FEDERAL STATE BUDGETARY INSTITUTION OF SCIENCE
VOLOGDA RESEARCH CENTER OF THE RUSSIAN ACADEMY OF SCIENCES

ECONOMIC AND SOCIAL CHANGES:

FACTS, TRENDS, FORECAST

Volume 13, Issue 4, 2020

The journal was founded in 2008

Publication frequency: bimonthly

According to the Decision of the Ministry of Education and Science of the Russian Federation, the journal *Economic and Social Changes: Facts, Trends, Forecast* is on the List of peer-reviewed scientific journals and editions that are authorized to publish principal research findings of doctoral (candidate's) dissertations in scientific specialties:
08.00.00 – economic sciences;
22.00.00 – sociological sciences.

The journal is included in the following abstract and full text databases:
Web of Science (ESCI),
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The journal's issues are sent to the U.S. Library of Congress and to the German National Library of Economics.

All research articles submitted to the journal are subject to mandatory peer-review.
Opinions presented in the articles can differ from those of the editor. Authors of the articles are responsible for the material selected and stated.

ISSN 2307-0331 (Print)
ISSN 2312-9824 (Online)

Internet address: **http://esc.volnc.ru**

ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

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

The main purpose of the journal is to provide the scientific community and practitioners with an opportunity to publish socio-economic research findings, review different viewpoints on the topical issues of economic and social development, and participate in the discussion of these issues. The remit of the journal comprises development strategies of the territories, regional and sectoral economy, social development, budget revenues, streamlining expenditures, innovative economy, and economic theory.

Founder: Vologda Research Center of the Russian Academy of Sciences

Federal State Budgetary Institution of Science Vologda Research Center of the Russian Academy of Sciences (VolRC RAS), which existed as Vologda Scientific Coordinating Center of Central Economic and Mathematical Institute of RAS until March 2009, is situated on the territory of the Vologda Oblast. V.A. Ilyin, Doctor of Economics, Professor, Honored Scientist of Russia, is the permanent director of the Institute. A lot of great scientists have played an important role in the formation and the development of ISEDT RAS as a scientific institution such as: academicians D.S. Lvov, V.L. Makarov, V.I. Mayevsky, A.D. Nekipelov, Y.S. Osipov. Everything that has been done before and is being done nowadays by the personnel of the Institute, it would be impossible without the constant support of the Vologda Oblast's Government and city leaders.

The formation of the scientific personnel with an active life position, a great demand for Institute's investigation, academic community's support of the new journal published by ISEDT RAS, which combined efforts of the economic institutes of RAS in the Northwestern Federal District, and furthermore development of international ties have become the main outcomes of the last years.

MAIN RESEARCH DIRECTIONS

Due to the Resolution № 96 by the Presidium of Russian Academy of Sciences dated from March 31, 2009 VolRC RAS carries out investigations in the following fields:

- problems of economic growth, scientific basis of regional policy, sustainable development of territories and municipalities, and transformations of socio-economic space;
- regional integration into global economic and political processes, problems of economic security and competitiveness of territorial socio-economic systems;
- territorial characteristics of living standards and lifestyle, behavioral strategies and world view of different groups of the Russian society;
- development of regional socio-economic systems, implementation of new forms and methods concerning territorial organization of society and economy, development of territories' recreational area;
- socio-economic problems regarding scientific and innovative transformation activities of territories;
- elaboration of society's informatization problems, development of intellectual technologies in information territorial systems, science and education.

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In order to integrate scientific activities of the Institute's scholars into global research area, international scientific conferences are held on a regular basis; they result in cooperation agreements with different scientific establishments:

2007 – Cooperation agreement is signed with Institute of Sociology, of the National Academy of Sciences of Belarus , Center for Sociological and Marketing Investigations at the "International Institute of Humanities and Economics" (Belarus, 2008).

2008 – Memorandum of agreement is signed with Alexander's Institute at the Helsinki University (Finland, 2008).

