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Appropriate Budgetary Policy for a Changing Economy

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ABSTRACT

The XXI century's contemporary challenges and crises indicate that fiscal policy is an appropriate tool for countercyclical regulation, ensuring sustainable economic growth and social justice. In this regard, society's requirements for the quality of budgetary policy have changed, which has shifted the focus in setting goals and choosing tools for its implementation from the position of ensuring sustainable economic growth and the principles of fair distribution of income. The analysis allows us to conclude that to ensure the proper quality of budgetary policy, its goals and objectives must correspond to the strategic goals of developing public law education, and coordination of budgetary and monetary policy is necessary. To achieve the goals of justice, the author of the article propose to differentiate the instruments of inter-budgetary reallocation of funds depending on the level of debt sustainability of the regions and to use targeted grants to motivate the authorities of public law entities to ensure sustainable socio-economic development. The article shows that for improvement of the formation mechanism of state programs and national projects and budget efficiency growth, it is necessary to monitor the compliance of tax expenditures and budget subsidies with the target indicators of state programs.

Keywords: budgetary policy; the proper quality of budgetary policy; objectives of budgetary policy; the economic growth; inequality; tax expenses; budget subsidies; government programs

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INTRODUCTION

Current trends in the development of public financial management reflect, on the one hand, an increase in the number of tasks to be carried out in the process of formulating and implementing public-law budgets, on the other hand, on changing the functions of the State and increasing the level of public demand for the soundness of the directions and the volume of use of budgetary resources and for the availability and quality of State and municipal services, performance of public sector institutions and budget efficiency. For example, as evidenced by foreign and domestic experience, the innovation ecosystem is first shaped around public development institutions, and then an expanding supply comes from private investors. In this context, it is necessary to formulate a budget policy capable of ensuring, first, the effective use of a limited amount of budgetary resources and, secondly, the maintenance of the potential for the social impact of budgetary policies economic processes.

As a response to these public finance management requirements in academic publications, Codes of Best Practice prepared by the IMF, OECD, introduced the term Good Budgetary Policy (appropriate fiscal policy), to assess the extent to which the goals and objectives of budgetary policies pursued by States are consistent with the principles of good and responsible governance within the framework of the concept Good Budgetary Governance (quality of public administration), increased transparency, openness and

inclusiveness in public sector financial management.[1] As part of the implementation these requirements, and in the light of current challenges, fiscal policy should focus on the long-term sustainability of public sector finance through risk assessment and the use of budgetary rules, improving budget efficiency.

CURRENT BUDGETARY POLICY REQUIREMENTS

In modern conditions, the key to "macroeconomic health" of the State is fiscal policy, which takes into account the emergence of new macroeconomic risks and is a stabilizing factor of the social and economic development of the State, not an additional source of risks. At the same time, the top priority in fiscal policy is "careful matching of equity and efficiency objectives".[2]

In fact, the high level of economic uncertainty, globalization, the changing structure of the world economy have been the main reason for rethinking the role of fiscal policy, as monetary opportunities credit policy as a tool for macroeconomic management has shown its limitations. "The crisis has provided evidence that fiscal policy is an appropriate counter-cyclical policy instrument at a time when monetary policy is limited to a zero floor, the financial sector is weak or the gap between potential and actual production is particularly large".[3]

A number of factors are influencing the transformation of modern budgetary policy requirements:

- external, including economic (related to globalization, changing structure of the world economy, high level of economic uncertainty), political (related to the formation of a new social contract between the State and society), social (deepening inequality, failure to fully implement existing social obligations of the State), demographic (changing gender and age structures, migration problems) and technological (related to the development of information and communication technologies);
- internal, associated with (1) the growth of the State, with the decline in the effectiveness of the hierarchical system of democratic governance and the inability to ensure the competitiveness of national economies in the dynamic structure of the world economy, (2) citizens' dissatisfaction with the quality of public services and the increase in the cost of maintaining the State apparatus, in the absence of opportunities for citizens and civil society institutions to influence State decisions affecting them.

CONCEPTUAL APPROACHES TO DEFINING THE TERM "APPROPRIATE BUDGET POLICIES"

Use of the term "appropriate budget policy" in IMF codes of best practice OECD, policy documents of Russian and foreign public authorities in the context of effective and responsible management of public finances envisages the definition of this concept based on the theory of management complex social-economic systems and public law.

In the research publications [1–8] on public sector financial management and law, an appropriate approach to the management of complex socio-economic systems implies the ability to influence the course of events. Therefore, appropriate budget policies should be pursued as purely financial (linked to increased revenues, increased efficiency of expenditure budgets of public-law entities), thus, the general economic objectives are

[1] Draft principles of Budgetary Governance (OECD, 2013). URL: http://gogov.org.ua/wp-content/uploads/2016/05/Draft-Principles-of-Budgetary-Governance.pdf .

[2] Recent developments and prospects in the public sector. Analytical Report. IMF, 2014. URL: https://www.imf.org/external/russian/pubs/ft/fm/2014/01/pdf/fmexsr.pdf .

[3] From stabilization to sustainable growth. Annual report / Coll. auth.: under the leadership of D. Hawley, George. Clift, H. Riad. IMF, 2014. URL: https://www.theguardian.com/society/2018/apr/26/rise-in-child-drug-runners-recruited-from-small-towns-research.

defined, defining the measures and instruments to influence the national economy and the standard of living of the population. This requirement should be taken into account in defining the objectives, objectives and instruments of fiscal policy in the medium and long term.

Appropriate budget policies in the face of contemporary challenges — it's a government programme that uses government revenues and expenditures to influence macroeconomic conditions to ensure sustainable economic growth and equitable income distribution. Accordingly, appropriate budgetary policies should ensure:

- conditions for sustained economic growth;
- conducting counter-cyclical or cyclically neutral policies;
- access by all economic agents to public goods, implementation of the principles of fair distribution of income and equal access to productive and financial assets, adaptation to the requirements of a changing economy;
- establishment optimal levels and rationally structured public debt, as well as reserves, to ensure macroeconomic and fiscal sustainability under adverse conditions.

This is possible, in author's view, provided that there are clear, manageable budgetary rules and strategic public policy objectives that ensure that citizens, economic agents, understand the current, medium- and long-term policies of the Government.

The proper approach to the design and implementation of fiscal policy in the current situation requires an understanding that budget parameters should not grow faster than an economy. In particular, in countries that are dependent on external economic conditions for their sustainability, cyclical problems arise when revenues from the sale of natural resources increase public spending, creating fiscal momentum. This is the case when budget expenditure trends closely follow natural resource prices, thus reinforcing economic cycles. Sustainability problems arise when the costs of such countries are greater than their expected long-term revenues from natural resources. This may occur when they extrapolate temporary price increases and therefore assume an incorrect estimate of the value of their natural wealth and (or) do not establish adequate budgetary reserves to maintain current expenditure levels. All of this can lead to the boom and bust cycles so often observed in resource-rich countries. In this regard, the developing and implementation of appropriate budgetary policies should be based on an assessment of the State's ability to maintain current expenditures and to maintain the optimal level of taxation in the long term, without jeopardizing their capacity to pay or defaulting on their expenditure obligations.

A 2006–2012 IMF research shows that lower inequality is associated with greater macroeconomic stability and more sustained economic growth [9]. This means that budget policy-making in the current context needs to focus not only on the efficient use of budgetary resources but also on social equity.

Neither in the State programmes of the Russian Federation (as amended in 2018–2019) nor in the Basic Directions of the Budget, Tax and Customs Tariff Policy of the Russian Federation for 2020 and the planning period 2021–2022 does not link budget spending goals to social concerns under the UN Sustainable Development Goals 2016–2030 (Sustainable Development Goals — SDG), in particular with regard to such issues as those reflected in the 2019 and 2020 index.[4]

The lowest score for Russia, even compared to Belarus and Kazakhstan, is *for Goal 10 "Reduce inequality within and between countries"*. This problem is not being addressed by the fact that social benefits are aimed at achieving a minimum standard of living (including for pensioners), which financed from budgetary

[4] URL: https://dashboards.sdgindex.org/#/RUS.

resources (including State programmes of the Russian Federation and the constituent entities of the Federation), or by the increase in social budget expenditure in absolute terms.

While inequality is inevitable in a market-based economic system, high levels of inequality can reduce social stability, polarize societies and ultimately reduce economic growth.

Investment in education and health can help reduce income inequality in the medium term, address intergenerational poverty increasing social mobility of the population and ultimately — reducing regional disparities and sustained economic growth.

It should be borne in mind, however, that in recent decades, health indicators have been influenced by factors other than health expenditure and health, such as nutrition, education and healthy lifestyles.

Addressing persistent inequalities requires better targeting of budget expenditures, especially in the social sectors (education, health).

The problem of *regional disparities* in terms of socio-economic development is deepening and cannot be resolved by the existing system of inter-budgetary relations. The results of the analysis of official statistical information show that in the constituent entities of the Russian Federation there was no significant change in the level of estimated budgetary provision in 2016–2020, and that the regions with approximately equal levels of coverage — average or higher in the Federal District — per capita GRP and calculated budgetary security, may receive a different amount of equalization grant in 2019–2021 (Tula and Tver oblasts in Central autonomous District, Pskov oblast and the Republic of Karelia in the North-West Federal District, The Republic of Dagestan and the Chechen Republic in North Caucasus North Caucasus, Republic of Mari El and Kirov Oblast in Volga Federal Districts, Khabarovsk Krai and Amur Oblast in Far Eastern Federal District and others). With the increase in intergovernmental transfers from the federal budget in many regions, income from business activities is declining, and the proportion of social benefits and wages paid to workers in State and municipal institutions is increasing.

METHODOLOGICAL REQUIREMENTS FOR THE DEVELOPMENT AND IMPLEMENTATION OF APPROPRIATE BUDGETARY POLICIES

The rate and level of economic growth are due to the development of real production, the functioning of the financial sector, and the conditions of money circulation. The impact of fiscal policy instruments on each of these elements is significant. On the one hand, the movement of financial resources characterizes the reproductive structure of the real sector of the economy as well as the basis of the financial market, on the other hand, the monetary attribute of the formation and redistribution of financial resources affects the basic elements of money circulation. Accordingly, the choice of appropriate fiscal policy instruments aimed at ensuring macroeconomic sustainability must take into account their impact on:

- level of prices (size and structure of the money supply);
- exchange rate of the national currency;
- interest rate (value of resources) on the financial market;
- the nature of the transfer of value added through the budgetary system.

For example, appropriate fiscal policies can prevent overheating and related problems. Fiscal austerity can help to reduce domestic demand, reduce the need for monetary tightening, and reduce the pressure of short-term capital inflows on the economy, the national currency and the financial market. Consequently, indicators are needed for evaluation: (a) short-term fiscal policy orientation (e.g., whether pro-growth fiscal policies lead to inflation and an increase in a country's current account deficit) and (b)

capacity to pay (i.e. the ability of the State to meet dynamic budgetary constraints at different times).

The global financial crisis 2008–2011 showed that "while monetary policy caused lower volatility and increased liquidity in North American stock markets, shocks were largely domestic and ineffective in generating liquidity in the banking sector. On the contrary, public expenditure shocks have had a positive impact on lending and consumption, particularly in Europe and Canada. In addition, fiscal policies have also had a positive international spillover effect on consumption and credit, especially for small economies such as Canada" [10].

The areas and instruments considered for the impact of appropriate fiscal policies on macroeconomic sustainability are closely interlinked and — therefore — have a multiplier effect on economic processes, which raises the question of the consistency and priorities of budgetary policies, the need to combine the various instruments of their implementation, and coordination with the State's monetary and tariff policies.

Accordingly, the *conditions* for an appropriate approach to the formulation and implementation of budgetary policies, in our view, include:

1. Conformity of the goals and objectives of budget policy with the strategic goals of developing public legal education.

2. Coordination with monetary and tariff policies.

Monetary and government fiscal policies have different but overlapping objectives. Monetary policy should ensure the stability of the currency, the adequacy of credit resources in the economy, the necessary level of international reserves and stable prices. In this context, monetary policy, like fiscal policy, is aimed at controlling economic growth, controlling inflation and creating employment.

For example, the key to anti-inflationary policies is to strengthen the revenue base of a country's budget system and to ensure its balance. In this context, they become relevant: (a) selection of methods to cover budget deficits without inflationary effects; (b) developing and implementing effective tax policies and improving tax collection; (c) increased efficiency of budgets at different levels; (d) development of the State and municipal securities market. At the same time, the level of development of the market for State and municipal securities directly influences the liquidity of banks and the degree of their financial stability.

3. Consistency in the formulation and implementation of budgetary policies, assessment of their medium- and long-term impact.

4. Budget risk identification and management.

5. Development and implementation of budgetary rules in the areas of income, expenditure, mobilization of funds from sources of financing the budget deficit and management of the State (municipal) debt.

An analysis of the budgetary legislation of the Russian Federation shows that budgetary rules are currently established only with regard to the use of oil and gas revenues from the federal budget and the formation of the National Welfare Fund, the size of the budget deficit, the level of borrowing by federal and municipal entities, the size of the state debt of the constituent entities of the Russian Federation and the municipal debt and servicing costs. However, the growing scarcity of regional and local budgets, as well as the number of violations of the rules established by the Budget Code of the Russian Federation by the constituent entities of the Federation, is indicative of a reduction in the level of stability of the budget system and the inadequacy of existing legal provisions to ensure the implementation of appropriate budgetary policies in the execution of the country's budget system.

HOW TO ENSURE THE QUALITY OF THE RUSSIAN FEDERATION'S BUDGET POLICY?

With low economic growth and increased uncertainty *appropriate budgetary policy should ensure preparedness for possible downturns while maintaining a balance between growth and sustainability objectives, which requires a review of the structure of the federal budget in an inclusive and growth-enhancing manner*. This requires better taxation, more efficient social spending of the budget and active labour market policies, as well as increasing fiscal investment in infrastructure and improving the quality and accessibility of public services in pursuit of the UN Global Sustainable Development Goals 2016–2030 (Sustainable Development Goals — SDG) and national strategic development goals of the Russian Federation for the period up to 2030.

The changing demographic situation, technological progress and the deepening of globalization are creating structural problems. The ageing of the population exacerbates the sustainability of the public pension and health-care system. Technological progress and the digitization of the economy require public financial incentives to create new jobs and modernize public infrastructure, including education and health services and meeting the needs of the population in a rapidly urbanizing environment. Fiscal policy and the structure of budgets must change in a way that is consistent with modern transformations in the markets for goods, services, labour and the sex and age structure of the population.

In the 21st century, with low economic growth and increased uncertainty, fiscal policy must ensure that the federal State's spending obligations are not only met, but also *to reduce inequality (both social and territorial) in the country*. This challenge cannot be ignored, for without the elimination of territorial inequality in Russia, it is impossible to ensure a sustained rate of economic growth, social and financial stability and a high standard of living for the population.

At the same time, the increase in the volume of intergovernmental transfers (see *table*) does not lead either to a strengthening of the budgetary stability of the constituent entities of the Russian Federation or to a reduction in the level of their socio-economic development [11]. For example, while in 2017 the difference in actual budget allocations between the 10-best-off and the 10-poorest regions was 6,2 times, before grants to equalize the level of budgetary security, and after — 2,6 times, and in 2019–6,6 and 2,9 times respectively (see *figure*). Differentiation among the constituent entities of the Federation persists with regard to the level of GRP per capita, disposable per capita income, unemployment, entrepreneurial activity and other macroeconomic indicators.

Taking into account the uneven socio-economic development of the constituent entities of the Russian Federation resulting from a large number of factors, many of which cannot be influenced by the regions (unevenness of production capacity, minerals and taxpayers, demographic, historical, climatic, cultural, etc. factors) increase risks:

(a) deepening inequality in real income and living standards among the various constituent entities of the Russian Federation;

(b) uncontrolled (especially in view of the suspension of the requirements of the Budget Code of the Russian Federation on the extent of deficits and public debt of the constituent entities of the Federation, in accordance with the Federal Act on 01 April 2020 No. 103), the increase in both budget deficits in the constituent entities of the Russian Federation and loans from commercial banks in the State debt structure of the constituent entities of the Federation. The realization of these risks will consequently increase the burden on the federal budget, which already has limited room for maneuver and for additional inter-budget transfers.

Table

Dynamics of inter-budgetary transfers provided to the constituent entities of the Russian Federation from the federal budget in 2009–2019, billion roubles

Intergovernmental transfers	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Transferred — total, billion rub.	1474.20	1378.30	1470.24	1440.04	1487.95	1606.97	1500.40	1567.80	1690.10	1719.60	2387.20
dynamics over previous year, %		-6.5%	6.7%	-2.1%	3.3%	8.0%	-6.6%	4.5%	7.8%	1.7%	38.8%
Grants, billion rub.	579.80	522.70	563.50	524.48	609.14	783.92	644.00	656.20	758.98	832.00	924.00
dynamics over previous year, %		-9.8%	7.8%	-6.9%	16.1%	28.7%	-17.8%	1.9%	15.7%	9.6%	11.1%
Targeted intergovernmental transfers, including:	704.30	855.60	906.74	915.56	878.81	823.05	856.40	911.60	931.10	887.70	1463.20
dynamics over previous year, %		21.5%	6.0%	1.0%	-4.0%	-6.3%	4.1%	6.4%	2.1%	-4.7%	64.8%
Subsidies, billion rubles.	435.90	411.40	509.17	570.92	515.61	400.65	371.20	356.50	419.81	397.00	556.60
dynamics over previous year, %		-5.6%	23.8%	12.1%	-9.7%	-22.3%	-7.4%	-4.0%	17.8%	-5.4%	40.2%
Subventions, billion rub.	153.20	378.60	337.47	284.21	273.72	308.16	312.80	334.30	326.15	309.30	396.60
dynamics over previous year, %		147.1%	-10.9%	-15.8%	-3.7%	12.6%	1.5%	6.9%	-2.4%	-5.2%	28.2%
Other intergovernmental transfers, bln rub.	115.20	65.60	60.10	60.43	89.48	114.24	172.40	220.80	185.14	181.40	510.00
dynamics over previous year, %		-43.1%	-8.4%	0.5%	48.1%	27.7%	50.9%	28.1%	-16.2%	-2.0%	181.1%

Source: Compiled by the author based on data on the execution of the consolidated budgets of the constituent entities of the Russian Federation for 2009–2019. URL: https://roskazna.gov.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov.

Adequate responses to this challenge can be provided in the design and implementation of good-quality budget policies, supposing:

1. Refinement of regional budget balance tools.

As domestic and foreign experience shows, substituting transfer financing for self-financing of territorial budgets, First, the deterioration of their income structure; second, the underestimation by high-income regions of their own incomes and the reduction of their incentives to expand the tax base; third, it stimulates budgetary dependency on the part of regions with an underdeveloped income base. Moreover, the implementation of a set of epidemic control measures has already led to a reduction in the revenues of taxes on profits and assets of organizations and taxes on personal income to regional budgets.

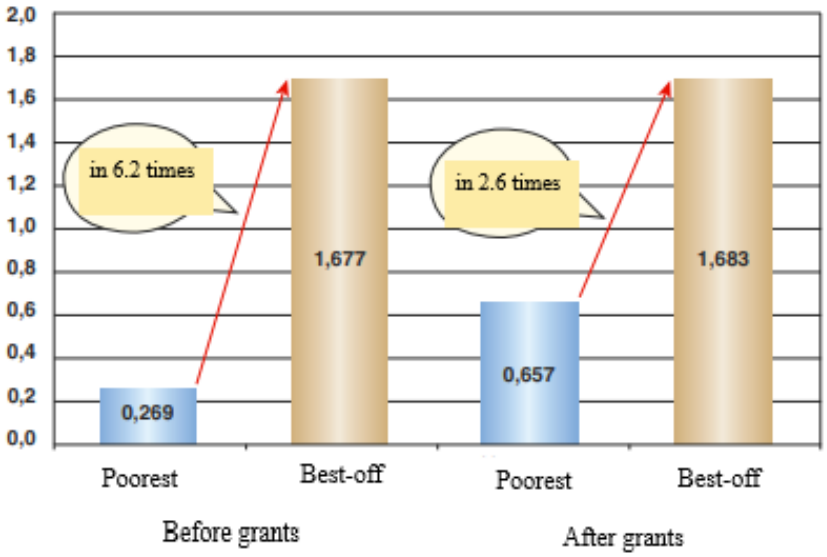
On the impossibility of ensuring the current and long-term balance of regional budgets within the existing system of income distribution, expenditure obligations and budgetary rules are reflected in the growing number of violations by the constituent entities of the Russian Federation of the requirements of the Budget Code of the Russian Federation with regard to limits on the amount of borrowing and the cost of servicing the State debt of the constituent entities of the Russian Federation in 2014–2020.

Replacing market debt with budgetary credits does not solve the problem of increasing the debt sustainability of the constituent entities of the Russian Federation, only by making debt servicing cheaper.

Targeted financial assistance can be a solution for regions with low debt sustainability, and for

Difference in actual budgetary provision of the constituent entities of the Russian Federation in 2017 between the 10- Best-off and the 10-least poorest regions

Before and after the granting of grants to equalize the budget of the constituent entities of the Russian Federation and grants to support measures to ensure balanced budgets of the constituent entities of the Russian Federation



The difference in the level of calculated budgetary security of the constituent entities of the Russian Federation in 2019 between 10 best-off and 10 poorest regions

The difference in the level of actual budgetary provision of the constituent entities of the Russian Federation in 2019 between 10 best-off and 10 poorest regions

Before and after the granting of grants to equalize the budget of the constituent entities of the Russian Federation and grants to support measures to ensure balanced budgets of the constituent entities of the Russian Federation

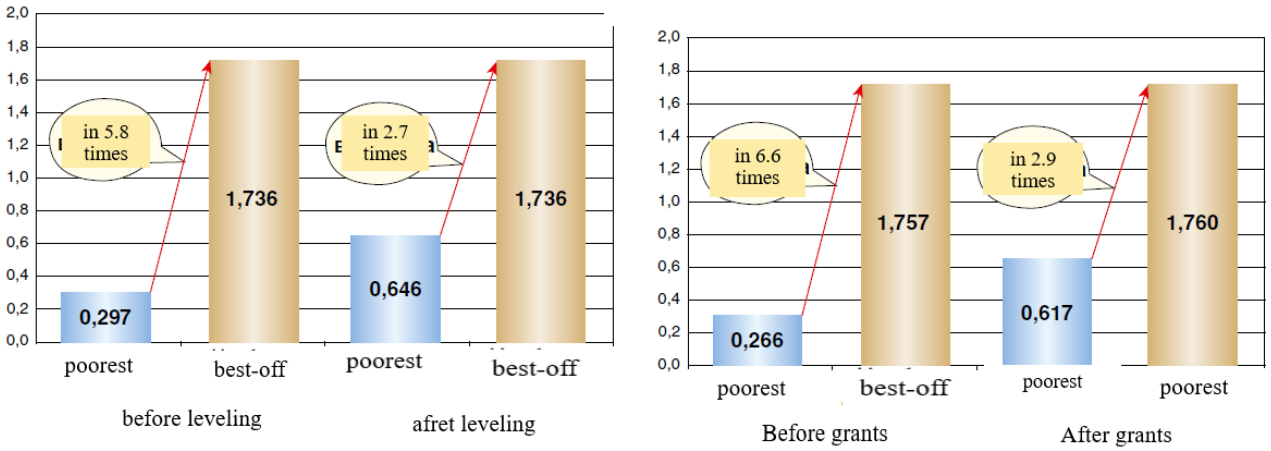


Fig. **Dynamics of the Level of Budgetary P rovision of the Subjects of the Russian Federation**

Source: compiled by the author based on data on the execution of the consolidated budgets of the constituent entities of the Russian Federation for 2019. URL: https://roskazna.gov.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov/.

other groups of states — provision of long-term budgetary credits for up to 10 years to balance the maturity and maturity of regional debt. For regions with budget revenue less inter-budget special-purpose transfers falling by more than 10%, it's possible to resume the practice of granting budgetary credits for a period of 5 to 10 years, provided that a strategy for the socio-economic development of the constituent entities of the Federation and a plan for improving its income-generating potential are developed and successfully implemented. A grace period on credit may be a motivational tool when neither interest on the loan nor principal is paid.

2. Use of a system of targeted grants based on the evaluation of the results achieved by public-law entities to motivate public-law authorities to ensure sustainable social and economic development.

A further challenge in the design and implementation of budgetary policies can be seen as the need to observe the principle of a *clear direct link* between tax expenditures and the expected results of the implementation of the State (municipal) with a *minimum level of influence of other factors*, which should be included in the general requirements for the estimation of tax expenditures of public-law entities.

At present, the financial support of the State programmes of the Russian Federation *doesn't always take into account tax expenditures in relation to the envisaged programme activities and expected results*. For example, in order to create conditions for the accelerated development of the Far East and its transformation into a competitive region with diversified economies, a set of tax incentives for participants in regional investment projects was introduced in 2016, of which — special tax projects. However, the State Programme of the Russian Federation "Social and Economic Development of the Far East and Baikal Region" doesn't include an assessment of tax expenditures on designated tax preferences, nor does it reflect the contribution of tax relief to the programme's objectives and objectives, as well as the expected results. In this context, the *risk of inefficiency of tax expenditures is high, which is not identified and assessed*, thus rendering formal and unjustified the "linking" of tax expenditures to the State programmes of the Russian Federation and the constituent entities of the Federation.

Assessing the effectiveness of public law tax expenditures also requires a reliable and sufficient statistical base with quantifiable significant correlation relationships over a period of at least 10 years, which doesn't always exist at present, it is therefore necessary to start building an information base for such assessments.

Inconsistency between the objectives of budget subsidies and the objectives (targets) of State programmes and the results of subsidies in the agreements persists. For example, according to the federal project "Export of products of agro-industrial complex" the indicator of the result is the achievement of the volume of exports of products of agro-industrial complex (in comparable prices) in the amount of 34 billion USD by the end of 2024. At the same time, within the framework of the provision of a subsidy to reimburse Russian credit organizations for lost revenues on loans issued to agricultural producers at a preferential rate, the result is considered to be the amount of concessional short-term (investment) credits granted to borrowers with a competitiveness agreement per ruble of the grant. However, the increase in loans does not mean that production is increasing, let alone exports.

The result of the granted to Russian manufacturers of wheeled vehicles to offset part of the cost of maintaining jobs is that the recipient maintains the average monthly wage of employees in the enterprise for the fiscal year under review not less than the average monthly nominal wages of employees for the fiscal year in question for the full range of organizations

in the federal district of the Russian Federation, where the recipient arranges the manufacture of vehicles. However, the objective of the "Transport and Special Machinery Development" subprogramme is the development of high-tech and competitive domestic and foreign production of Russian transport and special engineering equipment with high value added and localization of the most critical technologies and components, with the establishment of a performance indicator in the form of a production index relative to the previous year. There is no direct correlation between the maintenance of workers' wages and the growth of the production index.

This makes it necessary to further improve the mechanism for formulating State programmes and national projects with a view to increasing budgetary efficiency.

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The Material Well-being of Russians: Intergenerational Differentiation

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ABSTRACT

The article is devoted to the problems of the material well-being of the Russian population. It presents the research results that continues the author's developments on the assessment of inequality in the distribution of the population by monetary income and housing provision. This study aimed to identify and analyse the inequality of material well-being in the aspect of intergenerational differentiation. The authors relied on the normative methodology for identifying material well-being based on the original system of social standards of monetary income and housing provision. The assessments based on data from the Russia Longitudinal Monitoring Survey (RLMS-HSE) (28th round, 2019). Data on the existing inequality in material well-being identified by social standards under three distribution models — one-criterion (monetary income, housing provision) and two-criterion (joint distribution according to the criteria of material well-being) — for three generations: youth, middle, and older generation. According to the results of the study, those who live in households with dependents (children, non-working members of households) are the most vulnerable in terms of material well-being characteristics, and, on the contrary, those who live alone or from small households (2 people) are in the best position. At different "poles" of the material well-being are the young people living separately with children and the older generation — living alone or married couples. The results obtained in the course of the study can be used to increase the validity of social policy and develop targeted measures differentiated relative to different generations of Russians and their socio-demographic groups based on indicators of the actual distribution of material well-being — monetary income and/or housing provision.

Keywords: material well-being; monetary income; housing provision; social standards; inequality; intergenerational differentiation; youth; middle generation; older generation

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INTRODUCTION

The improvement of material well-being in the form of monetary income and provision of housing is one of the national development priorities of the country by decree of the President of the Russian Federation of 21 July 2020 No. 474 "On the national development goals of the Russian Federation for the period up to 2030".[1] COVID-19-induced coronacrisis updated the debate on the high level of Russian income and housing deprivation and the high inequality that exists on these basic aspects of material well-being [1–5].

The development of welfare studies is linked to the identification of income and housing inequality for specific groups, which differed in economic well-being, analysis of the determinants of inequality [2, 4, 6], the identification its specificities in relation to different socio-demographic groups of the population, types of households [7, 8], on different stages of the life cycle [9]. The methodological problem of assessing inequalities in the material well-being of population groups and their classifications is being addressed, for example, in studies [10–19] based on different approaches with different criteria, methods of delimitation of population groups and different models of well-being, etc.

A feature of the author's approach is to identify the differentiation of material well-being on the basis of the normative identification of the three population distribution models: single-criterion — 1) on monetary income and 2) on provision of housing; 3) two-criterion — on monetary income and provision of housing. It is based on an original system of social standards that identify population groups that are qualitatively different in terms of well-being, income and housing characteristics (livability, spacious, the area size).

In this publication, the authors address the issue of the material well-being of Russians in terms of intergenerational differentiation. The hypothesis of the study was that taking into account the membership of Russian citizens in a given generation alters the distribution by cash income and provision of housing, for the population as a whole, and an additional factor substantially differentiating the material well-being of each generation, there are size and composition of households, and burden.

New research findings on intergenerational differentiation of material well-being in Russia will contribute to enhancing the validity of social policy and development of targeted interventions, taking into account the differentiation of the actual distribution by income and housing in different generations of Russians.

RESEARCH METHODS AND DATA

This study examines three generations whose representatives of which participate in the formation of household well-being from employment income, young, middle and older generation. Children, therefore, are not considered as a separate group to be studied, but their "contribution" to the characteristics of household well-being to which they belong is taken into account in the estimation of the level of income and housing of the three generations studied.

The empirical basis for the study was 28 rounds Russian Longitudinal Monitoring Survey — HSE[2] (RLMS). Based on RLMS

[1] Decree of the President of the Russian Federation of 21 July 2020 No. 474 "On the national development goals of the Russian Federation for the period up to 2030". URL: http://publication.pravo.gov.ru/Document/View/0001202007210012.

[2] Russian Longitudinal Monitoring Survey — HSE (RLMS HSE)», conducted by the National Research University Higher School of Economics and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS (RLMS HSE sites: URL: http://www.cpc.unc.edu/projects/rlms и http://www.hse.ru/rlms).

data, representative sample (by gender, age and type of settlement for the population of Russia),[3] socio-demographic groups identifying the three generations studied were identified for analysis (see *table 1*).

The three generations selected (young, middle and older generation) identify three stages of the life cycle during which educational and skill potential is mainly developed and developed, and its realization in employment and, accordingly, the dynamics of material well-being.

To derive new data on and estimate intergenerational wealth differentials, the authors have relied on original methodological developments, validated and tested in previous studies, based on — the author's system of social standards of cash income and housing security. The comparison of the actual measures of material well-being with the requirements of the standards makes it possible to identify population groups that differ in terms of cash income and housing conditions (see *table 2*).

As part of the identification of income distribution, authors also identify groups with poor (unstable) wealth, income are less 3,2 SM (poor, low- and below-average income) and, respectively, average- and high-income groups of Russians with at least 3,2 SM, characterized by good (sustainable) material well-being.

THE MAIN FINDINGS OF THE RESEARCH

Differentiation of material well-being based on monetary income standards. Estimates based on RLMS data (*table 3*) show, that overall poverty is reduced from generation to generation. However, it is noticeable that there is higher poverty in the generations under consideration among those living in households where may be dependants (children and non-working members of households) — group 1 (17.9%) and 3 (16.4%) young people and group 2 older generation (9.8%). They are not only characterized by higher levels of poverty but also by generally poor (unsustainable) wealth — low or below average wealth. The proportion of persons with this level of wealth in these groups exceeds 70% or higher than the average for the population (64.8%) than for other socio-demographic groups.

Young people who have no children and live separately (group 2) are better off than youth in groups 1 and 3. Poverty rate is one of the lowest among the groups considered (7.6%) and below the general population (12.3%), and disadvantage (instability) of material well-being, below-average income generated is 30.6%.

In the middle generation, poor (unsustainable) material well-being (63%) s less common than in groups 1 and 3 of the younger generation (over 70%) and is largely low (27.3%) and lower than the middle (24.3%). Income poverty is slightly lower in the middle generation (11.4%), than in the general population (12.3%) and among young people in groups 1 and 3 (17.9 и 16.4%).

Older persons are more fortunate to be separated (group 1): бед Poverty is almost non-existent among them (0.4%), and poor (precarious) material well-being (46.3%) is less frequent than in other groups. The part of the older generation that will not live separately (group 2) is in a much worse position: they in the vast majority (71.9%) ave poor (unsustainable) cash wealth, and their poverty rate (9.8%) is multiply that of the older cohorts living outside.

Well-being (sustainable) as measured by average and high income is more characteristic of older generations (group

[3] Russian Longitudinal Monitoring Survey — HSE. URL: https://www.hse.ru/rlms/.

Table 1

Composition and characteristics of the studied generations and socio-demographic groups

<table>
<tr><th colspan="3">Generations and socio-demographic groups and their characteristics</th></tr>
<tr><td colspan="3">1. Younger generation</td></tr>
<tr><td colspan="3">Age — of 14 to 35 years inclusive.
Differentiated to identify differences in the well-being of the generation of young people, as measured by the composition of their households, by three groups:</td></tr>
<tr><td>Group 1:
Persons living alone with a child (children)</td><td>Group 2:
Persons living alone with no child (children)</td><td>Group 3:
Persons living alone, with/without child (children)</td></tr>
<tr><td>Includes those who live in households consisting of a married couple (parent) with a child (children) and live separately from other family members (their parents, etc.). The household size is mainly 3–4 persons.</td><td>Includes those living in 1 or 2 person households (couple)</td><td>Includes those who, unlike group 1 and 2, are not separated, and who have a wider range of households (with or without children). The household size is mainly 2–7 persons.</td></tr>
<tr><td colspan="3">2. Middle generation</td></tr>
<tr><td colspan="3">Age — of 36 to retirement age.
Have different characteristics in terms of household size and composition, but this study examines without distinguishing groups, as for the other two generations. The household size is mainly 1–7 persons.</td></tr>
<tr><td colspan="3">3. Older generation</td></tr>
<tr><td colspan="3">Age: women — aged 55 and older, men — aged 60 and older*
Differentiated to account for the impact on household welfare of the composition of households in two groups:</td></tr>
<tr><td colspan="2">Group 1:
Persons living alone</td><td>Group 2:
Persons not living separately</td></tr>
<tr><td colspan="2">Includes those living in 1 person or 2 person households (couple)</td><td>Includes those who, unlike group 1, have a larger composition of households: for example, live with children. The household size is mainly 2–5 persons.</td></tr>
</table>

* The study used the pensionable age limit that existed before the "pension reform", taking into account the data analysed by RLMS — 2019 and the timetable for data collection

Source: compiled by the authors.

1; 53.7%) and youth without children (group 2; 46.6%), those who are separated, i.e. those who are not dependent and live in small households. For them, indicators of well-being are markedly higher than for the general population (35.2%) and for the middle generation (37%). In the rest of the groups, sustainable income security is much less common — at less than 30%.

Differentiation of material well-being based on housing standards. Housing security estimates based on the RLMS (see *table 4*) show that housing conditions for all groups surveyed are mostly or overwhelmingly below average standards — size of the area, spacious housing and/or its livability, i.e. the worst, the worst or below average.

Table 2

Social standards of monetary income and housing provision and groups of the population identified on their basis

Social standards and their requirements	Population groups identified by social standards
Material Welfare Criteria — "Cash Income"	
First (lowest) standard corresponding to 1 SM (subsistence minimum) Second standard corresponding to 2 SM. Third standard corresponding to 3,2 SM. Fourth (highest) standard corresponding to 11 SM.	1) the poorest (cash poor): lowest — less than 1 SM; 2) low-paid: low-income — of 1 to 2 SM; 3) below-average income: lower middle-income — of 2 to 3,2 SM; 4) average-income: with middle-income — of 3,2 to 11 SM; 5) highest: with high income — at least 11 SM
Material Welfare Criteria — "Housing Security"	
First (lowest) standard: size of living space — at least 6 square meters/person; minimum housing liabilities — central electricity, water, central heating and central sewerage. Second standard: size of living space — at least 16 square meters/person; the basic level of liabilities of the housing is not lower than the requirements of the first standard, as well as the availability of hot water, baths/showers, floor stoves (gas/electric). Third standard: size of living space — at least 23 square meters/person; liabilities of housing at a socially acceptable level, not lower than the requirements of the second standard, as well as access to the Internet; spaciousness of housing: K = n*. Fourth (highest) standard: size of living space — at least square meters/person; liabilities of housing at a socially acceptable level, not lower than the requirements of the third standard; spaciousness of housing: K > n.	1) the poorest (housing poor): below the first (lowest) standard (with the worst housing conditions); 2) low-paid: correspond to the first standard but do not reach the second standard (poor housing); 3) below-average income: correspond to the second standard but do not reach the third standard (below average housing); 4) average-income: correspond to the third standard but do not reach the fourth standard (average housing); 5) highest: correspond to the fourth (highest) standard (with good housing)

Note: K — number of rooms, n — number of persons per household.

Source: compiled by the authors based on [2].

The worst housing situation is found for young people — living alone with children (group 1) and living not alone (group 3), as well as for the older generation, whose members are not living alone (group 2). They have a high level of housing poverty (over 30% to almost 40%). The vast majority (about 90% and above) of these youth and older generation groups live in conditions that are worse, worse and lower than average.

