (maximum)
2025	5334	1.56	5072	5596
2026	5403	1.58	4933	5874
2027	5468	1.60	4772	6164
2028	5529	1.62	4593	6465
2029	5586	1.63	4397	6775

Source: compiled by the author.

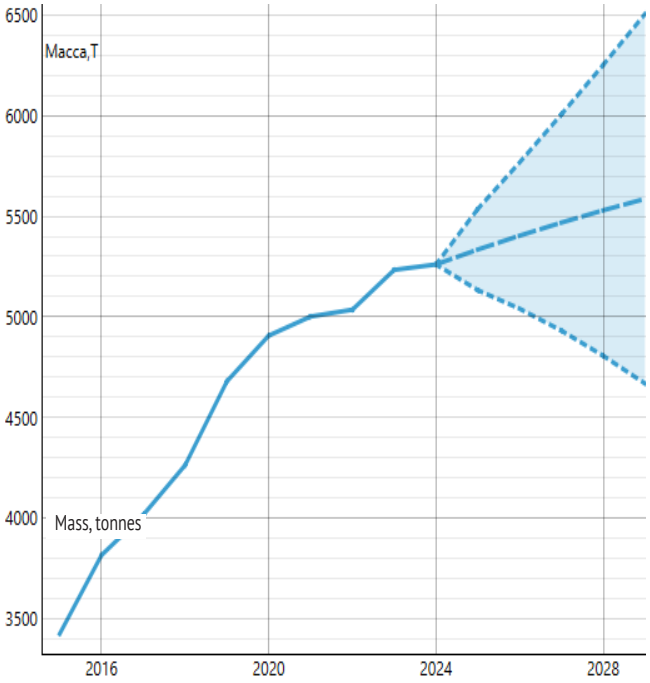


Fig. 3. **Gold reserves of Russia, China, India for the period 2015–2024 with a forecast until the end of 2029, in tonnes**

Source: compiled by the author.

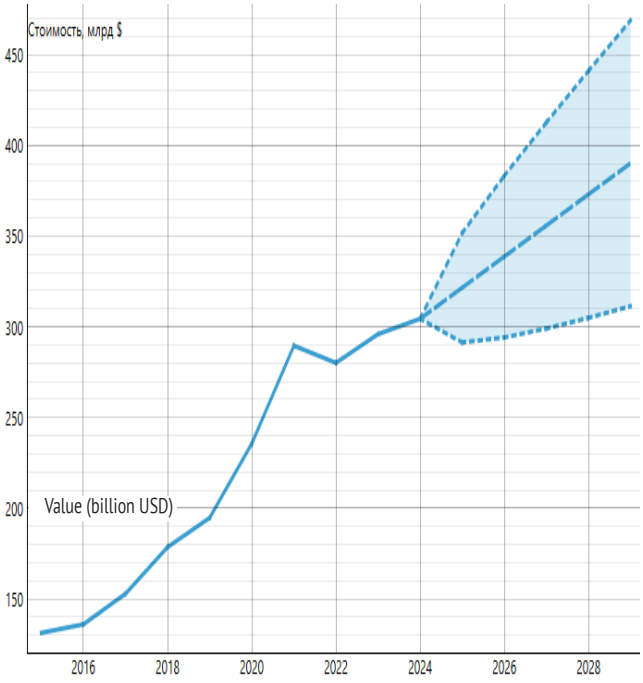


Fig. 4. **Gold reserves of Russia, China, India for the period 2015–2024 with a forecast until the end of 2029, in billion USD**

Source: compiled by the author.

Table 10

Forecast gold reserves of Russia, China, India and value index for the period 2025–2029

Year / Index	Value. billion USD (average)	Value index (average)	Value. billion USD (minimum)	Value. billion USD (maximum)
2025	321.572	2.45	291.389	351.756
2026	338.71	2.58	294.138	383.282
2027	355.847	2.71	299.041	412.653
2028	372.983	2.84	304.925	441.041
2029	390.118	2.97	311.367	468.870

Source: compiled by the author.

According to the Orange software, the gold reserves of the three countries under consideration are prognosticated to reach 321,572 billion USD in 2025 (value index 2.45), and 390,118 billion USD in 2029 (value index 2.97) as presented in *Table 10*.

CONCLUSIONS AND RECOMMENDATIONS

Due to increasing demand from local and international investors, as well as a favorable economic situation, the author has made the following conclusions based on contemporary trends and forecasts.

According to the prognoses, the total gold reserves of the BRICS countries will grow steadily within the period 2025-2029. In view of this, platforms, which use digital and AI-based technologies will play an important role to facilitate a better quality of customer service, simplify the buying and selling process, and make them more transparent and efficient.

The governments of Russia, China and India will eventually support foreign investors in 2025 and 2029 by offering them incentives. This will help strengthen confidence in the precious metals market, especially gold, and subsequently attract additional investment.

It appears that the precious metals market will remain a safe and promising area for investments: it will remain attractive due to its ability to overcome global economic shocks such as inflation and growing interest rates.

The build-up of gold reserves by the BRICS countries is of paramount importance for their economic and defense strategies. This is regarded to a number of common objectives, such as the following:

- strengthening global financial stability;
- weakening the influence of foreign currencies;
- increasing confidence of investors and markets;
- diversifying reserve assets;
- getting ready for possible geopolitical crises;
- strengthening the national currencies of the BRICS countries;
- using the benefits of rising gold prices.

The development of a digital payment system within the BRICS framework will lead to the following opportunities, namely:

- reducing dependence on the US dollar;
- avoiding sanctions risks from the USA and EU;
- simplifying settlements in national currencies;
- stimulating intra-regional trade;
- ensuring financial independence (as an alternative to the West-controlled SWIFT).

The entrance of the Gulf countries (particularly Saudi Arabia and the UAE) to BRICS alliance will result into significant opportunities, namely:

- increasing total gold reserves (due to large gold reserves and resources of these two countries);
- enhancing currency stability and confidence in the BRICS financial system;
- increasing opportunities for investment and trade;
- reducing dependence on the oil and gas sector;
- curbing inflation and reducing the cost of goods and services;
- developing technological and energy cooperation which will lead to increased production efficiency.

Thus, interaction in these areas contributes to economic development, implementation of infrastructure projects and long-term stability of the BRICS countries.

REFERENCES

1. Klemm D., Klemm R., Murr A. Gold of the Pharaohs — 6000 years of gold mining in Egypt and Nubia. *Journal of African Earth Sciences*. 2001;33(3–4):643–659. DOI: 10.1016/S 0899 5362(01)00094-X
2. Hilson G. The environmental impact of small-scale gold mining in Ghana. *The Geographical Journal*. 2002;168(1):57–72. DOI: 10.1111/1475–4959.00038

3. Mudd G.M. Global trends in gold mining: Towards quantifying environmental and resource sustainability. *Resources Policy*. 2007;32(1–2):42–56. DOI: 10.1016/j.resourpol.2007.05.002
4. Beckmann J., Berger T., Czudaj R. Gold price dynamics and the role of uncertainty. *Quantitative Finance*. 2019;19(4):663–681. DOI: 10.1080/14697688.2018.1508879
5. Capie F., Mills T.C., Wood G. Gold as a hedge against the dollar. *Journal of International Financial Markets, Institutions and Money*. 2005;15(4):343–352. DOI: 10.1016/j.intfin.2004.07.002
6. Reboredo J.C. Is gold a hedge or safe haven against oil price movements? *Resources Policy*. 2013;38(2):130–137. DOI: 10.1016/j.resourpol.2013.02.003
7. Hillier D., Draper P., Faff R. Do precious metals shine? An investment perspective. *Financial Analysts Journal*. 2006;62(2):98–106. DOI: 10.2469/faj.v62.n2.4085
8. Erb C.B., Harvey C.R. The golden dilemma. *Financial Analysts Journal*. 2013;69(4):10–42. URL: https://people.duke.edu/~charvey/Research/Published_Papers/P113_The_golden_dilemma.pdf
9. Aggarwal R., Soenen L.A. The nature and efficiency of the gold market. *Journal of Portfolio Management*. 1988;14(3):18–21. DOI: 10.3905/jpm.1988.409152
10. Gorton G., Rouwenhorst K.G. Facts and fantasies about commodity futures. *Financial Analysts Journal*. 2006;62(2):47–68. DOI: 10.2469/faj.v62.n2.4083
11. Ciner C., Gurdgiev C., Lucey B.M. Hedges and safe havens: An examination of stocks, bonds, gold, oil, and exchange rates. *International Review of Financial Analysis*. 2013;29:202–211. DOI: 10.1016/j.irfa.2012.12.001
12. O'Connor F.A, Lucey B.M., Batten J.A., Baur D.G. The financial economics of gold — a survey. *International Review of Financial Analysis*. 2015;41:186–205. DOI: 10.1016/j.irfa.2015.07.005
13. Batten J.A., Ciner C., Lucey B.M. The macroeconomic determinants of volatility in precious metals markets. *Resources Policy*. 2010;35(2):65–71. DOI: 10.1016/j.resourpol.2009.12.002
14. Baur D.G., McDermott T.K. Why is gold a safe haven. *Journal of Behavioral and Experimental Finance*. 2016;10:63–71. DOI: 10.1016/j.jbef.2016.03.002
15. Baur D.G., McDermott T.K. Is gold a safe haven? International evidence. *Journal of Banking & Finance*. 2010;34(8):1886–1898. DOI: 10.1016/j.jbankfin.2009.12.008
16. Agyei-Ampomah S., Gounopoulos D., Mazouz K. Does gold offer a better protection against losses in sovereign debt than other metals? *Journal of Banking & Finance*. 2014;40:507–521. DOI: 10.1016/j.jbankfin.2013.11.014
17. Tully E., Lucey B.M. A power GARCH examination of the gold market. *Research in International Business and Finance*. 2007;21(2):316–325. DOI: 10.1016/j.ribaf.2006.07.001

ABOUT THE AUTHOR

Adnan Muhammad Ali Hakki — Associate Professor, Department of Mathematics and Data Analysis, Faculty of Information Technology and Big Data Analytics, Financial University under the Government of the Russian Federation, Moscow, Russian Federation
https://orcid.org/0000-0003-0245-9061
ahakki@fa.ru

Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was received on 12.01.2025; revised on 03.02.2025 and accepted for publication on 10.03.2025. The author read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-103-113
UDC 338.24(045)
JEL Q57

Russia as a Foreign Trade Partner of China

Yu.M. Shiganova
Financial University under the Government of the Russian Federation, Moscow, Russian Federation

ABSTRACT

The **aim** of the article is to review the dynamics and key trends in the development of Russian-Chinese foreign trade over the past few years. China is one of the world's largest producers and exporters, as well as an important political and economic partner of Russia. The expansion of Russian-Chinese trade cooperation — driven by the current geopolitical situation and the need for flexible solutions to financial and logistical challenges — has led to intensified interaction between Russia and both China's border regions (where Russia has traditionally been a key trade partner), the economically developed coastal provinces, and even the less developed northwestern areas. **Methods.** The author analyzes the nature of bilateral trade cooperation, its potential growth areas, and its significance for both countries. It is convincingly argued that the impressive growth in trade turnover does not always indicate a qualitative shift in the trade structure. In **conclusion,** the article notes that Russia's increasing focus on cooperation with Chinese partners places it in a position of dependence on China, for which Russia is an important — but not a top-priority — foreign trade partner.

Keywords: China; Russia; Chinese-Russian foreign trade in goods; global economy; development trends; energy export; cross-border economic cooperation

***For citation*: Shiganova Yu.M. Russia as a foreign trade partner of China. *The World of the New Economy*. 2025;19(2):103-113. DOI: 10.26794/2220-6469-2025-19-2-103-113**

Foreign trade between Russia and China has actively developed over several decades. The rapprochement of the two countries in the late 1980s and 1990s was facilitated by changes in the political priorities of the Russian leadership, various economic and political events occurring in both states, the gradual expansion of small-scale shuttle trade as well as military and technical cooperation. In the 2000s intensive bilateral cooperation in the energy sector began. China's opening to the outside world, the relocation of global manufacturing and the growth of investments in the country's economy created a significant demand for energy resources. To supply it the pipeline construction was undertaken in the Asian part of Russia during this period. By 2004 the volume of Russian oil exports to China had increased twentyfold[1] compared to the levels of the late 1990s. In the following years Russia became one of the largest suppliers of oil to the Chinese market.

Figure 1 illustrates the dynamics of export and import volumes between the two countries.

The COVID-19 pandemic and the new remote lifestyle adopted by Russians in 2020 led to an expansion of e-commerce and electronics exports from China including laptops and tablets which increased by 39% and 29% respectively[2] as well as smartphones.

Recent events have also contributed to a further sharp pivot of Russia towards the East [1]. Amidst sanctions imposed by Western countries Russia entered the group of China's four largest trading partners — alongside the USA, Japan and South Korea — rising from 10th place[3] over the past four years in terms of trade turnover.

Russia's share accounts for 4.04% of China's foreign trade turnover whereas in 2020 this figure was only 1.8%.[4] China for its part has been the largest foreign trade partner of Russia for over a decade accounting for one-third of Russia's total foreign trade turnover.

The most significant growth in bilateral trade volume has been observed in the last three years (2022–2024): in 2022 trade increased by 29.3% compared to 2021 reaching a record $ 190.3 billion; in 2023 it exceeded $ 240 billion[5] growing another 26.3%; and for the first nine months of 2024 trade amounted to $ 180.36 billion.[6]

Due to China's 74%[7] expansion in raw material imports in the first half of 2022 the volume of imports from Russia exceeded Chinese exports by almost 1.5 times.

In 2023 following a period of adaptation to sanction conditions the reorientation of the Russian market towards eastern foreign trade partners, procurement of alternative Chinese-made products, optimization of logistics systems, the beginning of mutual settlements in national currencies, the lifting of COVID-19 restrictions and the resumption of air traffic between the two countries China increased its deliveries to Russia. Export volumes grew by 46.9%, imports by 12.7%, although the value of imports from Russia still exceeded the value of exports by 16%.[8]

Bilateral trade growth continued in 2024 despite payment difficulties and a 20% reduction in supplies of goods classified as dual-use including trucks, tractors, water heaters, pumps and electrical communication equipment and etc.[9]

The total value of imports from Russia again exceeded exports[10] by a factor of 1.17. This was supported not only by a 24% increase in raw ma-

[1] URL: https://baijiahao.baidu.com/s?id=1607110579666204754&wfr=spider&for=pc

[2] URL: https://news.cctv.com/2021/01/29/ARTIJYW2dN7RVMX5hTKWwieK210129.shtml

[3] URL: http://k.sina.com.cn/article_1893892941_70e2834d02001ixs4.html; http://www.mofcom.gov.cn/aarticle/jiguanzx/201901/20190102829378.html

[4] URL: http://ro.mofcom.gov.cn/article/ztdy/202303/20230303397144.shtml

[5] URL: http://www.customs.gov.cn/customs/302249/zfxxgk/2799825/302274/302275/5624373/index.html

[6] URL: https://baijiahao.baidu.com/s?id=1812974194322646362&wfr=spider&for=pc

[7] URL: https://www.vedomosti.ru/business/articles/2022/09/21/941795-kitai-zakupil-energonositeli; https://baijiahao.baidu.com/s?id=1777088211094813824&wfr=spider&for=pc

[8] URL: https://finance.ifeng.com/c/8WlbwRvNtN 8

[9] URL: https://www.alta.ru/external_news/110001/?ysclid=lxc4bst3hc615211202

[10] URL: https://baijiahao.baidu.com/s?id=1812974194322646362&wfr=spider&for=pc

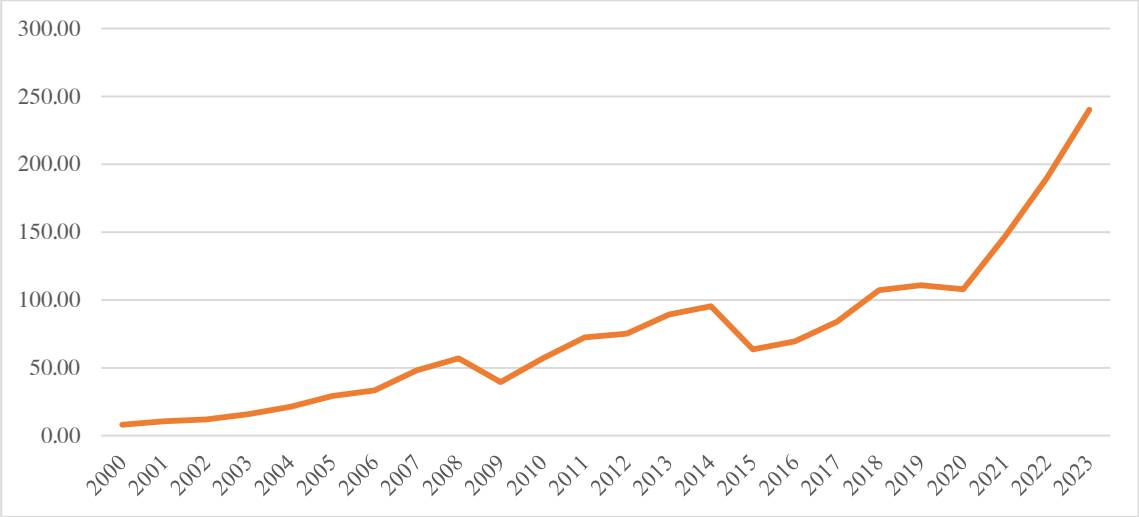


Fig. 1. **Dynamics of Foreign Trade Volumes Between Russia and China in 2000–2023 (billion USD)**

Source: compiled by the author.

terial exports — a 64% rise in aluminum and aluminum products and a 15%[11] increase in metal ores but also by the lifting of Chinese restrictions on Russian food exports at the beginning of 2024. This led for example to a 5.5-fold[12] increase in Russian wheat and meslin deliveries to China and a growth in purchases of Russian fertilizers.