2009 – Cooperation agreement is signed with Center for System Analysis of Strategic Investigations of NAS (Belarus, 2009).

2010 – Cooperation agreement is signed with Institute of Economics of the National Academy of Sciences of Belarus (Minsk, 2010).

2011 – Cooperation agreements are signed with National Institute of Oriental Languages and Civilizations (Paris, 2011), Institute of Business Economy at Eszterhazy Karoly College (Hungary, 2011), Republican research and production unitary enterprise "Energy Institute of NAS" (Belarus, 2011). Protocol of intentions are signed with Jiangxi Academy of Social Sciences (China, 2011), Research and Development Center for Evaluation and Socio-Economic Development and the Science Foundation of Abruzzo region (Italy, 2011).

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2013 – Cooperation agreement is signed with Jiangxi Academy of Social Sciences (China, 2013).

July 2013 – The application for research performance by international consortium involving ISEDT RAS within the 7th Framework Programme of European Community.

2014 – Cooperation agreements are signed with Jiangxi Academy of Social Sciences (China, 2014), National Academy of Sciences SM TsSaiSI (Belarus, 2014). Protocols of intent are signed with the Academy of Social Sciences Jiangxi Mao Zhiyong (China, 2014), National Institute of Languages and Civilizations (France, Jean Verkey, 2014).

2015 – Protocol of intent is signed with the Academy of Social Sciences, Jiangxi Province (China, 2015). Cooperation agreement is signed with the Institute of Sociology of the National Academy of Sciences of Belarus (Belarus, 2015).

2016 – Cooperation agreements are signed with EHESS Ecole des Hautes Etudes en Sciences Sociales (Paris, France, 2016), Institute of Philosophy, Sociology and Law of NAS RA (Yerevan, Armenia, 2016), Yerevan Northern University (Armenia, 2016), Yerevan State University (Armenia, 2016). Protocols of intentions are signed with Academy of Social Sciences in province Jiangxi (China, 2016).

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DOI: 10.15838/esc.2020.4.70.1
UDC 323.2, LBC 60.527

Vote of Confidence for the President is Confirmed. Achievement of Socio-Economic Development Goals before 2024–2030 is Uncertain

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Abstract. All-Russian vote on amendments to the Constitution, which was conducted from June 25 to July 1 of 2020, showed that a vote of confidence, granted by society to a current system of public governance and the President personally during previous presidential elections, was confirmed. With a high voter turnout (68%), 78% of them supported Vladimir Putin's initiative to amend the Main Law. However, a detailed analysis of "pressure points" of the last vote (regions where the share of votes against constitutional amendments was above national average numbers) confirms experts' opinions that an idea to unite society around this event did not work out. The lack of real changes in the solution of key issues related to overcoming flagrant social inequality and the growth of the level and quality of life, which would be

For citation: Ilyin V.A., Morev M.V. Vote of confidence for the President is confirmed. Achievement of socio-economic development goals before 2024–2030 is uncertain. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 9–37. DOI: 10.15838/esc.2020.4.70.1

visible to general population, leads to people's exhaustion from another positive goals of socio-economic development that might not be fulfilled once again and remain only in a declarative form. It affected the dynamics of public opinion, and, in particular, it echoed in a high level of protest in most Russian regions (in 47 out of 86), its regional centers, and large industrial towns during all-Russian vote on amendments to the Constitution. At the same time, the President's Executive Order on Russia's national development goals through 2030, dated July 21, 2020, pushes back dates of national projects' implementation (from 2024 to 2030) once again and additionally decreases the level of optimism toward the implementation of national development goals until 2024 – exactly until the next elections of the President of the Russian Federation. An analysis of factual information and expert assessments, carried out by the authors, forces to state that, despite another vote of confidence granted by society to the President and his system of governance, the future of Russia's socio-economic development (at least until 2024–2030) remains unclear, and it increases residents' fears for their own and their families' life prospects, as well as for the country itself. In these circumstances, it is difficult to disagree with an opinion of several experts that, in order to overcome long-standing unresolved vital problems that concern population and improve the efficiency of the public administration system, it is necessary to take active steps (primarily by the President) toward the nationalization of ruling elites. Continuing balancing between liberal and state-patriotic forces in power may once again lead to failures in achieving key national development goals, which threatens the legitimacy and the very future of the Russian statehood.