The housing situation of young people who are living alone and have no children (group 2) differs markedly for the better in relation to the other two groups of their generation. Among them, the lowest is the proportion of those living in the lowest housing conditions, i.e. those who are poor by housing (6.6%). For the population as a whole this percentage is 33.8%. Young people living below average standards (64.5%) are also significantly less well off than other young people.

Table 3

Groups distributed by monetary income standards, 2019, %

Groups by level of cash income	The general population	Younger generation			Middle generation	Older generation	
		1	2	3		1	2
Groups with poor (unsustainable) economic well-being, total	64.8	70.7	53.4	72.9	63.0	46.3	71.9
including:							
The poorest (cash poor): with less than 1 SM	12.3	17.9	7.6	16.4	11.4	0.4	9.8
Low-paid: with revenues from 1 to 2 SM	27.8	32.3	15.2	31.1	27.3	17.7	34.5
Below-average income: with revenues from 2 to 3,2 SM	24.7	20.5	30.6	25.4	24.3	28.2	27.6
Groups with good (sustainable) economic well-being, total	35.2	29.3	46.6	27.1	37.0	53.7	28.1
including:							
Average-income: with revenues from 3,2 to 11 SM	32.8	29.3	46.6	23.9	34.7	51.3	24.3
High-income: with revenues no less than 11 SM	2.4	0.0	0.0	3.2	2.3	2.4	3.8

Source: authors' assessment based on the 28th round of the RLMS.

For the average generation, the housing situation generally corresponds to the average observed for the population and improves slightly for groups 1 and 3 young people. The level of housing poverty among them (about 36%) is slightly lower than that of young people living alone (about 40%). The proportion of people living below average standards in the transition to the middle generation reduces to about 85% compared to the younger generation in groups 1 and 3 (more 90%).

In the older generation, the situation of housing below average standards is markedly improved for the group of living alone persons (group 1; 63.5%) by contrast with the younger (groups 1 and 3; more 90%) and middle generation (more 80%). For those in the older generation who are not living alone, the proportion of those living below average levels reaches almost 90%, which is significantly higher than the living alone the older generational group and roughly corresponds to the average housing disadvantage.

Table 4

Groups distributed by housing provision standards, 2019, %

Groups by level of housing provision	The general population	Younger generation			Middle generation	Older generation	
		1	2	3		1	2
Below-average housing groups, total	**85.4**	**96.1**	**64.5**	**93.4**	**85.1**	**63.5**	**88.9**
including:							
The poorest (housing poor): with the worst housing conditions	33.8	30.2	6.6	39.8	35.9	23.8	31.4
Low-paid: poor housing conditions	27.0	40.9	33.8	30.4	27.0	10.6	26.3
Below-average: below average housing	24.6	25.0	24.1	23.2	22.2	29.1	31.2
Groups with at least average housing, total	14.6	3.9	35.5	6.6	14.9	36.5	11.1
including:							
Average-income: with average housing conditions	10.5	3.7	26.8	6.2	10.2	22.5	10.7
High-income: with good conditions	4.1	0.2	8.7	0.4	4.7	14.0	0.4

Source: authors' assessment based on the 28th round of the RLMS.

Housing security at or above average, defined average and good housing conditions, the largest number of living alone young people without children (group 2; 35.5%) and older generation (group 1; 36.5%). It is markedly higher for them than for the general population (14.6%). The average generation of housing at this level (14.9%) corresponds to the population as a whole. Among the young people not living alone (group 3) and the older generation (group 2) Average or good housing conditions are only identified for 6.6 and 11.1%, respectively. The lowest proportion of the young people with children living alone are at or above average — only 3.9%.

Proportion of housing at or below the average level is predominantly based on average, and better housing is less common. At the same time, the highest rate of housing supply to the fourth (highest) standard is reached in the older generation — for those living alone — 14%, which is more than three times higher than the total population (4.1%).

Differentiation of economic well-being based on cash income and housing standards. Two- criterion distribution studied of the generation groups according to the criteria for economic well-being (see *table 5*) show that the level of cash income and housing provision makes them more likely to be concentrated among the

Table 5

Groups distributed by monetary income and housing provision standards, 2019, %

Groups by level of cash income and housing provision	The general population	Younger generation			Middle generation	Older generation	
		1	2	3		1	2
The poorest: with the worst housing conditions; with housing conditions from bad to good with less income 1 SM	37.1	36.3	13.7	43.8	38.8	23.9	34.8
Low-paid: poor housing conditions with income at least 1 SM	24.9	37.2	29.9	27.9	25.2	10.6	24.7
Below-average: below average housing conditions with incomes of at least 2 SM; c below average, average or good housing with income 1–2 SM	25.3	23.6	26.8	22.8	22.6	31.8	31.8
Average-income: average housing conditions with income of at least 3,2 SM; average or good housing with income 2–3,2 SM	9.6	2.9	22.9	5.3	9.6	22.5	8.5
High-income: with good housing and income at least 3,2 SM	3.1	0.0	6.7	0.2	3.8	11.2	0.2

Source: authors' assessment based on the 28th round of the RLMS.

most needy, low- or below-average groups. The characteristics of the two-criterion distribution for economic well-being are determined not only by the subordination but also by the composition of the households to which they belong.

Youth with children living alone (group 1), cconcentrated predominantly (over 90%) in groups with below-average economic well-being. However, more than 70% of this group are or most in need (36.3%), i.e. income and/or housing poverty or low income (37.2%). The lower middle-income group of the younger generation is about 24%. Medium and higher income and housing security for young people living alone with children is almost not available: only 2.9% of them have it

For youth who do not live separately (group 3), the situation is similar to group 1. However, the proportion of those most in need is higher (43.8%), and the share of middle- and high-income (in total — 5.5%).

Young people without children who living alone (group 2) are least likely to be in economic well-being (13.7%). About 60% of this part of the younger generation are low (29.9%) or below average (26.8%). При этом отдельно для проживающей молодежи без детей (29,6%) по сравнению с двумя другими группами молодежи заметно чаще оказывается доступна средняя (22,9%)

и высокая (6,7%) обеспеченность доходами и жилищем. Young people living alone (29.6%) are significantly more likely to have access to medium (22.9%) and high (6.7%) income and housing than the other two groups.

Middle generation distribution by well-being similar to the population as a whole. They are predominantly the neediest (38.8%), low or lower middle-level (in total — 47.8%). Only 13.4% of the middle generation are middle-income and high-income in terms of income and housing.

In the older generation, material security improves over the next two generations, but only for those living alone (group 1). This part of the older generation has one of the lowest proportions of those most in need (23.9%). However, those who are not among the neediest but for whom medium and higher security is not available (42.4%), more likely to be below-average (31.8%), than low-income (10,6%). The average (22.5%) and high-income groups (11.2%) of living alone of the older persons are the highest (33.7%) of all groups considered and more than 2.5 times the proportion of the population as a whole (12.7%).

For older generations not living alone (group 2), the distribution of the economic well-being is significantly worse than for their generation in group 1. More than 90% of them have no access to medium- and high-income housing, and the proportion with the greatest need, i.e. in a state of poverty by income and/or housing is 34.8%.

DISCUSSION OF RESEARCH RESULTS

Data on intergenerational differentiation are complementary to estimates already made in other studies of various aspects of material well-being for different socio-demographic groups and types of households [4, 7, 8].

Among young people, those living alone with children and those not living alone have the greatest need (more than 90%) to improve their housing situation (groups 1 and 3). Of these, only less than 10% have medium or good housing (see *table 4*). However, in these groups of young people who start their life cycle (of which in the area of labour market and employment and, consequently, income from employment) only less than 30% have a good (sustainable) income well-being (see *table 3*), i.e. the potential for improving housing supply. Against this background, the better-off are young people living alone without children (group 2). Among this group of young people, a markedly higher percentage (35.5%) have medium or good housing conditions (see *table 4*). The small size of households (1–2 persons), even with possibly low incomes, leads to higher (46.6%) levels of well-being (sustainable) by income (see *table 3*).

Research has shown that strategies for providing housing for young people vary according to age, family status, etc. According to the data of the Analytical Centre of the Russian Federation DOM.RF, among young people aged 18–24, about 40% live in rented housing and for them it is mainly a way of living alone. About 20% of 25–34 year-olds already live in rented housing, and their choice of rent is primarily due to the inability to buy housing. The remaining young people who do not rent a housing, live in their own (alone) or with their parents (about 24–38%).[4]

The 25–34 age group with financial capacity uses mortgage lending to improve housing conditions. It is young people aged 25–34 who are the most active participants in the 6.5% mortgage programme. They are predominantly married (about 60%), but only 40% of them have children (one or

[4] Attitudes of young people to housing // DOM.RF, Russian Public Opinion Research Center, December 2020. URL: https://xn--d1aqf.xn--p1ai/upload/iblock/70f/70f4cc52dc2299fda39b7fa463608582.pdf.

two); mainly leading specialists (75%) or different levels of management (23%).[5] Thus, when there is a strong need to improve conditions among young people (see *table 4*) mortgages are used by those who do not have or have a low dependency burden; who has a good income from employment (taking into account the position taken), which is supplemented by the income of the spouse. For the rest, improving housing conditions through mortgage lending is problematic.

In the next phase of the life cycle, the demand for medium- or good-quality housing is also high for the middle generation (more 80%), but the potential for this is slightly higher than in the younger generation: more than 30% have well-being (sustainable) in terms of income (see *table 3* and *4*). However, they already have less share of mortgages than the younger generation as an option for acquiring real estate (about 30–40%, including as the main option — only 12–15%), and they have little or no consideration of the rental option to improve housing conditions (only less 10%).[6]

In the third stage of the life cycle, in the older age group living alone (group 1), with earlier earnings from employment and pensions (and possibly part-time work), there is improved material well-being. In this group (53.7%), the proportion of persons with well-being (sustainable) in terms of income is higher than in the average group (37%) and among young people living alone (46.6%) and higher than the average for the population (35.2%) (see *table 3*). There is virtually no income poverty in this group, including State support for non-working pensioners that doesn't fall below the subsistence level. In the older age group not living alone (group 2), the situation is worse than in the case of the single population (group 1), as well as the average age group. In this group of older people, only less than 30% have well-being (sustainable) in terms of income (see *table 3*) and, consequently, the potential for improved housing, of which they have a great need (about 90% have the worst, poor or below average housing conditions) (see *table 4*).

In the case of single occupancy, the need for better housing conditions for older persons is much lower, although it is also significant — around 64% (see *table 4*). But the potential for it in group 1 the older generation have more members — more than 50% have incomes that provide wealth well-being (sustainable) well-being (see *table 3*). In the older age group, however, there has been little consideration of leasing or mortgage options to improve housing conditions.[7]

CONCLUSION

The results of the survey on intergenerational inequality in material wealth (see *table 3–5*) showed, that a qualitative change in the situation requires an increase in the level of real money income of the population, affordable credit instruments and the development of targeted support measures for different generations and household composition. Without this, the rights of citizens to a decent standard of living and quality of life cannot be realized.

The most vulnerable to material well-being are older generation living in isolation (group 2), young people with children living alone and young people who do not live in isolation

[5] Borrower's portrait mortgage loans at 6.5%. DOM.RF, January 2021. URL: https://xn--d1aqf.xn--p1ai/upload/iblock/a68/a683efc4f43c2eba45318812eb43deb9.pdf.

[6] Attitudes of young people to housing. DOM.RF, Russian Public Opinion Research Center, December 2020. URL: https://xn--d1aqf.xn--p1ai/upload/iblock/70f/70f4cc52dc2299fda39b7fa463608582.pdf.

[7] Attitudes of young people to housing. DOM.RF, Russian Public Opinion Research Center, December 2020. URL: https://xn--d1aqf.xn--p1ai/upload/iblock/70f/70f4cc52dc2299fda39b7fa463608582.pdf.

(groups 1 and 3). The proportion of the most needy, i.e. income and/or housing provision, is the highest, ranging from over 30% to over 40%. Given income and housing provision below average standards (more than 90%), they do not have access to medium and high levels of material security (see *table 5*).

Priority attention needs to be given to the older generation, which has not been able to provide for itself below average standards during the period of past active working life. This is particularly the case for older generation who have the worst and worst housing conditions and for whom, given income and age, market-based financial instruments and home construction are no longer available. These groups of the older generation obviously include those who have not yet waited for the fulfilment of the State's housing obligations (waiting lists).

Unfairness is characteristic for young people with children, which is "contrary" to population policy goals. Tools for income support and improved housing for young people need to be developed. It may objectively lack the financial resources (savings, necessary income from employment) to solve the housing problem. On the instructions of the President of the Russian Federation V.V. Putin, proposals for the development of subsidized mortgages in 2021–2024 years must be prepared, including reduction of interest rate for families with two or more children,[8] which can increase the affordability of mortgages to young families with many children who, at this stage, hardly use this instrument, even under favourable mortgage conditions.[9] For the younger generation with children, more development of non-profit social rental housing is needed, when it is unable to participate in credit facilities for the improvement of housing conditions and which, under certain conditions, may be transferred into perpetual use or ownership.

These tools will also help the middle generation, which is also in need of improved housing. Improved living conditions for young people and the middle generation will also improve conditions for older generations in the households in which they live together.

The authors' data on income and housing in terms of intergenerational inequality reflect the situation as of 2019, i.e. up to the coronavirus crisis caused by the pandemic COVID-19. It has led to a worsening of the income situation of citizens (a decline in real monetary income and in the purchasing power of monetary income) [20, p. 64] and, as a result, the ability of Russians to improve their housing conditions on their own, which was also affected by the rise in housing costs.[10]

Decree of the President of the Russian Federation of 21 July 2020 No. 474[11] defines the national development goals for the period up to 2030, but they must be accompanied by clear prospects for real improvements in shattered well-being over the life cycle. For generations who work and contribute to the development of the country's economy and the reproduction of its human potential, must be created opportunities to provide themselves and their families with decent income and housing, so that after the end of active working life they do not remain «to be left with nothing».

[8] V.V. Putin instructed to work on a reduction of the mortgage rate for families with children. Kommersant. 15 February 2021. URL: https://www.kommersant.ru/doc/4692697.

[9] Borrower's portrait mortgage loans at 6.5%. DOM.RF, January 2021. URL: https://xn--d1aqf.xn--p1ai/upload/iblock/a68/a683efc4f43c2eba45318812eb43deb9.pdf.

[10] Putin indicated out to respond to price increases due to soft mortgages. Expert. 24 December 2020. URL: https://expert.ru/2020/12/24/putin-ukazal-otreagirovat-na-rost-tsen-iz-za-lgotnoj-ipoteki/.

[11] Decree of the President of the Russian Federation of 21 July 2020 No. 474 "On the national development goals of the Russian Federation for the period up to 2030". URL: http://publication.pravo.gov.ru/Document/View/0001202007210012.

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Russian Economy Model: Post-industrial Society without Industrial Sector

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ABSTRACT

The study's relevance is due to the gradual transition of different countries of the world to a post-industrial economy, in which the share of industrial employment is significantly reduced. However, this process is usually associated with high social costs and management mistakes. Russia is not a happy exception to this rule. The article aims to identify the pain points of the Russian labour market and the higher education system caused by the transition process. For this purpose, based on the data of Rosstat, we considered the phenomenon of the educational bubble in the university sphere in 1992–2008 and the reasons for its occurrence. By using Russian and international statistics, it was possible to justify the gap between the sphere of higher education in Russia and the real sector of the economy. The analysis of the macroeconomic (aggregated) sectoral structure of the Russian economy and the higher education system did not reveal the existing personnel imbalances in Russia. This task we achieved by combining an external view of the manufacturing industry (comparison with other countries) and an internal one (study of its human resources potential). The main conclusion is that Russia is rebuilding the employment structure in the direction of the post-industrial stage of development. Still, at the same time, it does not have adequate support in the form of effective agricultural and industrial sectors. Such a transitive model of economic evolution is extremely inefficient and is fraught with the transformation of the country into a kind of "civilized colony" of the world system. To prevent this negative scenario, it is necessary, on the one hand, the most aggressive borrowing by the Russian industry of new technologies (including robots), on the other — the restoration of extremely close ties between universities and enterprises of the real sector of the economy. The model of the reintegration of universities and enterprises is a promising direction for further research.

Keywords: post-industrial society; higher education; top-level specialists; labour productivity; technological unemployment

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INTRODUCTION: NEW CHALLENGES – NEW PROBLEMS

The university system worldwide is currently undergoing tectonic changes. The transition to a post-industrial society and global geopolitical turbulence are making it extremely difficult for universities to decide which specialists they should train and for whom. The problems of higher education training (hereinafter referred to as the professional of the highest category — PHC) are compounded by an inefficient economy that generates misleading signals in system of higher education (HE).

In order to understand the challenges facing modern Russian HE, at least the following is necessary: assess the degree to which the sectoral structure of graduates corresponds to the sectoral structure of demand from the domestic economy; determine the degree to which the sectoral structure of the Russian economy and the university system correspond to similar indicators from the world's leading countries; identify the scale and location of existing personnel imbalances in Russia. The purpose of the article — is to obtain answers to these three questions using available information resources. The novelty of the work consists in a combination of traditional and non-traditional statistics, as well as in the superimposition of the view on the Russian HE both from outside and from within. These points will be explained in detail below.

SOURCES OF IMBALANCE IN DEMAND AND SUPPLY ON THE RUSSIAN LABOUR MARKET

The problem of unbalanced labour market and HE originates in the very history of modern Russia. Its genesis began almost immediately after the collapse of the USSR. The disintegration of the State had led to unprecedented de-industrialization of the economy, with all its attendant consequences. First of all, this has led to a disconnect between the country's industrial enterprises and universities. The manufacturing sector shrank, including in high-technology and knowledge-intensive areas, while the university sector has begun to grow excessively, including through the entry of private institutions into the education market (*figures 1–3*).

The mentioned phenomenon has already been reflected in literature and received the corresponding name — "educational bubble". At the same time, if the emphasis in Western literature is mainly on the study of the financial "educational bubble" related to credit for education [1–3], then Russian authors are more focused on the study of personnel imbalances and devaluation of higher education due to formation of "educational bubbles" [4].

The collapse of the USSR led to the so-called transformational recession of the economy, which lasted until 1998. The HE also experienced a primary depressive shock manifested in a drop in student numbers, but its duration was incomparably shorter — the fall lasted only until 1993 inclusive. At the same time, even the short-term decrease of the flow of students went against the background of the "inflated" infrastructure of the university sector: number of State universities of higher education immediately increased after the collapse of the USSR, and since 1993 this process has been reinforced by the emergence of private institutions. It was during this period that the volume and structure of PHC demand, as determined by the real economy, and the supply of personnel, as determined by HE, began to diverge systematically. The inertia in blowing up the "educational bubble" stretched for 17 years, until 2008, after which it began to blow up faster. As a result of these processes, the HE and manufacturing sectors, as well as the entire national economy, have been

Fig. 1. **Dynamics of manufacturing and the number of universities in the Russian Federation, 1991–2019**

Source: Rosstat.

developing in different directions over the past seven years, which indicates that higher education institutions have become disconnected from the country's real problems.

The scale of the resulting disconnection of the personnel subsystems is best illustrated by the following figures. In relation to its peak in 2008, the number of higher education establishments in 1991 was only 45.7%. The growth rate was even higher for the number of students, who in 1993 represented only 34.8 per cent of the total in 2008. This strong growth was accompanied by a catastrophic drop in GDP and manufacturing output. Thus, in 1998 the level of GDP was 57.3% of the pre-crisis level of 1990, and subsequently — 45.7% of the level of 2019. The manufacturing sector experienced an even greater difference, with output in 1998 at 41.5% of the pre-crisis level in 1990, compared to the year of the global maximum (2019) — 39.0%. This amplitude of different movements of a priori interrelated indicators by all standards can be considered unprecedented.

From 1999 to 2008, all four parameters considered were simultaneously increasing, but the 2008–2009 crisis pushed them down. GDP and manufacturing after the short-term recession started to rise again, while the "education bubble" continued to blow. As a result of these disruptions, the UAS and the real economy of the country from 2010 to 2019 were back in phase control.

To the above can be added that during the period of blowing up "educational bubble" 1990–2008, when the number of professors-teaching increased by 90.8%, and number of students — 2.9 times, population decreased by 3.3%, number of employed — at 5.7%, number of students in secondary education — at 32.4%.[1] This personnel dissonance is further evidence of the complete dislocation and disorientation of HE from the real economy.

These changes led to the establishment of almost universal higher education in Russia, with its simultaneous devaluation, when the diploma of the higher education institution ceased to serve as a guarantee of the graduates' professionalism and

[1] Calculated from Rosstat data.

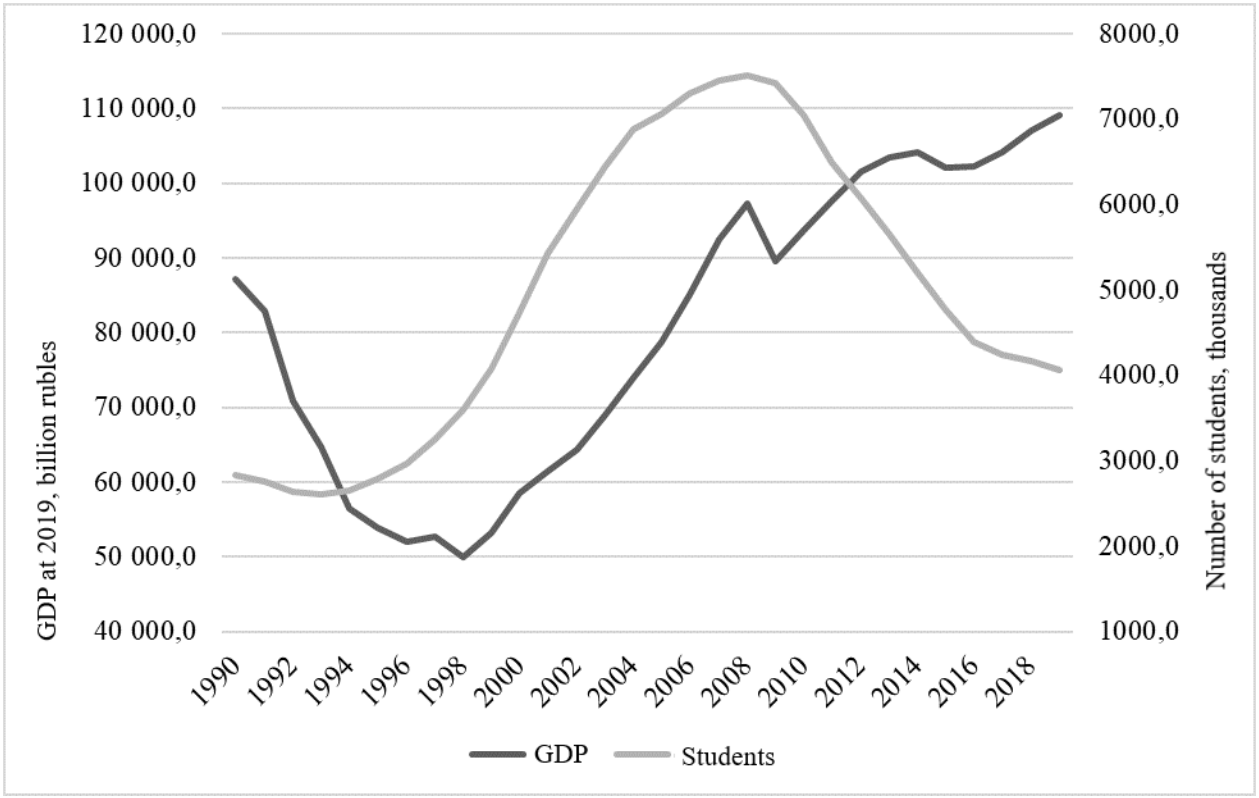

Fig. 2. **Dynamics of GDP and the number of students in the Russian Federation, 1990–2019**

Source: Rosstat.

competence and, consequently, as a reference for the employer. Market mechanisms were initially expected to give some signals to enterprises, universities and young people as to what skills were needed and promising. Gradually, however, the initial shortage in the labour market of certain professions was eliminated, while subsequent graduates no longer found adequate jobs. As a result, graduates have become randomly distributed among sectors of the economy, taking into account rapidly emerging vacancies, and work in the field of specialization has become a unique phenomenon. A survey carried out by Rabota.ru service together with portal Rambler in September 2020 showed that 64% of respondents did not work in this specialty, while 40% did not work in it for a day.[2] Thus, market expectations and market signals have not been realized: disorientation of the real economy prevented it from sending meaningful and sustained impulses to the education system, which in turn also had nothing to offer the real economy.[3]

Initially, the Government's misguided ideology led to the alternation of divergent regulatory trends in HE. For example, since 1991, the country has had a *deregulation regime* for higher education establishments, which has been characterized by a lack of management and monitoring by the Government of the Russian Federation and its agencies. This period was marked by a

[2] URL: https://news.rambler.ru/other/44834092-eksperty-vyyasnili-skolko-rossiyan-rabotayut-po-spetsialnosti/.

[3] A striking example of the complete disconnection of the education system from the needs of the market is the lawyers who, according to Rosobnadzor's estimates, produce 10 times more than the number needed by the domestic economy; this estimate is also confirmed by the statistics of the job search portal Career.ru, one lawyer vacancy for nine abstracts (URL: https://www.kommersant.ru/doc/3534212).

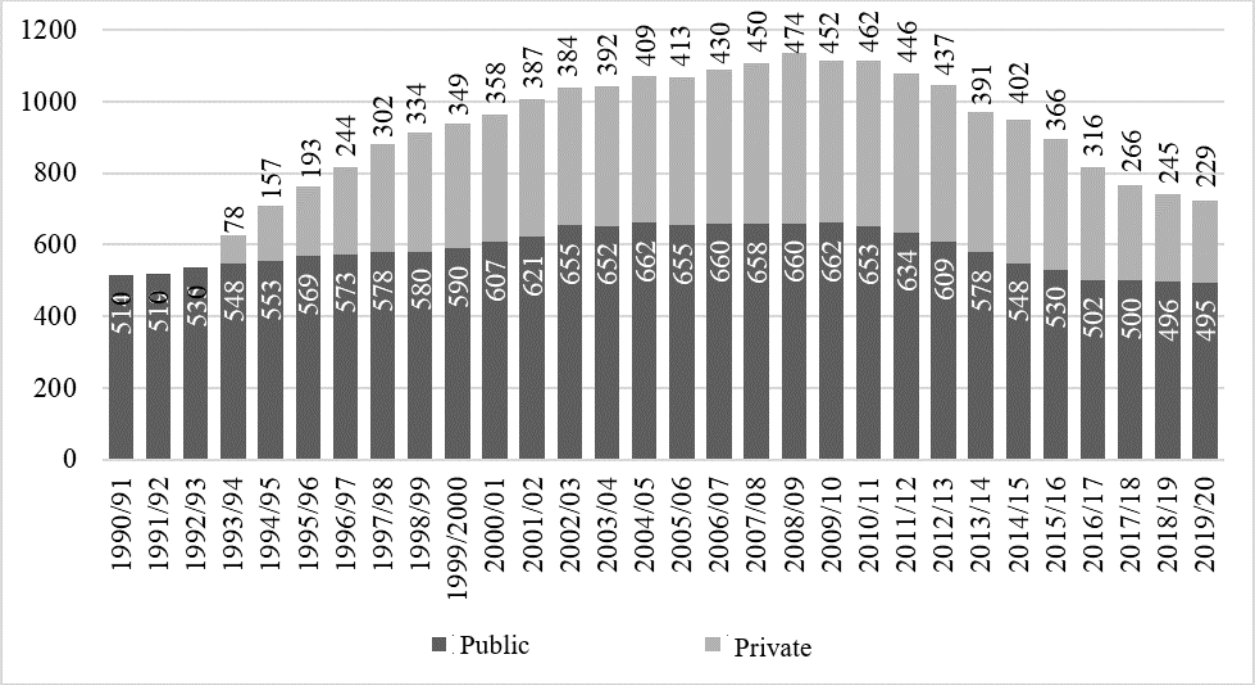

Fig. 3. **Number of public and private universities in the Russian Federation, 1990–2020**

Source: Rosstat.

quantitative increase in HE, with a parallel decline in the quality of training. Since 2010, this policy has been complemented by the wrong stratagem for the construction of a *university model of science* in Russia, which assumed the scientific priority of higher education institutions over other organizational forms of science — academic and sectoral (departmental) institutions. Such an arrangement led to the restructuring of state financing and supported by budget injections inflated "educational bubble". At the same time, a merger and takeover campaign is under way. However, by 2012, the country's budget was no longer able to adequately fund the bloated university sector. As a result, since 2014, the *hyperregulation* regime has been implemented with a characteristic of excessive activity of the public administration. From that point onwards, the total State monitoring of institutions of higher education for their effectiveness begins. *Control indicators* (targets) were used as tools for implementing such policies and were mandatory. As a result of the introduction of the evaluation system in 2014, 45.8% of all higher education institutions in the country were found to be ineffective (by the Ministry of Education). The policy of increasing the requirements for higher education is still being pursued through the introduction of new target indicators, which contribute to the compression of the HE.

The processes considered in Russia have coincided with a global paradigm shift in higher education. This involves a transition from the *career model* of the professorship to the home country with a corresponding high academic rent (including its intangible part) and individual contact with the student to a *business-model* with the annulment of the academic rent, focus on high-income universities and focused economies of scale [6, 7]. In recent years, the development of the HE business model has also been accelerated by new technological trends related to the widespread introduction of digitization and reformatting of educational standards (video

recordings of lectures, online lectures in remote access, complete abandonment of the traditional form of lectures, etc.) [8, 9].

At present, the real sector of the Russian economy is slowly but still growing, so there is a demand for certain groups of specialists. However, the situation is complicated by the world economy's entry into a global turbulence, with old professions dying and prospects for new ones — very uncertain. The gradual emergence of so-called *robotomics*, an economy based on the broadest introduction of robots to replace human labour, on the one hand contributes to technological unemployment and the exclusion of a number of occupations from the labour market [10], on the other hand, revealing the shortage of highly skilled professionals for the digital economy [11]. As a possible solution to this problem, researchers have proposed the introduction of a universal basic income [12, 13], the replacement of the classical consumption model by a business model of sharing economy [14], the development of creative activities [15] and other options [16]. However, without the re-establishment and strengthening of linkages between production and higher education, the problem could not be effectively addressed.

In summary, several sources of the current imbalance between labour market needs and the PHC supply can be identified.

1. *The historical factor* — is the destruction of the USSR and its socialist system, the formation of a new State in the shape of the Russian Federation on the basis of capitalism, the de-industrialization of the former economy and the destruction of the scientific sector, breaking the relationship between HE and the real economy.

2. *The ideological factor* — is the unsuccessful reliance on the self-regulation of the market system, to strike a balance between the demand for higher education and its supply by expanding the latter's status and earnings and disqualifying university workers.

3. *Inconsistency of the policy* — of regulation in the higher education sector — change of course from complete acquiescence and great freedom of higher education institutions with the emergence of "factories for the sale of diplomas" and the quality of education to the ultimate "tightening the screw" and the total control of all aspects of the activities of HE participants by the State, the growth of bureaucracy and formalism in creative spheres of activity.

4. *Change of paradigm* of higher education — from rent "service model" of professors — to business model of service delivery, from production of "one-piece commodity" in the form of elite specialists — to mass education in remote format with parallel collapse of the model of mass education from-for the death of mass professions.

5. *The change in the format* of higher education — large-scale digitization and epidemic threats (COVID-19) led to a shift away from off-line learning and traditional sermons in favour of a remote format, online-learning, new digital learning technologies and devaluation of university teachers.

6. *Global turbulence* in the global economic system — a failed political transition, rising geopolitical tensions, the development of new technologies with robotics creates disorientation of economic agents and HE with respect to future staffing needs.

METHODOLOGY FOR THE STUDY OF HUMAN RESOURCES IMBALANCES

In order to understand the extent of the current human resource imbalances in two of Russia's adjacent markets — labor and graduates — authors will consider several cross-cutting issues at the macro level. The proposed approach relates to the fact that, at the micro level, the problems are evident (school leavers do not know what professions will be needed or where to go; universities

Table 1

Percentage of university graduates by field of study, 2005, %

Economic sector	Countries of the world				Industrial dispersion
	Germany	USA	Korea	Russia	
Education	11.9	25.2	24.2	12.8	51.1
Arts and humanities	20.7	7.4	13.6	3.7	55.5
Social sciences, journalism and information	9.1	7.2	6.3	10.7	3.9
Business, administration and law	20.5	30.6	13.6	40.0	133.7
Science, mathematics and statistics	11.4	3.1	5.9	2.8	15.9
Information and communication technology	4.5	2.8	1.1	3.4	2.0
Design, production and construction	10.1	6.2	19.9	16.1	37.3
Agriculture, forestry, fisheries and veterinary science	1.4	0.8	1.2	3.5	1.5
Health and social security	9.4	14.8	11.9	3.4	23.5
Services	1.0	1.9	2.3	3.6	1.2
Correlation coefficient with Russia	0.56	0.77	0.44	–	–

Source: compiled by the authors according to OECD data.

do not know who and for whom to train; university administrators do not understand how to recruit teachers who meet modern requirements; enterprises do not know, where to find skilled workers and where to look for them, etc.), at the macro level, the extent of human resource imbalances is not well understood. Further research should therefore result in a portrait of existing personnel distortions in the HE. To this end, a consistent analysis of several problem areas is feasible.

1. Author's shall determine the degree of conformity of the sectoral structure of the Russian PHC and that of other countries with advanced economies; and the conformity of the sectoral structure of employment with that of the Russian economy and other developed countries; education of the Russian labour force in various branches of the economy and the level of sectoral requirements for the HE.

2. Let's find out the "quality" of the PHC of the manufacturing sector and the graduates prepared for it from the point of view of international standards.

CROSS-COUNTRY ANALYSIS OF GRADUATE'S STRUCTURE IN HE

For our purposes, it is necessary to compare the structure of graduates in the larger areas of training over the last decade and a half for several countries. The representative composition of the latter is minimal — the USA (the technological leader of the world economy), South Korea (the technological leader of Asia), and Germany (the technological leader of continental Europe).

Table 2

Percentage of university graduates by field of study, 2018, %

Economic sector	Countries of the world				Industrial dispersion
	Германия	США	Корея	Россия	
Education	9.2	16.0	17.2	5.9	29.4
Arts and humanities	16.5	6.5	12.8	5.8	26.4
Social sciences, journalism and information	7.9	6.8	9.0	8.4	0.9
Business, administration and law	20.6	27.0	18.8	20.5	13.0
Science, mathematics and statistics	11.3	4.2	5.1	6.0	10.2
Information and communication technology	4.5	5.1	3.0	4.4	0.8
Design, production and construction	19.5	7.1	15.0	22.5	44.9
Agriculture, forestry, fisheries and veterinary science	1.5	0.7	1.3	2.7	0.7
Health and social security	7.9	23.2	14.2	16.1	39.7
Services	1.1	3.4	3.4	7.7	7.6
Correlation coefficient with Russia	0.69	0.62	0.68	–	–

Source: compiled by the authors according to OECD data.

Cross-country comparisons will show how far the Russian HE model is moving out of the world trends in PHC preparation. Estimated data for four countries, presented to draw in the *table 1, 2*, following conclusions.

First, the model of PHC reproduction has changed in Russia over the years. For example, in 2005, the structure of student output was the most similar to that of the United States system of education [the correlation between Russian and United States employment structures was the highest compared to two other countries (*table. 1*)], in 2018, this gained more similarities to the Germany model (*table 2*). It is hardly a mistake to say that in the early 21st century Russian government tried to copy the American model of training, perceiving the United States as a model and reference for the university system. However, during the first two decades of the 21st century, American universities slowly but surely lost ground on the top of global university rankings [17]. This, along with the complications of Russian-United States political relations, led to the reorientation of the domestic HE towards a more conservative European continental model towards the end of the second century. At the same time, this development took place against the background of a global convergence of training models from different countries — the differences between the personnel structures of the four States considered in 14 years became much smaller. In this way, Russia was following the trend of unifying national models for the preparation of PHC, with a slight shift from Anglo-Saxon to Euro-continental formats.

Second, the Russian industry structure

Table 3

Industry distribution of employed in the world economy in 2008, %

Economic sector	Countries of the world		
	Germany	South Korea	Russia
Agriculture, forestry and fisheries	1.2	5.0	5.9
Mining and quarrying	0.2	0.1	2.3
Manufacturing	19.1	16.8	14.1
Electricity, gas, steam and air conditioning	0.8	0.3	2.7
Water supply, sewerage, waste management and environmental remediation	0.6	0.5	0.7
Construction	6.7	7.6	7.1
Wholesale and retail trade, repair of motor vehicles and motorcycles	13.9	13.9	15.9
Transport and storage	5.1	5.2	8.6
Accommodation and catering	3.8	8.4	2.6
Information and communication	3.2	3.1	1.8
Financial activities and insurance	3.0	3.1	2.3
Real estate	0.5	2.0	1.7
Professional, scientific and technical activities	5.7	4.1	3.2
Activities in administrative and support services	5.0	4.9	2.4
Public administration and defence; compulsory social insurance	6.9	4.1	7.1
Education	6.7	6.9	9.5
Activities in health and social services	13.0	7.6	8.0
Art, entertainment and leisure	1.3	1.7	1.8
Other activities in services	3.4	4.8	2.4

Source: compiled by the authors according to OECD data.

of the PHC produced during the 14 years reviewed has levelled very markedly, and the existing personnel "fluxes" have largely dissipated. For example, in 2005 the share of trained personnel in the arts and humanities in Russia was 5.6 times lower than in Germany, and in 2018 — already 2.8 times lower. We can also speak about the underdeveloped field of training of doctors, whose share in 2005 in Russia was 4.4 times less than in the USA and in 2018 — already only 1.4 times. At the same time in 2005, Russia was still blowing up a personnel bubble in social specialties (business, management, law), as a result, the corresponding share of Russian HE graduates was almost twice as high as in Germany, almost 1.5 times as high as in the USA and almost 3 times as high as in South Korea. In 2018, the hypertrophy of this branch of training in Russia was eliminated, and its

share adopted the standard values. It is a remarkable fact that the previous "overflow" of abstract managers in the direction of specific industrial production in 2018 has been replaced by accelerated training of engineering personnel in comparison with three other countries.