In terms of structure the mutual trade can be considered complementary [2, 3]: on one hand, it supplies the Chinese economy with oil, natural gas, coal, ores and timber; on the other hand, Russian exports remain largely raw-material-based with these commodity groups accounting for two-thirds of Russian exports to China.

The second largest category of Russian exports to China is wood processing products, which account for 5.33%.

The third largest is agro-industrial products (4.6%[13]) 79% of which is ensured by Russian exports — primarily frozen fish (18.0%), rapeseed oil (17.0%), crustaceans (13.9%), sunflower oil (10.5%) and soybeans (7.8%[14]). In 2023 this export segment increased by 1.5 times. Thus China has become the world's largest buyer of Russian food products accounting for 20% of Russia's total global food exports.[15]

Machinery and equipment constitute a very small share of Russian exports (0.37%[16]), most of which is energy engineering products.

China's export sector is significantly more diversified and technologically advanced: over 40% of its shipments consist of industrial electrical equipment, consumer electronics and medical equipment[17]; about 20% are automobiles, aircraft, ships and transport equipment; nearly 12% are chemical products and plastic goods; and 9.3% are textile products and materials.

The provinces contributing most to the development of China's economy and foreign trade are Guangdong, Jiangsu, Zhejiang and Shandong (see *Table 1*).

The high level of development of these coastal regions (see *Fig. 2*) is due to their geographical

[11] URL: https://www.interfax.ru/russia/941154. URL: https://clck.ru/3LAi4y

[12] URL: https://clck.ru/3LAiH5

[13] URL: https://tass.ru/ekonomika/20616693?ysclid=lxaslgfao112818855

[14] URL: https://aemcx.ru/wp-content/uploads/2024/04/obzor_ved_kitajskaya_narodnaya_respublika.pdf

[15] URL: https://aemcx.ru/export/rusexport/

[16] URL: clck.ru/3LAimT

[17] URL: https://www.163.com/dy/article/IMQ53RD 4055641S 7.html

Table 1

Statistical Data for the Four Leading Chinese Provinces by Gross Regional Product (GRP) in the First Half of 2024*

Province	GRP (billion yuan)	Share of China's GDP (%)	Rank among Chinese regions	Export and import volume (billion yuan)	Share in China's foreign trade (%)	Change in foreign trade turnover in 2024 compared to 2023 (%)
Guangdong	6524.25	10.6	1	5949.95	20.8	12.8
Jiangsu	6332.63	10.3	2	364503	12.8	8.5
Shandong	4667.7	7.6	3	2197.94	7.7	3
Zhejiang	4092	6.6	4	3489.72	12.2	7.4

Source: compiled by the author.
Note: * — data on foreign trade of regions are given for January-August 2024.

location, availability of natural resources, close ties with the Chinese overseas diaspora, their selection as pilot zones for the initial reforms launched in the late 1970s under the policy of reform and opening-up, as well as the economic development of their port cities.

The gross regional product (GRP) of Guangdong Province, the most economically developed region in China, which accounts for 20.8% of China's foreign trade turnover, exceeded the GDP of Russia and South Korea in 2019[18] and nearly approached that of Canada.

In 2024, Guangdong's foreign trade demonstrated significant growth following a sharp slowdown in 2023 (12.8% and 0.3%, respectively[19]). This powerful economic center of China is one of the key suppliers to the Russian market, accounting for one-sixth of the entire bilateral foreign trade turnover.[20]

Despite a decline in foreign trade volumes between the province and its main partners (negative export growth to the USA and EU, and imports from ASEAN countries, Japan, and South Korea), Guangdong's exports and imports to and from Russia grew by 36.5% in 2023 (compared to 23.6%[21] in 2022). As of June 2024, this figure increased by 26.5%[22] year on year.

The structure of Guangdong's exports and imports corresponds with that of Russia-China trade: Russian imports mainly consist of equipment for automated data processing, household appliances, mobile phones, electrical equipment, electronic components, and toys; exports include natural gas, coal, agricultural products, crude oil and petroleum products, and paper goods. Currently, electrical products account for 65.4%[23] of Guangdong's total exports, primarily lithium-ion batteries, solar panels, and electric vehicles. Among Chinese regions, Guangdong is the largest exporter of agricultural products to Russia — its share reached 19.1%[24] in 2023, driven by a 27% increase.

The value of Guangdong's exports to Russia is 3.75 times higher than the value of imports, accounting for 82.5% of the province's foreign trade

[18] URL: http://henan.china.com.cn/m/2021-01/26/content_41452117.html

[19] URL: https://finance.eastmoney.com/a/202401162963313598.html

[20] URL: https://static.nfapp.southcn.com/content/202312/07/c8377819.html

[21] URL: https://www.21jingji.com/article/20240330/herald/c8e05a270f72a939a882ecd7e5db111b.html

[22] URL: https://news.sina.cn/2019-06-04/detail-ihvhiqay3592131.d.html

[23] URL: https://finance.eastmoney.com/a/202401162963313598.html

[24] URL: https://www.yangjiangea.com/nd.jsp?id=300

Fig. 2. **Guangdong, Zhejiang, Jiangsu, Shandong Provinces on the Map of China**

Source: compiled by the author.

turnover.[25] This ratio is due to the technological nature of the products, whose volumes and production costs determine this balance.

Economically developed Zhejiang and Jiangsu provinces also lead among Chinese regions in export volumes to Russia. Alongside Guangdong, they are the largest suppliers of 16 product categories to the Russian market, accounting for over 50% of the export value of these goods.

Foreign trade in Shandong Province showed 3% growth in 2024, partly due to a one-third increase in trade turnover with Russia in 2023[26] — the highest among all partner regions. Russia ranks sixth in Shandong's foreign trade turnover and second in imports.[27]

Shandong is China's leading exporter of agricultural products (21.2%[28] of the national total), one of the major exporters of agricultural products to Russia, and the leading importer of such products from Russia. However, Russian agricultural exports to Shandong are 2.6 times higher in value than imports.[29]

Regarding Zhejiang Province, key factors driving the development of bilateral trade include the presence of the world's largest international wholesale Futian market located in the city of Yiwu; the launch in 2018 of direct container railway shipments from Yiwu to Moscow; automobile manufacturing (including Zhejiang Geely Holding Group Co., Ltd.); strong e-commerce performance with Russia, accounting for one-sixth of the province's total volume[30]; and the expansion of the free trade zone within the province.

[25] URL: https://www.21jingji.com/article/20240330/herald/c8e05a270f72a939a882ecd7e5db111b.html; URL: https://baijiahao.baidu.com/s?id=1799286755435302857&wfr=spider&for=pc

[26] URL: https://finance.eastmoney.com/a/202401132961378381.html; https://baijiahao.baidu.com/s?id=1788345323400117626&wfr=spider&for=pc

[27] URL: https://baijiahao.baidu.com/s?id=1770003244567773392&wfr=spider&for=pc

[28] URL: https://baijiahao.baidu.com/s?id=1788345323400117626&wfr=spider&for=pc

[29] URL: https://www.yangjiangea.com/nd.jsp?id=300

[30] URL: https://zjic.zj.gov.cn/zkdt/rdzx/202305/t20230510_9554351.shtml

Table 2

Foreign Trade Indicators and Russia's Share in the Foreign Trade Turnover of China's Four Largest Provinces in 2023

Province	Foreign trade turnover in 2023, billion yuan	Foreign trade turnover with Russia in 2023, billion yuan	Share of foreign trade turnover with Russia in the province's total foreign trade turnover, in 2023,%
Guangdong	8304.07	143.17	1.72
Jiangsu	4900	186.06	3.79
Shandong	5250	123.53	2.3
Zhejiang	3260	229.6	7.04

Source: compiled by the author.

The foreign trade statistics of these regions are impressive, but to understand the share of Russia in their foreign trade turnover, we refer to the data in *Table 2*.

For Russia, Guangdong Province ranks as the second largest Chinese region in terms of foreign trade volume; however, its foreign trade turnover with Russia (1.72%) is 9 to 10 times smaller than with Hong Kong, the USA, and EU countries.[31] Even for Shandong Province, where Russia's share in foreign trade is significantly higher (7.04%), the leading partners remain ASEAN countries (19.9% of the total foreign trade turnover,[32] primarily Malaysia). In other words, for China's economically leading regions, Russia is not a key trading partner.

Against the backdrop of intensified bilateral cooperation in the trade and economic sphere, the traditional development of foreign trade in border regions has become even more active. While northeastern territories of China were previously involved in this area, recently northwestern regions have also begun to participate (see Table 3).

The absolute trade volumes of these regions remain modest despite their double-digit growth rates in foreign trade turnover (with Tibet accounting for 0.024%,[33] XUAR for 0.77%, and IMAR for 0.41%). Moreover, not all areas of the PRC contribute equally to this turnover. For instance, in 2023, the foreign trade turnover of Inner Mongolia increased by almost 30%,[34] mainly due to a 41% growth in trade with the Mongolian People's Republic and a 79.1% increase in trade with Russia,[35] largely driven by Russian exports of food products, grains, and vegetable oils. At the same time, Tibet's growth is linked to a sharp rise in exports to Nepal and Central Asian countries, which may be associated with the development of new routes for indirect supplies to Russia.

According to 2023 data, Heilongjiang Province ranked sixth in China in terms of foreign trade growth rate (13.3%[36]) (see Fig. 3). Since 2017, it has been the leader in Russia-China trade, accounting for 15%[37] of bilateral trade turnover.

The development of bilateral trade has continued over several decades. During the period from 2016 to 2019 the average annual growth rate was 27.9%.[38] For this region Russia is a key

[31] URL: https://baijiahao.baidu.com/s?id=1788252767253714867&wfr=spider&for=pc

[32] URL: http://news.iqilu.com/shandong/shandonggedi/20240127/5592100.shtml

[33] URL: https://finance.eastmoney.com/a/202401132961378381.html

[34] URL: https://russian.news.cn/20240123/8d2dc2edefaf49339f45db34834a6c50/c.html

[35] URL: https://static.nfapp.southcn.com/content/202401/13/c8502003.html

[36] Ibid.

[37] URL: https://sputniknews.cn/amp/20230912/1053294707.html

[38] URL: http://m.people.cn/n4/0/2020/1202/c30–14598627_3.html

Table 3

Regions of China with the Highest Foreign Trade Growth Rates in January-November 2023

Region	Foreign Trade Turnover Growth Rate, %
Tibet Autonomous Region (TAR)	146.3
Xinjiang Uyghur Autonomous Region (XUAR)	47.4
Inner Mongolia Autonomous Region (IMAR)	29.7
Qinghai Province	16.3
Hainan Province	15.5
Heilongjiang Province	13.3

Source: compiled by the author: URL: https://finance.eastmoney.com/a/202401132961378381.html

Fig. 3. **Heilongjiang Province and North-Eastern Regions of China on the Map of the PRC**

Source: compiled by the author URL: https://ruchina.org/china-cities-provinces.html

partner, accounting for 69% of its total foreign trade volume.[39]

This is partly due to the role of a gateway for the openness to the Russian Far Eastern regions and was facilitated by the process of revitalizing the old industrial base of Northeast Chinese provinces, initiated by the government in the early 2000s. This process resulted not so much in an industrial sector renewal as in increased attention to local issues, development and im-

[39] URL: https://ftz.hlj.gov.cn/dbyzx/2804.html

Table 4

Dynamics of Trade Volumes Between Chinese Regions and Russia in 2013–2023 (billion yuan)

Province / Year	2016	2018	2020	2021	2022	2023
Heilongjiang	66.84	122.06	97.33	131.34	167.93*	297.83
Guangdong	37.26	66.92	69.6	86.62	107.18	143.17

Source: compiled by the author.

Note: *data for months 1–11 of 2022.

provement of infrastructure and the establishment of the Harbin and other Special Economic Zones (SEZs) in 2019, oriented towards cooperation with Russia. Additional factors included the construction of transport hubs, ports, logistics facilities; the inauguration of the Russia-China oil pipeline in 2011; and the hosting of the Harbin International Trade and Economic Fair and the Russia-China Expo.

The value of Heilongjiang's imports from Russia exceeds its exports by 6.7 times (for the first eight months of 2023: 116.69 and 17.37 billion yuan, respectively[40]).

In the province's export structure, more than 40% consists of electrotechnical products, including automobiles, data processing equipment and components, and household appliances; approximately 23% are labor-intensive products (footwear, furniture, clothing, textiles); and 15.3% are agricultural products (ranking third in China after Guangdong and Shandong).[41]

The majority of imports consist of Russian natural resources and ores, while the remainder includes timber and lumber, fertilizers, agricultural products, pulp, and electricity.[42]

It is worth noting the significant growth in bilateral trade turnover with Russia in 2023, which was twice as intense as that of Guangdong province (see *Table 4*).

In addition to the actual increase in deliveries between border regions, a factor contributing to the growth of trade turnover with Heilongjiang province was the value accounting of transit trade involving products exported by local enterprises, as well as goods from other provinces passing through Heilongjiang customs, and Russian supplies intended for other regions of China.

The rapid expansion of Russia-China foreign trade, reflected in statistics, is supported by indicators from the Russian consumer market: currently, Chinese automotive brands officially imported account for 52%[43] of total vehicle sales in Russia, with this figure having increased 2.5 times[44] since 2022. In 2023, Russia became the largest importer of products from the Chinese automotive industry, including Guangdong-based BYD and GAC. Chinese smartphones represent over 70% of the Russian market, household appliances and electronics — 43%, and laptops — more than 40%.[45]

Despite some reputational issues linked to previous negative experiences with inexpensive Chinese goods and counterfeits, the suspension of many foreign brands' operations in Russia, sanctions, changes in logistics chains, and significant

[40] URL: https://ftz.hlj.gov.cn/dbyzx/2804.html

[41] URL: https://baijiahao.baidu.com/s?id=1797034447546071185&wfr=spider&for=pc; https://www.yangjiangea.com/nd.jsp?id=300

[42] URL: https://harbin.mid.ru/ru/press-centre/news/obem_torgovli_prigranichnykh_rayonov_kitaya_s_rossiyskimi_regionami_rastyet/

[43] URL: https://www.rbc.ru/industries/news/6526c0349a7947040b60ee18?ysclid=lw642re9jf601091009

[44] URL: https://baijiahao.baidu.com/s?id=1799286755435302857&wfr=spider&for=pc

[45] URL: https://www.mvideoeldorado.ru/ru/press-centr/press-relizy/detail/2997; https://lenta.ru/news/2023/10/28/spros-na-kitayskuyu-bytovuyu-tehniku-vyros-sredi-rossiyan/?ysclid=lw6c829y8a178438018; https://www.rbc.ru/technology_and_media/20/08/2023/64df83a69a7947c7ce87a4b3?ysclid=lw64adqsxy101646487

import cost increases have opened a niche for Chinese products. Russian consumers now have access to more affordable and optimally performing goods from China, supported by after-sales service and spare parts. At the same time, the entry of Russian marketplaces into the Chinese market poses the risk of inexpensive no-name products with questionable quality appearing in sales.

Further expansion of Russia-China foreign trade is possible in logistics and transportation, simplification of cargo clearance procedures, industrial cooperation, as well as the implementation of investment projects, the number of which remains relatively small (Russia's share of China's total outbound direct foreign investment was 0.36%[46] in 2022, while the share of capital investment within total foreign investment inflows, despite a 300% increase, amounted to only 0.02%) [1].

Among potential growth points in bilateral trade turnover are increased supplies of Russian food products, pork (for which Russia ranks 10th in sales on the Chinese market), growing Chinese consumer interest in Russian chocolate, as well as planned market introduction in China of feed for non-productive animals, millet, wild aquatic products, medicinal raw materials for pharmaceuticals, rice, and corn. However, these are low-cost products that could contribute to trade turnover growth only by a few percentage points, and their import is strictly regulated by veterinary, phytosanitary, and quarantine control measures — up to and including complete bans.

Supplies of Russian rare-earth metals to China for electric vehicle[47] production are also unstable due to dependence on global market demand.

Most likely, in the near future, the existing structure of foreign suppliers of goods to the Russian market will remain unchanged. The expansion of Russia-China trade promotes revitalization of trade relations between Chinese regions and Central Asian countries as well as remote Russian border areas, development of border infrastructure, logistics facilities, and transportation systems, growth in employment, and stimulation of tourist exchanges. However, existing and potential sanction restrictions, as well as the need to alter transportation routes, require additional organizational, time resources, financial resources and flexibility; continuous optimization of logistics, customs, and banking mechanisms; and searching for ways to reduce costs. Lack or shortage of necessary conditions, equipment, and infrastructure at border checkpoints leads to delays and unpredictable increases in delivery times and transportation costs.

Risks and possible consequences of Western-imposed restrictions have already caused some third countries to refuse participation in sanction evasion schemes. In 2024, 80% of banking operations between Russia and China were suspended[48]. At present, this problem remains unresolved and has been exacerbated by a new package of sanctions introduced in the summer of 2024. Conducting money transfers through friendly countries or small regional banks not under sanctions, private Chinese intermediaries, or via cryptocurrency results in significant price increases and additional risks. Attention from the leaders of the countries to this situation gives hope to avoid reductions in product availability in both countries' markets. Nevertheless, sector experts do not rule out a suspension, for example, of imports of foreign-brand cars and spare parts from China.

The choice facing the Chinese side is complex, given its strategic interests. This is why the anticipated increase in bilateral trade turnover to USD 300 billion[49] by 2030 — an additional 25% growth — is potentially achievable but subject to many influencing factors.