Key words: efficiency of public governance, all-Russian vote on amendments to the Constitution, social inequality, national development goals, public opinion.

Despite a continuing rather alarming epidemiological situation (related to existing trends in the spread of coronavirus infection, expectations of a "second wave" of the pandemic, periodic media reports about new coronavirus strains[1], and new potential threats of an epidemiological nature[2]), the world gradually overcomes this stage of its history. Quarantine restrictions are being consistently lifted, people return to work, resorts are being opened, traffic is being resumed, catering companies resume work, and so on.

Simultaneously, questions related to **the structure and basic principles of the "post-coronavirus" world** become more relevant. Undoubtedly, this topic had come to the surface before, when the world was just entering the "coronavirus phase" of its existence. At that time, experts said that "this humanity coronavirus crisis has already become so global that the return to the situation existing on the eve of the epidemic is simply impossible"[3].

This is what happens. Today, the post-pandemic structure of the world takes on an increasingly realistic shape: **a period of hypotheses and assumptions gradually turns into a period of the need for active actions and political decisions that will determine the international situation and internal stability in each country, Russia included.**

As many experts note, the coronavirus not just brought new problems to our lives but, moreover, exacerbated old protracted contradictions. The challenges that arise in the post-coronavirus era (political, economic,

[1] Efimova A. "More contagious": What is the threat of Beijing coronavirus. *Gazeta.ru,* dated June 16, 2020. Available at: https://www.gazeta.ru/social/2020/06/16/13119325.shtml

[2] Outbreak of a deadly bubonic plague on the border with Russia. What does this mean for Russians? *Lenta.ru,* dated July 9, 2020. Available at: https://lenta.ru/articles/2020/07/09/plague/

[3] Dugin A. The post-global order. *Official website of the Izborsky club,* dated March 23, 2020. Available at: https://izborsk-club.ru/18994

"The crisis was long time coming. Nearly a decade of global economic growth was happening with a simultaneous catastrophic lag in the modernization of social and political systems. The Internet, digital technologies, and artificial intelligence created enormous opportunities that were selectively used by states and corporations, leaving out many applications… A deeper systemic strain has been growing for decades. Institutions of industrial civilization were coming apart at the seams. Education, medicine, economy –everything faced new challenges but have been remaining conservative so far. **The coronavirus dramatically exposed all contradictions. And now "the old way" is not possible:** we will have to go through a painful and deep change of society and economy's foundations in order to completely enter the digital age"[4].

and demographic) catalyze already turbulent processes that accompany the change of the technological order and the transition of global community from modern to postmodern. It makes the issue of public administration efficiency one of the most significant, system-forming problems that determine the further "viability"[5] of the state. The "aggravating" factor for all countries is the noticeable deterioration of global economy caused by the consequences of the global pandemic and fluctuations of energy prices. According to the World Bank forecasts, in 2020, most of the world's leading countries (except China) are expected to have the reduction of GDP growth by 5–9%, and in 2021 – growth not exceeding 4% *(Tab. 1)*.