In view of the above, it can be said that over the past decade and a half Russia has overcome obvious distortions in the structure of the preparation of the PHC and has built a model of HE that is not very different from other developed States of the world. In our view, this is due in large part to the *simulation* activities of both the regulator and the participants in the HE-market imitating international standards and norms. Nevertheless, country comparisons indicate that there are no strategic errors in PHC preparation in Russia. Author's will check this point below on the basis of other statistics..

CROSS-COUNTRY ANALYSIS OF SECTORAL EMPLOYMENT

The next step in establishing personnel discrepancies in the Russian education system in relation to current requirements is to compare the sectoral employment structures of the three countries.[4] The results of this comparison are shown in *table 3* on the basis of which the following conclusions can be drawn.

First, the structure of employment in the Russian economy is not very different from that in other developed countries. The differences are within acceptable values and can be attributed to the national specificities of economic models. For example, a large share of Russia's mining sector is objective and unattainable due to the country's endowment of natural resources compared to, for example, South Korea. Similarly, the "excess" of 3.5% in transport and storage in Russia is due to the fact of the length of road communications and the need to service the mining sector. Overall, there are no global differences in employment patterns between Russia and other countries (Germany and South Korea). Consequently, the Russian economy is in line with global economic trends.

Second, the most noticeable "failure" of the Russian economic structure is the state of two branches — manufacturing industry and scientific and technical activity. In comparison with Germany, the share of the first industry in Russia "is insufficient" 5% of the total number of employees, and the share of the second — j2.5%. Both are directly linked to technological progress and largely shape the national economy. Taking into account the cumulative gap between Russia and Germany (7.5%) and South Korea (5.6%), it can be argued that Russia needs a certain manpower shift towards knowledge-based activities. The requirement to meet the modern standard — the relative scale of the two industries in Germany and South Korea — means that the Russian engineering market needs to be replenished by 4.1–5.4 million people. It is here that there *is a disturbing fact in the form of a pressure point of the Russian Federation's HE for processing plants*. However, the share of manufacturing in developed countries is declining as its technological level and productivity increase, so that the shortage of engineering specialties in Russian PHC doesn't seem catastrophic.

LEVEL OF EDUCATION OF RUSSIAN STAFF

The third step in understanding the scope of "national disaster" in the field of training is to consider the level of education of employees of branches of the Russian economy, as which we will use the share of persons with higher education in the total employment of

[4] Due to international sanctions against Russia, the USA is blocking Russian users from accessing American statistics. This fact led us to consider only three countries later, but this does not affect the objectivity of the results.

Table 4

The level of education of employment in the Russian economy sectors, 2019

Economic sector	Коэффициент образованности, %
Agriculture, forestry and fisheries	12.9
Mining and quarrying	29.8
Manufacturing	26.8
Electricity, gas, steam and air conditioning	33.4
Water supply, sewerage, waste management and environmental remediation	23.4
Construction	25.5
Wholesale and retail trade, repair of motor vehicles and motorcycles	25.3
Transport and storage	20.4
Accommodation and catering	18.2
Information and communication	63.3
Financial activities and insurance	68.2
Real estate	30.8
Professional, scientific and technical activities	73.0
Activities in administrative and support services	34.1
Public administration and defence; compulsory social insurance	58.5
Education	55.7
Activities in health and social services	35.0
Art, entertainment and leisure	46.1

Source: compiled by the authors according to Rosstat data.

the branch (educational rate) (*table 4*). The following paradoxical conclusions can be drawn from the data.

First, despite the phenomenon of the "educational bubble" with its consequence in the form of the phenomenon of universal higher education, the share of PHC in the Russian economy is still suspiciously small.

According to Rosstat data, the average education rate of the Russian economy in 2019 was 34.2%. To illustrate this anomaly, authors will make some rough calculations. Available data indicate that by 2020, 24.3 million people with higher education were working in the country. In 1992, the education rate of the employed in Russia was 16.1 per cent, with a corresponding figure of 11.4 million. Given a period of less than 30 years of analysis, it is reasonable to assume that the age group of today's 50+ workers consists of people who have been employed in the economy since 1992. By 2020, 27.6 per cent of the total number of employed persons were employed. If we assume that among these people the share of specialists with higher education is at the level of 1992, then today the number of PHC of the previous era (USSR) is 3.2 million people. According to Rosstat's

data, the number of graduates for the period 1992–2020 was 27.8 million. that the largest number of registered PHC in the domestic economy. All 27.8 million "new" PHC have entered the labour market in the past 30 years and remain there because of their still small age — less than 52 years. If you add to them "old" PHC, the total number of employees with higher education should be about 32 million (not 24.3 million according to available data). We stress that we have estimated the minimum value of potential PHC. Thus, we come to the paradoxical conclusion that in past years the country "produced" about 8 million people with higher education, which have "disappeared" without a trace.[5]

The human resources imbalance identified is not a random but a systemic phenomenon. Similar computational operations for agriculture, forestry and fisheries are feasible to prove this thesis. By 2020, it had 4.2 million employees (see *table 3*). Of these, only 540,000 persons have higher education (see *table. 4*), of which 150,000 in turn — "old" (Soviet) cadres. Consequently, "new" PHC amounted to only 390 thousand people, while according to our calculations according to Rosstat data for the period 1992–2020. PHC countries prepared for the industry 905 thousand person. Thus, more than half a million certified specialists of the agrarian sector, forestry and fishing "disappeared without a trace".

The human resources imbalances identified were too significant to be overlooked and needed to be assessed. Without going into unsubstantiated hypotheses, we will only indicate the possible fate of the 8 million army of qualified personnel of various specialties. Apparently, these HE graduates created a peculiar "personnel canopy", which for various reasons proved to be inactive, and therefore distributed through several channels: migration from the country[6]; existence of a double and triple account in connection with the acquisition by many people of several higher entities[7]; migration to the informal sector[8]; Leaving for the household sector; marginalizing university graduates from declassification and employment in areas not requiring higher education[9] (with corresponding omission from statistics), to complete social deprivation (long-term unemployed, small rentier,[10] homeless persons, etc.).

The main conclusion from the previous analysis is that the country's education bubble has led to the separation of HE from the real economy in the form of the supply of surplus and unutilized skills to the labour

[5] Given the assumptions, in fact, a more realistic figure could be 10 million.

[6] In the Global Talent Competitiveness Index (GTCI), Russia ranked 106th out of 119 countries in 2018 on the criterion of attracting (creating opportunities) talent — member rating [18, p. 24]. Concrete examples of "leakage" from Russia of such innovators as Google founder S. Bryn, inventors of graphene and Nobel laureates in physics A. Geim and K. Novoselov (who refused an offer to work in Skolkovo), Founder of the social network Vkontakte and cross-platform messenger Telegram P. Durov (who emigrated due to conflict with the Federal Security Service of the Russian Federation) etc. only confirm the pronounced loss of Russian "brains".

[7] Until recently, it was considered a sign of good taste to have several degrees in higher education. For example, engineering and economic higher education was a prerequisite for employment in the ROSNANO Corporation.

[8] According to estimates by various scientific and analytical organizations, the share of informal employment in the Russian labour market by the end of the Second Decade 21st was 22–45%. URL: https://d-russia.ru/wp-content/uploads/2017/11/Skills_Outline_web_tcm26–175469.pdf.

[9] According to estimates by analysts at the Higher School of Economics (HSE), half of Russians with higher education do not work in the field of specialization, and 26.6% of university graduates accept professional declassification for positions that do not require higher education; 41.2% of agricultural graduates. URL: http://demoscope.ru/weekly/2017/0713/tema01.php. According to Rosstat's estimation, about 60% of the economically active population work outside their specialty and up to 73% according to Rostrud's estimation. URL: https://russian.eurasianet.org/node/65166.

[10] Characteristic is the example of a resident of Moscow who, having received three higher education in physics, mathematics and economics, did not work half of his life anywhere, living on the income from renting his inheritance of a one-room apartment in the capital.

Table 5

Manufacturing productivity in the different countries of the world in 2019 (in constant prices 2015)

Country	Absolute LP, thous. USD / person	Relative LP	
		Base — Russia, time	Base — USA, %
USA	137.2	6.0	100.0
South Korea	97.7	4.3	71.2
Germany	89.1	3.9	64.9
Russia	22.9	1.0	16.7

Source: compiled by the authors according to UNDATA and ILOSTAT data.

Table 6

Industry robotization in different countries of the world, 2018

Country	Absolute robotization, robot units / 10,000 people in manufacturing	Relative robotization	
		Base — Russia, time	Base — South Korea, %
South Korea	774	154.8	100.0
Germany	338	67.6	43.7
USA	217	43.4	28.0
Russia	5	1.0	0.6

Source: compiled by the authors*.

* URL: https://econs.online/articles/details/gde-bolshe-vsego-robotov/.

market. The logical outcome of such a process was the paradoxical "evaporation" of 8–10 million top-level professionals. The reasons for the non-availability of persons with a higher education are obvious: the lack of jobs in the Russian economy for graduates of the relevant HE and their unsuitability for work and, consequently, inability to work in the specialty at the required level of the market.

Second, the Russian economy faces glaring structural-industrial discrepancies as a workforce. For example, the rate of education in manufacturing is lower than in mining, which is an obvious economic nonsense. Equally shocking is the fact that people in the arts, sports, entertainment and leisure sectors are 1.7 times more educated than those in manufacturing. These facts once again confirm the inadequacy of the demand of the branches of the economy for the quality of the personnel attracted, in particular the lack of use of HE graduates from knowledge-intensive sectors.

HIGH-TECH SECTOR OF THE ECONOMY: LOOKING FROM WITHIN

The above-mentioned macroeconomic human resource imbalances in the Russian economy make it possible to formulate a hypothesis on the low quality of graduates of the Russian HE. To test this hypothesis, it's sufficient to consider labour productivity (LP) in manufacturing in four reference countries

(*table 5*). The calculations show an ugly and unexpected picture.

First, the global high-technology marketplace has undergone major changes and country rankings. For example, one of the world's traditional industrial leaders — Germany — has already yielded to South Korea, which in turn is actively pursuing the USA. This fact proves once again that Europe, even through its champion, lags behind the leading Asian countries. Moreover, at the Macroeconomic Research Centre of the Financial University under the Government of the Russian Federation in 2019, further calculations were made to define the technological boundary,[11] of which the value was equal to 71.7%. From the *table 5* shows that South Korea has reached this level of technological frontier and can compete fully with the US in high-tech development, while Germany is still below that frontier and cannot claim leadership in the new industry.

Second, the technological level of Russia's manufacturing industry is extremely low. For example, the LP of a given industry is a fraction of that of three reference countries. At the same time, the trend of recent years is of particular concern: while in 2000 the relative LP in USA to Russia was 6.5 times, in 2017 it decreased to 5.2 times [19], then in 2019, it went up again to 6 times. All this clearly shows that the Russian manufacturing arsenal is archaic and the engineering personnel working in the industry have qualifications that do not meet any international requirements and standards. It is this circumstance that creates a stalemate in the human resources sector — the manufacturing industries of the country are not developed and therefore do not use qualified engineering personnel, but higher education institutions, without the possibility of establishing direct links with high-tech companies, training staff on patterns software.[12]

Recent popular statistics on the density of the robotization of national economies fully confirm the above findings (*table 6*). In fact, Russia is at the earliest stage of robotics, which determines the problems described.

Thus, an attempt to look inside the domestic manufacturing industry reveals an unpleasant fact: the quality of Russian engineers is 6 times lower than that of American engineers, and the quality of jobs in manufacturing plants — is 43 times lower. And this is the main consequence of the "educational bubble" 1991–2007. The very slow modernization of jobs leads to their archaic nature, resulting in a lack of demand for highly skilled engineers, which in turn makes it impossible to accelerate the modernization of production. The circle is closing, with the result that the real economy and HE continue to exist semi-autonomous, falling further behind the world's technological leaders.

ENGINEERING TRAINING: A TEST OF INTERNATIONAL COMPETITIVENESS

The above was found to be a professional failure of Russian engineers. This is a very categorical and unpleasant conclusion that requires further substantiation and evidence. In this context, consider the international competitiveness of the engineering personnel being trained by the Russian HE, for which we will take advantage of the information provided by the rating company QS on the degree of success of different universities of the world in different scientific and practical directions in this field (*table 7*).

We will make some preliminary methodological comments. The subject

[11] In this case, the technology boundary refers to the relative level of the leading country's (USA) LP, which exceeds the level of readiness of the country/industry to move from a policy of borrowing foreign technologies to their development and domestically.

[12] According to the Russian Public Opinion Research Center survey, 91% of Russian employers consider that university graduates lack practical skills (Russia 2025…, 2017, p. 40).

Table 7

The Russian universities in the QS World University Ranking by Subject 2021

Russian universities	Engineering Science and Technology	Scientific fields					
		Informatics and information technology	Chemical technology	Engineering in electronics	Engineering, aerospace and industrial engineering	Engineering in the mining industry	Engineering in the oil industry
Lomonosov Moscow State University	67	58	–	–	67	–	32
National Research University ITMO	160	74	–	201–250	251–300	–	–
Novosibirsk National Research State University NSU	206	301–350	151–200	251–300	251–300	–	51–100
St. Petersburg State University	218	151–200	–	–	–	–	51–100
National Research Technological University MISSIS	285	–	–	451–500	201–250	42	51–100
National Research Tomsk Polytechnic University	288	351–400	201–250	251–300	201–250	–	23
Ural Federal University named after the first President of Russia B.N. Yeltsin	401–450	451–500	–	401–450	351–400	–	51–100
Kazan Federal University	–	501–550	351–400	–	–	–	51–100
St. Petersburg Mining University	–	–	–	–	–	12	101–150

Source: compiled by the authors according to QS data.

rankings of global rankers provide very important information about which sciences and disciplines universities in different countries are successful. In author's opinion, the most representative information of this kind is provided by the company *Quacquarelli Symonds* (QS). At the same time, a convenient empirical rule has been established: reaching world level in the respective subject areas is characteristic of higher education institutions which have entered the top-50 subject ratings [17]. Let us recall that World Class Universities (WCU) status has traditionally been claimed by Top 100 Global University Rankings (GUR), however, there are many specialized universities that do not conduct research in a broad range of scientific fields, but that do have outstanding results in one or two specific areas. Such success becomes undeniable, usually when the university is ranked in the top-50 subject ratings. It is this criterion that can be used to diagnose the international competitiveness of Russian higher educational establishments in engineering fields.

From the *table 7,* a few important conclusions follow.

First, in Russia there are 4 universities that train world-class engineering cadres, but they all train specialists primarily for the mining industry — mining (MISSIS, St. Petersburg Mining University) and oil [Lomonosov Moscow State University, National Research Tomsk Polytechnic University]. Thus, world-class engineering personnel for manufacturing industries in Russia are not prepared at all, which confirms the previously formulated thesis that there are no specialists in this field in the country.

Second, there are five other universities in the country that produce, if not the most advanced but sufficiently qualified engineering cadres (National Research University ITMO, Novosibirsk National Research, St. Petersburg State University, Ural Federal University, Kazan Federal University). These universities have entered the second half of the list of top-100 subject rating QS. This fact shows that these higher schools have some potential for the reproduction of high-class engineers, but once again we find that they are personnel for the purely oil industry. The insignificant impact of MSU and ITMO in the field of information technology and engineering is not sufficient to support modern types of manufacturing.

With regard to higher education establishments listed as 101–500, in addition to the 9 listed institutions, there are 14 such institutions in the Russian Federation. These 23 universities form the nucleus of the HE, in which the training of engineers of satisfactory quality can be provided in the future. In the next 5–10 years, however, graduates of these institutions are likely to be unable to develop the manufacturing technologies of the Fourth Industrial Revolution. In this way, *table 7* confirms the earlier conclusion that Russia does not have the necessary human capacity for impending robotics.

CONCLUSION: A POST-INDUSTRIAL WORLD WITHOUT INDUSTRY

An analysis of the country's human resources imbalances provides a clear picture of the following features.

First, superficial monitoring of personnel macro-projects in employment and university students does not allow to "catch" existing problems on the labour market. Moreover, a consolidated analysis of staffing structures by type of activity, on the contrary, masks the seriousness of the accumulated imbalances. This fact calls for the examination of the labour market "from within" for the assessment of the quality of the available personnel and their demand by the real sector of the economy.

Second, the phenomenon of the "education bubble" of the last 30 years has led to a complete severance of ties between the HE and the real economy. As a result of this development, Russian universities are generating an excess of graduates, mostly *general* and very *obsolete* knowledge, not aimed at rapid integration into the modern economy. Due to the flexibility and adaptability of the labour force, the problems of most branches of the economy are somehow solved by the mutual "fitting" of workers and jobs, but there are also segments of it whose staffing cannot be solved by such spontaneous "learning" population in the workplace. The key economic sector of this type is the manufacturing industry, which accumulates all modern advances in technology and imposes high engineering skill requirements. Today, it is manufacturing that acts as a "bottleneck" in the domestic labour market, where there is a clear professional stagnation.

Thirdly, the developed world is now moving towards a post-industrial economy, while Russia cannot organically fit into that process. This is because the post-industrial economy implies little employment in the agricultural and industrial sectors and a concentration of the rest of the working population in services.

However, this economic model is based on extremely high productivity in the agricultural and industrial sectors.[13] In Russia, this basic condition has not been met, and it enters the post-industrial world with extremely inefficient agriculture and industry. The social consequences of building a service society without economic constructs in the form of these two branches can be most negative.[14]

To sum up, the break-up that took place in 1991 between the HE and the real economy has led to a vicious circle of technological innovation that has not yet been broken. The which contributed to the accumulation of serious human resource imbalances in the country and a technological failure in the manufacturing sector. Unless the close links between the universities and the market sector are re-established and a technological leap is made in industry through the most aggressive borrowing of new technologies, This state of affairs is fraught with the possibility of building a post-industrial society without a developed industry like the underdeveloped countries of the third world.

[13] The scale of the technological transformation envisaged is enormous. A study carried out by *The Boston Consulting Group* found that Russia also has single acts of modernization. For example, a number of domestic dairy farms, which used to require 250 milkmaids per 5 million head, now have the same number of heads for 2 operators and a robot milkmaids. (https://d-russia.ru/wp-content/uploads/2017/11/Skills_Outline_web_tcm26–175469.pdf). On the whole, however, such acts do not change the situation: Russia's LP in the agricultural sector is about 4.5 times lower than in the US.

[14] We emphasize that Russia is characterized by extremely sluggish borrowing of new technologies. For example, in 2015, Russia purchased 550 industrial robots and China bought 69 thous. (https://www.vedomosti.ru/technology/articles/2016/11/14/664697-roboti-ne-prizhivayutsya). Even adjusting these figures for the size of the population, it is easy to see that China is on an order of magnitude more active in modernizing production equipment. Against this background, it is particularly disharmonizing that the purchase of service robots (in the sphere of medicine, education, etc.) in Russia is much more active. It is clear that in the long run this will lead to a complete loss of the country's economic and technological independence.

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External Debt Problem in the European Union

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ABSTRACT

The paper's relevance is substantiated by the fact that today a rapid growth of external debt of the most developed countries of the world (including European Union (EU) countries) is one of the most acute problems of the modern world economy and global finance. The paper aims to assess the degree of the external debt burden of various EU countries and evaluate the prospects of solving external debt problems in the EU. The article focuses on dynamics, composition, and specifics shaping the EU countries' external debt based on comparative, economic, statistical, and graphical analysis. Special attention we paid to the analysis of specifics of the EU countries' sovereign external debt composition connected with the acute problem of the rapid growth of public debt in general. The paper examines the ratio of public external and internal debt in various EU countries. It determines the EU particular countries where public external debt is shaping based on either cross-border or domestic model. The research results reveal a high degree of dependence of the EU economy on international debt finance. Gross external debt and sovereign external debt of the EU countries are still growing, and its distribution among various member states is very uneven. The structural imbalance of the EU countries' net external debt has also been revealed: the number of net borrowers is double that of net lenders. According to the basic external debt sustainability indicators, some EU countries are in a pretty tricky situation and entirely depend on the possibility of external debt refinancing.

Keywords: external debt; internal debt; public debt; European Union; euro area

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INTRODUCTION

In the context of financial and economic globalization, debt operations in the international financial market are growing rapidly, and external debt has been the focus of attention of major international organizations for many years, and a wide range of scientist and practitioners from around the world. Debt can be said to have become a major international policy issue [1].

While in the 1980s and 1990s 20st century the problem of rapid growth in external debt was primarily related to developing countries, since the 2008–2009 crisis, external debt has become a pressing issue for many developed economies (including those of the European Union) [2]. According to our calculations, at the end of 2019, world external debt reached 86.8 trillion USD (about 99% of world GDP).[1] Of this amount, almost half went to the EU countries and, according to data for the Q3 of 2020, the situation has not changed fundamentally.

In response to the growing external debt problem, the authors analysed the dynamics, trends and features of the current external debt structure of the European Union. Statistics from such international organizations were used as the main sources of information such as World Bank, International Monetary Fund, Bank for International Settlements, Statistical Service of the European Union — Eurostat.

DYNAMICS OF EXTERNAL DEBT IN EU COUNTRIES

The increase in the external debt of the 10 countries that are the world leaders on this indicator is reflected in *table 1*.

As can be seen from the *table 1*, the gross external debt of the leading countries increased almost 2.2 times in 2004–2020, and the number of States with the largest external debt, represents the seven EU countries (until February 2020 — eight, including the United Kingdom, which is the second largest debtor). Global external debt is highly concentrated. In the Q3 of 2020, more than 71% of world external debt was generated by just 10 countries, with the first five countries accounting for more than 53%.[2]

Although the world's biggest debtor is the US (in the Q3 of 2020, the external debt of the USA amounted to 23.2% of total world external debt), the leading European countries, as shown in *table 1*, have a relatively high level of external debt, which is rising steadily. At the end of the Q3 of 2020, the USA and the EU accounted for nearly 64% of world external debt, with the UK and Japan accounting — for about 79%.

According to the World Bank, gross external debt of 28 countries, EU Member States before 1 February 2020, in the period from the Q4 of 2008 (not all EU countries have data available at an earlier date) for the Q4 of 2019 increased by 12.1%, and the gross external debt of the euro area has increased by 17.7% since then. Dynamics of gross external debt of EU and euro area countries in 2008–2020 is shown in *figure 1*.

Between 2008 and 2020, the share of the euro area in gross external debt of EU countries (taking into account British external debt) declined by 0.5 p.p. (up to 70.3%), and excluding the British external debt, the decline in the share of the euro area was 5.5 p.p. to 86.5%. This reflects the higher growth in gross external debt of non-euro-zone countries over the past 10 years. In addition, the growth rate of gross external debt of EU countries (the external debt of the United Kingdom) over the period was 2.3 times lower than that of gross global external debt, which increased by 46.1%. As a result, according to our calculations, the share of the gross external debt of the EU countries in the composition of world external debt declined by 11 p.p. over that period.

[1] World Bank website. URL: https://databank.worldbank.org/source/.

[2] See ibid.

Table 1

Growth of gross external debt of ten countries leading on this indicator on a global scale, USD mln

Country	Q4 2004	Q4 2009	Q4 2014	Q4 2018	Q4 2019	Q3 2020
USA	8 361 088	13 661 791	17 258 054	19 669 422	20 600 666	21 314 655
UK	6 638 694	9 409 468	9 219 399	8 406 315	8 840 646	9 262 192
France	2 853 237	5 164 310	5 496 291	5 829 082	6 268 363	7 121 549
Germany	2 932 992	5 114 139	5 597 022	5 540 551	5 588 103	6 479 588
Japan	1 557 059	2 551 151	2 726 442	4 012 590	4 239 168	4 740 679
Netherlands	2 788 548	2 202 080	4 153 963	4 290 474	4 310 967	4 546 788
Luxembourg	1 070 455	2 086 400	3 330 628	4 131 051	4 090 583	3 881 317
Ireland	1 052 284	2 531 162	1 959 963	2 726 250	2 852 044	2 877 587[1]
Italy	1 649 008	2 424 141	2 459 288	2 420 050	2 503 016	2 688 071
Spain	1 235 785	2 531 670	2 064 068	2 307 368	2 371 779	2 585 510
TOTAL:	30 139 150	47 676 312	54 265 118	59 333 153	61 665 335	65 497 946

Source: Compiled by the authors based on the database of the World Bank*.

* World Bank website. URL: https://databank.worldbank.org/source/. ** Data for Q2 of 2020

Figure 2 shows dynamics in the public external debt of EU and euro-zone countries, 2008–2020.

Between 2008 and 2020 EU public external debt (excluding Great Britain) increased by 42.4%, which was almost in line with the growth of the external public debt of the euro area (42.3%). With the United Kingdom, the increase in EU public external debt was higher at 51.1%, as the United Kingdom public external debt increased by a factor of 2.83 times during the period under review (this compared to: in Germany, public external debt increased by a factor of 1.25 times during the same period, and in France — of 1.64 times).

Figure 3 shows the gross external debt of individual EU countries.

In the Q4 of 2008, eight EU countries (UK, Germany, France, Netherlands, Ireland, Spain, Italy and Luxembourg) accounted for almost 85% of the gross external debt of EU countries, while the remaining twenty countries accounted for about — 15%. In the Q4 of 2019, the shares of the same eight countries remained the same (85.1%), and France (from 12.6 to 14.5%) and Luxembourg (from 5.6 to 9.5%) increased markedly, and had also increased slightly in Ireland's share (from 6.1 to 6.6%), on the background of corresponding decrease of the share in the other five (The decline in UK's share was particularly pronounced — from 23.3 to 20.4%).

Among the rest of the non-EU countries in terms of gross external debt, has declined Austria's share (from 2.1 to 1.6%), Hungary's share (from 0.5 to 0.3%), Greece's share (from 1.3 to 1.2%) and Denmark's share (from 1.5 to 1.2%). At the same time increased Finland's share (from 0.9 to 1.4%), Poland's share (from 0.6 to 0.8%), Cyprus share (from 0.3 to 0.5%), Czech's share (from 0.2 to 0.45%), Romania's share (from 0.2 to 0.3%) и Slovakia's share (from 0.1 to 0.3%).

During the period under review, gross external debt increased in the Czech Republic, Finland, Lithuania, Slovakia, Romania and Poland, Sweden, Belgium, Spain, Italy, Ireland, Luxembourg, Netherlands, Germany,

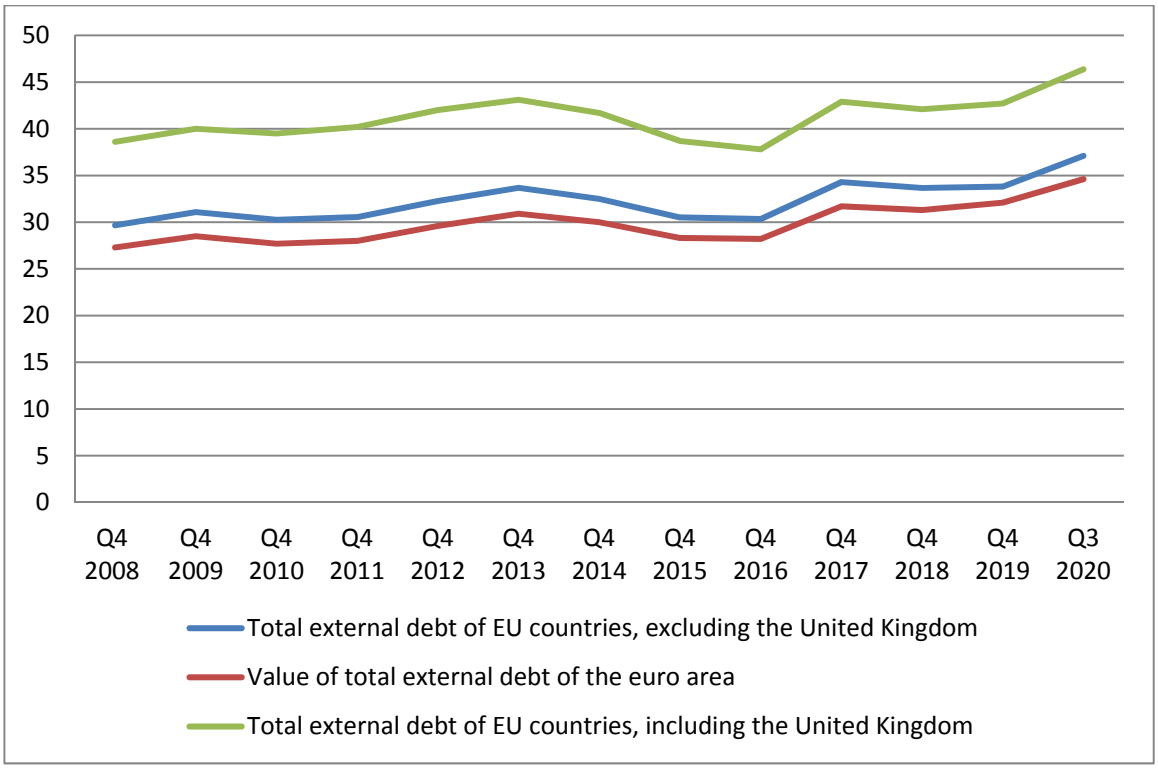

Fig. 1. **Changes of gross external debt of the EU and euro area, USD trn**

Note: Data for the Q3 of 2020 include total Irish external debt for the Q2 of 2020.

Source: xCompiled by the authors based on the database of the World Bank*.

* World Bank website. URL: https://databank.worldbank.org/source/.

France, Malta and Cyprus, while in Estonia, Bulgaria, Latvia, Croatia, Slovenia, Hungary, Portugal, Greece, Denmark, Austria and the United Kingdom external debt are reduced. The largest increases in gross external debt occurred in the Czech Republic (133.2%), Slovakia (125.8%), Luxembourg (88%), Finland (77.4%), Malta (59.5%) and Cyprus (51.5%), as well as in Poland (44.2%), France (28.4%) and Ireland (21.1%). Maximum debt relief were indicated in Hungary (–34.1%), Croatia (–24.8%), Bulgaria (–22.3%), Austria (–17.6%), Slovenia (–12.5%) and Estonia (–11.7%).

FEATURES OF THE EXTERNAL DEBT STRUCTURE OF EU COUNTRIES

It should be noted that, as defined by IMF, a country's gross external debt includes debt owed by different types of resident to different categories of non-resident. Given the fact that corporate borrowers from different countries (including Russia) often create subsidiaries in some EU countries to organize external borrowing, taking advantage of tax and business incentives, the high level of gross external debt of an EU country and its rapid growth can be attributed to the dominance of corporate borrowers in the composition of gross external debt.

Therefore, formal domestic corporate external debt is essentially a foreign corporate external debt that is not guaranteed by the Government of a given country. For example, in the Q3 of 2020, in the United Kingdom, Ireland, the Netherlands, Luxembourg and Cyprus, between 89 and 96% of gross external

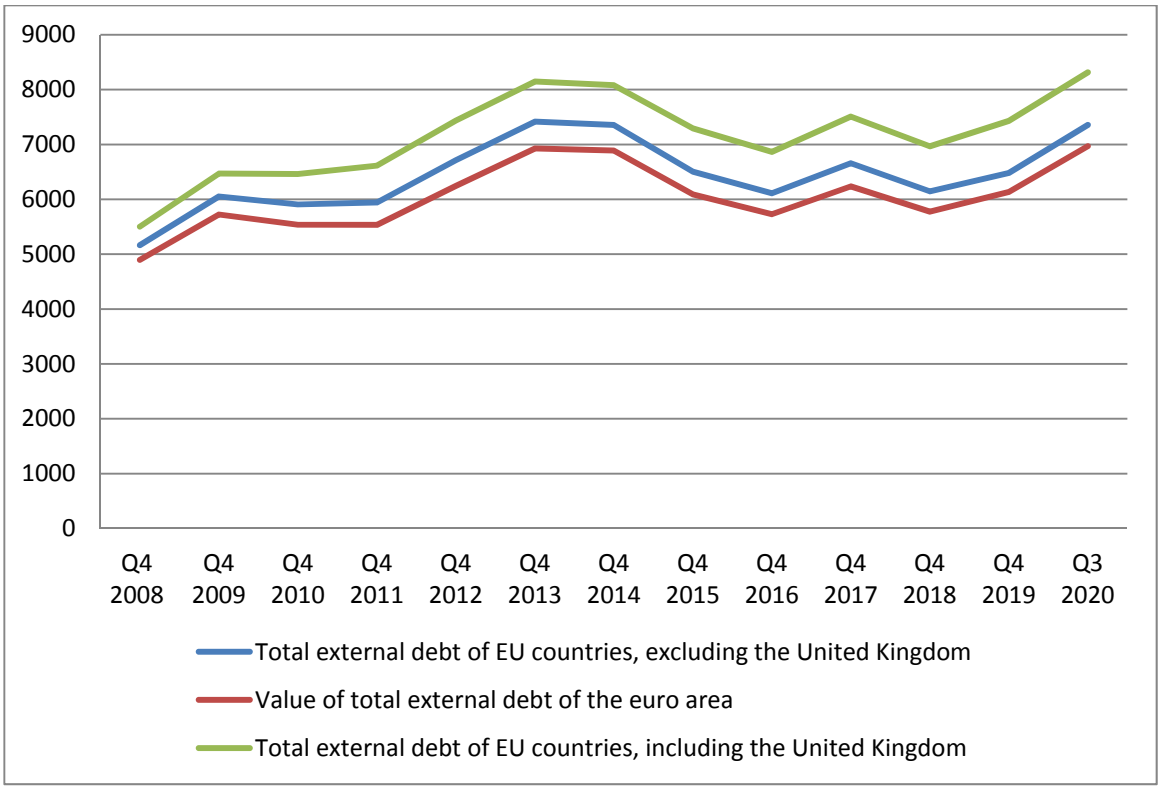

Fig. 2. **Changes of public external debt of the EU and euro area, USD billion**

Note: Data for Q3 2020 include Ireland's public external debt for Q2 2020

Source: Compiled by the authors based on the database of the World Bank*.

* World Bank website. URL: https://databank.worldbank.org/source/.

debt was corporate debt, a large proportion of which were companies registered in those countries by non-residents. In 2008–2020 in the above countries has been a redistribution a given amount of gross external debt: the UK and the Netherlands decreased in proportion to the combined shares of Luxembourg, Ireland and Cyprus. This means that foreign banks and companies are gradually giving preference to smaller European countries for external borrowing.

It is possible to try to determine the approximate share of non-resident companies in the gross external debt of the above countries using Bank for International Settlements (BIS) statistics on international debt securities, which are the main debt instrument in the international financial market. Based on the breakdown of issuers from the five EU countries by place of registration and by nationality[3] and related statistical differences as of Q4 2020 (in the UK value of international debt securities, issued by domestically registered banks and companies, are 1.2 times larger than national securities, 1.7 times — in the Netherlands, 2.6 times — in Ireland and 3.2 times — in Luxembourg), it can be assumed that non-residents' share of gross external debt is about 47–49% for the UK, 57–59% for the Netherlands, 66–68% for Cyprus, 68–70% for Ireland and 72–74% for Luxembourg.

The rapid growth of corporate external debt in EU countries was also linked to the fact that European banks and companies were actively attracting low-cost financial resources from developing and emerging economies. The

[3] BIS website. URL: http://stats.bis.org/statx.

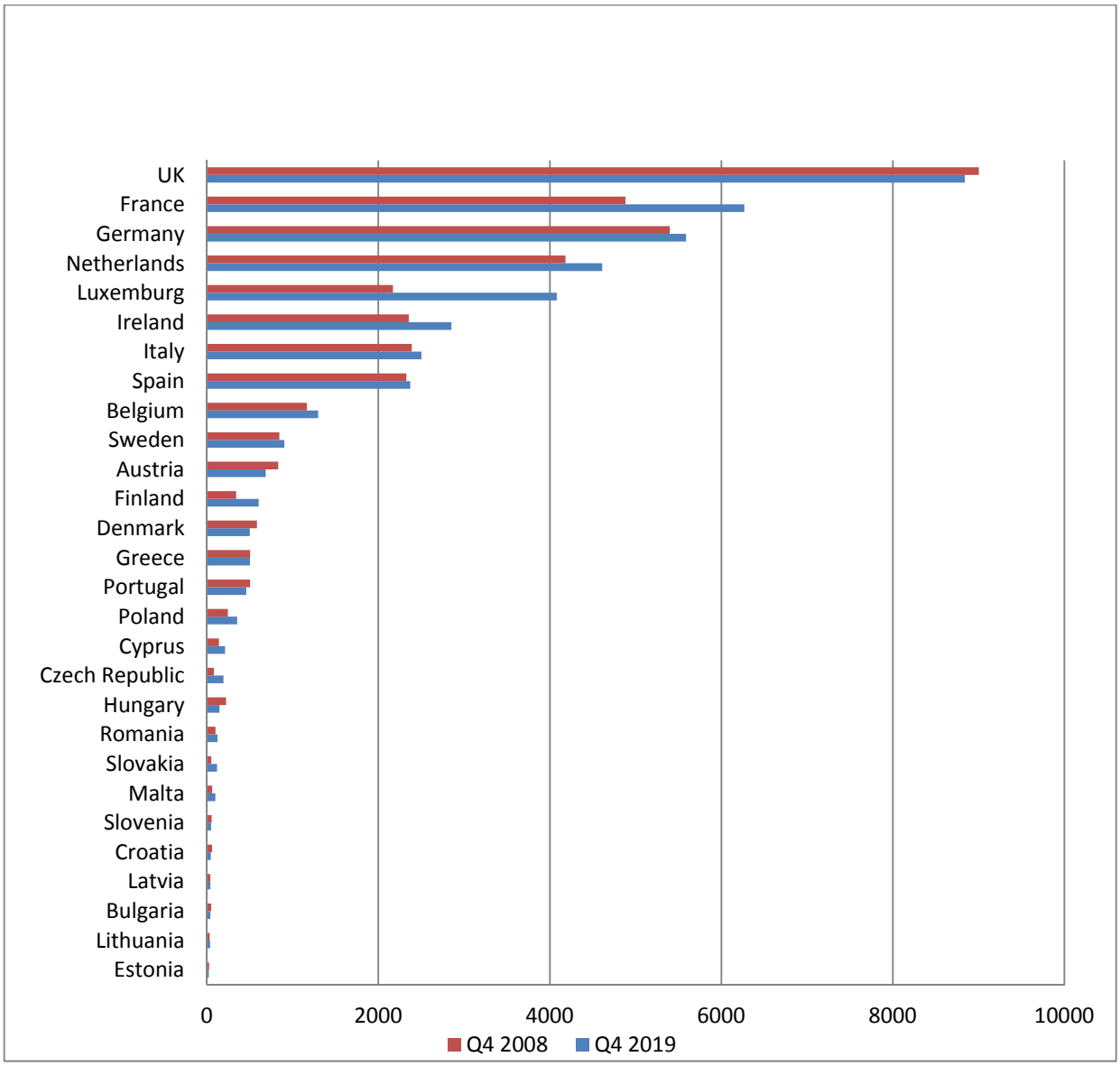

Fig. 3. **Gross external debt of the EU countries in IV quarter of 2008 and IV quarter of 2019, USD billion**

Source: Compiled by the authors based on the database of the World Bank*.