Considering not only the scale but also the nature of bilateral cooperation, it is important

[46] URL: http://k.sina.com.cn/article_1893892941_70e2834d02001ixs4.html

[47] URL: https://t.me/vzglyad_ru/94348

[48] URL: http://k.sina.com.cn/article_1893892941_70e2834d02001ixs4.html

[49] URL: https://iz.ru/1622357/2023-12-18/chernyshenko-zaiavil-o-planakh-uvelicheniia-tovarooborota-rf-s-kitaem-do-300-mlrd?ysclid=lyhjduomou72396570

to take into account the high volume of raw materials and food supplies from Russia to border regions and significant export flows from the coastal provinces. The fact that Russian exports exceed imports from China indicates that the growth in trade turnover is still largely driven by low-processed products from Russia [4].

Experts' forecast of more than a twofold increase in Russian gas exports to China by 2030[50] compared to the 2024 level raises some concerns related to worsening Russia's dependence [3, 5] on a single consumer country (effectively a monopsony situation) and the continued, due to the current structure of the Russian economy, fairly limited nature of Russia's export supplies [6, 7].

Moreover, not all sanctioned goods can be compensated by purchases from China [8–10], underscoring the need to diversify the geography of Russia's foreign trade partners.

In conclusion, it is worth noting that over the past 30 years, the volume of foreign trade between Russia and China has grown by 11% annually. Long-term stable partnerships, many years of trade interaction in border territories, Russian demand for Chinese goods and technologies, China's interest in the increasingly accessible Russian market and affordable raw materials, as well as changes in the global geopolitical situation and Russia's development vector will continue to promote closer ties between the countries in trade and economic spheres. Currently this is supported by business events, the operation of specialized organizations, the opening of representative offices by companies from both countries, Chinese enterprises' access to Russian e-commerce platforms, as well as bilateral cooperation in cultural and educational fields.

For Russia, cooperation with China as an alternative market of suppliers and consumers, an important "pole of economic power," and a partner is highly significant, given that today China shapes the trajectory of global political and economic processes [11–13]. However, Russia's role in these relations so far does not correspond to the status of a strategic partner.

[50] URL: https://clck.ru/3LFZRa
[51] URL: https://www.163.com/dy/article/G2UP7P970538VI84.html

REFERENCES

1. Izotov D.A. Trade interactions between China and Russia: Problems of intensification. Aziya i Afrika segodnya = Asia and Africa Today. 2023;(10):5-14. (In Russ.). DOI: 10.31857/S 032150750028103-5
2. Turaeva M.O., Yakovlev A.A. Russia and China cooperation in a new environment: Some economic results from 2023. Rossiya i sovremennyi mir = Russia and the Contemporary World. 2024;(3):6-29. (In Russ.). DOI: 10.31249/rsm/2024.03.01
3. Budarina N.A. Development of foreign trade cooperation between the Russian Federation and China through the prism of influencing factors. Ekonomika i predprinimatel'stvo = Journal of Economy and Entrepreneurship. 2024;(10):78-83. (In Russ.). DOI: 10.34925/EIP.2024.171.10.013
4. Lukonin S. Russia-China relations: An asymmetrical partnership? Vestnik MGIMO-Universiteta = MGIMO Review of International Relations. 2023;16(2):65-86. DOI: 10.24833/2071-8160-2023-2-89-65-86
5. Koroleva N. Sh. Prospects for the development of trade relations between the Russian Federation and China. Ekonomika: vchera, segodnya, zavtra = Economics: Yesterday, Today and Tomorrow. 2023;13(4-1):390-399. (In Russ.). DOI: 10.34670/AR.2023.28.58.048
6. Izotov D.A. Russia and China: Current problems of trade interactions and the long-term prospects for economic cooperation. Vlast' i upravlenie na Vostoke Rossii = Power and Administration in the East of Russia. 2023;(3):70-87. (In Russ.). DOI: 10.22394/1818- 4049-2023-104-3-70-87
7. Lukonin S.A., Vakhrushin I.V. Russian-Chinese trade and economic cooperation amid anti-Russian sanctions. Rossiya i ATR = Russia and the Pacific. 2023;(1):160-180. (In Russ.). DOI: 10.24412/1026880420231160180

8. Sidorov A.A. Current trends in Russian trade in goods with the EU and China. Mir novoi ekonomiki = The World of New Economy. 2023;17(2):18-26. (In Russ.). DOI: 10.26794/2220-6469-2023-17-2-18-26
9. Revenko N.S. Russia-China trade: State, trends, prospects. Rossiiskii vneshneekonomicheskii vestnik = Russian Foreign Economic Journal. 2023;(2):47-61. (In Russ.). DOI: 10.24412.2072-8042-2023-2-47-61
10. Seniuk N.U. Russian-Chinese trade: Current trends and prospects. Baltic RIM Economies. 2022;(4):48-49. URL: https://sites.utu.fi/bre/russian-chinese-trade-current-trends-and-prospects/
11. Spartak A.N. China's economic potential and development plans in the context of Russian-Chinese cooperation. Rossiiskii vneshneekonomicheskii vestnik = Russian Foreign Economic Journal. 2024;(7):7-25. (In Russ.). DOI: 10.24412/2072-8042-2024-7-7-25
12. Spartak A.N. Reshaping Russia's international economic cooperation amid sanctions and new challenges. Rossiiskii vneshneekonomicheskii vestnik = Russian Foreign Economic Journal. 2023;(4):9-35. (In Russ.). DOI: 10.24412.2072-8042-2023-4-9-35
13. Vardomsky L.B. Russian-Chinese economic links in the context of growing international tensions. Zhurnal Novoi ekonomicheskoi assotsiatsii = Journal of the New Economic Association. 2023;(1):142-148. (In Russ.). DOI: 10.31737/22212264-2023-1-142

ABOUT THE AUTHOR

Yulia M. Shiganova — Cand. Sci. (Econ.), Department of Foreign Languages and Intercultural Communication, Faculty of International Economic Relations, Financial University under the Government of the Russian Federation, Moscow, Russian Federation
http://orcid.org/0000-0001-9992-3187
ymshiganova@fa.ru

Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was received on 15.08.2024; revised on 18.11.2024 and accepted for publication on 20.02.2025. The author read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-114-125
UDC 330.8(045)
JEL B15

Property, Get in Line!
(On the 2024 Nobel Prize in Economic Sciences)

Yu.P. Voronov
Institute of Economics and Industrial Engineering, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russian Federation

ABSTRACT

The article examines the problems raised in the works of the 2024 Nobel Laureates in Economic Sciences. The author focuses primarily on the role of the category of "property," highlighting the laureates' investigation into the exceptional status of property rights within economic theory. It is shown that this status is rooted in the myth of the "invisible hand of the market," which emerged after Adam Smith and was based on a misinterpretation of his writings. The article also discusses the gradual erosion of transparency around property ownership, prompting a reassessment of both the concept of property and the relationship between property owners and political power structures. Drawing on the laureates' findings, the author argues that the protection of property constitutes an independent socio-economic institution. The article concludes by examining two specific forms of property rights — those concerning the means of production and scientific-technological innovations — demonstrating their close ties to other social institutions and their inability to exist in isolation.

Keywords: Nobel Prize in Economic Sciences; terminilogical precision; property; economic institutions; political institutions; intellectual property; scientific and technological progress; means of production; property protection

For citation: **Voronov Yu.P. Property, get in line! (on the 2024 Nobel prize in economic sciences)**. ***The World of the New Economy*****. 2025;19(2):114-125. DOI: 10.26794/2220-6469-2025-19-2-114-125**

INTRODUCTION

The 2024 Nobel Prize in Economics was awarded to three American professors who are well known to Russian economists, thanks to the translation of their books and articles into Russian — a rarity rather than the rule.

The most prominent among them is Daron Acemoglu, an Armenian born in Turkey, educated in the United Kingdom, and currently teaching in the United States. While there is a touch of exoticism to his background, it is relatively minor given how seamlessly his work fits into the traditions of economic science as practiced by professors at American universities.

The second laureate, James Alan Robinson, a professor at the University of Chicago, was born in the United Kingdom and graduated from the University of Manchester. He then moved to Australia and later to the United States. He has taught at the University of Southern California (Los Angeles), the University of California, Berkeley, and Harvard University. Since 2015, he has been a professor at the Harris School of Public Policy at the University of Chicago.

The third laureate, Simon Johnson, a professor at the Massachusetts Institute of Technology, was also born in the United Kingdom, where he received his higher education.

Thus, all three laureates are immigrants born outside the United States and, as we will see, have nevertheless integrated organically into American economic science.

The Nobel Committee's memorandum notes that the scholars "provided new insights into why nations around the world differ so significantly in their levels of prosperity. One of the most important explanations lies in the great variation in social institutions".

Such a broad formulation suggests that different spheres of life hold different levels of importance for each country. The authors themselves, as well as most commentators, naturally emphasize what is most relevant to the United States.

These discussions often involve various interpretations of the concept of "social institution": "predominant or dominant types of relationships", "the currently accepted system of social life", or "customary ways of regulating the life processes of society in relation to the material environment in which it exists" [1].

We will adhere to these definitions but emphasize what is particularly significant for the Russian economy and the worldview of Russian citizens.

The laureates do not single out any one institution as dominant: at a particular point in history and under specific circumstances, one institution may be key; in other situations, an entirely different one takes precedence. For Russia, the results of their research are especially thought-provoking, raising questions such as: Are you suggesting that the antagonism between socialism and capitalism — engraved in the memory of every Soviet citizen — is merely one of many differences in institutions? Just one among many? What about the Socialist Revolution, the Soviet past, and the decades of the Cold War? Weren't these 20th-century events driven by differences in property regimes? This brings us to an analysis of how the exclusive importance of property rights is being reconsidered.

Property rights — considered fundamental in Marxism and deeply embedded in modern Russian self-perception, as well as in distinctions between different economies — cannot, according to the laureates, be viewed in isolation from other institutions.

This position represents a fundamental departure from not only traditional economic thought but also from the mindset of the average person, who believes property rights to be of paramount importance.

The laureates propose distinguishing between extractive and inclusive institutions. Extractive institutions channel economic resources into the hands of a limited group or divert them out of the national economy altogether. A good example, in the author's view, is television advertising: it takes up the time of millions of viewers for the benefit of a handful of companies.

This extractive institution can be contrasted with an inclusive one — such as foreign language lessons broadcast on television, a practice common in many countries. Such programming, by contrast, promotes the dissemination of knowledge held by a limited few among a wider circle of economic participants.

Even this example makes it clear that in today's economy, the notion of property has receded into the background. The television set belongs to the viewer but shows content that they do not need. The advertising agency uses the television system (which it does not own) to serve an advertiser who owns neither the individual TV set nor the broadcasting infrastructure. This is a vivid illustration of how property rights can be completely disregarded.

THE REASONS BEHIND THE EXCEPTIONAL STATUS OF PROPERTY RIGHTS IN ECONOMIC THEORY

One could argue that the exaggerated role of property stems from the characteristics of the scientific method that dominated for many years — specifically, its focus on statics and outcomes achieved as a result of past actions. In the laureates' work, this static approach is replaced by an emphasis on dynamics and the long-term consequences of ongoing activities.

With this dynamic perspective, the categories once considered most important in static analysis recede into the background, while those previously seen as secondary become central.

Let us begin with the concept of a "transaction". From a static standpoint, a transaction either has occurred or has not. There is nothing in between — only a fleeting moment in which no events are recognized.

Reality, however, is in constant motion, while economic theory still tends to "show slides". For instance, a country's GDP might be reported to have grown by 5% over the year. But what actually happened during that year? Was it a good harvest? Did gas prices fall or rise? Did many high school graduates take factory jobs? All of this is lumped into the single "slide" representing annual GDP growth and is typically excluded from economic analysis.

Moreover, there is still no clear distinction in economic theory between models that rely on a static picture and those that view the economy primarily through a dynamic lens [2].

Property is a concept rooted in the static approach — it represents what exists at a given moment. A dynamic view, however, requires us to consider different aspects: the institutions that preserve or grow property, the risks of its loss, and so on. Thus, property protection — which belongs to the realm of process and dynamics — exists in a different context from the concept of property as a snapshot of ownership at a single point in time.

The Civil Code of the Russian Federation[1] defines property as a set of norms, dividing it into three rights: possession, disposal, and use. Protecting property relates to all three and involves confirming or disputing the possibility of exercising them jointly or separately. In this sense, protection too belongs to a static framework, representing a set of discrete actions.

THE LAUREATES CONTINUE THE EVOLUTION OF ECONOMIC THEORY FROM STATICS TO DYNAMICS

The theoretical direction in economics developed by the laureates began in 1937, when Professor Ronald Coase of the London School of Economics explained the reasons for the emergence of firms in his groundbreaking paper [3]. He was awarded the Nobel Prize in Economics 54 years later, in 1991. In simple terms, Coase's idea was that within a firm, interactions occur naturally — without the need for formal agreements or transactions.

Initially (even in the year Coase received the Nobel Prize), researchers focused primarily on justifying the existence of firms. Only in recent years has attention shifted toward transaction

[1] URL: https://www.consultant.ru/document/cons_doc_LAW_5142/

costs as a distinctive feature of property as an institution.

It turned out that property ownership comes with limited rights that are burdened by obligations. Beyond the requirement to pay taxes, the owner must also bear transaction costs whenever the property is used.

This topic is well presented in the book Why Nations Fail by Daron Acemoglu and James A. Robinson [4]. The authors consciously move away from the notion of a "deal" — which is essentially timeless — and favor the broader concept of a "transaction", which unfolds over time and includes various events and processes.

A notable episode in the history of the Nobel Prize in Economics related to this topic occurred in 2016, when Harvard Professor Oliver Hart (originally from the UK) and Bengt Holmström, a Finnish-born Swede and professor at MIT, received the prize for their contributions to contract theory. This recognition sparked a wave of studies and publications contrasting the concepts of deals and contracts.

Unfortunately, this did not result in a fully developed system of new categories within economic theory. To this day, scholars often use terms from both static and dynamic paradigms within the same context. For instance, annual GDP growth may be interpreted as a dynamic indicator or merely as the difference between two static snapshots — at the beginning and end of the year.

The laureates have introduced a significant number of categories associated with dynamics into academic discourse — among them, the concept of an "institution", whose very essence implies "an established practice".

From this point forward, economic theory began moving toward a more accurate reflection of economic reality [5], particularly in relation to the evolving understanding of the market economy.

THE VANISHING "INVISIBLE HAND OF THE MARKET"

The very emergence of the institutional school of economic thought can be explained by the realization that an unregulated market not only promotes economic development, but also leads to numerous undesirable consequences.

The laureates argue that unfair privileges for a limited group of economic agents and income inequality are the result of inefficient functioning of market institutions [6], and that attempts to interfere with these institutions have never yielded positive results. No society, they note, has ever achieved broad prosperity simply by redistributing income from the rich to the poor. In Russia, however, this truth is still subject to debate.

Equally persistent in Russia is the myth of the "invisible hand of the market". The phrase is commonly — but unjustly — attributed to Adam Smith, though he uses it only twice in his writings: once when describing a landowner who refrains from owning all the land and instead distributes it among tenants, and once when an industrialist chooses to build a factory in England to live among people who can earn a living — although he could have built it in India, where wages were lower [7].

According to Adam Smith, any entrepreneur "intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it" [8].

In this case, Smith was referring to the "invisible hand of God" (not of the market), which likely served to restrain the market participant, to correct their behavior, and by no means to relieve them of moral principles or convictions.

This again reinforces the point that property cannot be separated from the broader system of social institutions, as all such institutions are inherently tied to the moral and ethical norms of society.

Neither the market nor the concept of property could exist if the actions of economic agents were morally flawless. This does not mean that deviations are not possible — but such deviations have never been, and are unlikely to ever be, regarded as normal or socially acceptable practice.

PROPERTY PROTECTION AS AN INDEPENDENT SOCIAL INSTITUTION

Since the time of Ancient Rome, property protection has been a matter of legal procedures. In Russia, legal norms governing property rights are, by international comparison, the most closely aligned with Roman law.

For instance, Article 301 of the Civil Code of the Russian Federation[2] states that the primary means of reclaiming property from unlawful possession is through a legal claim. Just as in Ancient Rome, the final word rests with the court. Consequently, property protection has always depended on a range of social institutions built around the judicial system — such as lawyers, juries, appeals, and so forth.

Russian legislation also provides for the protection of possession rights, even in cases where the legal title to the property has not been formally registered in the possessor's name. For example, under the law, a tenant has the right to protect their possession even against the will of the legal owner. This is yet another example of how property rights cannot exist independently of a broader system of social institutions.

As one influential formulation puts it: "Secure private property rights are central, because only those whose property rights are protected will be willing to invest and increase labor productivity" [4, p. 105].

Thus, property cannot be isolated from other institutions, since its proper functioning depends on the existence of another institution: the mechanism of protection.

For a long time, it was assumed that protection mechanisms applied only to private property (individual or familial). However, thanks to the work of 2009 Nobel Laureate Elinor Ostrom (1933–2012), we now know that collective or common property has always had its own complex systems of protection [9].

Private property itself can be seen as an extractive institution, whereas its protection constitutes an inclusive institution, as it motivates individuals to expand their assets by assuring them that those assets will be safeguarded.

The inclusion of property within systems of legal protection strips it of any claim to exclusivity or uniformity: property that is legally protected differs fundamentally from property subject to a high risk of dispossession. This is further evidence that there is no single, unified concept of "property". Rather, the category is an artificial construct made up of multiple notions and institutions — especially given how its meaning and substance have evolved over time.

In scholarly research on the fall of the Roman Empire, the primary focus is typically placed on military factors — battles, victories, and defeats. However, an equally important role was played by the fact that the so-called "barbarians" had a more coherent system of property protection institutions. For example, in Roman legal practice, it was possible to challenge the rights of a bona fide purchaser if evidence emerged that the property had been unlawfully acquired by one of its previous owners. This created opportunities for various forms of intrigue and manipulation.