As data, presented in the table, shows, the rate of states' recovery from the epidemiological crisis in 2020–2021 is different. It applies not only to the state of national economic systems but also to the internal psychological situation in the country. For example, officials of the

Table 1. GDP growth, % to the previous year (ranked by forecasts for 2021)

Country	2017	2018	2019 (estimation)	2020 (forecast)	2021 (forecast)
China	6.8	6.6	6.1	1.0	6.9
Indonesia	5.1	5.2	5.0	0.0	4.8
USA	2.4	2.9	2.3	-6.1	4.0
India	7.0	6.1	4.2	-3.2	3.1
Russia	1.8	2.5	1.3	-6.0	2.7
Japan	2.2	0.3	0.7	-6.1	2.5
Saudi Arabia	-0.7	2.4	0.3	-3.8	2.5
Brazil	1.3	1.3	1.1	-8.0	2.2
For reference: World	*3.3*	*3.0*	*2.4*	*-5.2*	*4.2*
Euro zone	*2.5*	*1.9*	*1.2*	*-9.1*	*4.5*
Developed countries	*2.5*	*2.1*	*1.6*	*-7.0*	*3.9*
Developing countries	*4.5*	*4.3*	*3.5*	*-2.5*	*4.6*
East Asia and the Pacific	*6.5*	*6.3*	*5.9*	*0.5*	*6.6*
Europe and Central Asia	*4.1*	*3.3*	*2.2*	*-4.7*	*3.6*
Latin America and the Caribbean	*1.9*	*1.7*	*0.8*	*-7.2*	*2.8*
Middle East and North Africa	*1.1*	*0.9*	*-0.2*	*-4.2*	*2.3*
South Asia	*6.5*	*6.5*	*4.7*	*-2.7*	*2.8*
Africa South of the Sahara	*2.6*	*2.6*	*2.2*	*-2.8*	*3.1*

Source: *Global Economic Prospects*. World Bank, June 2020. Washington, DC: World Bank. DOI: 10.1596/978-1-4648-1553-9

[4] Kuznetsov E. Three diseases of civilization that were aggravated by the coronavirus. *Forbes,* dated April 16, 2020. Available at: https://yandex.ru/turbo/s/forbes.ru/biznes/398231-tri-bolezni-civilizacii-kotorye-obostril-koronavirus

[5] Sulakshin S.S. *Quality and Success of Public Policies and Management. "Political Axiology" Series.* Moscow: Nauchny ekspert, 2012. P. 6, 12.

World Health Organization assessed the anti-epidemic measures taken by the Russian authorities as "timely and correct"[6], paying particular attention to population's wide coronavirus test coverage[7].

At the same time, in the USA, which the world leader according to absolute number of deaths along with absolute and relative indicators of coronavirus infection numbers *(Insert 1–2)*, negative epidemiological processes are accompanied by the most severe cultural and political crisis, which currently extends far beyond the USA, and the consequences of which are still hard to imagine.

Experts point out that "American Titanic has been fatally blown, and the situation with the coronavirus will only worsen the general crisis, not resolve... we will suffer all these changes for a long time. And the position of the global hegemon will become vacant immediately. The fight for it will begin. Perhaps it will leave no stone unturned. After all, it is not just the leadership that is at stake but the remaining resources of the Earth"[8].

Martynov A. (politologist, director of the International Institute of the Newly Established States): "The United States is such a country that any similar things will have serious consequences in the world: not only in countries that are subordinate to the interests of the United States"[9].

Bordachev T. (director of the Centre for Comprehensive European and International Studies): "Protests in the United States are the result of the socio-economic structure of American society, demonstrations in Europe are the result of accumulated problems of European societies, whose citizens are looking for a solution and a way to express their dissatisfaction with ruling elites in general"[10].

Isakov A. (correspondent, interpreter of Regnum News Agency): "The race riots in the United States, at the first glance, are a relapse of not completely excessive contradictions of the Civil War (1861–1865), but, if you look closely, there is a much deeper crisis behind this one. It marks a civilizational breakdown that may end the existence of the most powerful Empire"[11].

Inozemtsev V. (economist, research supervisor and director of autonomous non-profit organization "Center for Post-Industrial Society Studies"): «Of course, Black Lives Matter protests are unlikely to start a civil war. But it will have quite serious consequences for the economy and liberal foundations of western society... All this suggests that "socialist" trends are here to stay, and it may cause significant harm to western economies over the next five-ten years. On the other hand, the new ideology of group differences seriously threatens liberal foundations on which western societies are built... I do not see any reasons for great optimism right now: just like in case of COVID, the world faced a virus that people are not immune to, so western countries now received a demand that they may not be able to meet while remaining themselves"[12].