* World Bank website. URL: https://databank.worldbank.org/source/quarterly-external-debt.

money was then invested by the EU corporate sector outside the eurozone, returning in part to developing and emerging markets [3].

The category "gross external debt" excludes counterclaims of a given country to its debtors. With this in mind, the situation has changed significantly (*table 2*).

An analysis of table 2 shows that some countries are classified as net creditors. Among these countries are the Netherlands, Germany, Ireland, Denmark, Luxembourg and others. Other countries, by contrast, are net borrowers. Among them: Italy, France, Austria, Spain, Finland, Sweden, Poland, Cyprus, Greece and others. The number of net creditors is two time less that of net borrowers. The formal Luxembourg is the EU's main net creditor (relative to net external debt to GDP), and the main net borrower is Cyprus, but in value terms, the EU's main net creditor is Germany,

and France is a main net borrower. Overall, it should be noted that the introduction of the euro has led to a significant deterioration of the periphery (Greece, Italy), which has left the EU chronically dependent on external financing [4].

This division of countries into two categories is not unique to EU countries but also to the rest of the world. Thus, one group of countries earns on debt, and the other has to bear the cost [5]. As a result, a serious imbalance has emerged within the existing global financial architecture, known as the "external financing imbalance" [6]. This imbalance, together with the imbalance between savings and consumption, as well as the imbalance in national regulation of the international financial market, is a major factor destabilizing the world economy and global finance.

In order to define the external debt of countries various rates can be applied. Of these, the rate "Gross External Debt/GDP" is the most universal. According to the IMF methodology, if the rate is within 30%, the country's external debt is relatively moderate. If the rate is in the range of 30–50%, the country has average external debt. High external debt risk arises if the value of the rate exceeds 50%. "Gross external debt/GDP" rates in EU countries in the Q4 of 2019 are reflected in the *table 3*.

Analysis of *table 3* shows that in almost all EU countries the values of the "Gross external debt/GDP" rate exceed 50%. The exception is Romania, which, although still characterised by an average external debt risk, is already reached close to a critical level of 50%. Excluding the EU countries, where the share of non-resident banks and companies is high, the rest of the EU exceeds the IMF threshold by a factor of 1.5–4.5 times. The situation is particularly alarming in Belgium, Finland, France, Greece and Portugal, where gross external debt is twice or more than GDP. Even at the level of public external debt, IMF thresholds have been exceeded in selected countries (*table 4*).

Table 2

Net external debt to GDP in the EU countries in the III quarter of 2020, %

Country	Net external debt/GDP
Luxemburg	*–2 568.8**
Ireland	*–377.6*
Malta	*–168.6*
Estonia	*–26.1*
Bulgaria	*–26.0*
Netherlands	*–21.0*
Czech Republic	*–19.1*
Hungary	*–17.0*
Germany	*–13.3*
Denmark	*–12.2*
Slovenia	0.4
Lithuania	3.0
Croatia	16.0
Belgium	16.1
Latvia	16.4
Poland	18.0
Austria	18.4
Romania	20.4
Sweden	30.5
Slovakia	31.4
France	49.4
Italy	57.2
Finland	57.8 (Q2 of 2020)
Spain	83.5
Portugal	88.1
Greece	156.8
Cyprus	347.0

* – Countries in italics are net creditor.

Source: Compiled by the authors based on the database of the Eurostat**.

** Eurostat website. URL: https://ec.europa.eu/eurostat/databrowser/.

In the Q4 of 2019 the rate of "sovereign external debt/GDP" in the EU averaged 38.1% (and excluding Greece — 33.6%), and euro-zone countries — 47.6% (excluding Greece — 41.3%). If one focuses at the average level, it is only by the size of the public external debt (excluding corporate external debt) that EU countries already have an average external debt burden.

To measure the external debt of countries the rate of "gross external debt / volume international reserves" is also used quite frequently. *Figure 4* shows the extent to which gross and public external debt in EU countries was met by international reserves in the Q4 of 2019.

Analysis of *figure 4* shows that the coverage of sovereign external debt in EU countries by international reserves differs significantly (from 0.025% in Luxembourg and 77.3% in the Czech Republic on gross external debt and 2.5% in Greece to 457.7% in Bulgaria on public external debt). On average, in EU countries in the Q4 of 2019, official international reserves covered only 3.6% of total external debt and 20.5% — of public external debt. In comparison, the same indicators were 2.6% and 13.6% in the eurozone.

For gross external debt, the Czech Republic and Bulgaria had the highest coverage, while Ireland and Luxembourg — had the lowest coverage. Coverage in the most economically advanced EU countries was 7.0% in Italy, 4.0% in Germany, 3.2% in Spain, 3.0% in France, 2.0% in UK.

For public external debt, the highest level of coverage was observed in the Czech Republic (4.9 times higher), Bulgaria (4.5 times higher), minimum level — in Greece (2.5%) and Ireland (3.4%). In the EU's most advanced economies, public external debt coverage was 18.6% in the UK, 18.4% — in Italy and Germany, 12.2% — in France, 10.1% — in Spain. It should be noted that public external debt in EU countries accounted for on averaged 17.4% in the Q4 of 2019, and 19.1% of total external debt in the eurozone, however,

Таблица 3 / Table 3

Соотношение совокупного внешнего долга и ВВП в странах ЕС в IV квартале 2019 г., % / Gross external debt to GDP in the EU countries in the IV quarter of 2019, %

Country	Gross external debt/GDP
Luxemburg	5653.0
Cyprus	938.9
Ireland	733.7
Malta	703.2
Netherlands	460.4
UK	310.4
Belgium	249.0
Greece	237.3
Finland	237.0
France	230.3
Portugal	193.7
Spain	169.8
Sweden	167.5
Austria	153.3
Germany	145.3
Denmark	142.2
Italy	125.1
Latvia	116.5
Slovakia	112.3
Slovenia	92.1
Hungary	88.9
Czech Republic	78.6
Croatia	76.0
Estonia	73.9
Lithuania	68.2
Poland	59.1
Bulgaria	57.6
Romania	47.5

Source: Compiled by the authors based on the database of the World Bank*.

* World Bank website. URL: https://databank.worldbank.org .

the difference in the share of external public debt in gross external debt of EU countries was very large — from 0.18% in Luxembourg to 66.6% — in Greece.

THE PUBLIC DEBT PROBLEM IN EU COUNTRIES

Taking into account domestic public debt in the Q4 of 2019, the average public debt in the EU (including Great Britain) was 79.2% of GDP (excluding Great Britain — 77.6%) and the eurozone — 84.0%.[4] As of the Q3 of 2020, the average level of public debt in the EU increased to 89.8% and in the euro area — to 97.3%. Although in practice there is not yet a single indicator for determining the optimal level of sovereign debt [7], these values are markedly higher than the maximum allowable level of public debt at 60% of GDP as stipulated in the Maastricht Treaty.

The rapid growth of the sovereign debt of many developed countries (including EU countries) highlights the issue of an acceptable level of public debt [8]. According to N. Roubini, the restrictive and practical criterion of a country's capacity to pay is that the debt-to-GDP ratio (or the ratio of debt to other repayment sources, such as export earnings or government revenues) should not increase continuously [9].

Table 5 shows the evolution of the ratio of total public debt to GDP in selected EU countries between Q4 of 2019 and Q3 of 2020.

Analysis of *table 5* shows that during 2020 the share of public debt in relation to GDP increased in all EU countries without exception. The main reason for the rapid increase in public debt in EU countries appears to have been the coronavirus economic crisis. Borrowing increased while GDP declined, which led to this result.

As of the Q3 of 2020, the maximum allowable level of public debt is exceeded in

Table 4

Public external debt to GDP in the EU countries in the IV quarter of 2019, %

Country	Public external debt/GDP
Greece	160.0
Cyprus	78.8
Portugal	68.0
Belgium	65.0
France	56.9
Finland	56.3
Austria	55.7
Spain	53.1
Italy	47.3
Slovenia	45.2
Ireland	42.5
UK	33.6
Lithuania	33.5
Germany	31.5
Latvia	31.4
Slovakia	30.9
Hungary	25.3
Croatia	24.0
Netherlands	22.8
Poland	19.4
Romania	17.8
Czech Republic	12.3
Sweden	11.0
Luxemburg	10.7
Denmark	10.0
Bulgaria	9.0
Estonia	7.5
Malta	7.3

Source: Compiled by the authors based on the database of the World Bank*.

[4] Eurostat website. URL: https://ec.europa.eu/eurostat/databrowser.

* World Bank website. URL: https://databank.worldbank.org.

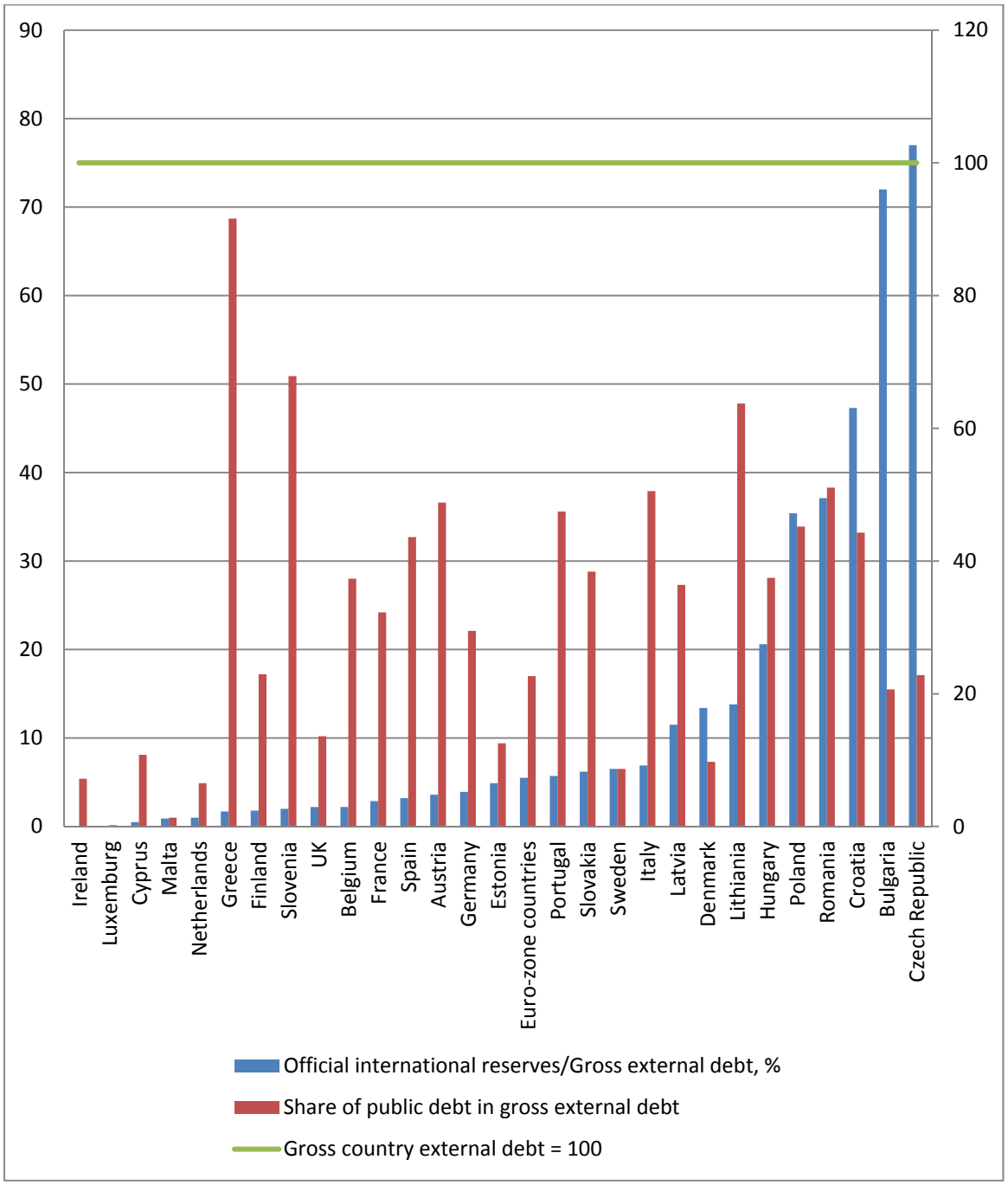

Fig. 4. **International reserves coverage of gross and public external debt in the EU countries in the IV quarter of 2019**

Source: compiled by the authors based on the databases of the World Bank and IMF*.

* World Bank website. URL: https://databank.worldbank.org/embed-int/; IMF website. URL: http://data.imf.org/regular.aspx.

EU 15 out of 27. The situation is worst in seven countries (Greece, Italy, Portugal, Cyprus, France, Spain and Belgium), where total public debt exceeds the 1.9–3.3 –fold limit. According to author's calculations, the share of Cyprus, France, Greece, Italy, Portugal, Spain and Belgium in total public debt in the Q4 of 2019 was 54.0% — including the UK and 65.0% —

excluding the UK.[5] During 2020, this share remained almost unchanged (64.1% in the Q3 of 2020).

However, if the shares of Belgium, Greece, Portugal and Cyprus combined are only 9.3%, the share of Italy (21.1%), France (21.8%) and Spain (10.7%) in total public debt of EU countries is a serious threat to financial and economic stability in the eurozone and in the EU as a whole.

The weight of external and domestic borrowing is important for analysing the composition of public debt in EU countries. *Figure 5* shows the share of domestic and external debt in total public debt in selected EU countries.

As *figure 5* shows, the overall picture is rather mixed, and it is very difficult to discern certain patterns in the composition of the public debt of individual EU countries. In 14 EU countries, the structure of public debt is dominated by external debt, which accounts for more than 50%. The unconditional leader is Greece — 80.5%. External debt structure of Lithuania, Cyprus and Austria is very high (it accounts for over 70% of total public debt). External debt accounts from 61 to 69% of public debt in Finland, Ireland, Belgium, Estonia, Latvia and Slovenia. In Germany, external debt accounts for almost 55% of public debt, in Portugal — 53.2%, in Slovakia — 52.8%, in France — 51.8%. In Spain and Luxembourg, the ratio of external to internal public debt is approximately equal.

Malta dominates internal debt structure by 87.3%, followed by Sweden (82.2%). In Croatia and Poland, internal borrowing accounts for almost ¾ public debts. In the Czech Republic, Denmark and Italy, internal public debt fluctuates between 67–68%, while in the Netherlands, Bulgaria, Hungary and Italy internal debt is between 58.2–63.4%, in Romania, internal debt accounts for about — 55%.

[5] See ibid.

Table 5

Gross public debt to GDP in the EU countries in the IV quarter of 2019 and in the III quarter of 2020, %

Country	Gross public debt/GDP, Q4 of 2019	Gross public debt/ GDP, Q3 of 2020
Greece	180.5	199.9
Italy	134.7	154.2
Portugal	117.2	130.8
Cyprus	94.0	119.5
France	98.1	116.5
Spain	95.5	114.1
Belgium	98.1	113.2
UK	85.3	-
Croatia	72.7	86.4
Austria	70.5	79.1
Slovenia	65.6	78.5
Hungary	65.5	74.3
German	59.6	70.0
Finland	59.3	66.9
Ireland	57.4	62.0
Slovakia	48.5	60.8
Poland	45.7	56.7
Netherland	48.7	55.2
Malta	42.4	53.7
Lithuania	35.9	45.9
Latvia	36.9	44.6
Romania	35.3	43.1
Denmark	33.3	42.4
Sweden	35.1	38.4
Czech Republic	30.2	38.4
Luxemburg	22.0	26.1
Bulgaria	20.2	25.3
Estonia	8.4	18.5

Source: compiled by the authors based on the database of Eurostat*.

* Eurostat website. URL: https://ec.europa.eu/eurostat/databrowser.

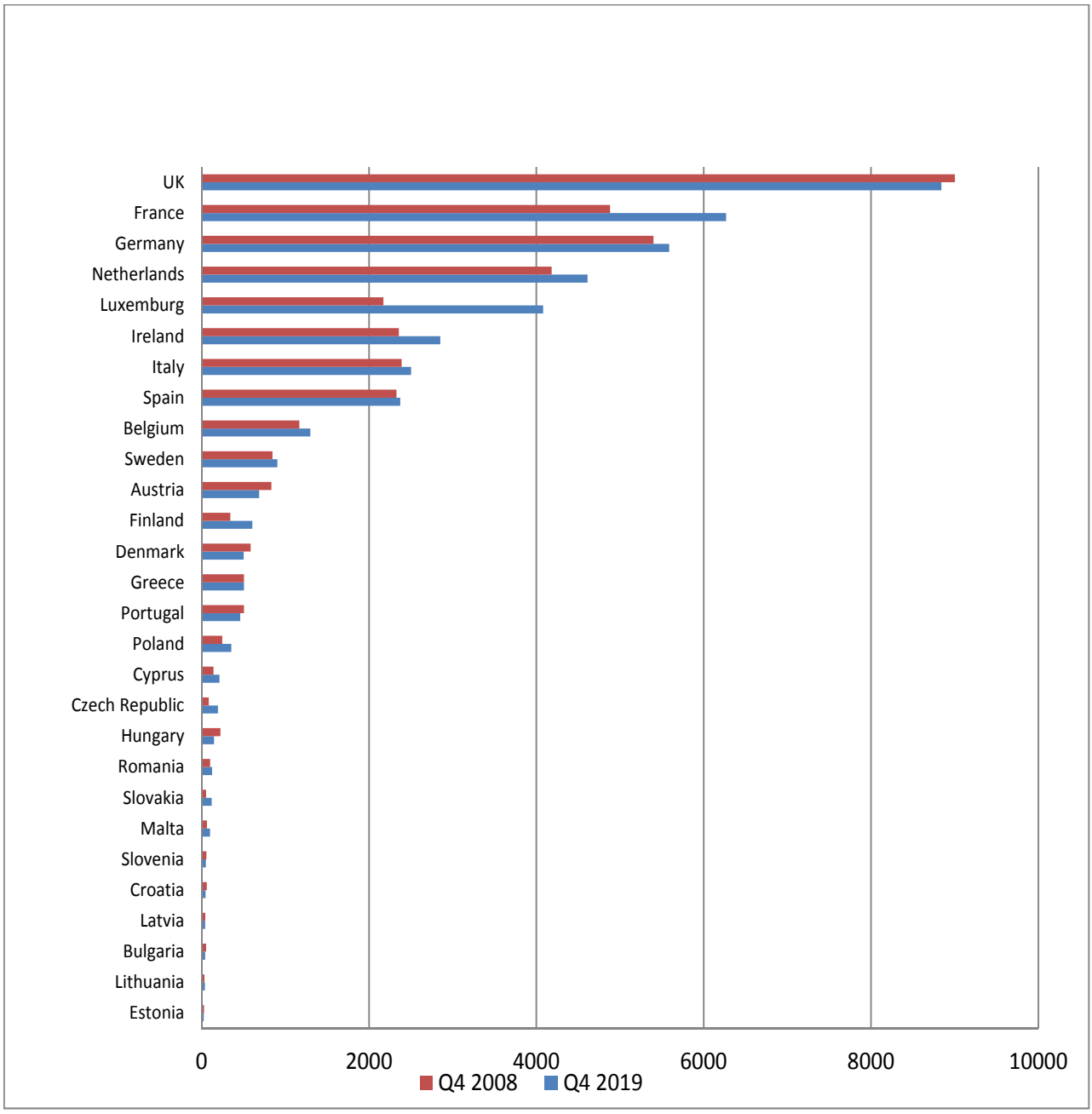

Fig. 5. **The ratio of external and internal debt in the total amount of public debt in individual EU countries in the III quarter of 2020, %**

Source: Calculated and compiled by the authors based on the database of the World Bank*.

* World Bank website. URL: https://databank.worldbank.org/embed-int/

In general, according to author's calculations, the ratio of internal and external debt to total EU public debt in the fourth quarter of 2019 was 53.2/46.8 on average (including Great Britain) and 51.3/48.7 (excluding Great Britain).[6] In the Q3 of 2020, the ratio changed slightly in favour of internal debt — 51.8/48.2 (excluding the United Kingdom).

These data indicate a fairly high degree of dependence of the EU economy on international debt financing, which on average

[6] See ibid.

accounts for just under half of all government borrowing. In addition, it should be noted that a large proportion of EU international creditors are from EU member countries. For example, according to the World Bank, intra-eurozone borrowing accounted for 52.2% of eurozone external debt in the Q3 of 2020. Based on this, it can be concluded that EU external debt financing is based on the redistribution of funds among EU member countries.

FEATURES OF THE STRUCTURE OF SOVEREIGN EXTERNAL DEBT OF EU COUNTRIES

The authors' analysis of World Bank statistics showed that the composition of public external debt of EU countries is dominated by long-term debt. In the Q3 of 2020, such countries accounted on average about 94%. For countries such as Bulgaria, Croatia, Luxembourg, Poland and Cyprus, government long-term debt was 99.9–100.0%. The exception is Malta, where government long-term debt was 72.2%. The existence of large public short-term external debt implies the establishment of appropriate international reserves to pay off and debt servicing for the coming months. At the same time, the debtor country depends on the current international financial market conditions for the refinancing of external debt, which in the event of a crisis may be extremely negative.

The EU's long-term debt is largely composed of debt securities. In 12 countries the proportion ranges from 90 to 100%, in 8 countries — from 80 to 90% and in 3 countries — from 65 to 75%. In Portugal, Bulgaria and Cyprus they account for about 60%, with the exception of Estonia (33.5%) and especially Greece (7.5%), where the majority of loans are of various types in the structure of sovereign external debt.

The increase in external debt cannot come only from transactions in the international financial market. The access of non-residents to local financial markets as a result of the liberalization of the regulation of internal financial transactions has enabled various national financial institutions and non-financial institutions to increase their external debt by selling internal debt securities without using international debt market instruments.

Within the EU, the ratio of the two determinants of external debt differs significantly. As a country's gross external debt is formed with corporate residents who can represent the interests of foreign banks and companies, it is difficult to properly assess the impact of two factors on the level of real internal external debt. In view of this, an analysis was made by the authors in the sovereign external debt segment.

Analysis of the share of government international debt securities (regularly prepared by the Bank for International Settlements)[7] in the structure of total volume of government debt securities purchased by non-residents identified those EU countries, where in the Q3 of 2020, sovereign external debt was almost entirely formed by a cross-border factor. These include Bulgaria, Latvia, Lithuania, Croatia, Romania and Cyprus, i.e. primarily developing countries in Eastern Europe and one developed country in the EU category of small countries.

The largest and most developed EU countries are more likely to generate sovereign external debt through an intra-border factor, when debt securities are purchased by non-residents in national domestic financial markets. In this group of countries, the share of public international debt securities in total government debt securities purchased by non-residents ranged from 0.8% in France to 11.8% in Italy in the Q3 of 2020. The exception is Sweden, where the corresponding figure is 86%.

[7] BIS website. URL: https://stats.bis.org/statx.

CONCLUSION

1. In the post-crisis period, the external debt problem of EU countries has not been resolved. Moreover, according to Estonian Finance Minister M. Helme, even before the coronavirus, European countries were in a much more difficult situation than during the 2008 crisis. Both the global and European economies are facing higher debt burdens than they were 10 years ago.[8] Despite the decline in the post-crisis share of total external debt of EU countries in the composition of world external debt, they still have high levels of external debt, which continue to grow steadily. Seven EU countries are among the leading countries in total external debt, in terms of volume of sovereign external debt, six EU countries are among the top 10 world leaders (France, Germany, Italy, Spain, Belgium and Greece). According to some experts, the lack of a single European fiscal authority of financing of European Union countries remains a main problem, capable of providing EU economic entities with the necessary financial resources [10].

2. The 2020 economic crisis related to the coronavirus pandemic has exacerbated the external debt problem of EU countries: according to the World Bank, between the Q4 of 2019 and the Q3 of 2020, global external debt increased by 5.7%, while the external debt of the EU countries increased by 16.3% (the eurozone by 7.9%). A similar situation exists with external public debt: while the global rate increased by 6.16%, the external public debt of EU countries increased by 13.53% (euro area — by 13.59%).

3. Gross and sovereign external debt of EU countries is highly concentrated. Eight countries account for almost 84% of gross external debt of EU countries, and only seven EU countries account for almost 83% of public external debt.

4. The composition of EU countries' net external debt is also differentiated by a marked imbalance. Including counter debts, one group of countries acts as net lenders and the other as net borrowers. The number of net lenders is two times less that of net borrowers.

5. Almost all EU countries are classified as having a very high external debt burden in terms of "external debt / GDP". The situation is particularly difficult in Belgium, Greece, France, Finland and Portugal, where total external debt is twice or more than GDP. If focus only on average level of sovereign external debt, EU countries are already in the category of average external debt burden. The heavy external debt burden compels debtor states to permanently refinance their debt obligations, significantly increasing risk, connected with unfavourable external financing conditions to service the country's external debt. In countries where external debt amounts to more than 100% of annual GDP, there is a very high risk of irregular repayment and servicing of external debt if external refinancing is stopped (for example, by the European Central Bank).

6. Due to the size of internal public debt, 15 EU countries out of 27 exceeded the maximum allowable level of total public debt. The situation is worst in seven countries (Greece, Italy, Portugal, France, Spain and Belgium), where total public debt exceeds the 1.9–3.3 — fold limit. In author's view, the rapid growth of public debt in many European countries poses a serious threat to financial and economic stability in the euro area and in the EU as a whole.

7. An analysis of the dual composition of external debt in total public debt of EU countries shows a fairly high degree of dependence of the EU economy on international debt financing. In some EU countries, sovereign external debt was almost entirely formed by a cross-border factor.

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The Role of Endowments in Financial Markets: Key Trends in 1990–2020 in the USA (on the example of the US education sector)

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ABSTRACT

This article describes the key trends in the development of endowments as institutional investors using the example of US educational endowments in 1990–2020. The paper also gives an overview of the world structure of endowments assets by regions and sectors. Although much research has been done on investment behaviour and return of endowments, there are not so many works analysing the long-term trends in the development of endowments. The study uses methods of systemic and comparative analysis and statistical methods. The article demonstrates an intensive growth of endowment assets during 1990–2000 and the following maturing market. Special attention is given to identifying and analysing changes in the structure and concentration levels of the endowment's market. The author suggests that the earlier model of many different-sized funds has changed to the model where significant funds dominate and concentrate most assets. The paper also explains the changes in the investment behaviour of endowments, including how the size of endowment influences the asset structure of funds' investment portfolios and return. The paper shows the growing role of state universities endowments, an increase in the regulatory burden. Also, it presents some forecast of key trends in the development of endowments in the long run.

Keywords: endowment fund; endowment; investment portfolio; asset structure; return; spending rate; regulation of endowments

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INTRODUCTION

Endowments (endowments-fund)[1] — relatively large institutional investors in the securities market, with assets of about 1.4 trillion USD or 1.5% of global assets managed.[2] There is a high regional concentration of endowments — in 2018 the U.S. accounted for almost 60% of the assets of the world endowments, in Europe — 37% [1]. Of the world's 100 largest endowments (870 billion USD), the share of United States funds is 91%, endowments Saudi Arabia — 3%, Europe — 3%, Canada — 2% and Hong Kong — 1%.[3] By industry structure, universities (76% of the assets of foundations in the top-100) and religious organizations (18%) dominate the market in the field of endowments, followed by charitable and other social organizations — 6%.[4]

MARKET SIZE AND MARKET DYNAMICS IN THE USA

Endowments of colleges and universities, accounting for only 6% of all non-profit organizations in the USA, are among the largest institutional investors [2]. In 2015, colleges and universities in the USA accounted for more than 50% of the assets of non-commercial businesses; the following are the main categories of endowments: school, arts and cultural, health, public and social benefit [3].

Between 1990 and 2019, the assets of universities and colleges in the United States increased more than tenfold to 643 billion USD, and the number of funds[5] — doubled (*table 1,* see *figure*). The fastest-growing endowments were 1990–2000 (average 15% per year), including high returns on investment (*table 2*).

MARKET STRUCTURE AND CONCENTRATION

The market for endowments in 1990–2018 remains highly concentrated. In 2018, 70% of colleges and universities in the United States established an endowments, with 30% of such institutions (included in the NACUBO report) accounting for 95% of the assets of all endowments in the USA (in 1991 the ratio was similar — 60% of institutions have created an endowments, and in 20% of funds — 88% of assets).[6] In turn, asset concentration is also quite high: in 2018, top-10 NACUBO funds[7] had 35% (in 1990–37%) and top-100–75% of the assets of all the endowments.

In 1990, there were many multiple funds with assets up to 500 million USD (94% of all funds by number) provided half of the assets of all of the endowments, and the other half was made up of a small number of large and very large funds with assets of over 500 million USD (6%). By 2000, the market structure had changed — with the largest funds dominating

[1] Funds generated by non-profit organizations through donations and channeling the proceeds of their investment to charitable purposes. Recipients include universities, schools, hospitals, museums, theatres, libraries, etc. The endowments generally benefit from tax breaks (for donors and recipients of funds, as well as for investment income).

[2] Data on global assets managed for 2017. Value of Assets under Management Worldwide in Selected Years from 2002 to 2017. Statista 2019.

[3] Top-100 Largest Endowment Rankings by Total Assets. SWFI. URL: https://www.swfinstitute.org/fund-rankings/endowment.

[4] The top-100 list includes 5 religious endowments that are among the largest in the world of endowments [for example, it is estimated that the Mormon Church in the United States (The Church of Jesus Christ of Latter-day Saints) the fund is 124 billion USD, the Anglican Church has 8.3 billion pounds and others].

[5] The number of universities and colleges participating in the NACUBO Endowment Study, is considered, as an educational institution may have several endowments (funds).

[6] Accounted for: 1) total number of colleges and universities in the USA (not-for-profit) according to data NCES — 3216 in 1991 and 3781 in 2018 r. (Educational Institutions. NCES. URL: https://nces.ed.gov/programs/digest/ d19/tables/dt19_105.50.asp); 2) total number of colleges and universities with endowments according to data NCES in 1991 and 2018–1956 and 2695, assets of their endowments (data IPEDS, Finance (Fiscal year 2018). URL: https://nces.ed.gov/ipeds/datacenter/DataFiles.aspx?goToReportId=7); 3) data NACUBO — 367 and 802 colleges and universities (NACUBO Endowment Study 2018).

[7] Of the top-10 fund assets, Harvard University — 38,3 billion USD, University of Texas — 30,8 billion USD, Yale University — 29,3 billion USD, and other — NACUBO Endowment Study 2018.

Table 1

Assets and number of colleges and university endowments in the USA, 1990–2019

Indicator/Year	1990	1995	2000	2005	2010	2015	2018	2019
Endowments assets, billion USD	60.1	102.5	241	298.9	346	529	616	643
Number of endowments, pcs.	367	460	568	753	850	812	802	774

Source: compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

* Here and further in reference to the NACUBO Endowment Study reports it is necessary to take into account that for 1992-2008 NACUBO reports included data not only for the USA, but also endowment-fund by the University of Canada. However, during this period, the share of Canada's funds was small, rising from 0.4 to 1.2% of the assets of all United States and Canadian businesses from 1992 to 2008, and the share of Canadian funds increased from 2 to 6%.

Table 2

Some indicators of endowments development in the USA, 1990–2019

Indicator/Year	1990–1995	1996–2000	2001–2005	2006–2010	2011–2015	2016–2019
Average rate of growth of assets, %	11.1	18.7	4.7	4.5	9.1	5.1
Average return, %	10.3	15.9	3.6	3.6	9.7	6.0
Average rate of expenditure, %	5.0	5.4	5.1	4.5	4.4	4.4

Source: compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

by assets (75% of all assets, 15% by number) (*table 3, 4*).

From 2000 to 2015, this trend is only growing, with large funds continuing to hold more and more assets. By 2019, the number of funds with assets in excess of 500 million USD had increased almost 9 times — from 22 to 190[8] (total number of funds — only twice), their share by number increase to 24%, by assets — to 88%. At the same time, market development was quite uneven, and funds — "billionaires" grew faster, concentrating more on themselves the assets of the industry. For example, between 1990 and 2019, the share of funds with assets in excess of 1 billion USD increased from 38% to 78% of the assets of all businesses, and the number increased tenfold (from 11 to 108 funds[9]), the share of all other asset groups increased from 3 to 14%, while the share of all other asset groups decreased exponentially and the number of funds grew much more slowly (*table 3, 4*).

On the one hand, such changes in market structure and concentration partly confirm the prevailing perception of American endowments, according to which "the richest funds become even richer" [4], concentrating on oneself donations and the assets of the endowments.[10]

On the other hand, the market model as a whole has also been transformed by the growing assets of small and small funds. In particular, the following changes have occurred in the market structure: a) "layer" small funds with assets significantly reduced to 25 million USD (their share by number decreased from 27% to 8% in 2019); b) the most numerous became the group of medium-

[8] Compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

[9] Compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

[10] Moody J. The Rich Get Richer: Harvard Capital Campaign Raises $ 9.6 Billion. — Forbes. — September 2018; Corn M. For U.S. Universities, the Rich Get Richer Faster. — The Wall Street Journal. April 2015.

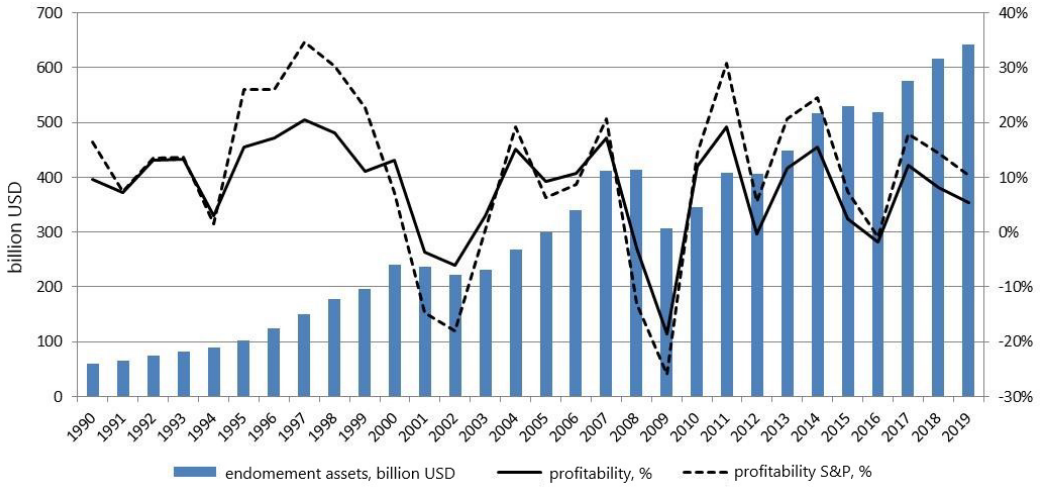

Fig. **Assets and investment return of endowments in the USA, 1990–2019**

Source: compiled by the author based on: URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

Table 3

The total market value of endowments by the size of endowment in the USA, %

Endowments size / Year	1990	1995	2000	2005	2010	2015	2019
Over 1 billion USD	38.4	42.9	60	65.1	66.2	74.7	78.3
Between 501 million and 1 billion USD	12	13.4	15.0	12.4	28	10.5	9.4
From 101 million to 500 million USD	33.6	32.3	20	17		11.3	9.9
From 25 million to 100 million USD	13.6	10.3	5.0	5	3	0.8	2.4
Up to 25 million USD	2.4	1.2		0.6		0.3	0.2
Total, %	100	100	100	100	100	100	100

Source: compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

Table 4

Total number of endowments by the size of endowment in the USA, %

Endowments size / Year	1990	1995	2000	2005	2010	2015	2019
Over 1 billion USD	3	3.7	7.2	7.4	7.1	11.6	13.9
Between 501 million and 1 billion USD	3	4.3	8.3	7.2	7.8	9.5	10.6
From 101 million to 500 million USD	24.8	30.9	37	30	26.6	32.1	36.2
From 25 million to 100 million USD	42	42.4	35	37.2	36.9	35	31.5
Up to 25 million USD	27.2	18.7	12.5	18	21.6	11.8	7.8
Total, %	100	100	100	100	100	100	100

Source: compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

sized funds with assets from 100 million to 500 million USD (their number increased from 90 to 280 funds[11]), and the group of small funds (from 25 million to 100 million USD) stopped being the most numerous (*table 4*). Given that after 2010 the increase in the number of endowments has stopped (see *table 1*) in the context of increasing competition in higher education,[12] these changes indicate a consolidation, "rising" funds and moving them to the following larger categories, and thus — about the increase of "maturity" of the market and some "saturation" of its endowments.

MARKET STRUCTURE BY TYPE OF INSTITUTION

Private education endowments dominate the market, they're more, and on average they're bigger. According to NACUBO, private funds, which account for 62% of all endowments, account for 68% of all endowments assets (*table 5*), In the full US higher education sample (according to IPEDS) Private institutions provide 50% of endowments by number of funds and 68% by assets.[13] But since 1990 their number and share in assets have been gradually decreasing, due to the development of endowments state institutions (see *table 5*).[14] For example, between 1990 and 2015, the assets of endowments public research universities increased by a factor of 7, and private non-profit research universities and colleges grew of 5 and 3.5 times [2]. In addition, in 2018, the top 10 endowments include 3 government agencies,[15] which account for 22% of the assets of the first ten funds and 8% of all funds.