According to many experts, the events surrounding property rights also played a significant role in the collapse of the Roman Empire — particularly when these rights are viewed as part of a broader institutional system, rather than in isolation [10].

In Ancient Rome, property was divided into several types. For instance, there was Quiritary property, which belonged to Roman citizens and foreigners who had been granted the right to trade within Roman territory, and Peregrine property, which belonged to non-citizens and was subject to weaker protections [11]. From the outset, therefore, property was not a unified institution, but rather a collection of distinct rights allocated to different categories of the population.

A somewhat similar differentiation of rights has persisted into the present day. In modern Russia, for example, more than 90% of banking

[2] URL: https://www.consultant.ru/document/cons_doc_LAW_5142/

profits are generated in just two cities — Moscow and St. Petersburg. This means that businesses in these cities have significantly greater access to financial resources than elsewhere. As a result, commercial property in these two economic centers is fundamentally different from that in other regions.

The newly awarded Nobel Laureates offer a fresh perspective on the issue of differentiated property rights. Building on the work of Douglas North (1920–2015), recipient of the 1993 Nobel Prize in Economics, they distinguish between two categories of property-related rights: property rights and contractual rights [12]. While these categories overlap, they differ in a crucial way: in cases of opportunistic or otherwise inadequate behavior by one party, contractual rights can typically be enforced privately, whereas violations of property rights require the involvement of political institutions [13].

Accordingly, the more restrictions a country imposes on elite behavior and political activity in general, the more secure property rights tend to be. In societies where the risk of expropriation is low, one also sees higher rates of economic growth, greater investment, and more active stock markets.

At the same time, such countries tend to have less developed contractual institutions, whose influence on investment and economic growth is correspondingly limited [14].

BOUNDED RATIONALITY AND THE INSTITUTIONS THAT SUPPORT IT

The concept of bounded rationality, introduced by Herbert Simon, winner of the 1978 Nobel Prize in Economics, is widely used in economic theory. Its core idea is that individuals (economic agents) make decisions under conditions of limited time and resources, incomplete information, and a limited ability to evaluate all possible options or foresee their consequences. As a result, decisions are usually not optimal but merely satisfactory [15].

If that is the case, then the emergence of institutions that extend the boundaries of rational decision-making is inevitable. What kinds of institutions are these?

First and foremost, a robust system of information provision must be in place — hence, the institution of access to information must function effectively. Citizens' rights in this regard vary significantly from country to country. In most, there is mandatory, unrestricted access to legal and regulatory documents, since ignorance of the law severely narrows the boundaries of rational decision-making.

However, some countries — including Russia — charge for such access. Likewise, for example, satellite images (crucial for making rational decisions in agriculture and other sectors) are freely available from NASA, while Roscosmos charges fees. As a result, many Russian entrepreneurs struggle when their business depends on geographic or territorial information but they are unwilling or unable to pay for it.

The same applies to reference databases of regulatory documents and similar informational resources.

OWNERSHIP OF THE MEANS OF PRODUCTION

Throughout most of the 20th century, this concept was the primary distinguishing feature between two socio-economic systems. If private ownership of the means of production predominates, the system is considered capitalist; if state ownership dominates, it is considered socialist.

However, in order for the means of production to generate profit, workers are also needed to operate them. Before the contributions of the current Nobel laureates, labor was typically regarded (and still is by many) as simply another part of the means of production. In economic theory, the worker had no agency — just like a machine or assembly line. Marxism took this approach even further, positing that a worker brings to the labor market a commodity: labor power, or the ability to perform work. One idea leads to the other: if labor power is just one of many goods on the market,

its price (i.e., the wage) becomes the key factor, linked directly to its quality.

The picture changes significantly when we introduce the concept of the employment institution into the theory. Daron Acemoglu, treating employment as a socio-economic institution, proposes analyzing the concept of "good jobs" — positions that not only offer wages appropriate for a middle-class standard of living, but also attract candidates through decent working conditions, job stability, and protection from employer interference.

The successful development of a national economy depends on the availability of sufficient "good jobs" [16]; a shortage of such jobs contributes to inequality.

According to Acemoglu, markets tend to produce a deficit of "good jobs", since offering them typically requires companies to make more significant investments and incur higher operating costs. Employers often prefer to offset the unattractiveness of a job by offering a higher wage — which, in many cases, is the cheaper option.

A "good job" generates benefits for the employee that are irrelevant to the employer, who is primarily interested in lowering labor costs and minimizing initial expenditures. Countering this are labor market institutions, supported by technological progress, which help increase the share of "good jobs" in the economy.

Here, the market actually slows this process — it cannot guarantee the direction or scope of technological innovation, and thus cannot ensure the expansion of "good jobs". This is yet another sign of the absence of the "invisible hand of the market" mentioned earlier.

At the same time another issue arises: ownership of the means of production is constrained by the need to coordinate its use with those who are not direct owners. The owner enters the labor market as a seller of job vacancies, but whether those jobs are in demand is out of their hands. What they can do is ensure in advance that the jobs offered are of high quality (in terms of working conditions, pay, and schedules).

In general, for many entrepreneurs, short-term considerations outweigh long-term goals, and the pursuit of personal enrichment dominates over the objective of productive development [17].

HIDDEN OWNERS AND POWER

In an interview with a Russian journalist, one of the 2024 Nobel Prize laureates, James Robinson, said: "According to our theory, when political institutions become less inclusive, the same usually happens to economic institutions. And of course, we're seeing that now — for example, the growing role of monopolies, which is well documented. You know, when billionaires with completely insane ideas about the economy and how everything should be run have enormous influence over government, it inevitably affects economic institutions too[3]".

This close connection between political and economic institutions helps explain why ownership — especially large-scale ownership — is increasingly anonymous. For most of its history, private property was based on openness. Today, however, it is often difficult to determine who actually owns the world's largest assets. It's not uncommon for one legal entity to hold a controlling stake in another, which itself owns a subsidiary with other shareholders — some of whom, in turn, are connected to the first entity. And so the chain continues.

The motivation to obscure true ownership stems largely from the fact that large-scale property is often tied to power structures. The more corruption prevails in a society, the more opaque and convoluted the ownership structure tends to become — particularly in countries that only recently transitioned to market economies.

Even smaller-scale property is well protected only when the authorities view its owner favorably. A case from Russian legal practice illustrates this point. Articles 235 and 239 of the Russian Civil Code,[4] along with Article 32 of the Housing

[3] URL: https://econs.online/articles/video/instituty-pod-ugrozoy-kak-rastushchee-neravenstvo-mozhet-izmenit-mir/

[4] URL: https://www.consultant.ru/document/cons_doc_LAW_5142/

Code,[5] allow for the expropriation of residential land plots for state or municipal needs. While owners are entitled to compensation, the law does not define the amount or set clear criteria for what constitutes a pressing public necessity. These decisions are made on a case-by-case basis by public officials.

Public disclosure of ownership is not the only condition for legitimizing property. In its absence, suspicions persist that the property may in fact belong to someone else. The most common method of concealing ownership is through a chain of rights: a business is owned by one legal entity, which is in turn owned by another, and so on — until the true owner emerges at the end of the chain.

Alongside this trend, three related developments can be observed: increased state control over those who lack political connections, more complex mechanisms for exercising this control, a shift in how property rights are perceived by the owners themselves [18].

INTELLECTUAL PROPERTY RIGHTS

Originally, the right to an invention was not considered property as such: in Russian, the term used was "privilege", meaning a monopoly right to use a particular innovation. Similar terms existed in other languages as well [19].

The directions of scientific and technological progress, as demonstrated by the laureates through many examples, are determined not by the free market but by the priorities of large companies that have already succeeded in a given technological field.

However, for Russian readers, the laureates' findings regarding technical innovations and inventions may be difficult to grasp. In their perception, the patent system exists to protect the inventor's rights and thereby encourage technical creativity and progress.

But the patents were never part of the inventor's personal rights; rather, they serve as protection for those who implement inventions, granting them a temporary monopoly — not to reward inventors but to foster the development of innovative production.

During the early development of the patent system in Europe, inventors never approached government authorities to request recognition of monopoly rights on their inventions; the inventor's name was not always disclosed. In the case of foreign (imported) inventions, the inventor was often completely uninvolved in patenting.

According to R.I. Kapelyushnikov, the patent system is an "explicitly exclusive institution" [20], but this observation is valid only if two claims are accepted without question: "property has exclusive importance" and "the market will settle everything". Both claims, however, are highly questionable.

As for modern Russia, matters would be simpler if the myth of patenting as protection of the inventor's rights existed only in the minds of the misguided. But Article 1345 of the Russian Civil Code[6] states that the exclusive right (as well as the right to obtain a patent and compensation) belongs to the inventor, not to the one who implements the invention.

Thus, the myth of protecting the inventor's rights transforms from a widespread individual misconception into a major obstacle to scientific and technological progress: the inventor typically lacks the resources — especially financial — to bring their invention to market.

Furthermore, the invention in this case is considered the property of a natural person (a concept effectively borrowed from copyright law), which makes the prospects of implementation even more uncertain. For a long time, only two countries in the world granted invention rights solely to individuals: the USSR and the USA. However, in 2012, the USA revised its legislation to include patent ownership rights for legal entities. In Russia, the situation remains unchanged [21].

[5] URL: https://www.consultant.ru/document/cons_doc_LAW_51057/

[6] URL: https://www.consultant.ru/document/cons_doc_LAW_5142/

The rationale behind this approach rests on the unstated assumption that an inventor can convert their invention rights into money by selling them for subsequent use. But at least two factors hinder this: 1) patent application and maintenance require money, which is not always available; 2) enterprises or organizations that could act as investors are usually unwilling to invest in acquiring rights to an invention from an individual inventor, especially if it is untested and unknown in the market [22].

According to European Union innovation statistics, out of five groups of indicators, only one concerns intellectual property; the other four are "innovation drivers" (number of technical university graduates, youth education levels, degree of informatization, etc.), "knowledge generation" (public and private spending on science and innovation), "innovation entrepreneurship" (share of small companies involved in innovation, venture capital volumes, etc.), and "implementation" (sales volumes of innovative products, etc.) [23].

Thus, even according to European statistics, ownership of inventions and other types of scientific and technological innovations is intertwined with other social institutions and means little on its own.

If the transfer of invention rights to those incapable of implementing them will harm the future development of the Russian economy, then the transfer of state property (land and enterprises) to people unable to use it effectively has already dealt a blow to the Russian economy, the consequences of which are still being felt today.

The belief in the exclusive role of property proved notably mistaken, and those who adhered to this belief and actively participated in privatization were met with disappointment: it turned out that making acquired property profitable required struggle and labor efforts, for which the new owners were completely unprepared.

Reflecting on why some countries experience stagnation while others demonstrate scientific and technological progress, the laureates conclude that the latter requires protection of property rights for broad segments of the population, as well as equal opportunities to earn income from their businesses and patent-protected innovations [24].

This conclusion provoked the strongest criticism, including among Russian economists, some of whom even forgot that the laureates' fundamental position is that the category of "property" is not the basic one but only one of many that determine economic development (according to the theory).

The harshest criticism of the current laureates appeared in a preprint from the National Research University Higher School of Economics five years before they were awarded the Nobel Prize [20]. Terms such as "methodological narrowness", "conceptual inconsistency", and "historical inadequacy" recall the years of implacable ideological struggle against bourgeois falsifiers.

However, let us turn to the essence of the results obtained by the laureates through research on economic history using their proposed categories of "extractive" and "inclusive" institutions.

They argue that the 1688 Revolution in England was the world's first to establish the predominance of inclusive political institutions, which stimulated investment, innovation, and trade. The state "firmly protected property rights. By clearly defining property rights to all assets, the government facilitated rapid infrastructure development. These innovations set the engine of economic growth in motion, paving the way for the Industrial Revolution" [4, p. 143].

The Industrial Revolution in 18th-century England is explained by scholars as follows: the great geographical discoveries and, consequently, the rise of global trade, led to very different outcomes in England and three other trading states (Spain, Portugal, and France).

In England, private business was allowed into global trade and grew domestically following the Glorious Revolution of 1688 over more than seventy years.

For this reason, wealth gained from trade and plunder was acquired by private business, while in the three rival countries it was concentrated in

the hands of monarchs and a limited circle close to power. In one case, these resources were integrated into economic circulation; in the other, they lay dormant and did not contribute to national economic development.

"Since many members of Parliament were engaged in trade and manufacturing, it was in their interest to ensure enforcement of property rights" [4, p. 262]. Other consequences of this divergence are noted: having grown wealthy, English merchants and landowners were able to form a broad coalition that successfully opposed the king and ultimately prevailed. In the laureates' interpretation, "inclusive economic institutions support corresponding political institutions and, in turn, rely on them" [4, p. 567].

For the elite, innovations increase the risk of losing income (rents). In response, their representatives close to state power begin to consolidate their ranks [4, p. 568], provoking military conflicts and wars, which contribute to scientific and technological progress, the functions of which in the civil sphere were curtailed due to the dominance of extractive institutions.

Consolidation can also occur in other ways, such as through shared ideology, party affiliation, family ties, etc.— all of which the laureates were the first to highlight [4, p. 183], largely explained by their interpretation of the state as an agent represented by the ruling elite.

In their latest book, Daron Acemoglu and James Robinson extend this interpretation to the driving forces of scientific and technological progress [25]. Without denying that it is the main driver of prosperity in the economy, they show with specific examples that advanced technologies are formed according to what only influential people in business or government want (and believe). It is not scientific and technological progress per se that changes the world, but the choices of these decision-makers regarding innovation. According to the authors, this is the "illusion of progress".

For instance, remarkable cathedral-building technologies of the Middle Ages were implemented amid mass peasant famine, and modern digital solutions develop while millions live in poverty.

In this context, intellectual property rights matter only if they "intersect" with the chosen direction of scientific and technological progress. New technologies should ideally create jobs with better working conditions, rather than simultaneously producing robots and unemployed people. But this has yet to happen.

CONCLUSION

Daron Acemoglu, James Alan Robinson, and Simon Johnson have raised issues that are critically important for the development of every national economy and the global economy as a whole. Opinions may vary regarding their explanations of why some countries are rich while others remain poor — the debate on this subject has been ongoing for a long time and will continue. However, it seems that everyone agrees on the importance of recognizing the problems they analyze in their works.

The evidence they present that property is not the exclusive social institution determining economic development compels us to reconsider the history of our own country. In the 1990s, it was widely believed that the emergence of private owners interested in economic outcomes would provide a powerful impetus for economic growth. Yet it turned out that this was insufficient, and the introduction of other institutions related to property rights was necessary — similar to those established in the Napoleonic Code regarding agricultural land: if the land is left uncultivated for four years, the owner loses the right to it. In a similar vein, privatized enterprises should have transferred to private ownership with a condition: if you cannot develop production, you lose the right to it.

However, the prevailing notion at the time — that the key was merely a change of ownership — prevented this from happening.

Through their work, Daron Acemoglu, Alan Robinson, and Simon Johnson have shown this approach to be flawed. Unfortunately, it is already too late for the economy of our Motherland.

REFERENCES

1. Veblen T. The theory of the leisure class: An economic study of institutions. London: Macmillan Co.; 1912. 256 p. (Russ. ed.: Veblen T. Teoriya prazdnogo klassa. Moscow: Progress; 1984. 183 p.).
2. Yerznkyan B. Components of institutional dynamics and its characteristics. *Problemy teorii i praktiki upravleniya = Theoretical and Practical Aspects of Management t*. 2016;(6):72–79. (In Russ.).
3. Coase R.H. The nature of the firm. *Economica*. 1937;4(16):386–405. DOI: 10.1111/j.1468–0335.1937.tb00002.x
4. Acemoglu D., Robinson J.A. Why nations fail: The origins of power, prosperity, and poverty. New York, NY: Crown Business; 2013. 544 p. (Russ. ed.: Acemoglu D., Robinson J. Pochemu odni strany bogatye, a drugie bednye: proiskhozhdenie vlasti, protsvetaniya i nishchety. Moscow: AST; 2016. 692 p.).
5. Coase R. The new institutional economics. *Zeitschrift für die gesamte Staatswissenschaft / Journal of Institutional and Theoretical Economics*. 1984;140(1):229–231.
6. Acemoglu D., Robinson J.A. Why nations fail: The origins of power, prosperity, and poverty. New York, NY: Crown Business; 2013. 544 p.
7. Voronov Yu.P. Nobel laureates in economics. In 2 vols. Vol. 1: 20th century (1969–2000). Moscow: Infra-M; 2022. 716 p. (In Russ.).
8. Smith A. An inquiry into the nature and causes of the wealth of nations. London: Methuen & Co., Ltd.; 1904. 1152 p. (Russ. ed.: Smith A. Issledovanie o prirode i prichinakh bogatstva narodov. Moscow: Eksmo; 2016. 1056 p.).
9. Ostrom E. Governing the commons: The evolution of institutions for collective action. Cambridge: Cambridge University Press; 1990. 298 p. (Russ. ed.: Ostrom E. Upravlyaya obshchim. Evolyutsiya institutov kollektivnoi deyatel'nosti. Moscow: Mysl'; 2011. 448 p.).
10. Zaikov A.V. The construction of property in Roman law and the problem of property splitting. *Vestnik Gumanitarnogo universiteta. Seriya: Pravo*. 2000;(1):33–42. (In Russ.).
11. Parygin S.N. Development of civil institution of property right protection. *Vestnik Omskogo universiteta. Seriya: Pravo = Herald of Omsk University. Series: Law*. 2014;(1):87–91. (In Russ.).
12. Acemoglu D., Johnson S.H. Unbundling institutions. *Journal of Political Economy.* 2005;113(5):949–995. URL: https://www.ioea.eu/pdf/textes_2007/Acemoglu_Johnson_2005.pdf
13. Acemoglu D. Why not a political Coase theorem? Social conflict, commitment, and politics. *Journal of Comparative Economics.* 2003;31(4):620–652. DOI: 10.1016/j.jce.2003.09.003
14. Can R. Book review: Why nations fail by Daron Acemoglu and James A. Robinson. *Central Bank Review*. 2013;13(1):83–88. URL: https://www.researchgate.net/publication/341111131_WHY_NATIONS_FAIL_BY_DARON_ACEMOGLU_AND_JAMES_A_ROBINSON
15. Simon H.A. Rationality as process and as product of thought. *American Economic Review.* 1978;68(2):1–16. URL: https://josephmahoney.web.illinois.edu/BA504_Fall%202008/Session%208/Simon%20(1978).pdf (In Russ.: Simon H.A. Ratsional'nost' kak protsess i produkt myshleniya. *THESIS*. 1993;(3):16–38. URL: https://igiti.hse.ru/data/003/314/1234/3_1_2Simon.pdf).
16. Acemoglu D. It's good jobs, stupid. Economists for Inclusive Prosperity. June 2019. URL: https://econfip.org/wp-content/uploads/2019/06/Its-Good-Jobs-Stupid.pdf
17. Nureyev R.M. Power-ownership in modern Russia. In: Actual issues and trends in economic science. Proc. 2nd German-Russian seminar (Frankfurt an der Oder, 2010). URL: http://rustem-nureev.ru/wp-content/uploads/2011/01/233.pdf (In Russ.).
18. Volchik V.V. Behavioral economics and contemporary tendencies in evolution of property institution. *Terra Economicus.* 2010;8(2):71–78. (In Russ.).
19. Mokyr J. Intellectual property rights, the Industrial Revolution, and the beginnings of modern economic growth. *American Economic Review*. 2009;99(2):349–355. DOI: 10.1257/aer.99.2.349

20. Kapelyushnikov R.I. Contra paninstitutionalism. Preprint WP3/2019/03. Moscow: HSE Publ.; 2019. 84 p. URL: https://wp.hse.ru/data/2019/04/22/1178838994/WP3_2019_03_____.pdf (In Russ.).
21. Shumyankova N.V. Institutional form of processes involving the results of scientific-and-engineering activities in the economic turnover. *Innovatsii = Innovations*. 2011;(7):77–81. (In Russ.).
22. Komkov N.I., Ivashchenko N.P. Institutional problems of introducing innovations. *Studies on Russian Economic Development*. 2009;20(5):472–481. DOI: 10.1134/S 1075700709050025 (In Russ.: *Problemy prognozirovaniya* 2009;(5):21–34.).
23. Valieva O.V. Institutional environment of innovation: Theoretical and practical aspects. *Vestnik Novosibirskogo gosudarstvennogo universiteta. Seriya: Sotsial'no-ekonomicheskie nauki = Vestnik NSU. Series: Social and Economic Sciences*. 2007;7(2):134–143. (In Russ.).
24. Collier P. Why nations fail by Daron Acemoğlu and James Robinson — review. The Guardian. 2012. URL: https://www.theguardian.com/books/2012/mar/11/why-nations-fail-acemoglu-robinson-review
25. Acemoglu D., Johnson S. Power and progress: Our thousand-year struggle over technology and prosperity. New York, NY: PublicAffairs; 2023. 560 p.

ABOUT THE AUTHOR

Yuri P. Voronov — Cand. Sci. (Econ.), leading researcher at the Institute of Economics and Industrial Engineering, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russian Federation
https://orcid.org/0000-0002-7835-5827
yura.voronov.42@mail.ru

Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was received on 27.12.2024; revised on 15.01.2025 and accepted for publication on 10.03.2025. The author read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-126-133
UDC 336.645.1:004.738.5(045)
JEL G24, G11, G15, G24, G34

Digital Innovation Ecosystems and Their Role in Financing Innovations in Russia

N.V. Ostrikov[a], S.Yu. Pertseva[b]
[a,b]MGIMO MFA of Russia, Moscow, Russian Federation;
[a]Innosfera Platform, Moscow, Russian Federation

ABSTRACT

Objective. This article explores the role of digital innovation ecosystems as a key driver in the development of Russia's contemporary innovation financing system. **Methods.** The study is based on a review of relevant literature and comparative analysis. **Results.** The authors present a comprehensive analysis of both international and domestic experiences in the creation and operation of innovation clusters modeled on the "Silicon Valley" framework. The study also examines modern digital platforms that facilitate effective interaction between investors and innovative projects. Employing a systems-based approach, the paper identifies the characteristics and limitations of current innovation financing instruments and substantiates the need for alternative mechanisms to attract private capital to the innovation sector. The authors propose practical recommendations for fostering the development of Russia's digital innovation ecosystems. **Scientific novelty.** The research introduces an integrated approach to studying the role of digital innovation ecosystems in financing innovation in Russia. It incorporates insights from international "innovation valley" models and leverages the potential of modern digital platforms for investment attraction. **Practical significance**. The findings of this study can inform the design of national policy initiatives aimed at promoting innovation-led development and digital transformation of the economy.
Keywords: digital innovation ecosystems; innovation financing; innovation clusters; venture investments; digital platforms; SAFE; startups; innovation activities; private capital; technological development

For citation: **Ostrikov N.V., Pertseva S.Yu. Digital innovation ecosystems and their role in financing innovations in Russia. *The World of the New Economy*. 2025;19(2):126-133. DOI: 10.26794/2220-6469-2025-19-2-126-133**

INTRODUCTION

The economy of any country requires innovative development, as it is precisely through such development that new products, production methods, and ways of organizing production, management, and marketing processes can be created [1]. In countries with the most advanced knowledge-based economies, its share of GDP can reach 30–40%, whereas in Russia it is about 14% [2]. Research shows that Russian businesses are extremely poorly involved in the implementation of new technologies and practices, and according to data from the Generation S fund, fewer than 12% of Russian companies are innovation-active.[1]

The development of a knowledge-based economy requires investments from either businesses or the state, which are associated with high risks. In practice, Russian businesses show little interest in investing in research and development. According to data from the National Research University Higher School of Economics, in the overall structure of funds used for innovation, the state accounts for about 60%, 14% comes from the organizations' own funds,[2] and the rest from third-party investments (funds, private organizations, companies). This situation leads to a lack of incentives for developing innovative projects and does not promote competition, resulting in lagging behind in certain production sectors.

The decision to use government funds is quite logical, especially given the extremely high risks at the early stages. For example, a breakthrough project for Russian science and industry was once implemented — the creation of nuclear weapons. At that time, Russia lacked sufficient competencies, and in the shortest possible time, research and production enterprises were established, including the famous Kurchatov Institute.

Although government capital often provides the initial impetus for such projects (as was the case with almost all major innovation clusters), its further use is associated with organizational, legal, and other barriers. The directions for its application are approved at the highest level and cannot change quickly, unlike private capital. Notably, since 2020, no new unicorn companies[3] have emerged in Russia. This is precisely why Russia faces the challenge of establishing a system of interaction between private businesses, research organizations, and the state, aimed at creating and commercializing innovative developments.

At the same time, questions arise: what should such a system look like? What are its sources of funding? And so on. A.G. Aganbegyan suggests adopting the experience of creating "Silicon Valleys" around the world [3]. Russia has its own experience with similar projects, but in the scientist's opinion, the scale of their funding is incomparable to that of foreign counterparts. Moreover, as noted above, government capital cannot be quickly increased to meet the needs of growing startups or technological solutions.

Other Russian researchers likewise do not offer a concrete mechanism for financing innovation. For example, L.M. Gokhberg confirms the impossibility of relying indefinitely on government capital, but does not specify exactly what should be used instead, merely noting that the very nature of innovation is reaching a new level.[4] Thanks to the growth of digitalization, the innovation process is becoming decentralized, so the development of new technologies can be carried out by scientists who do not necessarily have to be located in the same city or the same research organization.

Thus, we face the challenge of proposing a financial mechanism for a digital system that unites innovation developers, research organizations, and private businesses.

RESULTS. THE EXPERIENCE OF "SILICON VALLEYS"

In a sense, "Silicon Valleys" — zones for the concentration and placement of innovative com-

[1] URL: https://generation-startup.ru/upload/iblock/9cf/9ym25asu3p3jq9yp159w26ke91xzhwps/

[2] URL: https://portal.inno.msk.ru/uploads/agency-sites/analytics/research/9d954d6f8775e5361279fd1dbd1382999c5d.pdf/

[3] A start-up company that has achieved a market valuation of over $ 1 billion.

[4] URL: https://www.youtube.com/watch?v=nDBufBrO788

panies — have become the gold standard for developing a country's innovation ecosystem. The term itself originated from the name of the famous Stanford Technology Park in California. Such centers serve as hubs for venture capital investments in innovative projects and companies.

Russia has experience in organizing similar projects. The first was the Skolkovo Innovation Center. Other examples include Kazan's Innopolis and the technology park under construction at Moscow State University. However, although the construction of such centers in Russia has been underway since 2010, they have not become as financially or economically successful as their foreign counterparts. For instance, A.G. Aganbegyan cites the Shanghai Free Trade Zone, where the total turnover of all companies amounts to about $ 200 billion, and the center in Bangalore, where unicorn companies match those in New Delhi in terms of capitalization.

Although such projects initially developed with state capital, at a certain stage the main source of investment became private business — something that has not happened in Russia.

Overall, nearly all Russian researchers identify the creation of startup studios or specialized venture funds as the primary means of attracting investment flows into new technologies [4–6]. However, questions remain open: what tools should be used to increase private business interest in investing? Should new "Silicon Valleys" be created to form an innovation ecosystem based on new financial principles?

A.G. Aganbegyan notes that Russian "Silicon Valleys" should be established on the basis of the country's largest institutes and universities, since any innovation begins with intellectual work. However, as mentioned above, the innovation process is undergoing a transformation driven by digitalization. Therefore, while the creation of new specialized innovation zones is possible, it is not a necessary condition, as it requires significant initial investments in setting up technology parks and office buildings. This could be avoided by creating digital innovation ecosystems, which would allow participants to collaborate regardless of factors such as geographic location.

DIGITAL INNOVATION ECOSYSTEMS

With the widespread development of digitalization around the world, digital platforms have emerged that connect innovative startups with investors. The most well-known of these at present is Crunchbase, which contains information on more than 3 million innovative companies at various stages of development and 287,000 investors worldwide [7]. Initially, this project was an internal resource of the information company TechCrunch, but by 2014 it began to grow rapidly and turned into a primary platform for finding connections between investors and startups.

In Russia, the first similar database was the startup registry of the Skolkovo Foundation. Originally created to list the residents of its innovation cluster, it later began to register innovative companies throughout Russia. According to data on the organization's website, 4,507 companies and 4,720 technology projects[5] are now registered in this ecosystem.

Another example is SberUnity, a platform of the Sber corporation, which was established as a fully digital solution aimed at working with startups at no earlier than Round A stage. It does not provide for the R&D stage of groups of scientists, and only legal entities are allowed to register. Currently, 94 major Russian corporations are registered as investors on the platform, along with 5,261 startups and technology companies, mainly in the IT and FinTech[6] sectors.

The Innopraktika Foundation has also developed its own platform, supporting the above-mentioned technology cluster at Moscow State University (MSU) — the National Technology Transfer Association (NTTA). It has created a digital ecosystem focused on supporting innovative initiatives throughout Russia. Unlike SberUnity, the NTTA is oriented toward registering technology ideas

[5] URL: https://sk.ru/

[6] URL: https://sberunity.ru

at any stage — it was the first to introduce this feature. At present, 427 technology authors are registered on the platform, including institutes, universities, and research organizations.[7]

Moreover, it should be noted that with the support of the Chamber of Commerce and Industry of the Russian Federation, the "Innosfera" project is also being developed.

Thus, digital platforms are actively penetrating all sectors of the economy and are moving toward the full digital transformation of virtually all aspects of economic activity. For the innovation process, they can provide the most comprehensive information about the market, help consolidate and standardize the terms of agreements between investors and authors, ensure compliance with all rules, and more. Given all the advantages of digital platforms, modern scholars briefly note that they make it possible to create a product in a decentralized way while extracting value from it in a centralized manner [8]. Without them, the implementation of the "open innovation" concept, which is still weakly developed in Russia, is practically impossible. According to a study by Generation S, among the largest innovation-active companies in Russia, about 60% of acceleration programs were carried out independently, which suggests that companies either use their own innovations or accelerate solutions already formed on the market (but not new ideas).

The independent search for new solutions, starting from the idea and patent stage, is virtually impossible even for very large companies, as it requires a large and costly innovation department. Therefore, such tasks are often delegated to digital platforms like the aforementioned Crunchbase, and sometimes additional scouting organizations are brought in. A completely different situation exists among foreign companies. The Capgemini Institute conducted a study surveying around 1,000 large companies worldwide: 75% clearly emphasized that without the use of open innovations, it is practically impossible to ensure the timely implementation of the latest technologies.[8]

In summary, it should be noted that at present, Russian digital innovation platforms cannot compare to their foreign counterparts in terms of funding volume and the number of participants. This is due to the fact that Russian ecosystems rely on the same financing models dominated by public capital, with state corporations as the main participants. To change this situation, other schemes need to be used within the framework of digital platforms.

INNOVATION FINANCING INSTRUMENTS

In the academic literature, financing instruments are generally divided into repayable and non-repayable. The first group includes various types of investments with investor participation in the company's or project's capital, as well as subsidies and grants without such participation.

The second group is most often used by government bodies and agencies implementing state innovation policy. Overall, authors of innovative developments and startups mainly need non-repayable investments, which include equity participation in the company as a founder or direct profit-sharing through project agreements and other mechanisms. Credit financing is also used — it has been examined by many authors [9–11].

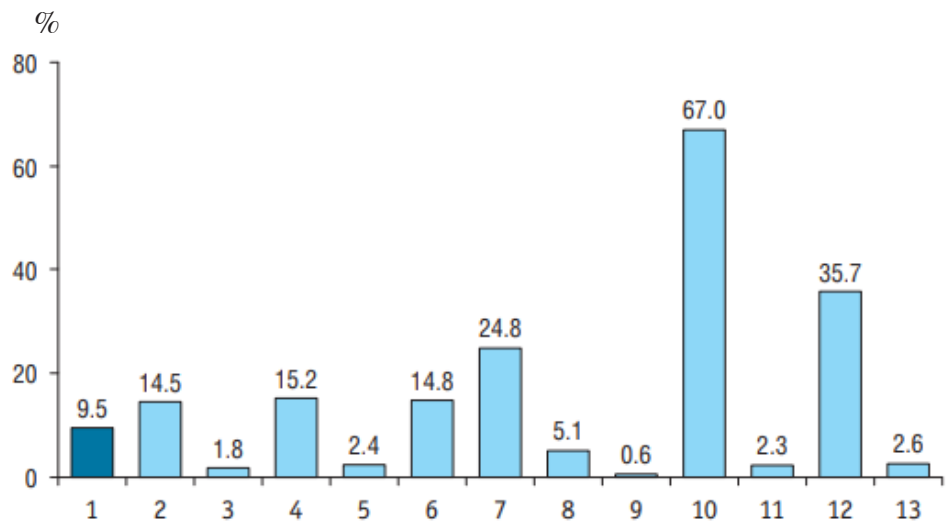
There is already some experience in Russia with introducing specialized loans for innovative companies. In particular, in 2020, the SME Corporation for the first time issued a loan secured by intellectual property for early-stage startups.[9] Since then, major Russian banks have launched similar programs.

However, this type of financing has not gained widespread traction in the innovation environment: data from the 2024 statistical digest Indi-

[7] URL: https://digital-natt.ru/

[8] URL: https://prod.ucwe.capgemini.com/wp-content/uploads/2023/05/CRI_Open-innovation_Report_Final-Draft_12062023_Web-File.pdf

[9] URL: https://www.vedomosti.ru/finance/articles/2020/09/03/838788-pervii-kredit



1 – **total**
2 – **industrial production – total**
3 – mining of mineral resources
4 – manufacturing
5 – high tech
6 – medium high tech
7 – Medium-low tech
8 – low tech
9 – supply of electricity, gas, steam; air conditioning
10 – water supply, sewerage, waste collection and disposal, pollution remediation activities
11 – **types of economic activity in the service sector – total**
12 – **agriculture – total**
13 – **construction - total**

Fig. **The share of loans and borrowings in financing innovation activities**

Source: URL: https://issek.hse.ru/mirror/pubs/share/907284710.pdf

cators of Innovation Activity (see *figure*) indicate its low prevalence.

As shown in the *figure*, the industries where credit financing of innovation holds significant weight are "water supply and waste disposal" as well as "agriculture." In all other sectors, it is negligible, and even in the high-tech manufacturing sector, its share does not exceed 2.4%. From this, it can be concluded that such financing projects have not become widespread in Russia. The most likely reason for this is the high risk associated with investing in high-tech projects, especially at early stages. Non-credit financing is therefore more appropriate than credit financing.

In practice, this means creating a new start-up company and attracting funding either in the form of equity stakes or share purchases. However, it should be noted that many high-tech projects (particularly in industry) cannot be realized through the creation of new companies because launching any large-scale production is only possible for relatively large corporations that control a significant market share. Young startups, even if they focus on a small part of the production process, find it nearly impossible to compete.

Launching such projects requires at least pilot production line trials, which only large

existing market corporations can afford. These corporations are often not interested in the growth of small innovative companies, preferring instead to acquire technologies at an early stage by directly purchasing patents or hiring the developers as employees. Therefore, direct equity investments in industrial innovation companies are rarely feasible.