The upward trend in endowments of public universities was also reflected in the narrowing of the gap between them and private foundations in "Assets endowments per student".[16] In 1990, private and public endowments amounted to 48.8 and 4.2 thousand USD (11 times difference), and in 2017, respectively, 183 and 27 thousand USD (8,4 times difference).[17]

ROLE OF ENDOWMENTS

Endowments are an important source of funding for educational institutions, where payments from them cover, on average, up to 10% of their operating budget[18] (for major endowments with assets over 500 million USD — to 15–17%, for funds with assets less than 25 million USD — about 5% of budget[19]). Average payments[20] are no more than 5% of endowments assets per year, while higher

[11] compiled by the author based on: URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

[12] Between 1999 and 2018, the total number of colleges and universities in the USA increased by 1.5% to 6.5 thousand, with a 20% increase in the number of public four-year institutes, a 4% increase in private ones, and a 13% decrease in the number of two-year colleges. By 2013, the number of private commercial institutions had grown rapidly, from 37% to 47% of all schools, this meant that the maximum number of colleges and universities in the USA was reached in 2012–2013 (7,5 thousand). Since 2014, the number of private institutions has been declining (up to 41% by 2018) due to lack of funding, decreasing number of students, competition with public and private non-profit institutions. Compiled based on URL: https://nces.ed.gov/programs/digest/d19/tables/dt19_105.50.asp.

[13] compiled by the author based on: URL: https://nces.ed.gov/ipeds/datacenter/DataFiles.aspx?goToReportId=7.

[14] In 1999–2018, the proportion of public colleges and universities (out of all non-commercial degree-awarding institutions) held at 50%, but the proportion of public 4-year-old institutions (out of all 4-year-old non-commercial diploma-awarding institutions) increased from 28 to 32%, the predominance of public 2-year colleges (90% of all 2-year non-profit colleges) also continues. Compiled based on: URL: https://nces.ed.gov/programs/ digest/d19/tables/dt19_105.50.asp.

[15] Of these, 2 are the largest integrated public universities — The University of Texas System and The Texas A&M University System).

[16] Endowment Value per Full-Time Enrollment Student — Assets endowments, corresponding to one full-time student.

[17] NACUBO Endowment Study 1990; for 2017 — compiled based on NACUBO Endowment Study 2017.

[18] U. S. Educational Endowments Report 8,2 Percent Return in FY 18. NACUBO-TIAA Press Release. January 31, 2019.

[19] NACUBO Endowment Study 1990–2018.

[20] As a general rule, the actual amount paid is based on the spending rate — a predetermined percentage of the market value of the endowments calculated on the basis of a moving average or determined annually.

Table 5

The share of private endowments in the total market value and number of endowments in the USA, %

Indicator / Year	1990	1995	2000	2005	2010	2015	2018	2019
Number of private endowments, % of total number of funds	72*	69	66	69	64	63	62	62
Assets of private endowments, % of assets of all funds	81	74	73**	72	71	63	67	68

* – data on 1991 r.; ** – data on 1999 r.

Source: compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

payments are typically found in large funds.[21] Almost 50% of the payments are allocated to student finance, the remainder to academic programmes, university departments and campus management.[22]

Average endowments expenditure decreased from 5–5.5% to 4.4% in 1990–2019 in USA (see *table. 2*), that, with the overall decline in profitability and increased competition in the United States education market,[23] creates a higher level of financial burden on endowments, increases their relevance to the institution.

For private institutions, especially colleges, endowments tend to be more important. In 2018, their assets averaged 1.7 times the total annual expenditure of the institutes, for the public universities — they accounted for about 30% of their annual budgets.[24] For institutions with the largest endowments, the figures are higher — 4.37 for private and 1.85 for public institutions.[25]

The rate of growth of the assets of the funds relative to the expenditures of the institutes depends on the type of institution. For example, in 1990–2005, the endowments of private universities (for private colleges — only until 1995) grew faster than their spending (the same dynamic holds, for example, for the group of universities with doctoral programs[26] [5]), in 2005–2015 — slower. In public institutions, fund assets grew faster than institutional spending throughout the period 1990–2015 (after 2005 — small differences) [2]. As a result, in 1990–2015, indicators "Ratio of endowments assets to total expenditures of institutions" have grown in both private and public universities (*table 6*), although this indicator for private universities was significantly diluted in the 2008–2009 crisis and has not fully recovered. So, for example, in Harvard, the rate rose from 4.3 to 7.8 in 1990–2019, but never reached 11 (peak 2008) [6].

[21] NACUBO Endowment Study 1990–2019, показатель «Average Annual Effective Spending Rates».

[22] NACUBO-TIAA Press Release. January 31, 2019; NACUBO-TIAA Press Release. January 30, 2020.

[23] Merker K. Six Trends in College and University Endowments. URL: https://blogs.cfainstitute.org/investor/2019/04/03/six-trends-in-college-and-university-endowments/.

[24] For 2018, the index "Assets endowments /total expenses of the Institute" is calculated as an average value for this indicator for all institution's endowments and published expenditure data (1350 private and 1343 public institutions). Compiled based on: URL: https://nces.ed.gov/ipeds/datacenter/DataFiles.aspx?goToReportId=7.

[25] Calculation "Assets endowments /total expenses of the Institute" for 20 private and public institutions with the largest endowments in the USA. Compiled based on: URL: https://nces.ed.gov/ipeds/datacenter/DataFiles.aspx? goToReportId=7.

[26] Universities offering doctoral degrees (PhD) according to the Carnegie Classification.

Table 6

Total endowment assets relative to the total expenses of educational institutions in the USA

Category / Year	1990	2015
All private non-profit research universities, including	1.5	2.2
12 universities with the largest endowments	2.9	3.6
All private non-profit research colleges, including	3	2.4
20 colleges with the largest endowments	8.2	6.8
All public research universities, including	0.2	0.6
20 universities with the largest endowments	0.7	1.3

Source: [2].

ENDOWMENTS AS INSTITUTIONAL INVESTORS

Endowments have both characteristic of traditional institutional investors and unique features [7]: long-term investment horizon; requirement to preserve the «body» endowments; no hard payables, other than expenditure rates [8]; broad diversification of assets, limited only by the fund's investment strategy, with no stringent legislative requirements on asset structure, for example, as in pension funds; the relationship between the value of endowments and the level of return and the structure of assets. At the same time, major endowments (such as Harvard, Yale, etc.) can often set new trends and patterns of investment behavior not only among endowments, but also for other institutional investors.

Investment profitability. The most profitable period for the funds was 1990–2000, followed by a period of high volatility in 2001–2010 and a return of higher returns in 2010. However, the profitability of endowments, which averaged 10–15% in 1990–2000, declined and most often did not exceed 10% (see *table. 2*), as is the case in the stock market as a whole. Generally, endowments showed lower profitability than index S&P 500; better index — in periods of strong decline in the market due to less volatility in fund portfolios (see *figure*). In 1990–2019, the volatility of the profitability of endowments was much lower than in the market — 9% versus 15%, but while the volatility of the index by 2018 had virtually remained unchanged since the 1990s, endowments grew by 1.5–2 times.[27]

There is also a positive correlation between endowments and fund profitability. For example, in 2018, for small funds (up to 100 million USD) annual returns averaged 7.6–7.7%, and for funds over 500 million USD — 8.7–9.7%.[28] This relationship (funds with assets less than 25 million USD below the fund with assets above 1 billion USD) continues for most of the period 1990–2019, except in periods of stock market decline, when small funds lost less than large funds, including higher bond ratios and low equity shares and alternative assets.[29] Larger funds, however, use more professional management and are able to influence market prices and access higher-

[27] Thus, the average volatility (standard deviation) of the rate of return over the period was in 1990–2000–4–5% for endowments (9–10% — for index), in 2001–2010–9–14.5% (for index — 15–19%), in 2011–2019–6–8% (for index — 8–11%).

[28] Average Annual One-, Three-, Five-, and Ten-Year Returns* for U.S. Higher Education Endowments and Affiliated Foundations for Periods Ending June 30, 2018. 2018 NACUBO-TIAA Endowment Study, Public NTSE Tables.

[29] For example, in 1991, 2009, 2016.

Table 7

Asset allocations for endowments in the USA, %

	1990	1995	2000	2005	2010	2015	2018	2019
Shares	50,5	57,0	62,1	58,5	46,0	49,0	52,0	50,9
Fixed-income securities	33,9	31,2	23,3	21,5	21,0	16,0	16,0	19,0
Alternative strategies	3,2	2,7	6,8	12,0	26,0	29,0	28,0	27,4
Short-term securities, money, etc.	12,3	9,2	7,8	8,0	7,0	6,0	4,0	2,6
Total, %	100	100	100	100	100	100	100	100

Source: compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

Table 8

Asset allocations for endowments by the size of endowment in the USA, %

Size of the fund	2008			2012			2018		
	S	F	AS	S	F	AS	S	F	AS
Over 1 billion USD	37	10	52	27	9	61	32	7	58
From 501 million to 1 billion USD	43	13	42	35	12	48	44	10	41
From 101 million to 500 million USD*	49	16	32	43	16	36	50	14	32
Less than 25 million USD	56	25	11	53	29	11	60	24	11
All funds	41	12	46	31	11	54	36	8	52

S — shares, F — fixed-income securities, AS — alternative strategies.

Source: Compiled by the author based on URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

* For 2018, the shares are calculated as an average of assets weighted for funds with assets ranging from 101 million USD to 250 million USD and funds with assets ranging from 251 million USD to 500 million USD.

yielding instruments through larger asset sizes [8, 9].

Composition of fund portfolios. The structure of endowments assets has changed significantly in almost 30 years (*table. 7*):

- the share of market securities (equities and bonds) fell from 84 to 70%, mainly due to a twofold decline in the share of bonds. Shares are characteristic cyclical dynamics — in 1990–2000 their share increased (maximum value in 1999–64%), in 2001–2010 — reduced to minimum values (46%), and from 2011 — again growth and return to the level of the early 1990s. The share of foreign equities also increased significantly — from 5 to 44% of total equities in the asset structure of the funds[30];
- the declining share of market securities was offset by an increase in the share of alternative assets[31] from 3 to 27%,[32] which

[30] By data NACUBO Endowment Study 1990–2019. URL: https://www.nacubo.org/Research/2020/Public-NTSE-Tables.

[31] Alternative strategies are direct investment [funded buy-out (LBO), mezzanine funds, etc.], market alternative assets (hedge funds, absolute yield strategies, etc.), venture capital, direct investment in real estate private equity, non-university, energy and natural resources, commodity derivatives and managed futures accounts or funds (managed futures), bad debts, etc. Source: NTSE Fiscal Year 2018 Asset Allocations for U.S. Higher Education Endowments and Affiliated Foundations. NACUBO Endowment Study 2018.

[32] Dimmock S.G., Wang N., Yang J. The Endowment Model and Modern Portfolio Theory. NBER. April 2018.

grew almost continuously from 1990 to 2012 [7],[33] but has remained at 28–29% since 2013, with a slight decrease in 2019;

• Share of cash and treasury securities decreased 3–4 times to 2.6–4% in 2018–2019.

The asset endowments structure also shows a clear relationship to the value of the fund, which continues throughout the period 1990–2019. The larger the fund's assets, the higher the fund's "appetite" for risk and higher its exposure to riskier assets (*table 8*), and above level of diversification of assets:

• large funds have higher shares of alternative strategies and lower shares of equities and bonds [7]. For example, in 2018, the share of alternative strategies falls from 58% to 11%, and the share of shares increases from 32% to 60% depending on the size of the fund (from large to small)[34] (*table 8*). Since 2012, there has been a gradual decline in the share of alternative strategies in all but small fund categories;

• large funds (over 1 billion USD) have a higher share of foreign equity in assets than small funds (in 2018–60% against 25%, in 2008–53% against 20%[35]);

• small funds (up to 25 million USD) maximize a share of market-based alternative strategies by investing in alternative assets (55% of all alternative assets in 2018, 33% — for large funds), and large funds diversify (direct investment and venture capital account for 19 and 14% of alternative assets, small funds account for 9 and 9% of assets).[36]

In 2018, endowments were among the first institutional investors to invest in cryptocurrency,[37] — about 140 funds (88% from the US, the rest from the UK and Canada), with 54% of the funds directly investing in crypto assets and 46% — through investment funds [10].[38]

The increasing diversification of endowments assets, including the share of alternative assets, has led to a concomitant increase in fund management costs, especially for large endowments. In 1990–2010 the average level of asset management expenditure[39] was 0.56–0.66%. In 2016, asset management costs ranged from 0.38% (for small funds) to 0.8% (for major funds), total costs (including fund administration) to 1%, but can reach 1.75% with additional management fees [11].

Organizational structure of fund management. During the period 1990–2019, the level of professionalism in the management of endowments' assets increased significantly,[40] especially in large funds:

• fund investment committees have become more important and membership has increased; an active investment committee, usually composed of professional managers, is in place (the larger the fund's assets, the larger the number of members[41]) and university graduates, opening more investment opportunities for foundations [4];

[33] This management model (with a high proportion of alternative assets) was applied in the mid-1980s to manage the endowments of Yale University and reproduced afterwards not only endowments, but also other institutional investors. After the 2008 crisis, Yale University, which lost 27% of its asset value, revised its investment strategy.

[34] In 1990, for funds of 400 million USD or less, the share of alternative assets was 20%, for funds of up to 25 million USD — only 5%.

[35] By data NACUBO Endowment Study 2018, 2008.

[36] By data NACUBO Endowment Study 2018.

[37] These include Harvard, Yale, Michigan, Stanford and others. Huillet M. 94% of Surveyed Endowment Funds are Allocating to Crypto Investments: Study. Cointelegrath. April 15, 2019. URL: https://cointelegraph.com/news/94-of-surveyed-endowment-funds-are-allocating-to-crypto-investments-study.

[38] Of the 150 endowments that took part in the survey.

[39] Management fees and custody costs.

[40] The quality of the management board and the investment committee is inextricably linked to the financial results of fund management. Merker K. Six Trends in College and University Endowments. URL: https://blogs.cfainstitute.org/investor/2019/04/03/six-trends-in-college-and-university-endowments/.

[41] In 2011, for example, as a member of the Investment Committee of Funds with assets in excess of 1 billion USD there were about 8 professional managers, and only 2.4 professionals in funds with assets of up to 25 million USD. Source: NACUBO Endowment Study 2011. P. 55.

• the practice of hiring full-time professionals to manage assets, mainly in large funds — full-time investment manager, portfolio manager, analyst. In 2008–2011, the average share of funds with a full-time investment manager increased from 14 to 20%, with funds with assets in excess of 500 million USD, such a staff member was in 60–80% of funds, and in funds with assets ranging from 100 million to 500 million USD in 17% of funds, in funds with assets up to 25 million USD only 1% of funds. In 2011, the portfolio manager and analyst were in 11% and 19% of all funds respectively (but in 48% and 66% of the funds — the "billionaires")[42];

- outsourcing of investment functions is becoming increasingly common (with the larger the fund, the lower the share of outsourcing tends to be) [12]), i.e. the share of assets under the internal management of the funds gradually decreased, and the participation of additional investment advisers increased.[43]

The decline in the rates of return of funds while maintaining the level of payments, increased competition in the USA education market, tightened regulation of endowments led to a trend of optimization of the process and management structure endowments in large funds, including the reduction in the number of fund staff, which can gradually be replicated in smaller endowments [13].

Application of ESG criteria (environmental, social and corporate governance criteria). University endowments were among the first institutional investors applying responsible investment. Thus, in the NACUBO reports already in 2000, about 40% of foundations declared the use of socially responsible investment criteria for endowments, of which at the direction of donors to the fund.[44] Since 2012, massive student campaigns against university investment in fossil fuels and in favour of climate-friendly investment policies have led to a reduction or abandonment of certain investment positions in some endowments[45] [14]. But, as with the responsible investment market in general, there has been a shift from negative screening strategies (not investing in certain areas) to the active use of ESG criteria in the investment process.

В 2016–2017 соответственно 17 и 16% образовательных учреждений использовали критерии ESG при инвестировании активов endowments [15], assets, with educational institutions having 317 billion USD (8% increase compared to 2016) i.e. approximately 50% of assets of all endowments [14]. The degree of use of ESG among educational institutions is uneven from year to year, but the amount of assets invested according to these criteria remains high due to the participation of the largest endowments. However, it can be expected that ESG assets will grow as a practice that positively influences investment performance as an important element of investment management, as well as the involvement of small endowments[46] [14].

REGULATION OF ENDOWMENTS ACTIVITIES

One of the most pressing issues to regulate endowments in the USA — is the introduction of the endowments tax as part of the major

[42] NACUBO Endowment Study 2008, NACUBO Endowment Study 2011.

[43] In 2002, an average of 75% of endowments used such consultants for investment, in 2011–81%, with funds with assets ranging from 500 million USD to 1 billion USD the most frequent external consultants (94% of funds have complex portfolios, but not a large staff of funds) and the least frequent are funds with assets up to 25 million USD (59% of funds) and funds with assets above 1 billion USD (69% of funds) Source: NACUBO Endowment Study 2008, NACUBO Endowment Study 2011.

[44] NACUBO Endowment Study 2000. P. 4.

[45] Ross A. University Endowment Funds Face Increasing Pressure to the More Sustainable. Financial Times. May, 2018.

[46] See ibid.

changes in the USA tax laws in 2017.[47] The purpose of the tax is to limit the growth of funds and to increase access to education for students, while making higher education more expensive (it's estimated that the higher the endowment assets per student, the lower the percentage of students from low-income families) [16]. On the one hand, the new tax reduces the income of large endowments, and therefore the payments to finance university programs,[48] and reduce the attractiveness of donations to donors.[49] On the other hand, the tax is seen by its proponents as a way of depriving the largest endowments of their advantage (in attracting students) in the absence of taxation of investment income that is not comparable to that of small funds. Given that annual investment returns of endowments tend to exceed spending rates (see above), the largest funds retain a portion of the income for additional distribution, including to support students from low-income families. In addition, experts estimate that a reduction in corporate income tax would boost the value of most endowments' equity and alternative strategies assets and offset tax losses.[50]

KEY TRENDS AND FORECAST TO 2030 FOR THE U.S. MARKET

In 30 years, the development of the endowments market in the United States has been accompanied by the following trends:

- strong market growth (the total assets of the funds have increased tenfold, the number has only doubled, and the coverage of higher education endowments has increased by only 10% to 70% of institutes); the industry's assets doubled every 5 years from 1990 to 2000, and only 15 years later;
- shift from a model of multiple medium, small and small funds balancing large funds to a model of dominance by large funds concentrating on fixed assets;
- increase in the level of "maturity" of the market, which with the cessation of the numerical growth of endowments became evident through the trend of consolidation of funds and the predominance of larger endowments (reducing the share of small funds with assets to 25 million USD and expanding the "layer" of funds with assets over 100 million USD);
- uneven market growth — faster growth, greater concentration of assets in the largest billionaire funds, which account for 78% of total market assets, with a 13% share in numbers (in 1990–38% of assets, 3% by number);
- the predominance of endowments of private educational institutions — they are larger on average, they are larger and more important for private institutions (especially private colleges), but the number, assets and importance of endowments for public institutions is growing gradually, and the gap between private and public funds is narrowing;
- reduction in the average rate of endowment spending (from 5.5 to 4.4%) in the context of a decline in the overall level of income; funds are important sources of funding for educational institutions: the larger the fund, the higher the payout from it, the greater the importance of endowments for the institute (payouts range from 5% of the institution's budget for funds with assets to 25 million USD up to 15% of the budget for funds with assets in excess of 500 million USD);
- returns on endowments are generally lower than in the general market, but also lower volatility; in the long term 1990–2019 — trend

[47] A tax of 1.4% on investment income endowments for private colleges and universities with at least 500 students and the index «Endowments assets per one full-time student» is at least 500,000 USD, some 35 existing institutions will be affected. This tax was introduced as part of The Tax Cuts and Jobs Act of 2017, which also reduced individual and corporate tax rates, including corporate income tax to 21%.

[48] The Council for Advancement and Support of Education. URL: https://www.case.org/resources/endowments.

[49] This includes doubling the amount of the standard tax deduction, where charitable donations do not reduce the amount of taxable income [this can only be done using a detailed (itemized) deduction].

[50] Brown A. The GOP Tax Bill Will Benefit Colleges — Even Those With Endowments It Now Taxes. Forbes. 3 April, 2018.

of a gradual decline in asset yields (from double digits above 10–15% to single digits — below 10%) with almost double volatility;

• large funds gain — the higher the size of the assets of the funds, the higher the average rate of return (funds with assets above 1 billion USD have returns above those of funds with assets below 25 million USD by several percentage points);

• endowments are characterized by a focus on maximizing income in the context of declining market profitability — declining share of market securities (bond share declines twofold, equities cyclical) replacing them with more risky alternative assets (their share increased from 3 to 27% in fund portfolios);

• investment strategy dependent on fund size — the larger the fund, the higher the appetite for risk, the higher the share of riskier instruments increases and the lower the share is more conservative; large funds are the most "professional" investors among endowments, maximizing a share of more profitable and risky assets compared to small funds (share of alternative strategies — 58% against 11%, foreign shares — 60% against 25%) reducing shares (32% in the largest as opposed to 60% in small funds) and bonds;

• in the context of the rapid growth of assets and the increasing complexity of the investment behaviour of the funds, there are reciprocal trends — the increase in the cost of managing the funds, especially in large endowments; increased professionalism in managing the assets of the funds; initiation of inevitable processes of organizational optimization in the largest funds in the context of declining returns and growth of the staff of the funds; extension of the use of ESG in the management of endowments assets (in 2016, 50% of the assets of the funds were managed according to such criteria);

• the emergence of regulatory mechanisms (tax on investment income of a number of funds) to level the playing field between the largest and other endowments.

CONCLUSION

By 2030 can be expected:

• slower growth in the number of new endowments in education and slower growth in the assets of existing funds with some saturation of the market; continuing the consolidation of funds, moving them from smaller categories to larger ones, including from private commercial educational institutions.[51] A possible doubling of the market is more likely on the horizon of 15–20 years, with expected shortfalls in income and assets in times of global financial crises;

• increasing in the number and assets of State educational establishments in the context of their growing role in the market of higher education and the reduction of State funding;

• increasing the importance of funds for educational institutions (including in relation to the size of their annual budgets) in the context of increasing competition and decreasing State funding, and also as the assets accumulate endowments; against this background a gradual increase in the rate of expenditure from endowments — funds is possible;

• the volatility of the funds' returns remains fairly high, including due to the availability of a large share of alternative assets and the increase in the share of new financial instruments;

• continuing the process of optimizing the organizational structure and the administrative and management costs of the funds in the context of declining returns, increasing competition in the education market (both for students and donors) a decrease in State funding of educational institutions;

• increasing regulatory burden on endowments — funds as their importance as institutional investors grows.

[51] The growth of private commercial institutions, which lasted until 2013, could delay some of the potential endowments donations.

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Impact of Institutional Factors on the Technological Level in Metallurgy of Russian Federation

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ABSTRACT

The article determines the influence of institutional factors on the characteristics of the technological development of Russian metallurgy. We proposed several institutional criteria following identified three samples— Russian multinational corporations, large companies operating in many regions of Russia, the remaining companies operating at the local level. We investigated these samples in the context of several technological criteria. The main ones are access to modern technologies, level of production capacities, interaction with educational organizations. The study shows that the division of companies metallurgical companies into three institutionally different groups is accompanied by their stratification also by their technological level. The first group significantly surpasses the second and third by the volume of financing of technological innovations, the level of interaction with educational institutions, the level of interaction with research institutes and access to high technology. The differences between the second and third groups are also strongly pronounced. The approach described in the article makes possible the determination of the technological limitations in the metallurgical industry associated with its institutional features and shaping public policy, which takes into account the sensitivity of qualitatively different groups of businesses to stimulating measures.

Keywords: institutional factors; institutional rent; ferrous and non-ferrous metallurgy enterprises; largest metallurgical enterprises; technological level

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At present there are more than 30 thous. metallurgical companies and their territorially separate units operating in Russia.[1] Of these, more than 90% belong to the steel industry. They vary in size and product range, market coverage, technological level and depth of transformation. It should be noted that the behaviour of the largest companies is one of the key elements of the economic mechanism for the development of metallurgy [1]. In addition, the dictates of large producers and the neglect of small consumers remain [2].

A convenient tool for analysing such multi-level markets is the theory of economic dominance proposed in [3, 4]. It distinguishes business groups (levels, sectors) working in qualitatively different institutional conditions — alpha, beta and gamma business, respectively. Better conditions than others allow them to obtain institutional rent. However, the choice of institutional attributes that determine the quality of institutions — is far from straightforward. In this article authors rely on the approach proposed for their classification and definition in [5].

The number of criteria for economic development is constantly expanding, including the inclusion of institutional factors [6], since institutional changes are a major direction of transformation and one of the main components of the development of the Russian economy, related to the establishment and maintenance of quality institutions [7]. In order to assess their impact on the technological level of Russian metallurgical companies, a large sample of steel and non-ferrous metallurgical enterprises has been selected according to the following indicators:

- enterprise's earnings with more than 400 million roubles in 2016;
- metallurgical companies with complex technological changes — casting/welding/rolling/dragging/chemical reactions that require sophisticated and expensive equipment;
- the companies' activities continued throughout 2008–2019;
- it differs in terms of individual (verified) institutional characteristics, and can be defined for each company.
- The following enterprises were not sampled:
- affiliated companies with a consolidated report of a group of companies
- or holding in a sample;
- distribution companies;
- machine-building enterprises with metallurgical engineering;
- metallurgical companies with simple technological changes (bends, stamps, etc.);

Completely new high-tech enterprises created during the period under study were also sampled under the above conditions (Abinsk Electric Steel Works, Zagorsk Pipe Plant, Holding company TEMPO and others) and fully modernized (groups Ashinskiy metallurgical works, Arconic Corporation and others) or reformatted in connection with a change of ownership (Amurstal has been a member of the TOREX Group since mid-2017, Svetlinsky ferronickel plant has changed ownership as a result of bankruptcy in 2010 etc.). Companies that were part of non-metal holdings during the period were also considered (PA Bezhitskaya Steel as part of TransMachHolding, Tikhvinsky ferroalloy plant is part of the Turkish Yildirim Group, Transkat until mid-2015 was part of Russian Railways, etc.).

In addition, individual mining companies or holdings with only mining and mining activities were not sampled.

As a result, the sample consists of 105 companies. Among them, the hierarchy of institutional characteristics according to the principles in the authors' earlier studies

[1] Федеральная служба государственной статистики. Статистический сборник «Промышленное производство в России»; 2016.

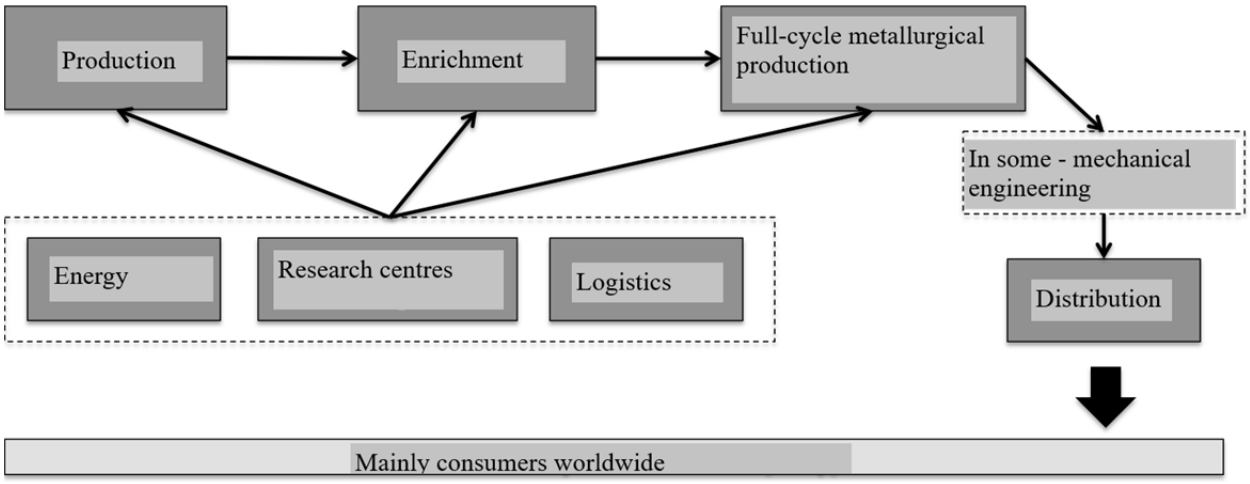

Fig. 1. **Organizational structure of group 1 enterprises**

Source: the authors.

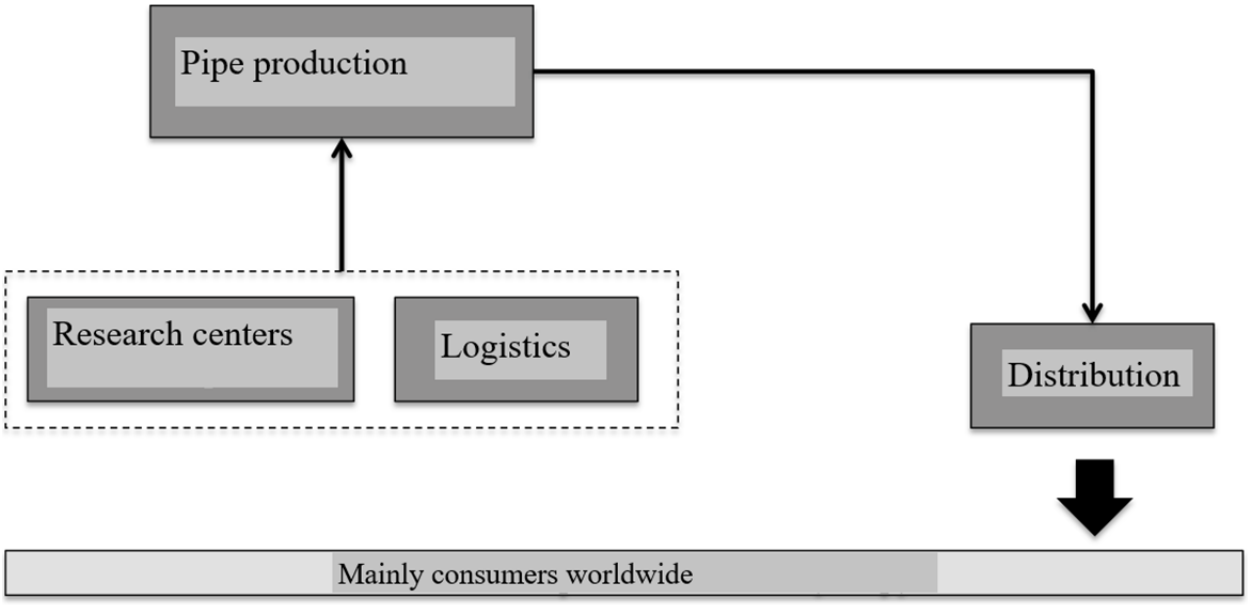

Fig. 2. **Organizational structure of metallurgical holdings of group 1**

Source: the authors.

is defined: the level of rating in which the company is present; the scope of markets; the level, volume and form of government support; the availability of finance; and a number of others [5].

This paper shows that the stratification of metallurgical companies according to the listed groups of attributes has led to a three-level hierarchy. However, level 1 dominates over 2 and 3, and level 2 over 3, as they occupy the best segments of the markets, gain in access to finance, government support and thus gain institutional rents.

Level 1 includes the largest Russian steel companies, which are transnational. They have a wide network of associated marketing, financial, transport, manufacturing and other companies or units in Russia and abroad. They are most often vertically integrated steel holdings (with the exception of tubular

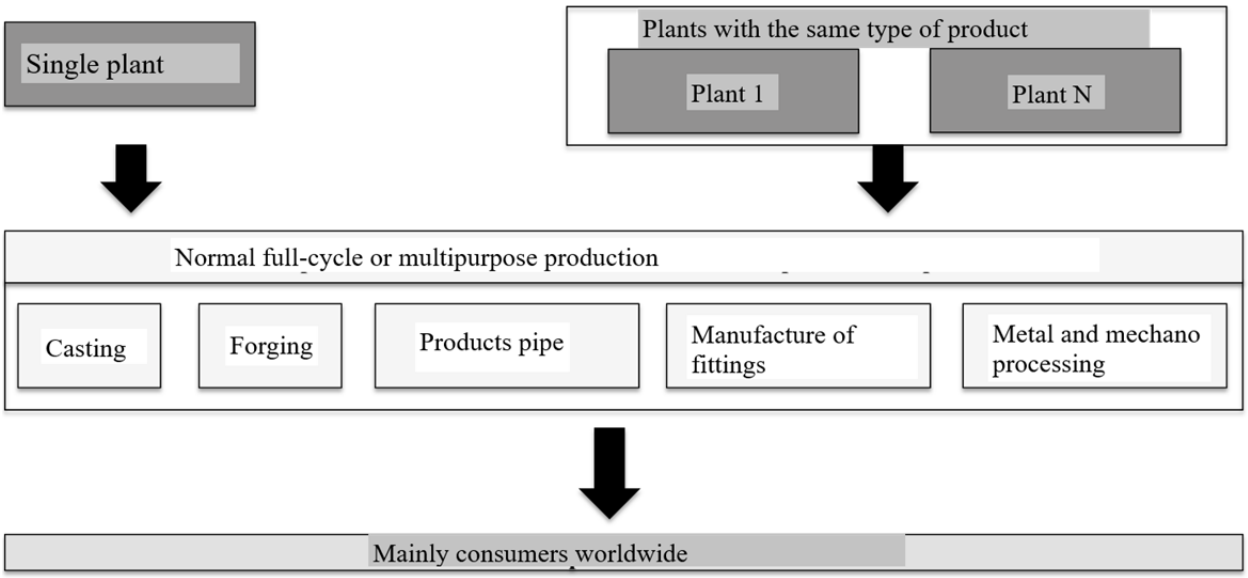

Fig. 3. **Organizational structure of group 2 enterprises**

Source: the authors.

companies that do not produce a conversion) or significant enterprises from vertically integrated allied holdings. In general, their organizational chart is as shown in *fig. 1* or *fig. 2*.

Level 2 includes companies operating mainly on the Russian market, with representation in many of its regions. They are mostly single enterprises or horizontal holdings with full-cycle production. Their organizational chart is generally as follows: (*fig. 3*).

Level 3 includes all other companies. Their organizational structure may be different but simpler than at levels 1 and 2. In most cases, they are one- and two-way production, targeting regional consumers.

Institutional stratification of companies is shown in [5] to be accompanied by significantly different economic performance dynamics, such as revenue growth, profitability, investment, debt levels and debt service. Level 1 companies are growing faster and better, and worse — 2 and 3 levels respectively. Institutional distinctions lead to that each "business layer" is "locked" at its own level, falling into peculiar institutional traps.

The present paper elaborates on the described study. It argues that institutional stratification leads not only to an improvement or deterioration in economic performance, but also to significant differences in the technological level of companies at levels 1, 2 and 3, respectively. The resulting technological divide strengthens firms at their own levels, as not only economic and institutional barriers but also technological barriers need to be overcome in order to move from them to higher levels. Company reports submitted on their websites, information from partners of metallurgical companies, large national and regional periodicals, and other sources of sectoral information are used as the information basis for the study.

Earlier studies have identified a number of institutional factors, such as innovation and technology innovation strategies, academic networks, and company research units [8, 9]. Therefore, the following criteria are used to determine the difference between companies by process factor:

- level of production technology;
- access to high technology;

• level of digitization of business processes;
• interaction with higher and secondary educational organizations.

They are detailed as follows:

The level of production technology determines the competitiveness of enterprises' products both on the Russian and international markets and was evaluated on the following criteria with grading:

– Novelty and technological efficiency of production equipment and infrastructure:
• entirely new (less than 20 years) high-tech equipment, mostly of foreign manufacture;
• entirely new (less than 20 years) equipment, mostly Russian-made;
• partly new equipment of foreign and Russian manufacture;
• mostly obsolete equipment.

– Frequency and scale of modernization of production facilities:
• continuous large-scale modernization (more than 10 per cent of average revenue);
• continuous (from 1% to 10% of average) upgrade;
• partial modernization of selected key production lines or aggregates (between 0.1 and 1 per cent of average revenue);
• minimum modernization to maintain the capacity of the enterprise (less than 0.1 per cent of the average revenue).

– Level of investment in technological upgrading:
• Tens of billions of roubles per year;
• Billions of roubles per year;
• Hundreds of millions of roubles per year;
• Tens of millions of roubles per year;
• up to 10 million rubles per year.

The Russian metallurgical complex is characterized by the complexity of the production cycle — up to 15–18 transitions, starting from the extraction of ore and other raw materials [10]. In addition, the stock of fixed assets is very worn out. Obsolete equipment results in high production costs. According to the Ministry of Industry and Trade of the Russian Federation, the wear and tear of the main equipment in the metallurgy remains high: in the steel industry as of 2017 it exceeded 40%, and in the non-ferrous metallurgy — 35%.[2]

In addition, recently metallurgical companies — world leaders, including the largest Russian companies, are moving to the production of parts and products for mass use, suitable for direct use in engineering and construction without additional processing and finishing [11]. As a result, large metallurgical companies in the first place show high profitability, allowing for the expansion of investment resources in recent years in view of favourable conditions [12].

Due to the above factors, most of group 1 companies operate, including old low-tech and worn-out equipment, but with the modernization plan to remedy this situation in the near future.

Total investment of steel and non-ferrous metallurgy companies in modernization in 2000–2017 amounted to 4.3 trillion rub.[3] At the same time, thanks to the active investment policy of the companies that have carried out the modernization, the domestic metallurgy far exceeds many of the world's indicators in terms of both technological efficiency and ecological processes. "Russian companies closed the needs of the domestic automobile industry with high-quality and economical sheet steel and significantly increased the production of galvanized and painted rollers".[4]

[2] Ministry of Industry and Trade of the Russian Federation. Presentation "On plans of development of steel and non-ferrous metallurgy in 2017 and implemented measures of industry support"; 2016.

[3] Ministry of Industry and Trade of the Russian Federation. "Volume of investment in the modernization of the Russian metallurgy in 2000–2017"; 2018.

[4] CNIIChermer name of Bardin. Interview of the General Director Viktor Semenov, 2017. URL: https://expert.ru/ural/2017/50/kak-dorozhala-stal/.

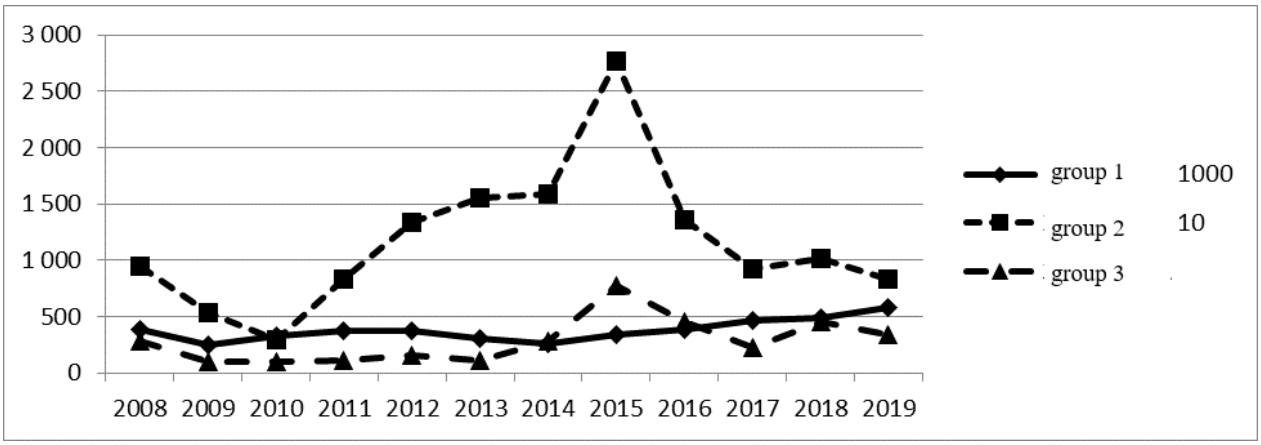

Fig. 4. **Fixed asset investment of metallurgical companies for 2008–2019 (for comparability of dynamics: Group 1 — billion rubles, Group 2 — 10 million rubles, Group 3 — million rubles)**

Source: company reports, data from the Federal State Statistics Service, compiled by the authors.

The share of rolled sheets and cold rolled sheets has increased, and the share of rolled sheets with coatings has tripled. The position of Russian metallurgists in the world has also been strengthened in recent decades. In 2018, 6 Russian companies were among the top 20 world leaders at low cost, 2 were in the top 5 in efficiency.[5]

In recent years, all leading Russian steel companies have submitted large-scale capital investment in fixed assets (FA) programmes ranging from 5 to 20% of annual revenues. In the coming years, new capacities will be put into operation for the smelting of iron and steel, for the manufacture of rolled products, for the manufacture of coated sheets, for pipe products, for wire and for other products. At the same time, investments in FA accounted for more than 20% of the average revenue from 2008 to 2019 in the largest precious metals companies. Many enterprises, especially the largest, are increasing their system-based environmental investments [13].

Some enterprises in group 2 also underwent large-scale modernization (Metallurgical Plant Electrostal, Liskinskiy assembly plant).[6] Modernization in other group 2 enterprises has been mainly at the maintenance level, with the exception of new, recently established enterprises where modernization is not yet required.

The analysis revealed that more than 75% of enterprises in group 3 are either completely new (up to 20 years) and undergoing modernization, or have fully modern production equipment of leading Russian and foreign producers and practically do not need technical re-equipment.

In total, for the period from 2008 to 2019, almost all major metallurgical companies invested tens of billions of roubles in basic funds. In terms of investment in the technical re-equipment of enterprises, the largest program is Norilsk Nickel — investment in FA has amounted to about 510 billion rubles for 2015–2019, that almost 2.3 times the number of second-largest investor in the acquisition of the FA of Rusal holding — about 220 billlion rub.[7] and accounts for almost 22% of the total investment in FA of all selected companies for the same period.

In general, the evolution of investment in metallurgy is as follows (*fig. 4, 5*).

[5] World Steel Dynamics. World steel in figures, 2018. URL: https://www.worldsteel.org/media-centre/press-releases/2018.html.

[6] Federal state statistics service. Reports, 2019. URL: http://old.gks.ru/.

[7] Federal state statistics service. Reports, 2019. URL: http://old.gks.ru/

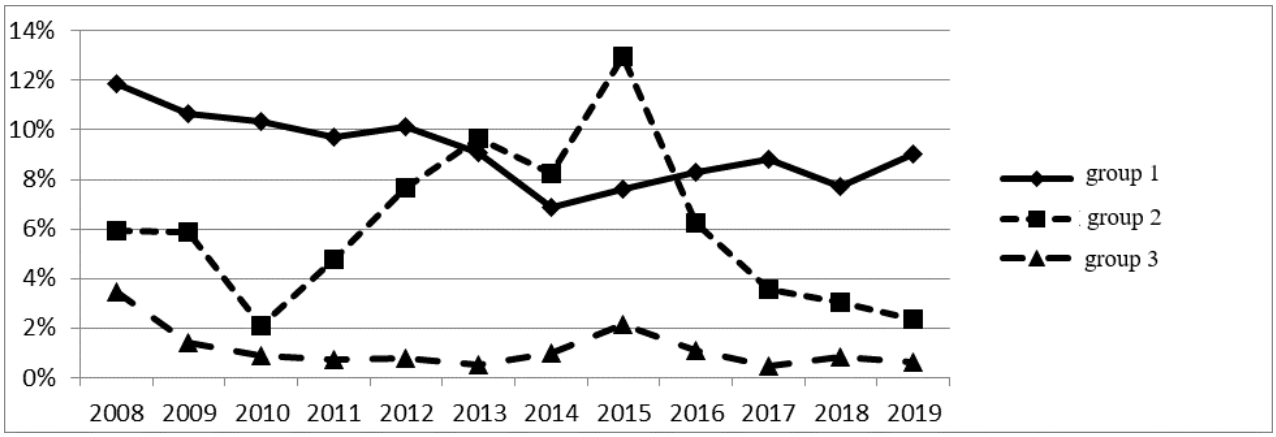

Fig. 5. **Fixed asset investment of metallurgical companies for 2008–2019 (%)***

* *Note:* in figure 5 for comparison of the dynamics, the values of the 1st group are divided by 1000, the values of the 2 groups — by 10.

Source: Company reports, data from the Federal State Statistics Service, compiled by the authors.

As a result of the analysis, it can be seen that the pattern of investment in FA is fundamentally different for all groups. The stratification of companies has become stable. Investment lags behind all groups, but groups 2 and 3 fare worse than group 1 in terms of reproduction and future modernization. In recent years, only group 1 has been growing. The size of investments in group 1's FA is ten times greater than the total investments in group 2 and group 3's FA, with the share of investments in group 1's FA hovering around 10%, group 2 around 2–13%, and group 3–1–2%.

In general, according to the analysis, within the 3 groups divided by institutional factors, the attributes of the set of criteria considered as the "level of production technology" are divided as follows (*table 1*).

Thus, within the criteria under consideration, there is almost complete correspondence between the hierarchy of groups for the second and third topics. With regard to the first topic, group 1, along with a number of enterprises in group 2, is worse off.

Access to high technology determines the technological (including research) prospects of a company. It was evaluated on the basis of the following graded topics:

– Opportunity to acquire technology:

• access to world-class technology from abroad;

• access to Russian innovative technologies;

• access to Russian obsolete technology.

– Development of new technologies, inventions (R&D):

• development of new modern technologies and self-inventions;

• development of new modern technologies and inventions in cooperation with research institutes;

• commissioning of new technologies and inventions from research institutions;

• lack of development or commissioning of new technologies.

– Having an in-house research base:

• own research centres;

• small research laboratory and/or a modern design office;

• existence of a quality control laboratory;

• lack of research units.

Group I enterprises have maximum access to high technology at any level, as most of them (or their parent companies, in the case of metallurgical enterprises in non-metallurgical holding companies) are have units in the leading metallurgical technology countries. At the same time, the 1st group has a tendency to create its own research and engineering units

Table 1

Criteria for matching the level of production technologies to groups of metallurgical companies by institutional characteristics

Indication	Group 1	Group 2	Group 3
Novelty and sophistication of production equipment and infrastructure	1. Partly new foreign and Russian-made equipment	1. Completely new (less than 20 years) high-tech equipment, mostly of foreign manufacture. 2. Completely new (less than 20 years) equipment is mostly Russian-made. 3. Partly new equipment of foreign and Russian manufacture. 4. Mostly obsolete equipment	1. Completely new (less than 20 years) high-tech equipment, mostly of foreign manufacture. 2. Completely new (less than 20 years) equipment is mostly Russian-made. 3. Partly new foreign and Russian-made equipment
Frequency and scale of modernization of production facilities	2. Continuous large-scale modernization	5. Partial upgrading of selected key production lines or aggregates 6. Minimum modernization in order to maintain the capacity of the enterprise	4. Partial upgrading of selected key production lines or aggregates
Level of investment in technological upgrading	3. Investment in technology — billions and tens of billions of rubles per year	7. Investment in technology — hundreds of millions and billions of rubles per year	5. Investment in technology — tens of millions of rubles per year

Source: official websites of metallurgical companies, interviews with heads of metallurgical companies in open sources; compiled by the authors.

within its structures or in partnership with research and engineering centres, for example Hypronickel Research Institute LLC at Norilsk Nickel,[8] or The Institute of Light Materials and Technologies (ILM&T), established UC RUSAL in cooperation with NITU MISIS (Moscow Institute of Steel and Alloys) with the support Aluminium Association of Russia, Ministry of Industry and Trade и Ministry of Education and Science of the Russian Federation.[9]

Group 2 enterprises, for the most part, do not have direct access to the world's best metallurgical technologies and do not have their own research or engineering centres. These enterprises mainly have quality control laboratories, and some of them cooperate with Russian research institutes and engineering centres in obtaining or developing technologies, for example Omutinskiy Metallurgical Plant's partnership with the OJSC Scientific-Research Institute of Metallurgical Heat Engineering[10] or scientific and technical cooperation in joint development between Aluminium Metallurg Rus (JSC AMR) and All-Russian Scientific Research Institute of Aviation Materials VIAM.[11]

Since, as already determined, the vast majority of enterprises in group 3 are modern

[8] Norilsk Nickel website. URL: www.nornickel.ru.

[9] UC RUSAL website. URL: www.rusal.ru.

[10] OJSC Scientific-Research Institute of Metallurgical Heat Engineering website. URL: http://www.vniimt.ru/.

[11] All-Russian Scientific Research Institute of Aviation Materials VIAM website. URL: www.viam.ru.

Таблица 2 / Table 2

Критерии соответствия характеристик доступа к высоким технологиям различным по институциональным признакам группам металлургических компаний / Criteria for matching the characteristics of access to high technologies to different institutional groups of metallurgical companies

Indication	Group 1	Group 2	Group 3
Opportunity to acquire technology	1. Access to world-class foreign technology. 2. Access to Russian innovation technologies	1. Access to Russian innovative technologies. 2. Access to Russian obsolete technologies	1. Access to Russian innovative technologies. 2. Access to Russian obsolete technologies
Development of new technologies, inventions (R&D)	3. Development of new modern technologies, inventions in-house. 4. Development of new modern technologies, inventions together with research institutions. 5. Order to develop new technologies, inventions from research institutions	3. Development of new modern technologies, inventions together with research institutions. 4. Order to develop new technologies, inventions from research institutions	3. Development of new modern technologies, inventions together with research institutions. 4. An order for the development of new technologies, inventions from research institutions. 5. No development or commissioning of new technologies
Existence of own research centres	6. Existence of own research centres	5. A small research laboratory and/or a modern design bureau. 6. Existence of a quality control laboratory	6. A small research laboratory and/or a modern design bureau. 7. Existence of a quality control laboratory

Source: official websites of metallurgical companies, interviews with heads of metallurgical companies in open sources; compiled by the authors.

and high-tech, the level of research units is sometimes higher than in group 2. In particular, we would like to mention the following enterprises in group 3, which are close to group 1 on this topic: SIBPROJECT JSC, have a subsidiary SIBPROJECT-Engineering LLC[12] and Prioksky Non-Ferrous Metals Plant JSC, developing in-house unique technologies with a range of copyright certificates and patents.[13]

In general, according to the analysis, in 3 groups divided by institutional factors, the indicators according to the considered criterion "access to high technology" are divided as follows (*table 2*).

From all the indications of the set of criteria under consideration, there is a clear difference between the 1st and the other groups in the bulk of enterprises in each group of hierarchy.

The level of digitization of business processes is one of the main trends in Russian metallurgy in recent years.

In the present work, the level of digitization of business processes was assessed in the phases of the digital transformation of an industrial enterprise, both in terms of management processes and production processes, according to the following characteristics and grading according to them:

- Launch of digital transformation projects.
- Introduction of Industry Elements 4.0.
- Automation of production and business processes.

[12] SIBPROJECT JSC website. URL: http://sibproekt.ru.

[13] Prioksky Non-Ferrous Metals Plant JSC website. URL: https://www.zvetmet.ru.

Table 3

Criteria for compliance of the level of digitalization of business processes with groups of metallurgical companies by institutional characteristics

Group 1	Group 2	Group 3
1. Launch of digital transformation projects. 2. Introduction of Industry Elements 4.0	1. Introduction of Industry Elements 4.0. 2. Automating part of business processes	1. Automation of production and business processes 2. Automating part of business processes

Source: official websites of metallurgical companies, interviews with heads of metallurgical companies in open sources; compiled by the authors.

• Automating part of business processes.

Almost all group 1 companies have begun or are beginning to develop digital transformation strategies. In 2017–2018, most large enterprises implemented a number of pilot projects and formed digital transformation programs. Many of them have already introduced certain elements of Industry 4.0, such as, Norilsk Nickel,[14] Magnitogorsk Iron & Steel Works, Metalloinvest and others.

Enterprises of group 2 are mainly engaged in automation of business processes, less often — digitization of part of production processes. Some enterprises, such as Omutinskiy Metallurgical Plant, are beginning to invest in the development and implementation of "smart" technologies in production.[15]

Since group 3 enterprises are mostly new, automation is already present. Therefore, in the near future these enterprises will aim to introduce elements of Industry 4.0 and after — full digital transformation.

In general, according to the analysis, within the 3 groups divided by institutional factors, the attributes of the set of criteria considered as "the level of digitization of business processes" are divided as follows (*table 3*).

The division of companies according to this criterion is almost entirely in line with the hierarchy groups.

The interaction with educational organizations, which makes it possible to assess the competences of both workers and engineering technicians (ET) personnel, in the industrial enterprise was defined on the basis of the following topics, with grading them:

• organization of the education programs necessary for the company employees in the specialized universities, colleges and technical colleges.

• cooperation with universities, colleges and technical colleges in the field of enterprise internships, open days and other mass promotional events for students who are — potential employees of the enterprise.

• availability of specialized colleges or technical colleges within walking distance.

Cooperation with educational organizations was considered in this area only within the framework of metallurgy technologies. There is almost a clear division into groups.

Almost all group 1 companies have organized or are organizing the education programmes needed by the company's employees in the relevant universities,

[14] Norilsk Nickel website. URL: www.nornickel.ru.

[15] Omutinskiy Metallurgical Plant website. URL: https://ommet.ru.

Table 4

Criteria for the correspondence of the level of interaction with educational organizations to different institutional groups of metallurgical companies

Group 1	Group 2	Group 3
Organization of the education programs necessary for the company's employees in specialized universities, colleges and technical colleges	Cooperation with universities, colleges and technical colleges in the field of enterprise internships, open days and other mass promotional events for students who are potential employees of the enterprise	Existence of specialized colleges or technical colleges within walking distance

Source: official websites of metallurgical companies, interviews with heads of metallurgical companies in open sources; compiled by the authors.

colleges and technical colleges and in the practice of potential employees in their own enterprises. For example, Chelyabinsk Pipe-Rolling Plant (CPRP) based on First Ural College of Metallurgy implements the unique educational program "Future of White Metallurgy", and Severstal has developed the educational program "Young Resources".

The group 2 also includes individual enterprises that interact with higher educational establishments at the level of the organization of training programmes and in specialized educational organizations. For example, Omutinskiy Metallurgical Plant opened at Vyatka State University an educational program "Metallurgy",[16] or Prioksky Non-Transferrous Metals Plant JSC which organized at NITU MISIS (Moscow Institute of Steel and Alloys) an educational project on the program of vocational retraining "Metallurgy of non-ferrous metals".[17]

It should be noted that only one company of group 3 was able to establish close cooperation with educational organizations — PLC AKOM–Invest (part of Group of companies AKOM) as part of the acceleration program for 15 companies, included in the project "Support of private high-tech companies-leaders" ("National champions"), organized by National Research University — Higher School of Economics (HSE University) with Ministry of Economic Development of the Russian Federation and the Russian Venture Company (RVC).[18]

In addition, a number of enterprises in group 2 and group 3 have organized production practices for students of specialized universities and colleges. It's Stupino Metallurgical Company, Ural pipe plant, SIAL holding, Zagorsk Pipe Plant, Novosibirsk Integrated Tin Works, Bor Tube Factory, Neftegazdetal LLC and others.

At the same time some enterprises of group 2 and most enterprises of group 3 don't actively cooperate with educational organizations.

In general, according to the analysis, within 3 groups divided by institutional factors, the attributes according to the set of criteria under consideration "level of interaction with educational organizations" are divided as follows (*table 4*).

[16] Omutinskiy Metallurgical Plant website. URL: https://ommet.ru/.

[17] Prioksky Non-Transferrous Metals Plant JSC website. URL: https://www.zvetmet.ru/.

[18] Group of companies AKOM website. URL: http://gk-akom.ru/

The separation of companies according to the criterion in question takes place almost entirely according to the hierarchy groups.

Thus, a comparison of the technological characteristics of three institutionally different groups shows that the vast majority of enterprises in each hierarchy largely correspond to their unique indicator values.

Most of group 1 companies have the greatest technological advantages in terms of the scale of modernization programmes, access to and development of state-of-the-art technologies, digitization of business and production processes, organizing their own training programmes in conjunction with leading specialized educational organizations. This allows for continued competitiveness in external markets. In the domestic market, they maintain and reinforce their dominance by effectively creating barriers to entry into the privileged part of the market for the remaining companies. The country is currently in the process of stabilizing the institutional environment [14], including in the metallurgy. Concentration of [15] enterprises through mergers and acquisitions continues, but overall the group of leaders is well established and is unlikely to change significantly [In 2021, the last major merger took place — Tube Metallurgical Company (TMC) and Chelyabinsk Pipe-Rolling Plant Groups], which allows them to prevent other enterprises from joining the leading group [16] in the current Russian imbalance of institutional reforms [17].

Group 2 companies (with the exception of a few transitions to group 1 and a few unique enterprises) demonstrate a significantly lower level of both technological development and interaction with universities and colleges. They may remain at the level of simple reproduction, but they have serious difficulties with regard to the forthcoming improvements.

Group 3 enterprises show relatively high technological development mainly due to the fact that some of them are affiliated with large companies in other industries, while others occupy a certain market niche (e.g., ferro-metal production). Most of these enterprises have been established in recent years and are at a high technological level. However, given that most of them have low financial capacity, no direct access to the world's leading metallurgical technologies and no interaction with educational organizations, it's unlikely that they will demonstrate significant technological development in the coming years. Unlike group 2 companies, some of them are able to take up promising niches in the Russian market and even in the world market, gain a foothold and eventually become leaders.

The largest companies are continually increasing the efficiency of informal rules of operation [18], and the gap in technological development between 1st and other groups is constantly widening. It may become unsustainable in the coming years, leading either to a new wave of mergers and acquisitions of medium-sized and small enterprises or to the closure of the most technologically backward ones. Institutional stratification is entrenched. The traps in which companies find themselves are reinforced [19].

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ORIGINAL PAPER

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Analysis of the Development of the Transport System of Saint Petersburg

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ABSTRACT

St. Petersburg is the fourth most populous city in Europe (after Moscow, Greater London and Greater Paris). Hundreds of thousands of people move daily within the urban agglomeration. Under these conditions, the effective functioning of the urban economy is impossible without a modern transport system capable of providing a solution to current and future problems of the urban economy. The work aims to analyse the effectiveness of the development of the transport system of St. Petersburg. Therefore, it is necessary to examine the main provisions of the most critical regulatory legal acts regulating the city's transport system's development, identify their advantages and disadvantages, and determine how effectively the activities outlined in them are being implemented in dynamics. The author's analysis of the two editions of the St. Petersburg transport system development program (the original edition of 2014 and the current edition of 2020) revealed negative trends, consisting of the deviation of the program indicators' actual value their planned values. Based on the results of the study, the author draws the following conclusions: when implementing the program for the development of the transport system of St. Petersburg, general principles of strategic management are not used, particularly, the effectiveness of program measures is not analysed, the reasons and factors that led to the deviation of planned indicators from the actual ones are not extended for a new period without any assessment of the results achieved; indicators of the transport system development program are constantly being adjusted downward; There is no unified management system for the development of transport infrastructure in the city, the program activities themselves are distributed among separate committees of the city administration, which harms the results of socio-economic development of the transport complex.

Keywords: transport; transport system; transport management; state program; transport development; urban transport; public transport; transport financing

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INTRODUCTION

The establishment of modern transport infrastructure is a prerequisite for the successful operation of a large city, allowing for efficient usage of its potential to address current and prospective socio-economic development problems. In a large city, jobs are rarely within walking distance of home, which forces citizens to make active use of private or public transport to commute to and from work. In this connection, it is necessary to analyse whether the Saint Petersburg transport system is functioning effectively and whether it has the necessary focus to address the future social and economic problems of the urban economy.

METHODOLOGY

The paper uses methods of analysis and synthesis, logical modelling, comparative analysis. The article is based on the analysis of various editions of the Saint Petersburg State Program "Development of the Transport System of Saint Petersburg", to assess how effectively the targets are being met, how they change over time.

MAIN PART

A large number of research papers are devoted to various aspects of urban transport. Note basic research [1–3], the works devoted to study the infrastructural transport problems [4, 5], the works researching the management transport problems [6, 7]. Interesting study on the development of the Canadian transport system [8]. A whole series of works by Russian and foreign authors is devoted to various problems of transport development during the coronavirus period [9–12]. At the same time, the problem of the management of the transport system of Saint Petersburg has not been sufficiently investigated. Only works can be specified [13, 14].

The most important legal act regulating the development of the city's transport complex is the Decision of the Government of Saint Petersburg of 30 June 2014 No. 552 "On the State Programme of Saint Petersburg "Development of the Transport System of Saint Petersburg" (https://base.garant.ru/22938750/). Approved the programme, including objectives, measures to achieve them, programme indicators, time frames and responsibility for implementing individual activities. In its first edition, the programme was for the period 2015–2020.

Since then, the programme has been adjusted annually, often with significant adjustments. The most recent major changes were made by the Government of the city decision of 05 November 2000 No. 900 (http://docs.cntd.ru/document/822403631). In fact, in 2020, we are dealing with a new program, although maintaining some structural continuity with the 2014 program, but with a completely different implementation date — from 2019 to 2024.

The purpose of the programme remained unchanged after numerous revisions and a virtual four-year extension: "ensuring the accessibility, efficiency and safety of the Saint Petersburg transport complex, responded to the needs of the socio-economic development and transit potential of Saint Petersburg, with priority development of urban passenger and external transport". In the author's view, this formulation of the goal is too general, unspecified and unattainable. In particular, it is not clear what is meant by the accessibility and efficiency of urban transport, and security — is a complex task that can only be achieved with the participation of federal agencies, including Ministry of Internal Affairs and и Federal Security Service.

Note that in 2014, there were 6 indicators (targets) for the programme as a whole and 30 indicators for 5 subprogrammes. The current version contains 8 indicators for the programme as a whole and a further 43 indicators for subprogrammes. Thus, the number of indicators has increased from 36 to 51, i.e. by 42%, which, in our view, reduces the focus of programme activities. This large number of programme targets is excessive, preventing a rational assessment of the impact of programme interventions and their impact on the lives of citizens.

By comparison, the State Programme of the City of Moscow "Development of the transport system" in 2012–2016 and the way forward to 2020, adopted by a resolution of the Government of Moscow in 02 September 2011 No. 408-PP (in the 2019 edition) (http://docs.cntd.ru/document/537907060) contains only eight indicators. For all of these, by 2021, there should be an increase in relation to 2017, which is the baseline. In particular, the most important programme indicator — the average time spent on public transport during in the morning peak hours from residential areas near Moscow Ring Road to city centre — should be reduced from 56.8 to 55 minutes, which is very significant with increasing motorization of the population. This indicator formulation is logical and specific. This shows that the development of public transport in Moscow is one of the priorities of the city government [15].

Of the 6 targets of the Saint Petersburg Transport System Development Programme identified in 2014 edition, in 2020 edition remained 5. The indicator "Length highways of uninterrupted roads bypassing the city centre" was removed from the programme as it remains unchanged throughout the period under review. In the view of the author, to these 5 indicators should be added 2 important indicators of subprogramme 1 ("Development of the Transport System of Saint Petersburg"), to assess the overall transport situation. Analyse the extent to which these indicators have been achieved (see *table 1*).

The table shows that out of the 7 indicators considered in the initial revision of the programme, only 3 had been achieved by 2019: number of road traffic accidents registered; length of road network; length of cycle car network. It can also be seen that the target value of the four indicators in 2020 has changed less than in 2014.

Moreover, in the new version of the programme it is planned that the value of what we consider to be the most important indicator — average travel time for work purposes — by 2024 will be significantly worse than 2020. In the opinion of the authors of the programme, the implementation of the measures planned by the programme will have a negative impact on the performance of the transport system.

Another important indicator — length of public road network of regional importance — although it is expected to grow by 2024 compared to 2019, but only 31 km, which is less than 1% of the size of the existing road network. This is significantly less than planned in the original programme.

Thus, from the table presented, it can be seen that the planned values of individual indicators are in fact adapted to the current situation, without being an incentive to radical transformation of the operating conditions of the Saint Petersburg transport system.

Note also some ambiguity in the wording of the programme indicators themselves. For example, the first (percentage of residents satisfied with the quality of service) is an estimate. His objectivity could therefore be called into question. The number of accidents per 10 thousand vehicles depends on a number of different

Table 1

Values of indicators of the state program "Development of the transport system of St. Petersburg"

No.	Indicator name	Indicator value by year					
		2014 edition		2020 edition			Fact
		2019	2020	2019	2020	2024	2019
Targets of the State programme							
1	Share of residents satisfied with the quality of urban transport services, %	86	88	81.3	81.4	88.9	77.8
2	Number of registered road traffic accidents per 10 thous. vehicle, pc.	28	27	28	27	26	26.8
3	Share of passengers carried by urban transport, %	73.2	73.5	73.2	73.5	74.7	71.8
4	Share of population, living within walking distance of subway stations, %	37.2	37.3	37.3	37.3	37.3	36.2
5	Length of cycle car network, km	80	200	133.5	125	170.2	116.1
Targets for subprogramme 1							
6	Length of public road network of regional importance in Saint Petersburg, km	3458	3510	3446	3453	3477	3472.2
7	Average travel time for work, min.	47	46	50.4	49.8	59.0	49

Source: compiled by the author.

Table 2

Financing of activities of the program "Development of the transport system of St. Petersburg" at the expense of the city budget

Indicator / Year	2015	2017	2019	2020	2021	2024
Funding of the programme in 2014 edition, billion rub.	92.8	86.3	95.0	99.1	-	-
Funding of the programme in 2014 edition in constant 2014 prices, billion rub.	92.8	79.7	77.5	80.2	-	-
% by 2015	100	86	83	86	-	-
Funding of the programme in 2020 edition, billion rub.	-	-	114.5	105.8	144.8	161.1
Funding of the programme in 2020 edition in constant 2020 prices, billion rub.	-	-	114.5	105.1	137.6	136.2

Source: compiled by the author.

factors (the information provided by the Traffic Police, the penalties for violation of the road map, the quality of the vehicles and their various systems of assistance to the driver, etc.), among which the level of development of the transport system is important but not decisive [16]. The length of the cycling network cannot be considered as a basic indicator of the whole programme, as there are few users of cycling in Saint Petersburg (less than 1%). At the same time, despite the current trend of development of cycling in European countries [17, 18], it should be noted that climatic conditions in Saint Petersburg do not favour cycling. As a result, owing to the low number of cyclists in the city centre, bicycle lanes are often used for car parking.

The current programme does not define the priorities for the development of the Saint Petersburg transport system, in particular does not answer the questions: which type of public transport (buses, trolleybuses, trams, subways) should be given priority? what should be the relationship between these modes of transport in the sleeping area and in the centre? what should be the role of rail transport? (interesting work about it [19]) and etc. But, most importantly, it's not clear from the program how the priority of public transport will be ensured. In large cities, the most important mode of transport is the metro. In Russia, active development of the metro in recent years is observed in Moscow, where 43 new stations were opened between 2015 and 2020, except for the stations of the Moscow central ring road and the Moscow central diameters. Only 5 metro stations were built in Saint Petersburg in 2015–2019. This is almost nine times less than in Moscow. In 2020–2023 there are no plans to open new underground stations at all. In such conditions, it is almost impossible to induce citizens to abandon private transport in favour of public transport.

Consider the evolution of funding levels for programme activities in the various sections of the programme (see *table 2*).

Table 2 shows that in the original programme, a reduction in the funding of programme activities was planned: by 2017, it should have decreased from 92.8 to 86.3 billion rub. in current prices, which is 6.8%. In 2014 prices, the decrease would be already 14%, which is a negative trend. This situation has continued since then. In the author's opinion it is not possible to achieve the planned targets aimed at improving the functioning of the Saint Petersburg transport system with reduced funding.

It should also be noted that the 2020 edition is partially free of these weaknesses. After a decline in 2020 due to the negative effects of the coronavirus epidemic, in 2021 estimated that the funding of programme activities will increase by 30 billion rub. compared to 2019 in current prices. At constant prices (calculated by the author on the basis of the forecast index-deflator of GDP), the growth will be less significant and will amount to 23 billion rubles or more than 20%. Funding for the development of the Saint Petersburg transport system should remain the same in the future.

In 2019, the actual funding of the programme's activities was almost 10 billion rub. more than originally planned (104.5 billion as against 95 billion rub.), but 10 billion rub. less than the corrected plan. In 2014 prices, according to our calculations, this is 85 billion rub. that is lower than the costs of 2015. This shows that the financing of the Saint Petersburg Transport System Development Programme in 2014–2019 implemented on a residual basis and based on actual urban budget availability rather than on targeted priorities. But this approach makes all programme indicators conditional. Based on the available resources of the regional budget, the city provides ad hoc funding for certain activities (construction of metros, transport interchanges, new roads, pedestrian crossings, etc.), whose implementation is recognized important at present.

For example, the development of bicycle routes along highways leads to reduced safety because cyclists are not visible to other road users at night. In addition, the development of bike lanes has virtually no impact on other parameters of the transport system, in the speed of movement of the city's inhabitants for labour purposes. This approach does not systematically address existing urban infrastructure problems.

CONCLUSION

1. General rules of strategic management require that the effectiveness of programme activities be reviewed after implementation, causes and factors were identified, resulting deviations from the actual, measures were developed to address existing deviation. This isn't in the transport sector of the Saint Petersburg. The existing programme for the development of the transport system is actually extended for the next period without evaluation of the results achieved.

2. There are no clear strategic priorities in urban transport. Indicators of the transport system development programme are permanently corrected. The amount of resources that the city spends on transport infrastructure does not meet the needs of the regional economy, don't allow it to function sustainably in the prevailing business environment.

3. This is no unified management system for transport infrastructure development. The distribution of programme activities among the individual committees reduces the focus of the system of management of the transport complex on the solution of future tasks of social and economic development.

4. The development of public transport is rightly declared as a priority of the programme. In practice, the achievement of this priority is hampered by the slow pace of construction of the metro: in 2015–2020 Saint Petersburg opened almost 9 times fewer metro stations than Moscow. In general, the creation of a unified system of management of the transport system, the identification of responsible persons and the establishment of a system of target indicators, remaining unchanged throughout the period of implementation of the policy measures, are necessary condition for the successful development of Saint Petersburg in the long term.

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Financial Resources for the Growth of the Russian Economy

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ABSTRACT

The article deals with the formation of financing mechanisms for the dynamic growth of the Russian economy, focused on ensuring the country's global economic and technological competitiveness in the long-term period. The transition to sustainable, dynamic development in modern Russian conditions is associated with implementing a deep structural and technological modernisation of the national economy. It should be focused on further improving the country's infrastructure and expanding the existing sectoral structure of the Russian economy based on advanced development of the production of modern machinery and equipment for a wide range of sectors of the national economy. One of the independent priority of structural modernisation is the accelerated development of technologies of a new technological order (NBIK technologies) and the creation of production facilities to produce new types of high-tech products to diversify exports and increase the global competitiveness of the Russian industry. The solution to this problem involves a significant increase in investment activity in the economy, at least by a third (at least 10 per cent of GDP). In the current conditions, the rise in investment activity should face several restrictions. First, with the weakness of the Russian national production of investment equipment, which can be overcome through imports, but most importantly, through the development of its own production of machinery and equipment in the national industry's structural modernisation. Second, the weakness of the national financial system, which is reflected in the lack of long-term savings and the low level of monetisation of the national economy. For overcoming this limitation, it is proposed to form a special investment circuit based on a targeted credit issue to finance investment projects. The conditions and limitations of using the target credit issue to finance economic growth are considered.

Keywords: rates of economic dynamics; financial constraints of economic growth; targeted credit issuance

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INTRODUCTION

In 2020, the Russian economy encountered new challenges. The first and foremost — is the COVID-19 pandemic, which has led to severe quarantine measures and an unprecedented public health burden. This required finding solutions to the dilemma between saving lives and sustaining economic activity. The second challenge — is the sharp and substantial fall in world prices of oil and other energy and commodities, as well as the decline in exports. These factors, while different, have a cumulative effect together, forming the prerequisites for reducing aggregate demand. People's incomes are falling, investment is falling, and the revenue base of the budget system is at risk, if there is a need for a marked increase in spending to fight COVID-19 and to overcome the consequences of the overall decline in economic activity.

In the first period of the crisis (March — early April 2020), the most affected were "transportation, hotel services, catering, other activities involving active social interaction and simultaneous presence of large number of people in one place". This could be inferred from the monitoring of sectoral financial flows carried out by the Bank of Russia, when the deviation of incoming payments from the "normal" level was assessed.[1] Subsequently, since May, almost all sectors (albeit to varying degrees) and sectors of the Russian economy have suffered losses — from micro and small businesses to major corporations. For example, according to the Ministry of Economic Development of the Russian Federation, the volume of construction work in May (if one year per year) fell by 3.1%, while the overall decline in industrial production was 9.6%.

The decline in economic activity was very rapid compared to previous crises. In the Q1 quarter of 2020, the volume index of GDP was 101.6% (1.4 p.p. higher than 2019), in the Q2 it fell to 92%, and in the Q3 the decline slowed to –3.6% year by year.[2] According to the results of the year, the preliminary estimate of the decline in GDP in comparison with 2019 was 3.1%, which is less than the forecasts of the Ministry of Economy of the Russian Federation, on the basis of which the parameters of the budget for 2021–2023 were formed.

The timeline for the completion of the active phase of the coronavirus pandemic is still unclear, as the epidemic has a wave-like character with a step of three to five months. It is very likely that a large-scale vaccination of the Russian population will have a positive effect by the summer, the epidemic will begin to fade away, and by autumn 2021 it will be suppressed, and the bottom of the recession of the Russian economy will remain at the level of maximum spring "coronavirus restrictions" the Q2 of 2020 г.

RELEVANCE OF ECONOMIC GROWTH

However, the COVID-19 pandemic — is a temporary phenomenon. The problem is what the conditions and pace of recovery will be. Let us remind that according to the medium-term forecast of the Ministry of Economic Development of the Russian Federation, on the basis of which parameters of the federal budget were formed (2021–2023), Russian GDP is expected to return to a positive growth rate from 2021. The baseline scenario for 2021 is 103,3%, in 2022–103.4% and 2023–103%.[3] According to the author, the estimates for 2021

[1] URL: https://cbr.ru/Collection/Collection/File/27842/finflows_20200427.pdf.

[2] Ministry of Economic Development of the Russian Federation. Picture of business activity for September 2020; Picture of business activity for October 2020. URL: https://www.economy.gov.ru/material/file/ 5ed989233f7d439ae833c64485a09131/201019_.pdf.

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seem overly optimistic. It should be taken into account that the "coronavirus recession" started in the situation of the so-called "new normality", when the growth is on, but the rate is low. This economic development is characteristic for most developed and part of developing economies, including Russia [1], whose GDP growth in 2019 was only 1.3%.

The pulsation of Russian economic growth indicators in 2014–2019 was the result not only of external shocks but also of increasing restrictions in the context of the current economic model and insufficient State mechanisms to overcome such restrictions [2]. Thus, we are not talking about a slowdown in the economy or a contraction in demand, but rather about an economy in a non-cyclical systemic recession, where both demand and supply are at risk. In the present climate of diminishing uncertainty, the risk of a transition to a prolonged depression is high. It is not clear what mechanisms can be put in place to overcome the systemic constraints of economic growth [3]. So far, all the measures used by States (and Russia is no exception here) can be defined not as supporting economic growth, but as protecting economic systems from destruction. Probably, in the context with the downward trend, the Russian economy will not recover in a V-shaped trajectory. Therefore, according to Institute of Economics Russian Academy of Science estimates,[4] GDP growth in 2021 is unlikely to exceed 2.5%, that is lower than estimates of the Ministry of Economic Development of the Russian Federation. This situation will not only shape the dynamics of the main indicators of economic development but will also continue to have a negative impact on the social sphere.

However, if the situation is favourable and the Ministry of Economic Development of the Russian Federation forecast is still on track, and the Russian economy will follow the world average GDP growth rate (+103%), they will not be able to achieve a significant reduction in the gap in overall economic development [PPP per capita GDP (purchasing power parity)] and, consequently, in the level and quality of life. Although it will be significantly higher than the average annual GDP growth rate calculated for the post-Soviet period, which in the end did not exceed 1%.