At the same time, the patenting process itself is a complex task, requiring the author to incur costs for legal support and spend time registering the patent. Hiring the authors directly is often preferable in terms of conditions, but intellectual property rights for products created within a company usually belong to the company rather than the authors. For this reason, alternative approaches are needed. For example, in 2013, one of the largest venture capital funds —Y Combinator —introduced a financing instrument called SAFE (Simple Agreement for Future Equity[10]). This instrument allows companies to raise funds at the stage when only an idea and a team of creators exist. Under this agreement, the investment converts into actual equity in the company if it succeeds in the future.

This instrument gained popularity in the United States, and Y Combinator applies it to all emerging startups. However, as more data accumulated on SAFE usage, the specifics of its application and its impact on both investors' and recipients' interests have become clearer. Initially, SAFE was designed for the IT sector, where startups as small innovative companies are typical. However, this approach carries risks — for instance, if a startup fails or if the team moves on to a different project, the investor may lose their investment, among other challenges [12]. Nevertheless, the concept remains in demand, and academic research on SAFE's use in other countries exists [13, 14]. It is also applied within digital blockchain platforms in the form of smart contracts [15].

[10] URL: https://www.ycombinator.com/documents

All of the above suggests that the concept is overall a good option for attracting investment at early stages of project development and can be adapted for different purposes to enhance security and protect investors' interests.

CONCLUSION

To develop a mature innovation ecosystem within the economy, a free investment market and competition between ideas and developments are essential. Experience from the 2000s shows that an innovation ecosystem does not emerge spontaneously; it requires initiatives either from the state or from large private businesses. In various countries, this led to the creation of "Silicon Valley" projects — clusters where innovative companies are concentrated and given preferential conditions for growth. Unlike their foreign counterparts, Russian projects continue to rely on limited state capital and cannot match international examples in terms of growth and funding.

However, with the widespread development of digitalization today, innovation ecosystems are also transitioning to digital formats. This shift enables decentralized and flexible financing directly to developer teams during the creation of new technologies, as well as the attraction of private capital.

In conclusion, Russian digital innovation ecosystems need to:

- have a digital platform uniting Russian companies (or integrate with similar platforms);
- use direct investments for groups of technology developers, with profit-sharing arrangements with investors based on instruments like SAFE;
- gradually accumulate experience in applying this new financing tool and develop the platform's operational rules.

Thus, digital innovation ecosystems, supported by high-tech industries, can become centers for creating added value and thereby enhance the competitiveness of the Russian economy in the global market.

REFERENCES

1. Aganbegyan A.G. Prospects for innovative development of Russia (Part II). *Rossiiskoe konkurentnoe pravo i ekonomika = Russian Competition Law and Economy*. 2023;(2):16-27. (In Russ.). DOI: 10.47361/2542-0259-2023-2-34-16-27
2. Okrepilov V.V., Glukhov V.V., Gorin E.A. Improving the quality of education — a strategic framework for sustainable development. In: Kovalev I.V., Voroshilova A.A., Budagov A.S., eds. Economic and social trends for sustainability of modern society (ICEST-II 2021). London: European Publisher Ltd; 2021:2099-2105. (European Proceedings of Social and Behavioural Sciences. Vol. 116). DOI: 10.15405/epsbs.2021.09.02.236
3. Aganbegyan A.G. "Silicon Valleys" — innovation zones in the USA, China, EU, Russia, and other countries. *Ekonomika nauki = The Economics of Science*. 2023;9(2):8-19. (In Russ.). DOI: 10.22394/2410-132X-2023-9-2-8-19
4. Gelrud Ya.D., Cui Jianan. Studying the effectiveness of the venture capital mechanism for innovations financing. *Vestnik Yuzhno-Ural'skogo gosudarstvennogo universiteta. Seriya: Ekonomika i menedzhment = Bulletin of South Ural State University. Series: Economics and Management*. 2022;16(3):134-143. (In Russ.). DOI: 10.14529/em220315
5. Krivoguzova A.S., Vasyutenko D.M. The role of venture capital in financing innovation in the Russian Federation. *Naukosfera*. 2022;(12-1):457-461. (In Russ.).
6. Ezangina I.A., Malovichko A.E., Khryseva A.A. Innovation ecosystem as a new form of organizational integrity and a mechanism for financing and reproducing innovations. *Finance: Theory and Practice*. 2023;27(3):17-32. DOI: 10.26794/2587-5671-2023-27-3-17-32
7. Davis G.F., Marcus A. The rise of the corporation in the digital age: Crunchbase and the reorganization of entrepreneurial finance. *Administrative Science Quarterly*. 2021;66(3):635-671.
8. Gawer A. Digital platforms and ecosystems: Remarks on the dominant organizational forms of the digital age. *Innovation: Organization & Management*. 2022;24(1):110-124. DOI: 10.1080/14479338.2021.1965888
9. Morozko N.I., Morozko N.I. Development of long-term financing of innovative small companies. *Vestnik universiteta (Gosudarstvennyi universitet upravleniya)*. 2022;(3):167-176. (In Russ.). DOI: 10.26425/1816-4277-2022-3-167-176
10. Panchenko A.M., Adzhieva A. Yu. Development of a competitive credit market as a factor in innovative development of the economy. *Modern Science*. 2020;(11-3):160-165. (In Russ.).
11. Kazantseva N.V., Sergeeva K.N. Funding problem of innovative projects of small and medium enterprises. *Vestnik evraziiskoi nauki = The Eurasian Scientific Journal*. 2022;14(3):50. (In Russ.).
12. Van der Meyden R., Maher M.J. Simple agreements for future equity — not so simple? 2023. URL: https://cgi.cse.unsw.edu.au/~meyden/research/SAFEnss.pdf
13. Monroe-Sheridan A.R. Convertible equity in the Japanese startup ecosystem. *University of Pennsylvania Asian Law Review*. 2023;18(2):195-221. URL: https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1093&context=alr
14. Alekseeva S.A. A SAFE agreement as an alternative to a convertible loan agreement: Experience of foreign countries. *Notarius = Notary*. 2023;(2):57-60. (In Russ.). DOI: 10.18572/1813-1204-2023-2-57-60
15. Van der Meyden R., Maher M.J. Smart (legal) contracts: A case study using simple agreements for future equity. 2022. URL: https://cgi.cse.unsw.edu.au/~meyden/research/SAFEoverview.pdf

ABOUT THE AUTHORS

Nikita V. Ostrikov — Head of Technology Scouting, Innosfera Platform, Moscow, Russian Federation; Postgraduate Student, MGIMO MFA, Moscow, Russian Federation
http://orcid.org/0009-0008-2748-2149
Corresponding author:
Nikitaoostrikov@gmail.com

Svetlana Yu. Pertseva — Cand. Sci. (Econ.), Associate Professor, Department of International Finance, MGIMO MFA, Moscow, Russian Federation
http://orcid.org/0000-0002-1041-9150
sup.05@mail.ru

Conflicts of Interest Statement: The authors have no conflicts of interest to declare.

The article was received on 24.12.2024; revised on 29.01.2025 and accepted for publication on 20.02.2025. The authors read and approved the final version of the manuscript.

ORIGINAL PAPER

DOI: 10.26794/2220-6469-2025-19-2-134-148
UDC 336.7(045)
JEL E52, E58

The Main Trends and Prospects of the Platform Economy in the Russian Federation

S.N. Ryabukhin[a], I.A. Kokorev[b], A.A. Safronova[c], O.D. Pokrovskaya[d], N.M. Fomenko[e]
[a,b,c,e] Plekhanov Russian University of Economics, Moscow, Russian Federation;
[a] Federal Assembly of the Russian Federation, Moscow, Russian Federation;
[b] Russian University of Transport (MIIT), Moscow, Russian Federation;
[c] Russian State Social University, Moscow, Russian Federation;
[d] St. Petersburg State Transport University, St. Petersburg, Russian Federation

ABSTRACT

Relevance of information. The given article substantiates institutional, administrative and managerial, organizational and economical concepts aimed to develop platform economy of the Russian Federation. Such concepts specifically include the formation of a list of systemically significant operators in the platform economy with an established special status for state regulatory regime to provide them different state support of economic preferences. These concepts also comprise unified approaches to state regulation of digital economic processes, as well as unified conditions for cross-border turnover of goods, services and capital within the framework of international entities with participation of the Russian Federation (Shanghai Cooperation Organisation, Eurasian Economic Union). **Objective.** The article provides calculation of dynamics of aggregate capitalization of systemically significant operators of the platform economy in the Russian Federation within the time frame period of 2022–2024. It also provides comparative analysis of the growth rates capitalization of the platform economy and GDP, as well as it reveals the major trends and social-economic effects, which the domestic platform economy currently generates. **Methods.** The authors apply synthetic, analytic, deductive etc. methods, as well as econometric tools. **Conclusions.** One of the major findings of the article is the following: introduction of large-scale digital assets contributes to overcome contemporary challenges for the Russian international and domestic logistics.
Keywords: platform economy; regulation; management; development; competition; factors; socio-economic effect

For citation: **Ryabukhina S.N., Kokorev I.A., Safronova A.A., Pokrovskaya O.D., Fomenko N.M. The main trends and prospects of the platform economy in the Russian Federation.** ***The World of New Economy.*** **2025;19(2):134-148. DOI: 10.26794/2220-6469-2025-19-2-134-148**

INTRODUCTION

Over the past few years, participants in economic relations have been engaging a direct exchange of information between each other. This format of communication potentially provides innovative ways of interaction, where vendors and purchasers reconfigure roles, forming unique models of cooperation. Such transformation generates a variety of factors, which determine competitive advantages of different scales: from corporate to global level. Hence, the research aimed at identifying and scientific interpreting the factors and main trends in the development of the platform economy in the Russian Federation is of considerable relevance and timeliness, as well as the research area to justify institutional, administrative, legal, managerial, and organizational and economic tools aimed for improving the efficiency of Russian participants in the platform economy. All the above-mentioned aspects involve exploring ways and mechanisms that could increase the efficiency of Russian participants in the platform economy as well as justification of institutional and administrative approaches, which contribute to successful integration into a dynamic and unpredictable business context.

MATERIALS AND METHODS

This article is based empirically on official statistical data from Rosstat, corporate financial reports and analytical publications by market participants, including the Moscow Exchange. The theoretical and conceptual basis is provided by the results of scientific research conducted by Russian and international scholars on a variety of topics related to the trends and prospects of development of the platform economy and its impact on global and local markets. Another important aspect in the research is the selection of strategic planning documents of the Russian Federation, which contain recommendations and initiatives aimed at the digital transformation of the domestic economy. Thus, the theoretical basis of the given article hinges on the existing scientific achievements and defines the prospects for further research into the mechanisms of the platform economy within the context of modern Russian reality.

RESULTS AND DISCUSSION

The issue of the platform economy is relatively new to domestic science. Within the framework of a rapid spread of digitalisation, changes occur not only in the structure of economic relations themselves, but also in consumer preferences and organisational business models. Research work of the platform economy requires an understanding of a whole variety of factors, from technological, economic, social to cultural and this makes the exploring quite complex with multi-level tasks, both for scientists and practitioners. Deficiency in established theoretical and methodological foundations in this area makes it complicated to develop uniform approaches and concepts, which creates problems for formulating adequate strategies and policies at national level.

Nowadays, science suggests different views on this definition. According to our judgement, the interpretation by M. M. Balanova most fully reflects its essence: “The platform economy is the emerging perspective core of the digital economy, representing a system of relationships based on economic activities based on digital platforms that allow vendors and purchasers of products/services to administer transactions, enhance indirect network effects, and create new markets” [1].

L. P. Dashkov, V. I. Puchkov [2] and I. M. Korelin [3] have explored various aspects of employment in the platform economy. The research works of the industry-specific characteristics of the platform economy have revealed scientific interpretations by K. O. Akberov, I. A. Shuraev [4], A. E. Plakhin and V. Zh. Dubrovsky and E. S. Ogorodnikova [5]. The assessment of modern trends and prognosis of potential areas of

development has been determined in the publications of I. Yu. Kulikova [6] as well.

The outlook of the viewpoints of the aforementioned scholars helps establishing a consensus regarding the growing role of the platform economy, which is one of the key drivers of the transformation of economic systems both nationwide and worldwide. Besides, experts emphasise the rapid pace of platform economy processes, which is the result of the dynamics of scientific and technological progress in telecommunications and the organisation of digital services, as well as the spread of access to data exchange networks and primarily to the Internet. Moreover, the necessity of integrating interdisciplinary approaches determines the importance of understanding this definition, as it affects not only economic but also legal, social and technological aspects. This creates additional challenges that require from researchers to develop a broader understanding of methods, techniques and tools for analysing and testing hypotheses.

It is also worth paying attention to the legislative regulation of the platform economy in the Russian Federation. One of the main challenges in this area is the insufficiently clear legal framework that would correspond to the dynamics of the development of digital platforms. At present, this activity is regulated only indirectly by several regulatory documents.[1]

The uncertain nature of legal status of platforms complicates the taxation, consumer protection and content liability, besides it leads to legal loopholes. The issue of protecting users' personal data is also important, since platforms process huge amounts of personal information. Clearly, all this requires stricter measures and an approach that will consider the needs of businesses and users alike, providing a balance between innovation and legal protection.

Paying tribute to many colleagues for their contributing exploration of the platform economy, we acknowledge that there is a need for further scientific analysis of its trends and prospects in the consequences of rapid changes in government regulatory mechanisms, market conditions and socio-political conditions.

Platforms that connect various market participants (consumers, manufacturers and service providers) can be either commodity-based (for instance, online retailers) or service-based (e.g. taxi services or housing rentals). The key characteristics of the platform economy are the following:

- Network effect. The more users on the platform, the greater the benefits it provides. Thus, social networks, for example, become more attractive to users as their audience of friends and subscribers grows, which, in turn, leads to more advertisers and partners who wish to use the platform to promote their goods and services.
- Accessibility. The higher level of attainability, the better chances to improve the user experience and contribute to the creation of more effective market mechanisms, which may allow small and medium-sized manufacturers to enter the market more easily and compete with large companies.

[1] Federal Law No. 149-FZ of 27 July 2006 "On Information, Information Technologies and Information Protection". URL: https://www.consultant.ru/document/cons_doc_LAW_61798/; Federal Law No. 236-FZ of 1 July 2021, "On the Activities of Foreign Persons in the Information and Telecommunications Network ("Internet"). URL: https://www.consultant.ru/document/cons_doc_LAW_388781/; The Law of the Russian Federation No. 2300–1 of 7 February 1992 entitled "On the Protection of Consumer Rights". URL: https://www.consultant.ru/document/cons_doc_LAW_305/; Federal Law No. 135-FZ of 26 July 2006 "On the Protection of Competition". URL: https://www.consultant.ru/document/cons_doc_LAW_61763/; Federal Law No. 129-FZ of 8 August 2001 "On State Registration of Legal Entities and Individual Entrepreneurs". URL: https://www.consultant.ru/document/cons_doc_LAW_32881/; Federal Law No. 218-FZ of 13 July 2015 "On State Registration of Real Estate". URL: https://www.consultant.ru/document/cons_doc_LAW_182661/; Federal Law No. 431-FZ of 30 December 2015 "On Geodesy, Cartography and Spatial Data, and on Amendments to Certain Legislative Acts of the Russian Federation". URL: https://www.consultant.ru/document/cons_doc_LAW_191496/; Federal Law No. 8-FZ of 9 February 2009, "On Ensuring Access to Information on the Activities of State Bodies and Local Self-Government Bodies". URL: http://www.kremlin.ru/acts/bank/28858;

• Flexibility. Platform solutions have often incorporated mechanisms that can respond swiftly to changes in consumer preferences or market conditions. This kind of adaptability could make platforms resilient to external shocks and economic crises, as well as it facilitates a swifter integration of new technologies and innovative solutions.

The study of corporate financial reporting indicators for tax payments to the Russian Federation budget system[2] makes it possible to identify the main participants in the digital platform and ecosystem market, namely, platform economy operators. Here, these operators are comprehended as companies or organisations, which create and manage digital platforms, connecting various participants (such as consumers and sellers, customers and contractors) as well as providing them with services and tools for interaction. This definition is based on the provisions of the Draft Federal Law, "On the Platform Economy in the Russian Federation".[3] Key aspects of operators' roles include developing ecosystems, managing the network effect, and optimising the user experience. *Table 1* lists the main contemporary participants (platform economy operators) in the digital platform and ecosystem market in Russia.

[2] Official website of Federal tax services. URL: https://www.nalog.gov.ru/rn77/related_activities/statistics_and_analytics/; https://www.e-disclosure.ru

[3] Draft Federal Law "On the Platform Economy in the Russian Federation" URL: https://base.garant.ru/57007713/

Table 1

The major operators of the platform economy in the Russian Federation

Economic activity	Brand name
Marketplaces, service aggregators	Sber Mega Market, Yandex, Wildberries
Classifiers*	DomklikSber, Avito, Ozon, Yula, Tsian
Sharing platforms	Delimobil, YandexDrive, Volt
Labour market platforms	HeadHunter, SuperJob
Crowdfunding and financial platforms	Yu-money, planeta.ru
Information and reference platforms	Gosuslugi, Yandex.Maps, Mos.ru
Social networks, messengers	Vkontakte, Odnoklassniki, Telegram

Sourse: compiled by the authors.

Note: classifiers are specialised Internet resources that provide interaction between sellers and buyers of certain commodity items (e.g. real estate, cars, etc.).

The information presented in *Table 1* identifies the following features of the current stage of development of the platform economy in the Russian Federation:

- a wide and more expending range of economic activities, in which digital business instruments are successfully employed at a corporate level;
- the development of umbrella brands that embraces together multi-sector digital platforms and different types of businesses;
- high levels of competition among operators in the Russian platform economy, contributing to an increased range of digital products for consumers, package deals and overall efficiency in this segment.