According to the data for 2018, Russian GDP per capita in PPPs was 28 764 USD, that 2.2 times less than in the United States (62 853 USD) and 1.9 times less than in Germany (54 467 USD). In this indicator, Russia lags behind a number of Eastern European countries, such as Czech Republic (40 403 USD), Hungary (31 579 USD), Poland (31 471 USD) and the former Soviet Baltic Republics: Estonia (36 437 USD), Lithiania (35 832 USD) and Latvia (30 859 USD). This reduces Russia's attractiveness to citizens of other post-Soviet states.[5]

In reality, the pace of economic dynamics is relevant to Russia in two contexts. The first relates to catching up with the major economies in terms of the level of economic development, the second — while maintaining a decent place in the world economy in terms of total GDP against the backdrop of the dynamically developing economies of China, India and a number of other major economies..

Calculations show that it will take 70 years for Russia to close the double gap in per capita GDP (for example, with Germany) when the average annual rate of economic growth exceeds by 1%. If this exceeds will be 2% — 35 years; at 3% exceedance — 25 years, 4% exceedance — 18 years. Therefore, in view of the emerging complex of geopolitical and domestic socio-economic problems, the target (desirable) level of economic performance for Russia should be based on a long-term average

[4] IE RAS reports "Proposals for activities in the economic and social life of the country after the active phase of the fight against coronavirus has ended". URL: https://inecon.org/docs/2020/publications/Report_IE%20RAS _20200526.pdf.

[5] Russia in figures 2020. Rosstat. Moscow.; 2020:549–550.

annual GDP growth rate not less than 4.5%. This will make it possible to increase it by 2.4 times by 2040 and to reach the level of Germany by 2055, if Germany maintains an annual growth rate of 2.5%. With an average annual growth of 6% Russian GDP will grow 3.2 times over 20 years, which will keep the share of the Russian economy in the world economy in relation to such centres of economic power as China and India and catch up with Germany by 2040 [4].

Thus, the acceleration of the dynamism of economic growth should be seen as a major focus of Russia's economic development strategy for the next two to three decades.

LIMITATIONS OF THE ESTABLISHED FINANCIAL MODEL

The challenge of accelerating economic growth has complex and multifaceted character — structural, reproductive, technological, foreign economic, resource, institutional, which is important to take into account when formulating and implementing policies to support the pace of economic performance. Two are, in author's view, key: structural and resource. The structural aspect can be considered as a priority because it shaping perceptions of the prospective sectoral and industry structure of the economy, which defines the quantity and quality of the necessary investment, technological and human resources, the reproductive and institutional environment necessary for their effective use.

It is important to note that the long-term dynamic growth of the economy is possible only if demand for domestic production is sustained and increased over a long period of time.

On the basis of the recovery of income of the population (which has fallen by almost 10% since 2014), a post-crisis recovery can take place (5–6% of GDP growth from the level of 2020), further facing structural supply constraints. At the same time, the existing structural, technological and purely market constraints on the demand side do not allow the large-scale expansion of commodity exports to be seen as a determining factor in accelerating the dynamism of the Russian economy (which naturally does not eliminate the objective of supporting exports of a broad range of products). In such conditions, the task of forming a large-scale domestic investment demand as an instrument of structural transformation of the "rent capitalism" model established in Russia in the post-Soviet period comes to the fore. In it, the main motivation for economic activity is not to increase the scale and efficiency of economic activities, but to generate various excess rents (natural, price, administrative) [5]. This model was the result of the policies of the 1990s, which were aimed at the initial accumulation of private capital through large-scale privatization of assets, rather than increasing the incentives to modernize and make better use of them, the need for which was well recognized already at the crossroads of the 1970s and 1980s. It is important to note that the steadily reproducing model of the "new Russian capitalism" that emerged in the 1990s (in all the objective unfavourable conditions of the late 1980s related to the systemic crisis of the Soviet economic and political system and the dismantling of the USSR, which added to the acceleration of the crisis processes) was human-made and based on a number of ideological assumptions, particularly, the postulates of neo-classical orthodoxy that have transformed into the "Washington Consensus".

The most important target of the post-Soviet economic transformation was the policy of external economic openness, and the introduction of domestic currency convertibility in 1992 was seen as a key condition and instrument for opening up the economy and attracting foreign investment. At the same time, convertibility, which was not based on increased competitiveness of the national economy, meant a change in the Central Bank's emissions policy. If during the Soviet period the emissions were related to the size of the economic

turnover and were provided with all the resources involved in such turnover, then this implies that convertibility is closely linked to the pattern of foreign exchange earnings in the economy and depends on the extent of exports and external credit to the economy through commercial credit and financial markets. In such a model, the role of the Central Bank as the issuer of the national currency and lender of the national economy is severely limited, and national banks, in effect, are starting to act as financial intermediaries between domestic "long money" borrowers and international financial institutions, increasing the external financial dependence of the national economy. In turn, financial authorities are primarily concerned with certain formal requirements that create a favourable investment climate for external investors (balance of payments and trade, budget deficits, external and domestic debt levels, currency stability in the short and medium terms). Maintaining the economic growth and competitiveness (primarily technological) of the national economy is seen as a natural consequence of the investment attractiveness of the economy and the financial system, rather than its primary target function. This openness of the financial system has led to excessive dependence of the economy on external sources of financing (first of all, foreign exchange earnings from commodity exports, which have a decisive influence on the fiscal position, consumer demand), as well as the interest of external investors in an active presence on the Russian financial market

Since, as already noted, the openness of the Russian economy was not based on the growth of its competitiveness as a result of structural and technological modernization, emissions are based on the export potential of a narrow group of industries: Fuel and energy complex (FEC), metallurgy, basic chemistry and foreign exchange earnings from external investors. Technically speaking, the country's financial system was planted on the "currency needle" causing chronic money anaemia in the whole economy, higher dependence of the national financial system on external sources and exposure to external shocks, including political. By mid-2014, the Russian external debt had reached 715.8 billion USD, or 32% of annual GDP. Of this debt, 91% (646 billion USD) was owed to commercial banks and non-financial sector organizations. At the same time, the external debt of commercial banks and non-financial sector organizations grew faster than the total external debt of the Russian Federation. For example, the external debt of commercial banks and organizations grew by a times of 1.32 from 01 January 2012 to 01 April 2014 while the total external debt of the Russian Federation grew by a times of 1.26.

By 01 January 2020 due to external factors and sanctions, the amount of external debt of the Russian Federation was reduced to 490 billion USD (28% to GDP), of which 83% (406.9 billion USD) was accounted for by commercial banks and non-financial sector organizations, while the share of government and Central Bank of Russia increased from 9% to 17% of the country's external debt.[6] This decline in total external debt was accompanied by stagnant economic performance and a weakening of the rouble, which fell by a times of almost 1.9 between 2013 and 2019 (from 32,73 to 61,91 rouble to USD).[7] It is not difficult to assess that, with the permanent weakening of the rouble, both the indebtedness of commercial organizations and banks and the cost of servicing the currency debt in rouble equivalent increase. In addition, the ruble value of imported machinery and equipment continues to rise and its share in investment remains too high, ultimately limiting the investment capacity of the Russian economy.

The overall level of monetization of the Russian economy remains rather low. At 01

[6] Russia in figures 2020. Moscow: Rosstat; 2020.

[7] See ibid.

January 2021, the money supply of M2 in the Russian economy increased to 58.65 trillion rubles (1.85 times as compared to 2014). At the same time, the amount of cash increased 1.75 times, and deposits in the accounts of the population and organizations — 1.89 times, to 46.127 trillion roubles.[8] As a result, at the beginning of 2020, the level of monetization of the Russian economy according to indicator M2 didn't exceed 47% of GDP, rising from 2014 by 8 p.p. Although this level of monetization (about 50%) is considered sufficient to ensure current economic turnover and avoid bartering of the economy, in countries making economic breakthroughs, this rate is much higher: China in 2018 it was 198%, in Japan — 184.9%. In advanced economies with average economic dynamism, the rate of monetization of the economy is 70–90% of GDP.[9]

The high level of external debt of the banking and commercial sectors of the national economy, even in the context of a low rate of accumulation and a mass of accumulated financial resources, indicates that, that the economy lacks the "long" investment money to accelerate, i.e. long-term savings of people and organizations that were devalued in the early 1990s. In turn, shortage of "long" money leads to high cost of investment credits, which puts Russian producers in much less competitive terms compared to foreign ones.

Implementation of active economic growth policies through deep structural modernization of the national economy implies a significant increase in the investment process, increasing the share of investment in non-financial assets, especially in fixed capital to at least 27% of GDP, as designated as a target in the decrees of the President of the Russian Federation of 07 May 2018 "National goals and strategic objectives for the development of the Russian Federation up to 2024" and of 21 July 2020 "National development goals of the Russian Federation for the period up to 2030". In turn, solution of this problem is to increase the annual investment volume by at least 10 trillion rubles in the next two to three years (1.57 times the level of 2019) [6]. Consequently, in the transition to strong growth support, investment finance becomes one of the two fundamental problems that are the natural limits of established financial policies.

First, in the Russian market economy it is impossible to increase investment on such a large scale with State (budgetary) resources — because of both the natural resource constraints of the budget system and the economic content of the process. Budget investment reproduces State ownership, the expansion of which is considered to limit competition and the market environment, which has a negative impact on the performance of the national economy. Budget expenditure is determined by the functional structure, according to which it is mainly carried out in State-owned property in a limited number of areas of the national economy (power complex, social sectors, public administration, transport infrastructure development). Indirect support for economic growth can be provided through investment in the share capital of development institutions (specialized banks and funds), as well as the subsidization from the budget of a part of the interest rate for borrowers in certain priority sectors of the economy and activities.

As a result, the share of the budget (federal, federated and local budgets) in fixed investment has steadily declined over the past two decades: from 22% in 2000 to 19,5% in 2010, 18,3% — in 2015 and 15,8% — in 2019 r.[10] At the same time, the share of the federal budget is also stable at least half of the total budget investment. In 2019 the volume of investment from the federal budget amounted to 7.5 trillion rubles (or 47.5%

[8] Central Bank of the Russian Federation. Official site. Statistics. Monetary statistics indicators. URL: https://old.cbr.ru/statistics/ms/.

[9] URL: https://prognostica.info/news/show/38.

[10] Russia in figures 2020. Moscow: Rosstat; 2020.

of all budget investment in the Russian economy).[11]

Second, the extent to which monetary policy supports the investment process is limited by the financial situation of the country, in recent years since the 2008 crisis, the current economic model has failed to restore conditions that are suitable for sustaining the dynamic growth of the economy at the expense of private investors. And it is not so much the quality of the investment process administration (although this is important), but rather the ratio of such basic indicators, the way prices of credit resources and profitability of investment in priority structural improvement projects — manufacturing sectors of the Russian economy (primarily technology-intensive), the development of which should form the main lines of structural modernization and improvement of the competitiveness of the national economy, as well as transport and social infrastructure, including housing and the environment. According to the results of 2019, the efficiency of the operation of technologically intensive industries of Russian industry was in the range of 7–10% of profitability of sales, and the cost recovery of infrastructure facilities in general was rather conditional.

Under such conditions, the price of a long-term investment loan should be less than profitable and not exceed 5% per annum over a long period (5 or more years for acquisition of equipment and up to 20 years for mortgage lending). Looking to establishment of competitive conditions in the context of diversification of the export base of the Russian economy through the development of the manufacturing (and especially technology-intensive) sector of industry, price of such long-term loans should be even lower. Accordingly, the key Central Bank rate to which the rates of other Central Bank liquidity transactions are linked should be even lower, but not lower, than inflation. Therefore, for the Central Bank, the level of inflation is the most important indicator for the formation of the main directions of monetary policy. However, the steady correlation in the Russian economy between the efficiency of investments in priority projects in technologically intensive sectors of Russian industry and the market value of long-term bank credit does not give rise to expectations of a breakthrough scale-up investment scenario.

An additional constraint is the readiness and ability of Russian commercial banks to take risks without State involvement, connection with the structural modernization of the national economy: to identify promising areas and areas of investment, to assess the quality of proposed projects, to move to a lower level of profitability of their activities. Understanding that standard refinancing mechanisms are not sufficient to overcome the investment downturn in the current environment and that rates are too high, the Central Bank, in addition to standard credit policy instruments, introduced special long-term refinancing mechanisms in mid-decade to support priority economic sectors and activities.[12] They were used to support bank lending in selected areas of economic activity. However, the limits for lending through such specialized channels are small and insufficient to boost investment activity in the Russian economy which, as noted above, require trillions of roubles for additional investment. Moreover, the Central Bank is

[11] See ibid.

[12] For example, the Central Bank provides the Russian Bank of supporting small and middle enterprises. Enterprises (JSC «MSP Bank») 6.5% loans on the security of rights of claim under interbank credit contracts, with partner banks under the Small and Middle Enterprise Development Financial Support Programme. A similar programme is in place to promote non-oil exports. The Central Bank of Russia provides funds for 9% of annual claims for credit contracts secured insurance by JSC The Russian Agency for Export Credit and Investment Insurance (EXIAR). A more complex programme is designed to refinance investment projects. For projects approved by the Government, the Central Bank provided 9% of loans against the rights of claims on loan contracts and bonds raised to finance projects. Finally, concessional loans are granted to co-finance industrial projects under the Industrial Development Fund.

quite wary of such instruments. Thus, as early as September 2017, the Board of Directors of the Central Bank approved the medium-term strategy of phasing out their application, citing this decision by lowering the market rates of bank credit, although it has not been possible to completely free from "special schemes" investment financing. In principle, if bank lending rates are significantly reduced, there is no need for such a mechanism, but so far, the prospects for reducing real rates of bank credit are look rather ghostly.

EMISSIONS FINANCING FOR GROWTH — CONDITIONS AND CONSTRAINTS

The scope of investment lending can be radically expanded through the creation of a specialized investment financial framework based on State development institutions (specialized investment banks and funds), which finance large-scale investment projects in priority areas of the national economy. In such a scheme, the Central Bank, under the obligation of the State (i.e., the securities of development institutions), refinance development institutions, which in turn lend on favourable terms to investment projects in priority sectors of national industry. The preferential terms relate to the price of the loan and the period of time for which the loan is granted. Since it is primarily a matter of lending to the manufacturing sector, the cost of credit should be based on the profitability of the project and the duration should be based on the period in which the capacity is built and developed, i.e. a loan for a period of not less than 5 years at 3–5% per annum and in some cases less. Funding is provided through a public-private partnership — joint participation (co-financing) between a public development institute and a private investor. The share of the concessional loan does not exceed a certain part (not more than half) of the cost of the project and is used for the purchase of equipment. Development institutions in this scheme act as a qualified intermediary between the issuing centre and private investors. The main function of such institutions is to assess the effectiveness and risks of investment projects proposed for implementation and to monitor the targeted use of concessional loan resources.

The implementation of the proposed scheme, in addition to relying on specialized financial institutions, implies a full buy-back by the Central Bank of securities issued by development institutions, crediting the volume of such issue to domestic public debt, which is financed from the current income of the federal budget. Interested private investors co-finance investment projects either by borrowing from the financial market. Ultimately, the debt of the project is owed to private investors who, after all the debts have been repaid, become owners of the assets created.

Such a scheme has been used quite successfully in world economic practices in post-war Japan, South Korea, Taiwan, later the People's Republic of China. In such an emissions scheme, the Central Bank effectively allocates credit resources to commodity-backed priority investment projects. Consequently, the overall scale of such targeted credit issuance should be limited by the amount of real investment resources available in the economy (equipment, raw materials, foreign exchange resources) for selected investment projects. This, in turn, means that medium- and current Central Bank emissions plans must be supported by a well-founded national development investment plan that is shaped outside the financial framework. Such a plan could be formulated on the basis of priority investment projects, which should be justified in the context of the development programmes of the various sectors of the national economy. This is provided by the legislation in force, adopted as early as 2014 (Federal Act No. 172 "On Strategic Planning in the Russian Federation"), the implementation of which in actual management practice has not been possible so far. Such programmes need to be sufficiently coordinated among themselves

and ensure how new markets for innovation emerge, and the sustainability and balance of the economy's development through import substitution and infrastructure development, as described above. It is important to understand, however, that the success of the proposed credit issuer scheme depends on the range of credit facilities and the multiplier effects that, like investment facilities, will have on economic growth.

In addition, a range of measures were needed to ensure transparency in the functioning of cash flows, to generate costs and benefits, and to curb currency speculation and capital flight. All conditions noted should form part of the overall transformation of the business model towards a greater interest of business in enhancing investment and innovation.

However, the extensive development of targeted credit financing must take into account a number of important conditions and risks and include measures to overcome them. First, it must be understood that a massive credit build-up means permanent refinancing of development institutions, as the return on an industrial investment project is unlikely to be expected before five to six years. For large infrastructure projects, repayment can take decades, requiring periodic pre-investment of development institutions. The use of "large-scale" credit issue, trillions of investment rubles, can increase domestic debt relative to GDP by another 25% over a five-year period. This financial system indicator itself is important for international ratings, external borrowing and attracting investment from international financial institutions and, to a lesser extent — foreign direct investment.

The build-up of domestic debt through repayments already contains the repayment mechanism included in the system, although a certain percentage of non-return is to be expected. Minimizing such losses will depend on the quality of programme and project design for targeted project funding and the transparency of project implementation. It seems that, effective mechanisms for targeted credit issuance and their integration into the overall implementation of a long-term socio-economic development strategy and sectoral development programmes will take time. Second, it is necessary to consider the risk of inflation accelerating as a consequence of the "financial overshoot", although the dependence of Russian inflation on the growth of the money supply is not so clear.

Targeted credit issuance is aimed at financing the investment process, but part of the financing will naturally be spent on increasing the wage bill and increasing the solvent demand that needs commodity security. Thus, structural economic growth policies should aim to increase the commodity cover for income growth. The implementation of a large-scale affordable mortgage-based housing programme as a major structural priority (as mentioned above) will significantly increase people's motivation to save, that will be able to contain consumer demand and inflation.

Third, in the current model of financial support for economic growth deserved special mention exchange and monetary policies. Given the high dependence of the Russian economy (as a whole) and the investment complex on imports of equipment, the expansion of investment activity will substantially increase the economy's demand for reserve currencies. With Russia's share of imports in investment, their increase per trillion rubles will generate additional demand for a currency of at least 4 billion USD. As the process of economic restructuring and import substitution of foreign technological equipment increases, this share may decline, but noticeable changes are likely to occur no earlier than five years after the implementation of the dynamic policy of modernization of the Russian economy. Thus, in the emissions policy model under consideration, the currency resources of an economy are a major constraint on the scope of targeted credit

issuance, and their accumulation to sustain economic growth — is the primary objective of monetary policy. Exchange policy should, first and foremost, focus on reducing exchange-rate volatility. With imports playing a large role in the Russian economy, the rouble's depreciation leads to an increase in the cost of investment projects and increases economic uncertainty. It may be advisable to revert to the managed exchange rate by limiting its fluctuations through foreign exchange interventions, while monetary policy should aim at maintaining the stability of the rouble's exchange rate, appreciably lower purchasing power parity of the national currency. In this regard, it is advisable to take stock of the country's excessively liberal foreign exchange regulations and to impose reasonable restrictions on such transactions, non-conference-servicing foreign trade and investment in the real economy [7]. These include, first of all, the use of reserve requirements (higher than liabilities in national currency), a transaction tax (Tobin-type tax), and macro-prudential policies. Some currency restrictions on cross-border capital movements will reduce the cost of anti-crisis monetary policy, and eventually, reduce the depth of crises by affecting speculative capital flows. Such restrictions, as a result, would allow for a better use of monetary policy to reduce interest rates, without which economic growth could not be stimulated.

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Managerial Thinking in a New Reality

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ABSTRACT

The passing year 2020 has turned over a lot in society, economics and business, human behavior and consciousness. Within a brief period, due to the pandemic situation, we found ourselves in a new reality. Still, we are trying to understand the changes that occurred and how to manage different processes effectively. But even more important is where all these processes will bring us. This very difficult period in human development took place in a completely different economy of impressions, information, knowledge and intelligence. In the framework of the large scale, overwhelming, and promising (however, somewhat controversial) Industry 4.0, we see the development and digital transformation that changed management and managerial thinking. The new fight for human consciousness has extended; methods and techniques of neuro-management, neuro-marketing, and artificial intelligence are widely used. The consciousness became the object of influence and manipulation, the key topic in business and politics. This article focuses on several problems of new quality of management thinking. It suggests and explains the essence and the necessity of *hyper thinking* as one of the most suitable and valuable approaches to understand and analyze the new contemporary reality as well as the ongoing processes and education.

Keywords: management; paradigm of management; reality; hyper thinking; formats of thinking; matrix approach; digital thinking; new normality

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INTRODUCTION

At present, a number of important points can be made about the continuing rapid changes, global shifts and threats, which challenge human intelligence on a scale comparable to that of the Renaissance. The future of an entire civilization and the role of the human being in it depends on managers' acceptance of different levels of these challenges. There are two extreme scenarios: either humanity takes the intellectual initiative of computers, turned into "homo digital", and will be immersed in feelings, emotions and feelings, or retains its intellectual potential, understanding of its purpose and will continue to develop and improve.

Traditional thinking is human, and governance — is no exception, because we have a certain standard set of tools and technologies that we are used to working with and that produce and produce results. But in a changing world, not only instruments and technologies need to be changed, but also attitudes, principles and much more. Otherwise, the level of misunderstanding will increase further, paralysing effective action.

Each historical period corresponds to certain governance paradigm, i.e. a matured, recognized and dominant type of managerial thinking, expressed in ideas, views, concepts and principles, ways of setting up and solving problems, tools and methods, norms and rules of implementation of various processes, behaviour in the business community, etc.

In the field of management, researchers have long simply described management approaches, developed theories and concepts and defined their applications, methodology of use, and specialized tools for analysis and decision-making. Increased attention was paid to their limitations, areas of concern. Finally, since the 1990s, the concept of management thinking has become well established — systemic, situational, scenario, process, advanced, strategic, global, ethical, creative, designer, value and socially oriented. These aspects of management theory have been the subject of special studies. In reality — the more intellect and horizon decision makers, the more they learn different types of thinking and find hidden connections.

We are now experiencing a paradigm shift in management, driven by a very different world: business, the pace and content of change, the way of life and behaviour of people, other problems, needs, technologies and tools to address these problems and needs. Moreover, if it took many decades before the paradigm shift, it's now happening very quickly — perceptions of the management of the turn of the 20th-21st centuries and current ones are already very different. All of this requires a very substantial rethinking, a new vision of the world and of modern society, politics and business [1].

When talking about a paradigm shift in management, different authors offer their own interpretations of this transformation process — new "management genome" M2.0 (Hamel) [2], "agile-management" M3.0 (Appelo) [3], "radical management" (Denning) [4], "conscious management" (Mackey and Sisodia) [5], "free management" (Nobles and Staley) [6], "value-based governance" (Dolan and Garcia) [7] and etc. The development of an understanding of a company as an object of management with an appropriate management focus can also be included — from resource (Marshall, 1919) and institutional (Coase, 1937), to information (Aoki, 1986), cognitive (Kohut, Zander, 1992) and intellectual (Kleiner, 2020) [8]. But the essence of all these concepts is the same — is primarily change in the established type of management thinking that has prevailed in both public administration, business and expert communities, which was taught in universities and business schools until recently in a certain manner. In fact, there have been multiple shifts in organizations, competition, knowledge and intelligence, behaviour and relationships, values and understanding of social responsibility. It is stressed that

Table 1

New challenges to thinking

Information overload	Ready-to-use solutions	Усложнение мира
Synergies between approaches and methods	**What is it thinking?**	Mind attacks
Understanding another and others	Autonomous and independent	Discontinuity of thinking and action

Source: compiled by the authors.

conventional notions of rationality, standards and norms, universality, measurability, efficiency, predictability must be rethought.

WHY DO WE NEED HYPER-THINKING?

Thinking — is the "lens" through which people look at the world, understand and transform it. Reality cannot be explained simply — it's always an ambiguous and multi-level process of personal perception, reflection, learning, comparison, experience and, indeed, — projection of our thinking. So far, there is no single science of thought — it's dealt with by specialists from many different fields, but so far thinking and consciousness remain one of the most fundamental and unknowned riddles, if only because we try to "think about how we think, understand and transform our thinking.

"This goes beyond conventional formal logic, moving from one-dimensional, linear thinking to radial, parallel, and further into dialectic and matrix thinking. Various methods, such as "cards", "hats", "metaforming", "squares 2×2", "frames" and other techniques discovered in the past 20th century were important milestones along this way".

"The key difference between *hyper-thinking* as an approach is that it is not based on mimicking the brain and displaying this "model" on paper or currently popular neuronetworks, but on the principles of the world around us — a huge quantum computer that we're all inside. The design of this world exists as a projection of the real and perceptible part of it in our consciousness, and therefore the world that we perceive and that is our thinking. This approach is therefore based on the principles on which the world is built: separability, parallelism, interconnectedness, boundlessness, openness, contradiction and multidimensionality. The new approach seeks to broaden the understanding of human capabilities and the boundaries of reality, and most importantly, to overcome the linearity of thinking and the simple dichotomy of many concepts. Hyperthinking as a method using frames and matrixes "3×3" offers an original, simple, easy-to-use and easy-to-use tool for working with information and contingency analysis, changing perspective and connecting social intelligence" [9].

This method can be used to structure problems, find solutions, overcome constraints and contradictions, and implement actions. The new way of thinking has a meta-level, which allows to integrate other methods, as well as to use as a constructor to create their intellectual tools and to improve their skills.

What serious thinking challenges we face (*table 1*)? How does hyper-thinking help us respond to these challenges?

The volume of information is growing exponentially. A large number of sources are beginning to overload, and the flow of different and contradictory information raises questions about their credibility. At

Таблица 2 / Table 2

Новые вызовы управлению сложностью / New Challenges to complexity management

Speed	Scale	Diversity
Multidimensionality	Ambiguity	Irrationality
Chaoticness	Risk	Uncertainty
Accident	Nonlinearity	Unpredictability

Источник / Source: составлено авторами / compiled by the authors.

the same time, access to information requires the ability to deal effectively with it: search, select, analyze, evaluate and synthesize new. Psychologists have long spoken about the necessity of "digital hygiene". Overload and uncertainty mean that the brain stops critically evaluating information and starts to automatically absorb one part of the information and block the other part of the information. Hyperthinking through frames and matrices helps to select and structure the most valuable information.

According to the well-known psychologist Andrey Kurpatov, "we await digital dementia" [10] thanks to clever gadgets who already think instead of us and have learned to anticipate our desires. At the background of *ready-made* and *well-packaged solutions*, we need hyper-thinking to understand and define depth levels of ready-made solutions; to understand what's inside, what the mechanism is, and how it works. If necessary — to know what preceded these decisions and the consequences to be faced in the future.

The increasing *complexity* of societal and economic processes, which take place in addition to, and often against, the will of decision-makers, but which must be managed effectively, will require of us greater intellectual strength and resources (*table 2*). Therefore, in the new environment, new methods and ways of thinking are needed that both simplify/clarify the understanding of reality and, conversely, bring solutions to the required level of content and complexity.

Creativity is one of the main competencies of an employee in the modern world. Creative atmosphere becomes a competitive advantage of the company and allows to attract young, talented and intellectual people. In a world of distance and intangible economy the need for creative solutions is growing. But it seems that creativity alone is not enough. For a long time, there have been calls about what Funky- and Crazy-ideas are needed, which can "drive mad", break templates and create unprecedented impressions. A synergistic approach is needed. New levels of creativity can then open up that creative people are not even aware of, as they remain within the confines of their professional practices [11, 12]. The matrix method brings together our knowledge from different fields: physiology, psychology, linguistics, philosophy, mathematics, systems theory, metaphysics and even mystics, which goes beyond what is known and what is possible.

Another challenge is *attacks on thinking*. This is a long-standing process. Thus, 40 years ago guru of marketing Jack Trout gave the beginning of "military operation" on the minds of potential clients [13]. The process is now far greater in scope and strength. The matrix method puts a barrier in the way of systems and practices that aggressively influence the behaviour of individuals who break their belief systems, allowing them to operate with their values and principles and not be influenced especially by "virus" ideas.

The acceleration of the pace of life, the increase in the number of contacts and the

reduction of communication time (especially in a remote format) raise the *problem of understanding each other and, more broadly — of understanding the other*. The matrix method proposes alternative channels of interaction not only at the word level but also at the level of drawings, stories, joint actions to improve this understanding. The key — is to provide more space for the expression of thought and the preservation of its depth. Thus, when discussing new ideas, one can distinguish between what is clear and what is not, what is agreed and what is disputed. The matrix allows for setting different topics for discussion, identifying points of agreement and contradictions, using differences of opinion to seek common interests and solutions.

The information we receive in the era of consumption becomes increasingly easy, as if already "chewed" and recycled, requiring no analysis and mental tension, which atrophies many useful for independent thinking brain function. At the same time "intellectual laziness" develops, when a person does not want to search for a new solution, to reflect on what is happening, to act, and is content with the choice offered to him. The matrix method preserves *to think for themselves*, helps to separate out the emotional reactions to ideas and thoughts, and thereby preserve the ability to independent thinking and action.

Another challenge to thinking is that it *distances itself from action*. This is the weakness of most thinking methods, which still focus on solving different problems, puzzles that rely mainly on formal logic, but the solution remains on paper. Thus, thinking does not find expression in real action, development remains on paper, and the ability to act is reduced and replaced by quasi-thinking.

CHANGING FORMATS OF THINKING

People tend to simplify and reduce uncertainty and are used to operating in "managed formats" — categories, images, algorithms, ideas, approaches, technologies, tools, models, structures, strategies, etc. So, people create a certain order and control what happens. These different formats — like products, objects, organizations or types of businesses, stereotypes and prejudices, paradigms — in fact only a vague image of reality, the creation of our mind (perception, interpretation), allowing to comprehend things and processes only up to a certain level and for a certain time. ITThey should therefore be periodically reviewed, reassessed and reviewed, especially since the complex structure of the world and the nature of contemporary contradictory and often uncertain processes make it impossible for us to rely on just one format (concept, methodology, model or strategy), a requires either a combination of existing formats or the development of new formats [14]. Thinking in other formats is — metaphorically speaking "jumping out of your box". And here, in order to form a new view, the ability to find suitable analogies from different fields — biology, linguistics, history, behavioral psychology, sports, art, etc.— could be the key to business.

In the rapid stream of change (the above and other challenges) and in our incomplete understanding, there is one important fact: normal people being, by nature, is not inherently volatile and does not always keep up with these changes, although of course it changes and adapts to them to varying degrees. In other words, all of these changes are difficult to manage, and the risks of error and bad behaviour are multiplied. As a result, we are confronted with the following:

a) there are a growing number of inefficient people who think they are effective (including leaders and managers), who do not respond to the challenges of the time, who are unable to identify and solve problems, who are confused in different ways about why, what and how they are doing, and who are substituting concepts, problems and tasks, objectives and means, etc.;

б) the number of ineffective institutions and organizations unable to develop themselves and survive such changes is growing;

в) a gap emerges between the essence of change and human perception (and response), which creates multiple barriers to thinking and effective action.

The first barriers are related to the so-called paradigm effect. Our perception of the world is largely determined by our paradigm, which is becoming a kind of psychological filter. What is obvious to the adherents of one paradigm can be hidden from the adherents of another [15]. The result — is a denial of a new possibility because you don't know what to do and how to do it.

The second barriers are connected with the fact that we inevitably cling to past experience and success (the «halo effect») [16], for actions that produced results, not always being aware of their transient and temporary character, unaware of why and how that success was achieved. "Knowledge must be based on past experience only if the past is a guide to the future. But when change emerges as a consequence of a whole new force, we are unprepared to perceive it" [17].

The third barriers are purely psychological in character: own ego, fear of change and the unknown, fear of acknowledging the limitations of our views and related negative emotions, addictions, following patterns of behaviour, etc.

The fourth barriers are related to automaticity and environmental stereotypes, to the perception of everyday life as a given, to the simplification of control objects, and to the use of standard problem-solving tools. These are common mental models — the belief that our intentions justify what we do and continue to do [18].

The fifth barriers arise from the conventional way of thinking about analysis. Most people do not know the whole, but fragmentation, the desire to divide everything into parts, to study and analyze individual objects, processes, etc. It is a long-standing tradition of scientific knowledge, but it has its essential limitations, because the whole — is not just the sum of the parts. Another aspect of this type of thinking is a linear understanding of what is going on when the cause and effect are agreed, there is a temporal and spatial sequence of actions, developments, events or organizations when it is assumed that the result will correspond to the deposit, etc. But in modern life, it's not like that.

The sixth barriers is about trying to solve problems, not problems, since we often see what we think is obvious or understandable, but do not (or do not want to see) the underlying causes of what is happening. Moreover, as J. Gharajedagh rightly notes, "we fail more often, not because we are unable to solve the problem, but because we are trying to solve the wrong problem" [19].

The seventh barrier arises from ignoring the multidimensionality of human. If people have more than one set of needs, then the imbalance between them, or worse, the loss of at least one of the ingredients, reduces our ability to effectively analyse and act, the "internal fire" is extinguishing us, as one of the prominent modern management theorists Steven Covey put it.

All together they're driving us, in the words of Canadian explorer Andre Kukla, into "mental traps", the exit of which consists in the rearrangement of consciousness according to the following scheme — doubt in knowledge, search for new knowledge, explore possibilities, use divergence and convergence of ideas, constantly reassess them, search for another unknown [20]. All of this is thinking in new formats that ultimately leads to benefits and success.

DIGITAL THINKING AND MANAGEMENT

The laws of the digital world have changed the format of doing business, allowing

Table 3

Cloud management

There's no manager, and the function is	Management as a service	Instructional program
Allocation of tasks to plans	Communication and support	Motivation and activation
Dimension, analysis and accounting	Decision problems	Authority and access

Source: [9].

exponential growth through replication, scaling, modularization, and formalization of business processes where everyone decides competences, skills and how quickly they can be acquired. Here, too, many challenges present new opportunities and require a change in management thinking.

Thus, the scale, dynamism, accessibility, visibility, etc. of information has created completely different markets and competition, other consumers, changed their behaviour and knowledge about them, multiplied the speed of decision-making. "Soft as a service", where important functions are technical support, training and program development, ensuring a given level of efficiency, becomes daily and necessary. Logistics costs have been drastically reduced. The list of these changes can be continued.

This will have an impact on management — as well as major changes. The biggest challenge is the advent of so-called digital management, where the IT-system takes over more than data storage and analysis, communication support and motivation, learning and control of human behavior in the organization, but also the main tasks of the manager: targeting, coordination of interests, conflict resolution etc. "Cloud management" appears.

The development patterns of the non-living show that every object in its development goes through several stages: appearance; improvement of properties and characteristics; expansion of function; specialization; disappearance (when object is no longer present and function remains). Projecting this pattern on management, which has now passed all stages — from the first to the fourth, we have managers for all occasions. This state of affairs shows that the situation is "ripe" and the time comes for the fifth stage — the disappearance of managers in the traditional sense, but with the preservation of the management function. . To some extent it has already started to be realized in "flat" organizational structures, in self-managed (Agile) teams and so-called "turquoise organizations", where management is "dispersed" on all employees. Will the next step be to eliminate managers as a class while preserving their functions and tasks? It seems to be an open question, but much of this transformation is already being seen.

An example of such cloud management is online learning, which has individual planning, coordination, motivating reminders, outcome evaluations. It is safe to say that cloud management of the learning process has already taken place. It remains to shift the bridges to other areas of activity. The programme itself can measure past performance, manage complexity of tasks, prioritize on the basis of the achievements of other staff members, encourage staff to share experiences and interact with each other. Currently, communication issues are solved in corporate information systems. Forums, chat rooms, interest groups become the repository

Таблица 4 / Table 4

Элементы новой нормальности / Elements of new normality

New values	Social cohesion and interaction	Ethics and social responsibility
Virtual (combined) business and employment	Customer sssessment, sustainability, safety	New technologies, knowledge, intelligence, competencies
Restriction of freedoms and individual rights	Effects on consciousness and behaviour	Degree and levels of control

Источник / Source: составлено авторами / compiled by the authors.

of collective knowledge and can be accessed in any gadget. Today, more complex tasks are on the agenda, such as anticipating problems on weak signals and finding solutions to them. Solutions (especially structured programmable) will be developed with less human involvement each time. Perhaps the most difficult — is to have an algorithm that assigns authority and clearance to staff to perform complex and demanding tasks. This may be one of the problems that will be solved by the person for the time being, but there is also no need for recommendations of artificial intelligence (performance assessments or measurement of the social capital of the candidate).

Having put all the elements of the matrix together (*table 3*), one can be assured that such a system will be independent of wearable devices, quickly scaled, allow the organization to go into virtual/remote format, create working groups called ad-hoc (on occasion). We may not even notice, because cloud management will talk to us through voice assistants, whom we will consider managers. But these are all algorithms, and where will the "*human*" side of the enterprise stay?

THINKING IN A FORMAT "NEW NORMALITY"

The coronavirus pandemic revived the debate about the need for "new normality", which became the object of intense intellectual struggle. If the pandemic were to end quickly enough, it would be unlikely that this battle of ideas would be so intense. But it looks like it's gonna be a long one. Since the problem is very multifaceted, here author's focus on it only in terms of the changes in thinking addressed in the article. At the same time "normality" is understood and interpreted in very different ways (*table 4*). For some — it's a return to a normal life without restrictions and fear, to the normal conduct of business, to the recovery of the economy and to ties after a sensitive crisis and recession [21]. In fact — it's a return to the «old normality» at which the market is able to settle everything itself, and it is characteristic of the Anglo-Saxon mentality. But it is those countries that have shown the least preparedness and vulnerability during a pandemic and the least effectiveness of their health systems. There seems to be no return to such "normality".

Others think otherwise and say that it is impossible to return to the state of society and economy that existed before the pandemic, because the world has changed, that there has been a lot of loss, that some knowledge and experience have been accumulated, that some lessons have been learned, that the means to combat the pandemic have been developed, power relations have changed. But there are still many problems to be solved, with far from obvious consequences. It certainly requires thinking in other formats, other methods of analysis, evaluation, regulation, foresight, etc.

But then from this there arise at least three different views on "new normality", translating

the intellectual struggle in fact into a war for the future world order and mechanisms of governance at different levels. By and large, this war of influence is already under way, and the pandemic has become only its trigger.

One position is that "new normality" (both image and ideal) — it's a world with a different system of values where the status and role of the humanistic and socially oriented economy, health, science and education and employment in these sectors are higher; where there is greater connectivity and social cohesion within and between countries in the face of global threats, greater equity, openness and ethics; where the interaction of state, business and civil society is stronger; where simple things get added value — clean water, air, food, energy, ecology, etc. In a broader sense — it's the continuation of a long debate about the preponderance of the economy, whether — for consumption or for the exchange of benefits and, more narrowly — a business appointment for shareholders only or for all interested persons [5].

Another — more business-oriented — is the further development of new business — virtual, intellectual, digital, individualized and energy-efficient with new technologies, business models and processes, new jobs, knowledge and competencies, and the displacement of departing professions, with new culture and ethics, new leaders, new attitudes to risk, safety, workers, consumers, etc. As a trend — is the beginning of the forced "decarbonization of the world economy" — reducing dependence on hydrocarbons and switching to new energy sources, corresponding production and consumption, changing the structure of markets and industries. These are objective processes that are being developed, understood and studied.

The third position is much more politicized and complicated because it is about power and the future of people — on influence and force, on freedom, on privacy, on personal space, on the ability and technology to control consciousness and mass behaviour and the level of control. It could be called "new abnormality" because, in fact, it is thinking in the form of normality for the elected, who want to drive the world into the framework and rules they have built up and to further influence our consciousness through controlled media, culture and education, more actively impose patterns of consumption and behaviour, sow fear and impose unjustified restrictions. This "great reboot" is actually a world-changing for the benefit of the strongest players.[1] Such "normality" carries great risks and dangers and hardly meets the aspirations of humankind. But it is also a certain type of thinking of key decision-makers, and its manifestations are already visible, especially in the realm of big politics and the actions of the largest IT-business.[2]

In the contemporary world, the struggle has gone to the intellectual level. Therefore, in order to understand "new normality" in all variety, to gain a place in competition, to participate in creating and sharing public goods, it is necessary to have a developed intellect, to win, to overplay and to advance with force, accuracy and speed of thought.

CONCLUSION

We continue to reflect on new problems and challenges along the way, but under new conditions. The changed reality requires new formats of interaction between people, between humans and machines, it requires shifts in the paradigm of management thinking. The answer to the dynamics of change will be a

[1] The book by Klaus Schwab "Covid 19: Great Reset" can be considered as the manifesto of this new world [22]. A number of the globalist organizations reports have also contained similar ideas, for example, the Rockefeller Foundation Report 2010 [23].

[2] With the four largest IT-companies stagnating and declining significantly in a number of industries during the March to November 2020 pandemic, they reported that capitalization increased from 15% (Google) to 70% (Amazon), sales — increased by 19% on average, and Amazon's profits increased — by 197%, Google — 59%, Facebook — 29%.

transition from *"thinking for action"* to "*action's thinking*". How the roles of manager will change, what will be left to the person and what will be taken over by artificial intelligence will reveal the next decade. Next questions remain still relevant: how can we keep an individual's intellectual leadership? how do you make your own conclusions, take responsibility? how do you learn from your own mistakes, how do you engage people in agenda discussions, how do you develop the necessary competencies and how do you harness the power of digital technology? what happens to empathy and spiritual intelligence? a new revolution in management has begun, but how will it end?

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Small Business in Russia Through the Prism of a National Project

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ABSTRACT

The article presents the results of the implementation of the National Project "Small and Medium Business and Support for Individual Entrepreneurial Initiatives" and federal projects included in it: "Improving the conditions for doing business"; "Expanding the access of small and medium-sized businesses to financial resources, including concessional financing"; "Acceleration of small and medium-sized businesses"; "Creation of a support system for farmers and the development of rural cooperation"; "Popularisation of Entrepreneurship". We critically analysed the national project as a whole and assessed the newest situation of small and medium-sized businesses. Further, we carried out the analysis of the achievement of the leading indicators of the national project. Also, we considered the financing and the results of the achievement of indicators in the context of federal projects that are part of the national project for 2018–2020. We assessed the risks of non-fulfilment of the goals and objectives set in the projects. The article also examines the effectiveness and evaluates the effectiveness of state support measures for small and medium-sized businesses affected by the spread of coronavirus infection in 2020. Besides, we analysed the main changes in the regulatory legal framework within the framework of implementing the national project. The analysis of the updated structure and activities of the national project "Small and Medium Enterprises and Support for Individual Entrepreneurial Initiatives" has been carried out.

Keywords: national project; federal project; small and medium-sized enterprises; individual entrepreneurs; self-employed

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Small and medium-sized businesses are an important building block of the modern economy. The solution of social and economic problems (including: growth in employment, creation of additional jobs, increase in output, growth in revenues to the budget system, development of innovative technologies and production) depends largely on the pace of development of the small and medium-sized enterprise segment of the economy (SME).

MAIN OBJECTIVES AND PROGRESS OF THE NATIONAL PROJECT ON SME

National project "Small and Medium Enterprise and Support to Individual Entrepreneurial Initiative" (NP SME),[1] along with national projects "Productivity and support of employment", "Digital economy" and "International cooperation and export" belong to the economic block of strategic programs.

The success and effectiveness of the SME development strategy can be assessed through the achievement of the national project targets planned for 2018–2024 (*table 1*).

First of all, the NP SME aims to increase the number of persons employed in small and medium-sized enterprises, including sole proprietors to 25 million people. In 2019, this indicator was not achieved: according to the national project passport, the planning value was 19.6 million people, and according to Rosstat, 19.1 million people (*fig. 1*). B In 2020, the number of employees in the SME sector, according to the NP SME should be 20.5 million people, in view of the failure to meet the target in 2019, the rate of increase should not be less than 7%, which, given the special conditions of 2020, is not possible.

The second objective of the national project is to increase the share of small and medium-sized enterprises in GDP. In 2020, the target value should be at least 23.5%. As we can see from *fig. 2*, in 2018 saw a sharp decline in the contribution of small and medium-sized enterprises to the GDP of the country by 2019, the share of SME in GDP grew by 0.2 p.p.

According to Rosstat data, GDP grew by 1.3% in 2019 and amounted to 109.362 trillion rubles, accordingly, the contribution of SME is estimated at 22.5 trillion rubles. By 2024, it is planned to increase the share of SME in GDP to 32.5%.

The third objective of the national SME project is to increase the share of SME exports in total non-oil exports. As of the end of 2019, the share of exports of small and medium-sized businesses (in total volume of non-pyrighted exports) was 17.2%. The target was exceeded, as the NP SME passport required a minimum of 8.8% of SME total non-pyrighted exports at the end of 2019 and a minimum of 9% in 2020, including an excess of 2019 to 2020 r.

In order to achieve all the targets of the national SME project, the necessary activities were grouped into 5 federal projects:

1. Improving the business environment.
2. Improved access of SME to financial resources, including concessional financing.
3. Acceleration of small and medium-sized enterprises.
4. Establishment of a support system for farmers and development of rural cooperation.
5. Popularization of entrepreneurship.

Each of them is aimed at achieving certain targets, while each federal project has activities aimed at achieving specific objectives and supporting SME in general without being linked to NP targets.

The distribution of the impact of federal project activities on the achievement of the targets in percentage terms is shown below (*fig. 3*).

As shown in *fig. 3*, four federal projects are aimed at achieving 2 targets: increasing

[1] National Project Passport "Small and Medium Enterprise and Support of Individual Entrepreneurial Initiative" (approved by the Presidency of the Presidential Council for Strategic Development and National Projects at 24 December 2018 No.16).

Table 1

List of indicators of the national project "Small and Medium Enterprises and Support for Individual Entrepreneurial Initiatives"

№	Показатель	The planned value for 2018,%	The planned value for 2019,%	The planned value for 2020,%
1	Target figure. Share of exports of small and medium-sized enterprises, including sole proprietors, in total non-tradable exports	8.6	8.8	9
2	Target figure. Share of small and medium-sized enterprises in GDP	22.30	22.90	23.50
3	Target figure. Number of persons employed in small and medium-sized enterprises, including sole proprietors	19.20	19.60	20.50

Source: Passport of the national project "Small and Medium Enterprises and Support for Individual Entrepreneurial Initiatives".

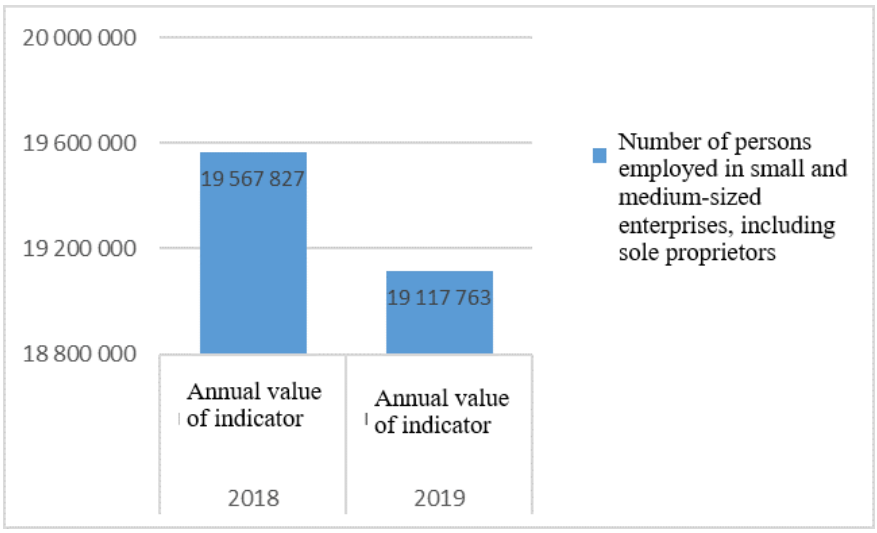


Fig. 1. **The value of the indicator "The number of people employed in small and medium-sized businesses, including individual entrepreneurs" in 2018 and 2019**

Source: calculated by the authors based on Rosstat data.

the share of SMEs in the GDP of the country, increasing the number of persons employed in SMEs including individual entrepreneurship (IE). However, only the federal SME acceleration project, through its activities, is fully aimed at increasing the share of SME exports, including IE, in total non-oil exports. We would also like to note that the federal project "Establishment of the Farmers Support System and Development of Rural Cooperation" has minimal contribution to the achievement of the targets, as its activities are

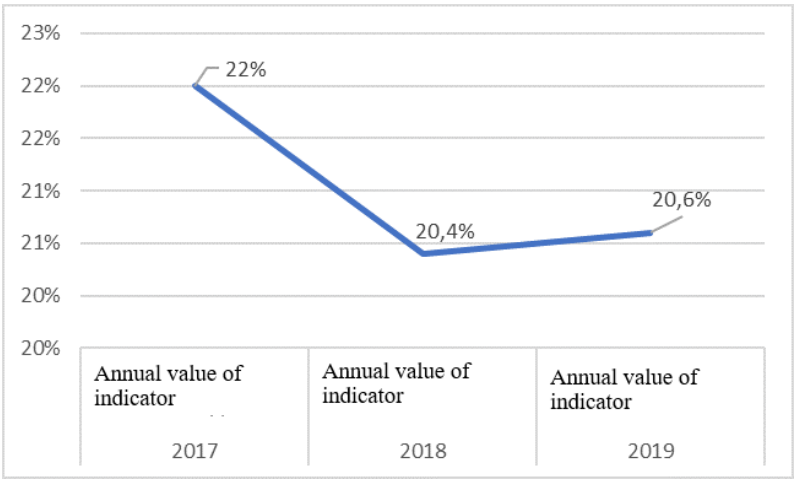


Fig. 2. **Values of the indicator "Share of small and medium-sized businesses in GDP", % from 2017 to 2019**

Source: Calculated by the authors based on Rosstat data.

mostly directed to the development of SME in the agro-industrial complex.

The national SME project is implemented from the federal budget, the regional budget, State extrabudgetary funds and extrabudgetary resources. In relation to the amount of financial support for 2019–2024 allocated to all national projects of the Russian Federation, the National SME Project accounts for only 1.78%, including 491.33 billion roubles of 27 536.4 billion roubles.[2] For the illustration of *fig. 4* the share of financial support for the national SME project up to 2024 is allocated to all national projects implemented in Russia. Only 2% is allocated to entrepreneurship development activities, which may indicate a low priority for the national project.

In 2020, 72.57 billion roubles were allocated for the implementation of the planned measures, which represents about 15% of the total budget of the national project (*fig. 5*).

According to information system "Electronic Budget",[3] for 2020, more funding has been allocated to the federal project "Improving the access of SME to financial resources, including concessional financing" (*fig. 6*).

IMPLEMENTATION RISKS FOR NP SME

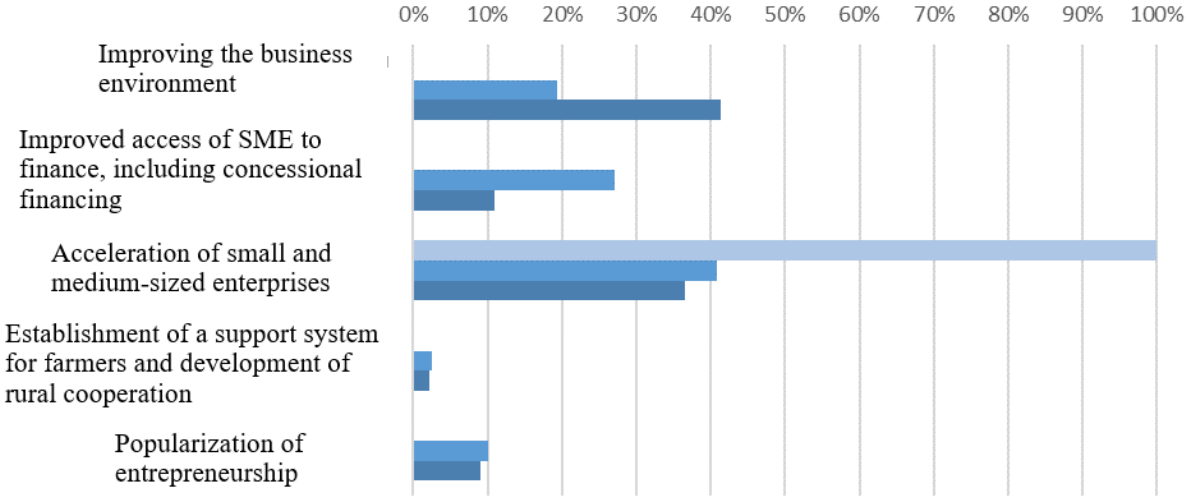
The development of small and medium-sized enterprises is one of the priorities of State policy in the Russian Federation. However, in order to achieve the objectives set, it's necessary to take into account the risks arising from the implementation of any project, both at the federal and at the level of the constituent entities of the Russian Federation.

A detailed analysis of the passport of the national SME project and its planned activities reveals a number of risks to the implementation of the national project.

Consider first the system of tax incentives for SME through State support in the form of special tax regimes: simplified tax system (STS), single tax on imputed income (STII). To date, not the entire spectrum of small and medium-sized enterprises has been able to benefit from special tax regimes, but mostly micro and small enterprises. Strict requirements are imposed on SME entities to apply a special tax regime, such as STS. According to the standard conditions of application of the STS, the taxpayer's income should not exceed 150 million roubles and

[2] Common portal of the budget system of the Russian Federation "Electronic budget". URL: http://budget.gov.ru/.

[3] Common portal of the budget system of the Russian Federation "Electronic budget". URL: http://budget.gov.ru/.



	Popularization of entrepreneurship	Establishment of a support system for farmers and development of a rural corporation	Acceleration of small and medium-sized enterprises	Improved access of SME to finance, including concessional financing	Improving the business environment
Share of exports of small and medium-sized enterprises, including sole proprietors, in total non-oil exports	0%	0%	100%	0%	0%
Share of small and medium-sized enterprises in GDP	10,16%	2,44%	40,83%	27,13%	19,44%
Number of persons employed in small and medium-sized enterprises, including sole proprietors	9,10%	2,20%	36,50%	10,90%	41,40%

Fig. 3. **Impact from the implementation of federal project activities on the achievement of target indicators as a percentage**

Source: Passport of the national project "Small and Medium Enterprises and Support for Individual Entrepreneurial Initiatives".

the average number of employees should not exceed 100 people. Consequently, two types of SME — microenterprises and small enterprises — fall under the standard terms and medium-sized enterprises are excluded from preferential rates: 1–6% for the tax object "income" and 5–15% for the tax object "income minus expenditure" (*table 2*). Thus, as of 1 January 2021, the conditions under which taxpayers are entitled to apply the STS were changed: if the income limit exceeds 150 million roubles, but not more than 200 million roubles, or the average number of employees will exceed 100, but for not more than 30 employees. The above-mentioned exceeding of the standard conditions will lead to an increase in tax rates: 8% — for the object of tax "income"; 20% — for the object of tax "income minus expenditure". It can therefore be concluded that, in reality, even with the

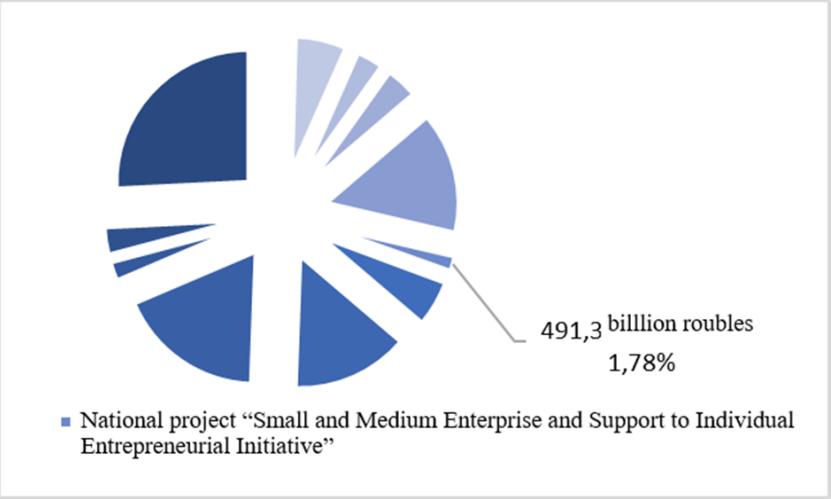


Fig. 4. **Share of financial support for the National SME project for 2019–2024 of the total allocated for all national projects**

Source: Calculated by the authors based on the data of the "Electronic Budget" information system.

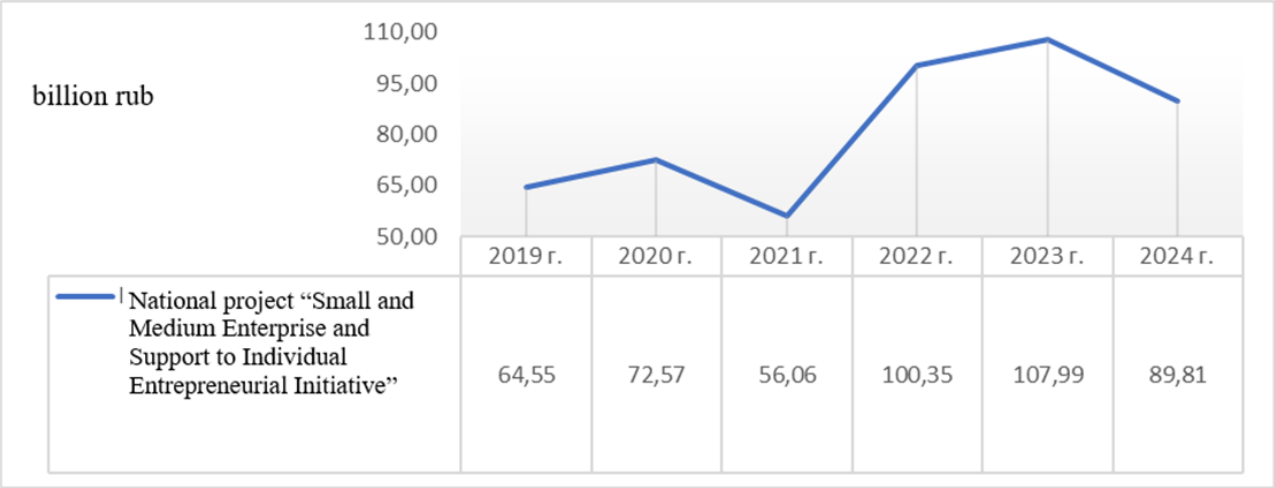


Fig. 5. **The volume of financial support for the National SME project for the period 2019–2024 RUB bn.**

Source: calculated by the authors based on the data of the "Electronic Budget" information system.

amendments made to the Tax Code of the Russian Federation, preferential rates are not available to a larger number of medium-sized enterprises.

If the abolition of the special tax regime — STII — as of 1 January 2021 adversely affects the number of SME, the risk of not meeting one of the objectives of the national project — to increase the number of SME can be predicted. In regional experience, notably in Moscow, the abolition of a single tax on opportunity income led to a 50% reduction in the number of SME in 2014 [1]. The formal reasons for the abolition of the STII are: tax avoidance (in particular, VAT reduction through fragmentation of firms) practised by many entrepreneurs, disproportionate tax burden and profitability of the business, opacity of the formation of the financial result of the organizations and the IE. The abolition of the STII will increase the tax burden on SME entities applying this tax regime, as the preferential regimes remain: STS with a rate of 1–6% or 5–15%, depending on the object of

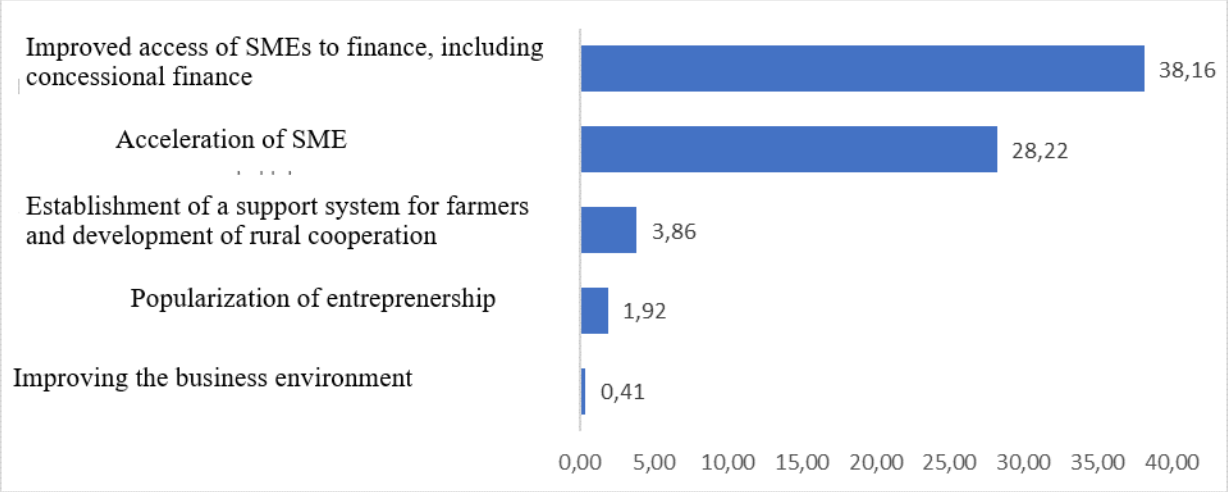


Fig. 6. **Funding by federal projects for 2020, RUB bn.**

Source: calculated by the authors based on the data of the "Electronic Budget" information system.

the tax, and the patent tax system, available only to individual entrepreneurs. Also, the number of contributors to the STII has been declining since 2013, suggesting that there is no link between the fragmentation of firms and the use of the tax [1].

Still on the subject of tax regimes, it is necessary to mention the introduction of a tax on professional income (hereinafter referred to as TPI), the main purpose of which is to attract self-employed persons to leave the informal sector and register them in the Federal Tax Service. Today, individual entrepreneurs who use STS pay 6% of their income, while the TPI tax rate is 4% of their income when providing services and selling goods to natural persons and 6% of their income to legal entities and IE. This seems economically advantageous and will lead to the re-registration of individual entrepreneurs as self-employed. However, in accordance with part 1 article 4 of the Federal Act of 24 July 2007 No. 209 "On the development of small and medium-sized enterprises in the Russian Federation" self-employed citizen, who uses the special tax regime of the TPI, is not a small and medium-sized entrepreneur and cannot be included in the unified register of small and medium-sized enterprises (part 1 article 4.1 the Federal Act of 24 July 2007 No. 209 "On the development of small and medium-sized enterprises in the Russian Federation"). At the same time, a number of State crisis support measures for SME in the context of the Coronavirus pandemic have been extended to self-employed citizens, such as concessional loans for business development and the extension of a number of time-limited licences and permits for one year. However, it follows from the above that re-registered individual entrepreneurs will no longer belong to the small and medium-sized enterprise sector. Thus, it will provoke a decrease in the number of SME entities and will entail the risk of not meeting the national project target "Number of employed in small and medium-sized enterprises, including individual entrepreneurs".

Secondly, we would like to point out that changes in the legal framework are planned in order to realize the objectives of the national project. According to the national draft passport, the following bills are to be adopted[4]:

1. On the introduction of amendments to the Federal Law "On the Fundamentals of the

[4] Legislative support system of the State Automated System "Law-making". URL: https://sozd.duma.gov.ru.

Table 2

Criteria for small businesses in 2021: number of employees and income

Type of SME	Average number of employees for 2020	Income limit for 2020
Microenterprise	Up to 15 people inclusive	120 mln rub.
Small enterprise	From 16 to 100 people inclusive	800 mln rub.
Middle enterprise	From 101 to 250 people inclusive	2 bln rub.

Source: Grouped on the basis of Federal Law No. 209-FZ dated July 24, 2007 and Government Decree No. 265 dated 04.04.2016.

Note: in accordance with article 4 The Federal Act of 24 July 2007 No. 209 establishes conditions for the share of legal entities in the authorized capital of the LLC, JCS and economic entities.

* The Federal Act of 24 July 2007 No. 209 "Development of small and medium-sized enterprises in the Russian Federation".

** Resolution of the Government of the Russian Federation of 04 April 2016 No.265 "On limit values of income received from carrying out entrepreneurial activity for each category of small and medium-sized enterprises".

State Regulation of Trade Activities in the Russian Federation".

2. On making changes to the Federal Law "On Agricultural Cooperation" and the Federal Law "On Production Cooperative".

3. Amendments to Chapter 26–2 of the Tax Code of the Russian Federation (regarding exemption from the obligation to submit a tax declaration for taxpayers applying a simplified tax system and using cash-control equipment).

4. Amendments the article 7.32.3 and 23.83 of the Code of Administrative Offences of the Russian Federation (in terms of establishing liability for breach of payment terms under contracts concluded with small and medium-sized enterprises).

To date, changes have been made regarding administrative liability for breach of payment terms in contracts with SME.

There is no regulation of the activities of the managing companies of the trade centres and complexes, which implies control of the activities of the tenants in the territory of the Trade Center (TC) (mostly small and medium-sized businesses) it's also concerned with the recruitment of foreign nationals. The bill increases the pressure on SME not only by supervisors but also directly by the lessor.

Within the framework of the Federal Project "Establishment of a System of Support to Farmers and Development of Rural Cooperation", changes in the regulation of agricultural cooperatives are planned by amending the Federal Act on 08 December 1995 No. 193 "On agricultural cooperation" and the Federal Act on 08 May 1996 No. 41 "On production cooperatives". Proposed bill to simplify the procedure for the establishment of cooperatives by farmers who are not legal entities, to clarify issues of cooperative management and to exclude illegal activities of unions in the verification of agricultural associations, excluded from self-regulating organizations, to date not adopted. Consequently, there is a risk that the indicator aimed at increasing the number of small and medium-sized enterprises in the agro-industrial complex will not be reached.

Also in order to achieve the result on the exemption of SME entities from the provision

of tax returns within the framework of the Federal project "Acceleration of small and medium-sized enterprise entities" (with a value for 2020 not less than 0.8 million taxpayers), a draft law was elaborated "On amending Chapter 26–2 of the Tax Code of the Russian Federation", aimed at simplifying reporting for SMEs at the STS when working with cash controls. This facilitates the interaction between the Federal Tax Service and small and medium-sized businesses, but the bill has not been adopted and is in the second reading, which has led to the result not being achieved.

To date, bills have gone through several lengthy consensual procedures and stages, which objectively lengthens their passage and, consequently, it increases the risk that the results of federal projects may not be achieved because of the impossibility of implementing certain measures because of the lack of established standards.

Third, consideration should be given to the availability of the proposed support measures and to the awareness of SMEs of the possibility of obtaining government support. For example, within the framework of the federal project "Increasing the access of SME entities to financial resources, including concessional financing", measures are planned to increase the amount of financial support for small and medium-sized enterprises by providing loans on concessional terms. Nevertheless, it can be predicted that the responsible agents of the federal project will face the problem of the insufficiency of the number of proposals from the authorized banks to issue loans, and increased regulatory pressure on banks would also lead to a reduction in the number of lending organizations that were major lenders to SMEs. According to surveys conducted by RANEPA on the effectiveness of State financial support, 45% say that they do not benefit from State support measures because of a lack of confidence in the State, a 51% consider the amount of support to be small to influence the recovery from the crisis that the business is facing. More than 90% of those surveyed did not seek government support because of ignorance, which in turn is a serious constraint on the development of the small and medium-sized business sector.

It is also important that the public authorities react quickly to changes and external factors affecting the implementation of the national project. In 2020, the spread of a new coronavirus infection required an immediate response from the authorities and authorities of the constituent entities of the Russian Federation and a change in the trajectory of implementation of both the national project as a whole and federal and regional projects. The need to introduce restrictions and new sanitary and epidemiological rules has led to a number of requirements in the work of enterprises and establishments. Small and medium-sized businesses were mostly affected.

IMPACT OF SME SUPPORT MEASURES

In order to minimize the negative impact on small and medium-sized businesses, a package of measures was drawn up to support them, and a list of areas of activity was approved at the meeting of the Government Commission on Enhancing the Sustainability of the Russian Economy, most affected by coronavirus infection[5] (*table 3*).

The support measures developed by the Government of the Russian Federation, together with the Ministry of Economic Development of the Russian Federation and the Federal Tax Service of the Russian Federation, were aimed at reducing the tax burden on business and at preserving jobs and wages. These include: deferral of all taxes (except VAT), deferral of social security

[5] Official website of the Federal Tac Service. URL: https://www.nalog.ru/.

Table 3

Areas of activity most affected by the spread of coronavirus infection

Areas affected by the COVID-19 pandemic	Air, airport, road
	Culture, leisure and entertainment
	Physical education and recreation and sports
	Activities of travel agencies and other tourism service providers
	Hotel business
	Food service
	Activities of supplementary educational organizations and non-governmental educational institutions
	Conference and exhibition activities
	Activities related to the provision of public services (repair, laundry, dry cleaning, hairdressing and beauty salons)

Source: prepared on the basis of data from the Federal Tax Service.

contributions; moratoriums on the growth of IE contributions; and bankruptcy by creditors. Insurance premiums for wages above SMIC were also reduced to 15%; the requirements on borrowers for concessional lending, etc., have been simplified.

In 2020, the share of SMEs benefiting from loans doubled with State support, while the level of lending to SMEs rose from 5 to 9.2% in 9 months, at the beginning of the Q4 of 2020, the volume of lending exceeded 1.04 trillion roubles.[6] This measure is aimed not at the development of small and medium-sized businesses, but at their stabilization. It has made it possible to postpone, but not to solve, business problems. A surge in defaults in small and medium-sized enterprises can be expected if it is lifted.

Despite the measures taken by the Government to support SME, according to the Common Register of Small and Medium-sized Enterprises, the number of SME has decreased over the past year: while at the beginning of 2020 there were 5 916 906 entities in the registry, at the beginning of 2021 there were 5 684 561.[7]

As *table 4* shows, the number of SME entities has been declining since the beginning of 2019. Of course, their sharp decline in 2020 is due to the restrictions imposed by the spread of COVID-19. At the same time, it should be borne in mind that, in the past year, it had been decided to suspend bankruptcy proceedings and not to initiate them by the FTS. The number of closed enterprises has thus been artificially reduced by administrative procedures.

On the basis of data from the Common Register of SME Entities, there is a positive trend in the number of employees employed in the activities of SME entities, which may indicate the stabilization of SME sector (*table 5*). According to the information agency Banki.ru, in the average enterprises — juridical persons annual growth of

[6] The state of small and medium-sized businesses in 2020. URL: https://frankrg.com/2771.

[7] Common register of small and medium-sized enterprises. URL: https://ofd.nalog.ru/.

Table 4

Dynamics of the number of SMEs in Russia from 2019–2021, thousand units

Number of SME entities, including IE:	10.01.2019	10.01.2020	10.01.2021
	6041.2	**5916.9**	**5684.5**
microenterprises	5771.6	5675.7	5450.2
small businesses	250.7	224.0	216.0
medium-sized enterprises	18.8	17.0	17.6

Source: calculated by the authors based on data from the Unified Register of SMEs.

Table 5

Dynamics of the number of employees involved in the activities of SMEs, thousand units.

Number of employees employed in SMEs:	10.01.2019	10.01.2020	10.01.2021
	15 873.6	**15 321.8**	**15 491.1**
microenterprises	7522.7	7429.6	7519.1
small businesses	6538.9	6189.2	6143.5
medium-sized enterprises	1812.0	1703.0	1828.6

Source: calculated by the authors based on data from the Unified Register of SMEs.

employment amounted to 9,6%. It fully absorbed the reduction of 1.2% in micro-business and 0.9% in small business.[8]

At the same time, according to the Presidential Commissioner for the Protection of Entrepreneurial Rights, Boris Titov, the pandemic affected almost 87% of entrepreneurs, a fifth lost up to 80% of revenues and only 13% are developing steadily.

Russian News Agency (ITAR-TASS) published an article on the impact of the pandemic on the small and medium-sized business sector.[9] According to ITAR-TASS, more than 50% of beauty industry enterprises end the year with a negative result, and the fitness industry has lost about 50 billion rub. (20% of players have left the market). The restaurant industry in 2020 lost between 40 and 80% of revenues compared to 2019, and about 40% of entrepreneurs lost their businesses.

MAINSTREAMING OF SME DEVELOPMENT

Because of restrictive measures, the health and epidemiological situation in Russia and the problems encountered by small and medium-sized businesses, it has become necessary to update the directions of development of small and medium-sized enterprises.

[8] Information agency «Banki.ru». URL: https://www.banki.ru/news/lenta/?id=10931160&r1=rss&r2=rambler.news.

[9] Russian News Agency (ITAR-TASS). URL: https://tass.ru/ekonomika/10278235.

Table 6

Comparison of the compositions of the national project "Small and Medium Enterprises and Support for Individual Entrepreneurial Initiatives" in 2018 and 2020

The composition of the national draft in the approved 2018 edition	Composition of the national draft as approved by the end of 2020
1. Improving the business environment	1. Creating conditions for easy start-up and comfortable business conduct
2. Improved access of SMEs to finance, including concessional finance	2. Creation of favourable conditions for self-employed citizens to engage in activities
3. Acceleration of small and medium-sized enterprises	3. Acceleration of small and medium-sized enterprises
4. Establishment of a support system for farmers and development of rural cooperation	Excluded
5. Popularization of entrepreneurship	Excluded
	4. Creation of a digital platform with targeted selection and remote access to support measures and special services by SMEs and self-employed citizens

Source: prepared by the authors based on the passports of the national SME.

The passport of the national project "Small and Medium Enterprise and Support of Individual Entrepreneurial Initiative: was clarified on the instructions of the President of the Russian Federation and approved in the new edition on 29 September 2020 at the meeting of the project committee.[10]

One federal project — "Popularization of entrepreneurship", part of its planned activities was transferred to a federal project aimed at supporting self-employment — "Creation of favourable conditions for self-employed citizens to carry out activities".

Two federal projects were modernized: "Acceleration of small and medium-sized business entities" and "Creation of conditions for easy start and comfortable business management" (formerly — "Improvement of business conditions").

A new federal project has been developed to digitize small and medium-sized businesses, including activities aimed at creating a single ecosystem to support SMEs and the self-employed — "Creation of a digital platform with a targeted selection mechanism and the possibility of remote receipt of support measures and special services by SME entities and self-employed citizens".

With regard to the agro-industrial sector, as can be seen from the *table 6*, the federal project "Creation of a System of Support of Farmers and Development of Rural Cooperation" was excluded from the updated national project, however the activities aimed at supporting this sphere found their development in the federal project on acceleration.

Introduction of new measures aimed at: engaging the unemployed in business, supporting social business, obtaining educational services for the self-employed, introducing new mechanisms of access to

[10] Official website of All-Russian Small and Medium Enterprise Public Organization "RUSSIA'S SUPPORT". URL: https://opora.ru.

alternative sources of financing for business by launching new financial instruments — crowding and factoring will certainly contribute to the achievement of the national project targets. The ad hoc nature of support is being replaced by integrated services for the development of the small and medium-sized business sector in all its life cycles.

CONCLUSION

At a time of constraints and new health and epidemiological frameworks, when many entrepreneurs lost their share of profits and faced the need to adjust the business model, The Government of the Russian Federation has developed measures to support small and medium-sized businesses with a view to reducing the tax burden and helping to overcome the crisis. The National SME Project Passport was also redesigned to update small and medium-sized enterprise development activities. New mechanisms of business development in modern realities were formed and proposed.

As the analysis showed, the quality of the loan portfolio of SME entities in 2020 has improved compared to 2019. Therefore, we consider it advisable to extend the preferential programmes for stabilizing small and medium-sized enterprises. In order to monitor the effectiveness of national project interventions, it is necessary to establish a methodology for assessing their impact on the business sector, as well as to specify the responsibility of all levels of actors, with clear and transparent key performance indicators.

Work should continue at all levels of the executive branch to create a favourable investment climate and develop appropriate tools and mechanisms for small and medium-sized businesses in Russia.

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