The expansion of digital platforms and ecosystems have generated favourable circumstances for the development of a sustainable economy. This transition process contributes to accelerated digital transformations meanwhile flexibility becomes an important factor to reduce economic turbulence. Businesses that develop on platforms can save significant time and financial resources, which in turn, can be directed towards developing their own services. In addition, using platforms together with private logistics and procurements has become an essential way of import substitution, which helps filling the Russian market with primary commodities. Besides, the opportunities to create new jobs and generate income are equally important. At the same time, users acquire access to a variety of goods and online services, since consumer demand is growing [7]. Notably as well, the pandemic events and its follow-up resulting restrictions related to physical interaction be-

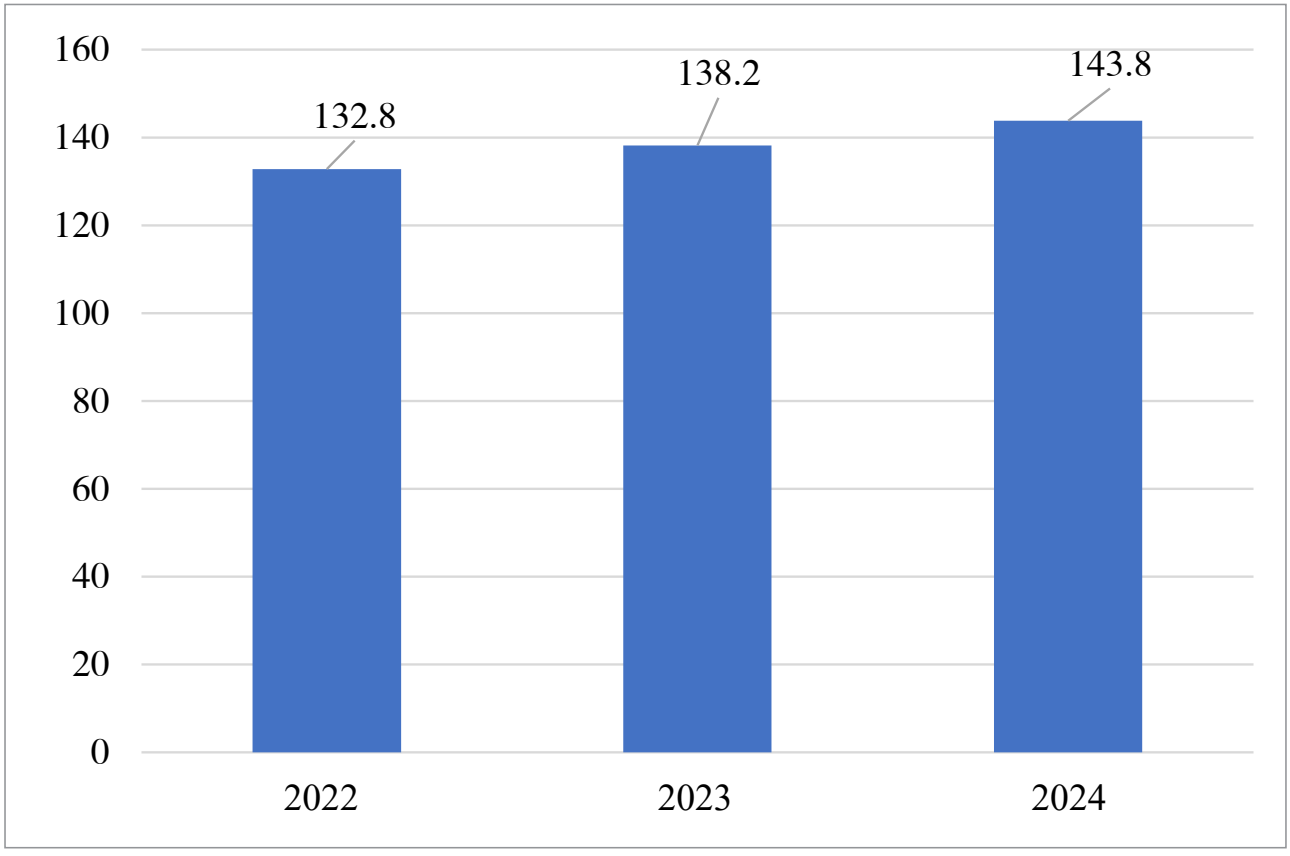


Fig. 1. **Dynamics of GDP of the Russian Federation in 2022–2024 (trillions of Rubles, in 2021 prices)**

Sourse: compiled by the authors.

tween citizens have driven to an additional rapid expansion for economic entities in the platform economy of the Russian Federation. Here we shall consider its most rapidly developing sectors.

1. In passenger transportation, the Yandex Group has become the leading market player. In in 2011, it developed the Yandex.Taxi app, which quickly gained popularity thanks to its convenient mobile interface and competitive prices. The platform uses algorithms for routes optimization and calculation of trip costs. In 2018, Yandex.Taxi amalgamated with Uber in the Russian Federation and throughout other CIS countries and this improved its performance related to services and increased profitability through combined potential.

2. The retail sector was represented primarily by the Ozon Group, as one of the first online retailers in the Russian Federation, operating since its foundation in 1998. The platform offers to consumers a wide range of products, including books, electronics, and clothing. Throughout recent years, Ozon has been actively developing its logistics operations and implementing new technologies, such as warehouse automation and delivery by drones. Another Russia's major player is Wildberries. Founded in 2004, it has become the largest national online store. Wildberries sells clothing, footwear, cosmetics etc., and it actively develops a network of drop-off points and implements new technologies to enhance the user experience.

3. Delivery Club, Cooper and Yandex.Food are the Russia's platforms that operate in food delivery services from restaurants and shops. Their services became especially popular during the pandemic period, when demand increased in the society.

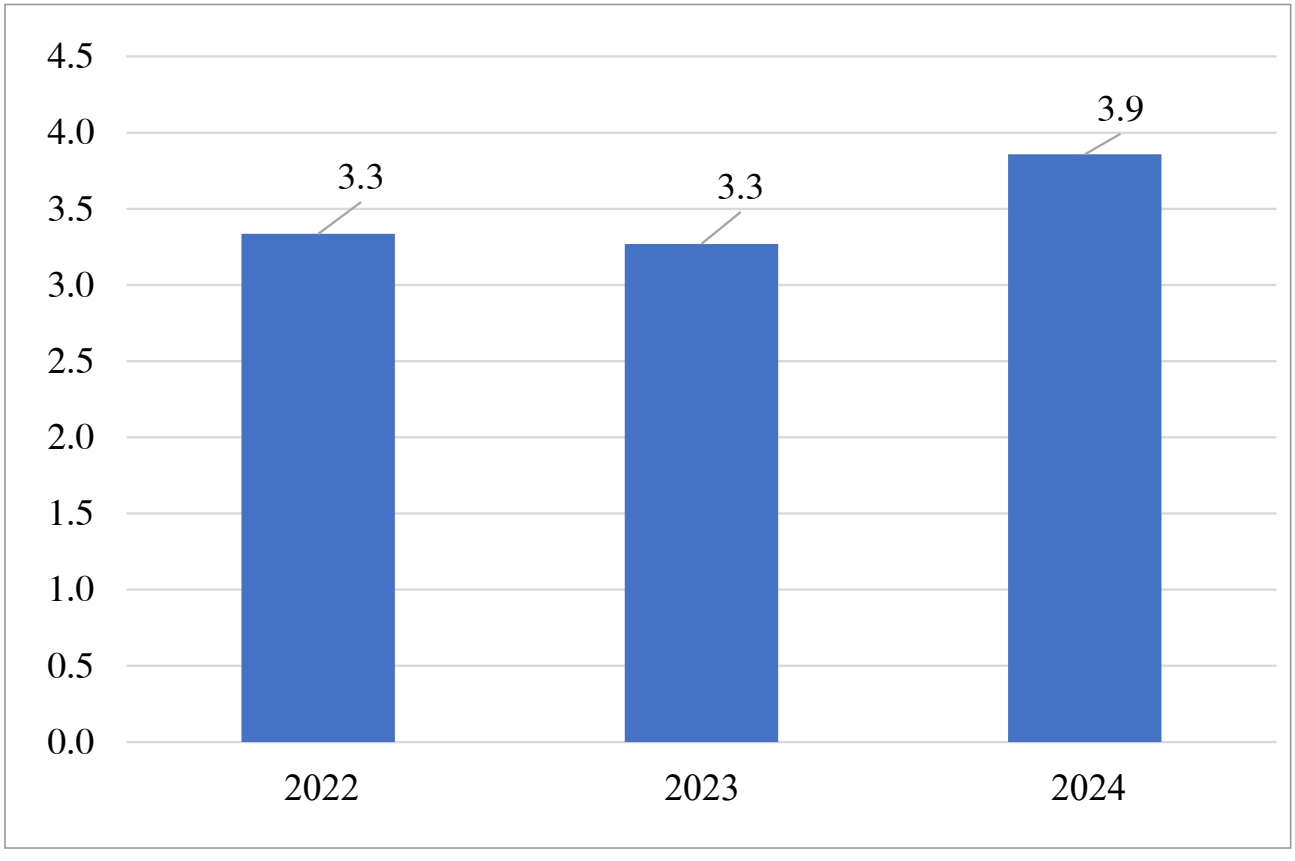


Fig. 2. **Dynamics of aggregate capitalisation of the major Russian operators of the platform economy in 2022–2024 (trillions of Rubles)**

Sourse: compiled by the authors.

The principle operators of the Russian platform economy keep constantly developing their business models, which contributes to their growing market share both domestically and worldwide. For example, Yandex, being a leader among innovative companies was categorised in the international rating of Forbes Global 2000 at the end of 2023. It offers a whole variety of services integrated under one brand, namely: passenger transportation (Yandex.Taxi), food delivery (Yandex.Eda), car sharing services (Yandex.Drive), provision of entertainment media content (Yandex.Music), etc.

In view of the subject of the given article, we shall provide analysis of the role and position of the platform economy within the framework of the economic landscape in the Russian Federation below in *Fig. 1* and *2*).

As *Fig. 1* and *2* indicate, the economic growth rate of GDP of the Russian Federation during the observation period has reached 8.3 per cent meanwhile the corresponding figure for the aggregate capitalisation of the main platform economy operators was 15.7 per cent. Almost double-rate growth indicates the following processes: firstly, owners and corporate management of companies have come to a growing awareness of the need to organise digital support for business processes. This will streamline operating costs and accelerate information exchange. Secondly, the market has indicated a consolidation of assets, which manifested in the emergence of large operators with diversification strategy of their activities in the digital environment by means of purchasing promising companies, including those beyond the boundaries of the Russian Federation, as well as by integrating them into an umbrella brand. Particularly, Yandex and Sber groups incorporate such a business strategy. Thirdly, the Russian digital market undergoes a sustained development, which is particularly appropriate in the context of unprecedented pressure of sanctions against the Russian economy from a number of hostile powers.

Thus, there exists a correlation between these processes and global trends in the platform economy [8–11], which will proceed developing to increase its share, to adapt to new circumstances and requirements. In the future, it is expected, that new platforms aimed to cover various areas of life will emerge for operation, such as online educational platforms like Coursera and Udemy, which offer access to educational tools and resources for a wide audience.

Additionally, it is assumed, platforms will use artificial intelligence and big data technologies to streamline the user experience and optimise business processes. This will make them possible to provide more personalised services and elevate customer satisfaction.

Table 2 illustrates the interpretation developed by the authors of the socio-economic effects of the platform economy.

The trends we have identified in the dynamic development of digital platforms determine the need for substantiating effective state regulation of this activity. Another factor, which occurred relatively recently, is the economic sanctions imposed on the Russian Federation by hostile states. These sanctions have created challenges such as the outflow of qualified IT experts, restricted access to advanced technical solutions and foreign investment, and limited movement of goods across the border. This has led to a reduction in the variety of marketplaces available. Among other risk factors, include politically or financially encouraged cyberattacks by international hacker groups, which make a destabilizing impact on operation of entities in the platform economy.

In such circumstances, as we visualise, the effectiveness of regulation can be developed in both internal and external contexts. This can be achieved internally by means of optimising the existent body of legislative and regulatory legal acts of the Russian Federation. It is vital to review and clarify the regulations in the sphere of activities of control and supervisory bodies: such as their powers, responsibilities, rights, and commitments. This approach will help eliminating excessive barriers and enhancing the transparency of regulatory processes. In the external contexts,

Table 2

Socio-economic effects generated by the platform economy

Type of effect	The essence
Increased sustainability contributing to economic development	The development of digital platforms facilitates acceleration of digital transformation at meso- and macroeconomic levels by transferring technical and technological solutions and the immanently available flexibility of digital tools. This allows businesses to respond faster to changes in market conditions
Business expansion	The expanded functionality of digital platforms and ready-made customer bases allow businesses to significantly increase their outreach to potential customers and thereby grow their market share. An additional effect arises when a company's own digital services get integrated with platform solutions
Formation of new supply and logistics chains	The use of digital platforms to arrange procurement and logistics enables to find the most effective contractors relatively quickly
More new jobs, higher income of economic entities and growing budget system of the Russian Federation	The digital transformation, related to the development of platform infrastructure, creates new innovative jobs and leads to structural transformation of the economy, which contributes to an increase in both the income of economic agents and the budget system of the Russian Federation due to the growth of tax payments
Stimulating consumer demand	Consumers gain access to a non-stop growing range of goods and services, as well as buy related goods and services
Stimulating social development	This contributes to expanding opportunities for obtaining social services and encouraging citizen involvement in socio-political processes

Sourse: compiled by the authors.

it is necessary to organise an instrumentation for cross-border state regulation aimed to develop the platform economy in collaboration with friendly countries. This could encompass uniform standards established to ensure the security of user information and organising collaboration against online fraud between law enforcement agencies. Such approach is aimed not only to improve the operation of the platform economy, but also helps increasing user confidence.

The present challenges which affect the development of the platform economy require a specific state regulation (primarily regarding established standards) to improve such issues as the lack of effective protection of consumers' rights, multiple labour law violations relating to front-line marketplace personnel (for instance, warehouse workers and give-away outlets), or taxi drivers cooperating with transport service ecosystems.

In addition to the abovementioned measures, aiming to intensify the platform economy of the Russian Federation, including minimising the impact of destructive external factors, it is necessary to ensure a reliable activity of operators, which implies, namely:

- developing digital infrastructure, in addition to provision of uninterrupted high-speed internet access;

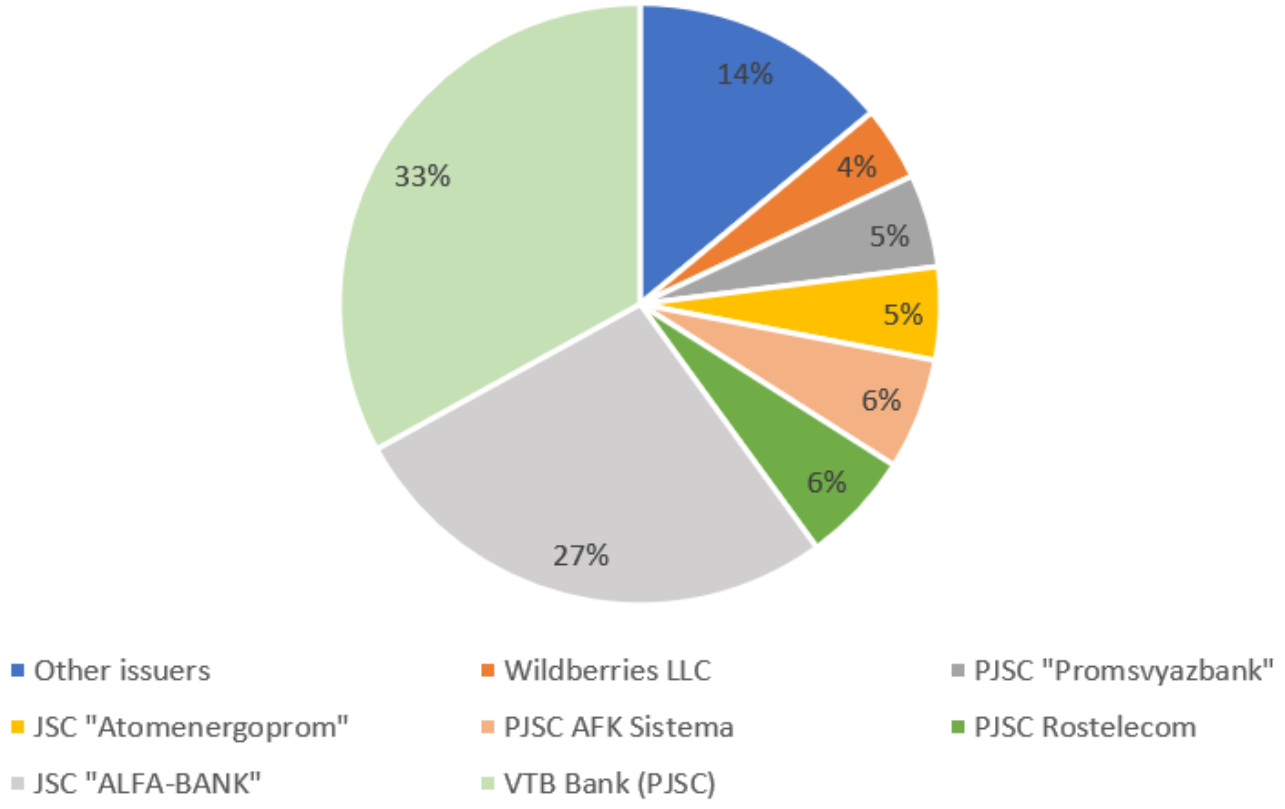


Fig. 3. **The major issuing entities of digital financing assets in 2024**

Sourse: compiled by the authors.

- guaranteeing the protection of users' personal data and other confidential information, including the users' mandatory consent for the use of their personal information for marketing purposes;
- curbing market monopolisation and unfair competition by creating mechanisms to support digital start-ups and pioneering research and development;
- protecting the rights and legitimate interests of consumers of services which are provided by platform economy operators and their employees in the Russian Federation;
- protecting the interests of operators of the Russian platform economy in foreign jurisdictions and expanding their participation in developing international agreements that regulate digital economic activity.

Obviously, solution of such a complex task requires the involvement of the State, with active participation of representatives of consumer communities, industry associations, and experts.

Digital financial assets (DFAs) are the elements of paramount importance for the platform economy of the Russian Federation. The issuance and circulation of DFAs are provided by specialised digital platforms, namely, information system operators (ISOs). The ISOs open access to the information system for users, interact with state authorities regarding the issues related to the provision of information and the enforcement of court decisions,[4] as well as record and perform settlements on transactions involving DFAs.

Nowadays, Bank of Russia's register has eleven ISOs.[5]

Between the DFA issuers can be legal entities, including banks, financial organisations, large

[4] URL: https://secrets.tbank.ru/razvitie/cfa/

[5] URL: https://alfabank.ru/corporate/a-token/#form

and small companies, medium-sized enterprises (SMEs)[6] as well as individual entrepreneurs (see *Fig. 3*). Even not qualified investors can invest in CFAs, significantly expanding the opportunities to attract liquidity for Russian companies.

THE MAIN OBSTACLES FOR CFAS OF TODAY AND THE WAYS TO OVERCOME THEM

The main issues restricting the growth of the CFA asset market in Russia can be categorised into the following three groups:

1. Legal regulation of their issue and circulation. The regulatory framework is not yet entirely developed. There is no experience in resolving conflicts or prioritising debt repayment. There are also a number of contradictions, for example between the laws related CFA and securities [12].

2. The lack of awareness of CFA trading mechanisms and the confidence of potential investors in the return on their invested capital.

3. The lack of mutual integration of OISs in CFA trading reduces the market liquidity. Besides this, investors are dependent on a specific platform and unable to transfer their assets to another platform.

In our viewpoint, the most important is the third problem. The decision to create completely autonomous, disconnected ISOs seems primarily controversial. In the long run, we can expect that ISOs would become converged towards a "common denominator", likewise stock exchange activities. In other words, the functions of operators of information systems will be similar to brokerage companies and the register of the Central Bank of Russia will resemble a stock exchange, operating with a single settlement and clearing centre. However, such a centralization-driven decision will have a drawback: the potential system could be vulnerable to sanctions.

The issues of regulatory control are relevant in all digitalization-related areas. Thus, for example, the lack of unification of the legislative framework and regulatory documentation in this area is assessed currently as one of the major barriers for the application of information modelling technologies in the construction of transport infrastructure [13].

The abovementioned problems are likely to be resolved eventually, probably by means of the establishment of an additional regulatory body. As far as investor awareness and confidence are concerned, this can be easily achieved, when major players start to operate within the DFA market, which, actually, already takes place.

PROSPECTS FOR THE USE OF DFAS IN REGIONAL TRANSPORT AND LOGISTICS COMPLEXES

Enterprises, which operate in the transport and logistics sector, consistently require financing. This challenge has become particularly serious under the current circumstances of extremely high interest rates established by the Central Bank of the Russian Federation.

Significant success in improving various problematic aspects of the transport and logistics sector can be reached by introduction of digital financial assets. Below we have identified a number of promising areas, specifically:

1. Tokenisation of assets, in such area as containers, transport vehicles, or even entire logistics hubs. This enables to generate digital equivalents of physical assets, facilitating new opportunities for asset management, their leasing, sale, and exchange. For instance, warehouse owners may offer rental services through DFA-based platforms.

2. Support for international operations. In cross-border logistics, DFAs can serve as a powerful tool for overcoming barriers, which occur due to currency restrictions and discrepancies in national legal systems. DFAs enable rapid and secure cross-border financial transfers by means of bypassing traditional banking channels and systems.

3. Smart contracts. They can ensure automatisation and increase the transparency of many logistical processes through the provision of spe-

[6] URL: https://alfabank.ru/corporate/a-token/#form

cific contractual conditions either partially or fully without manual involvement. This enhances operational speed and reduces the likelihood of human error.

4. Replacement of traditional liquidity-raising methods with DFA instruments. This subsequently broadens the investor base, reduces costs, and minimises the time for the issuers required for capital acquisition.

SMART CONTRACTS AND ASSET TOKENISATION AS INSTRUMENTS FOR HIGHER EFFICIENCY IN THE TRANSPORT AND LOGISTIC SECTOR

The implementation of DFAs as a tool for the digital transformation of the transport and logistics sector provides viable opportunities for reducing cost, gaining efficiency, and increasing transparency within the framework of supply chains. Their application in this field is diverse; however, we shall cover two aspects worth of particular attention: smart contracts and asset tokenisation.

Smart contracts enable the automation of payment transfers to transport companies under the terms arranged in advance, thereby reducing invoice processing costs and ensuring timely payment. Freight transportation, especially multimodal logistics, has become a complex, multistage process, which requires a rigorous control and every-stage monitoring. The following key indicators to be monitored include:

- Precise timing of passage through control points;
- The condition of cargo at all stages of transportation;
- Delivery speed and cost of cargo;
- Acceptance of cargo for safekeeping or for delivery by the transportation chain participants.

These indicators can be comprehensively monitored through the implementation of smart contracts. In the essence, they are computer codes, therefore automatically recording the necessary parameters and giving a green light for the transition to subsequent stages of transportation. This ensures transparency of the process at all stages of delivery, reducing the number of intermediaries, simplifying and streamlining documentation procedure, and lowering costs related to legal and notarial services, as well as lowering expenses arising from disputes.

A smart contract signed between the consignor, consignee, and transport operator/logistics companies enables controlling the following:

- Information and notifications: changes in the status of the cargo, passage through control points;
- Invoicing and payment processing, including by the way the scheduling of payments for intermediary services separately and linking payments to specific control milestones or operations;
- Cargo insurance determined at different stages of transportation.

For example, in 2018, RZD (Russian Railways Company) piloted the use of block chain-based smart contracts during the transportation of goods by means of container trains along the October Railway.

To assess the viability of this solution in multimodal logistics, the digital platform was integrated with the information systems of external organisations, such as the Port of Saint Petersburg and the freight forwarding company "Modul". At the initial phase, approximately thirty freight operations were analytically processed. Over the first two months, nearly forty test shipments were conducted, the majority of which were successful. The final data displayed on the platform of distributed ledger corresponded with the parameters recorded in the smart contracts.

In general, tokenisation implies the encoding of specific rights in the form of a token, namely, a piece of software code. In contrast to real, physical assets, tokenised assets can be divided among several investors, and the income derived from them can be distributed proportionally according to the individual shares specified in the token. At present, the principal obstacle for the development of this market consists in inadequate regulatory framework.

CONCLUSIONS

Russia's market of digital platforms and ecosystems (such as Wildberries, Avito, Ozon, Sber, SberMarket, VTB, Yandex, VK, Kaspersky Lab, 1C, among others) are rapidly evolving. They have become integral elements for the functioning of many key economic sectors, including trade, finance, logistics, and services. Their large-scale introduction and development play the central role of digitalisation in the national economic strategy. Besides all that, public trust in digital platforms and ecosystems remains high and this makes an essential indicator of their resilience and reliability.

Thus, we can draw the following conclusions from this research work:

1. At the current stage, the platform economy constitutes one of the most dynamically developing segments of the national economic complex, which yields the following numerous positive socio-economic end-results, including: generation of added value, increased tax revenues to the federal budget of the Russian Federation, strengthened interregional economic ties, reduction of disparities in socio-economic development, as well as job creation. These developments enhance the competitiveness of the Russian economy in comparison with global standards. Nowadays, the platform economy is sophisticating traditional business models in Russia and internationally through the widespread implementation of advanced management practices at the micro-meso-and-macro-levels. The success of platforms depends on their adaptability to changing consumer preferences and regulatory environments, as well as their openness to innovations and cooperation with diverse stakeholders. In the circumstances of rapidly developing technological progress, the platform economy will continue to exert significant influence on both global markets and society as a whole.

2. The adjustments in the state regulation is necessary to maximise the positive effects of the platform economy. In line with the authors' academic viewpoints, it is advisable to develop a list of systemically important platform economy operators in the Russian Federation analogous to the list of entities subject to a special regulatory regime and systemically important credit institutions[7] compiled by the Central Bank. This regime should include various economic incentives, such as state support measures, for instance, preferential loans or co-financing from the federal budget, protection of interests of systemically relevant of platform economy operators, which deal with telecommunication services providers, etc. Moreover, there should be eliminated inconsistencies and contradictions among government bodies in the digital regulatory sphere. On the one hand, strategic planning documents establish objectives of digital sovereignty related to digital transformation of domestic economy and digital development projects and programs[8] are implemented with the support of the State. However, on the other hand, certain cases have occurred related to extrajudicial restrictions on the Internet access, which have a detrimental impact on the performance of domestic platform economy operators, stain their international reputations, and reduce their capitalisation.

A significant growth reserve for Russian platform operators ensures our country the opportunity to participate in international organisations such as the Shanghai Cooperation Organisation, the Eurasian Economic Union, etc. Establishing interstate cooperation in such areas as harmonisation of digital economic regulations and foundation of unified conditions for cross-border movement of goods, services, and capital will offer Russian operators additional competitive

[7] Bank of Russia Instruction of 13.04.2021 No. 5778-U "On the Methodology for Determining Systemically Important Credit Institutions". URL: https://www.garant.ru/products/ipo/prime/doc/400694152/

[8] Decree of the President of the Russian Federation of 07.05.2024 No. 309 "On the National Development Goals of the Russian Federation for the Period up to 2030 and for the Perspective Up to 2036". URL: http://www.kremlin.ru/acts/bank/50542; Decree of the President of the Russian Federation of 30.03.2022 No. 166 "On Measures to Ensure the Technological Independence and Security of the Critical Information Infrastructure of the Russian Federation". URL: http://www.kremlin.ru/acts/bank/47688

advantages, which is due to the particular role of the Russian language as a means of international communication in several member states, who are participants in the abovementioned organisations.

It is necessary to develop mechanisms to encourage corporate integration within a unified platform economy space shared by Russia and its allied states. The practical implementation of such an institutional initiative, together with the development of intergovernmental administrative and legal mechanisms will enhance the competitiveness of Russian and allied platform operators. This, in turn, will positively influence metrics such as capitalisation, technical and technological innovations, etc., and enables to effectively compete with analogous companies from the United States and China.

Thus, this may bring to conclusion, that digital platforms and ecosystems are not merely instruments for enhancing business efficiency, but also key players in the process of national economic development. Their influence keeps growing and opening new avenues for innovations, improvement of quality of services, and enhanced quality of public life. This ongoing transformation process requires a further research and optimisation of digital platform operations to ensure sustainable and balanced economic growth within the country.

4. DFAs represent a rapidly evolving innovation. The platform economy cannot function effectively without them. On the one hand, DFAs constitute a new class of assets. On the other hand, they serve as a substitute for all traditional exchange-traded instruments. In the near future, DFAs are expected to transform conventional economic relations in many areas. Undoubtedly, the digital transformation of the transport and logistic sector will inevitably involve the active utilisation of capacities of DFA. Thereby, this will enhance its financial resilience and the profitability of the transport industry in Russia. The wide-scale adoption of digital assets will help resolve pressing issues in logistics both at the domestic territory and worldwide.

ACKNOWLEDGEMENTS

The article carried out within the framework of the state assignment of the Ministry of Education and Science of Russia to higher educational institutions in terms of conducting research on the topic Creation of instruments for its circulation (scientific topic code FSSW-2023–0006). Plekhanov Russian University of Economics, Moscow, Russian Federation.

REFERENCES

1. Balanova M.M. Platform economy as the core of the digital economy: Review of scientific schools and ranking of its subjects. *Vestnik Samarskogo gosudarstvennogo ekonomicheskogo universiteta = Vestnik of Samara State University of Economics*. 2021;(7):19-31. (In Russ.). DOI: 10.46554/1993-0453-2021-7-201-19-31
2. Dashkov L.P., Puchkov V.I. Assessment of the impact of the platform economy on the Russian economy. *Fundamental'nye i prikladnye issledovaniya kooperativnogo sektora ekonomiki = Fundamental and Applied Researches of the Cooperative Sector of the Economy*. 2023;(1):50-55. (In Russ.). DOI: 10.37984/2076-9288-2023-1-50-55
3. Korelin I.M. Platform economy, potential impact on the division of labor and the ratio of market and plan mechanisms in the economy. *Modern Economy Success*. 2023;(4):224-229. (In Russ.).
4. Akberov K., Shuraev I. The impact of the specifics of the use of platform solutions in the process of transformation of agricultural production into the digital economy. *Russian Journal of Management*. 2024;12(4):63-79. (In Russ.). DOI: 10.29039/2500-1469-2024-12-4-63-79
5. Plakhin A.E., Dubrovsky V. Zh., Ogorodnikova E.S. A study of digital divide under the platform model development in the corporate sector of the economy. *Journal of New Economy*. 2024;25(3):71-89. (In Russ.). DOI: 10.29141/2658-5081-2024-25-3-4

6. Kulikova I. Yu. Platform economy as a new stage in the development of the digitalization process. *Nauka Krasnoyar'ya = Science of Krasnoyarsk*. 2021;10(1-2):81-92. (In Russ.).
7. Abdrakhmanova G.I., Gokhberg L.M., Dem'yanova A.V., et al. Platform economy in Russia: Development potential: Analytical report. Moscow: Institute for Statistical Research and Economics of Knowledge of HSE; 2023. 72 p. URL: https://issek.hse.ru/mirror/pubs/share/832628936.pdf (In Russ.).
8. Acs Z.J., Lafuente E., Szerb L. A note on the configuration of the digital ecosystem in Latin America. *TEC Empresarial*. 2022;16(1):1-19. DOI: 10.18845/te.v16i1.5926
9. Cennamo C. Competing in digital markets: A platform-based perspective. *Academy of Management Perspectives*. 2021;35(2):265-291. DOI: 10.5465/amp.2016.0048
10. Cutolo D., Kenney M. Platform-dependent entrepreneurs: Power asymmetries, risks, and strategies in the platform economy. *Academy of Management Perspectives*. 2021;35(4):584-605. DOI: 10.5465/amp.2019.0103
11. Gazel M., Schwienbacher A. Entrepreneurial fintech clusters. *Small Business Economics*. 2021;57(2):883-903. DOI: 10.1007/s11187-020-00331-1
12. Sysoev N.S., Mukhambetalieva O.R. Problems of implementation and prospects for development of digital financial assets in Russia. *Fundamental'nye issledovaniya = Fundamental Research*. 2024;(3):48-52. (In Russ.). DOI: 10.17513/fr.43580
13. Stupnikova E.A., Olenina O.A., Razuvaev A.D., et al. Economic aspects of digitalization in the building complex. *Biznes i dizain revyu = Business and Design Review*. 2022;(4):42-50. (In Russ.). DOI: 10.56565/25419951_2022_4_ 42

ABOUT THE AUTHORS

Sergey N. Ryabukhin — Dr. Sci. (Econ.), First Deputy Chairman of the Federation Council Committee on Budget and Financial Markets, Federal Assembly of the Russian Federation, Moscow, Russian Federation; Director, Research Institute 'Innovative Financial Instruments and Technologies', Plekhanov Russian University of Economic, Moscow, Russian Federation
http://orsid.org/0009-0004-4952-4056
Ryabuhin.SN@rea.ru

Igor A. Kokorev — Dr. Sci. (Econ.), Professor, Chief Research Fellow of the Research Institute "Innovative Financial Technologies and Instruments", Plekhanov Russian University of Economics, Moscow, Russian Federation; Head of the Department "International Business", Russian University of Transport (MIIT), Moscow, Russian Federation
https://orsid.org/0009-0009-2799-5953
Corresponding author:
Kokorev.IA@rea.ru

Anastasia A. Safronova — Dr. Sci. (Econ.), Professor, Chief Researcher of the Research Institute "Innovative Financial Technologies and Instruments", Plekhanov Russian University of Economics, Moscow, Russian Federation; Professor of the Department "Management, Marketing and Sales", Russian State Social University, Moscow, Russian Federation
https://orsid.org/0000-0001-5045-5423
Safronova21@bk.ru

Oksana D. Pokrovskaya — Dr. Sci. (Tech.), Professor, Head of the Department "Operational Work Management", St. Petersburg State Transport University named after the Emperor Alexander I, St. Petersburg, Russian Federation
https://orsid.org/0000-0001-9763-0666
insight1986@inbox.ru

Natalya M. Fomenko — Doctor of Economics, Professor of the Department "National and regional economics", Plekhanov Russian University of Economics, Moscow, Russian Federation
https://orsid.org/0000-0002-9266-9865
Fomenko.NM@rea.ru

Authors' Contribution
S.N. Ryabukhin — scientific supervision.
I.A. Kokorev — critical analysis of materials, conclusions.
A.A. Safronova — critical analysis of materials, conclusions.
O.D. Pokrovskaya — development of research methodology.
N.M. Fomenko — drafting the initial version of the text, critical analysis of materials, translation of some article's components into English.

Conflicts of Interest Statement: The authors have no conflicts of interest to declare.

The article was received on 21.02.2025; revised on 10.03.2025 and accepted for publication on 10.04.2025. The authors read and approved the final version of the manuscript.