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[6] M. Vujnović noted that "Russia was one of the first countries to respond remarkably, literally from the first day when information from China about an outbreak of an unknown infection that causes severe pneumonia appeared. It allowed Russia to stay one step ahead of the epidemic. Now the range of measures constantly expands... Russia absolutely follows WHO recommendations" (Source: Nevinnaya I. What is it made of: WHO called Russian measures against coronavirus timely and correct. *Rossiyskaya Gazeta*, dated March 26, 2020. Available at: https://rg.ru/2020/03/26/voz-nazvala-mery-rossii-protiv-koronavirusa-svoevremennymi-i-pravilnymi.html).

[7] WHO positively assessed the organization of testing for coronavirus in Russia. *News.ru*, dated June 5, 2020. Available at: https://news.ru/society/v-voz-pozitivno-ocenili-organizaciyu-testirovaniya-na-koronavirus-v-rossii/

[8] Stavickiy A. Will Titanic be able to run aground? *Zavtra*, dated August 4, 2020. Available at: https://zavtra.ru/blogs/chto_zhdyot_mir_i_ameriku_sumeet_li_titanik_vibrosit_sya_na_mel_

[9] How will riots in the United States end? Forecasts of political scientists. *Argumenty i Fakty*, dated June 16, 2020. Available at: https://aif.ru/politics/world/chem_zakonchatsya_besporyadki_v_ssha_prognozy_politologov

[10] Poplavskiy A. Another racism: What is the difference between protests in the USA and Europe. *Gazeta.ru*, dated June 11, 2020. Available at: / https://www.gazeta.ru/politics/2020/06/11_a_13115269.shtml

[11] Isakov A. Decline of the American Empire: What will racial unrest in the United States lead to? Available at: https://regnum.ru/news/polit/3005317.html

[12] Inozemtsev V. Challenges to the modern order. What consequences will the protests in the USA and Europe have for the West. Available at: https://snob.ru/entry/194595/

Insert 1

Dynamics of detected cases of infection and a number of deaths from coronavirus infection in countries* (abs.)

Position	Country	Population num., people**	Number of deaths				Number of detected cases of infection			
			1Q	2Q	July	August	1Q.	2Q.	July	August
1	USA	332639102	3873	126203	150054	167201	188172	2537636	4388566	5258565
2	Brazil	211715973	201	57622	90134	106523	5717	1344143	2552265	3275520
3	Mexico	128649565	20	26648	45361	55908	993	216852	408449	511369
4	India	1326093247	35	16893	35747	49980	1397	566840	1638870	2589682
5	Great Britain	65761117	1789	43575	45999	41358	25150	311969	302305	316371
6	Italy	62402659	12428	34744	35132	35392	105792	240436	247158	253438
7	France	67848156	3523	29730	30136	30277	52128	156930	174648	202118
8	Spain	50015792	8464	28346	28443	28617	95923	248970	285430	342813
9	Peru	31914989	30	9317	18 816	25856	1065	279419	400683	516296
10	Iran	84923314	2898	10670	16659	19492	44605	225205	301530	341070
11	**Russia**	**141722205**	**17**	**9320**	**13963**	**15685**	**2337**	**647849**	**839981**	**922853**
12	Colombia	49084841	10	3106	9454	14492	702	91769	276055	445111
13	South Africa	56463617	3	2529	7 812	11677	1326	144264	482169	583653
14	Chile	18186770	8	5575	9377	10395	2449	275999	353536	383902
15	Germany	80159662	775	8973	9134	9231	71808	194259	207828	223453
16	Pakistan	233500636	25	4304	5951	6168	1865	209337	278305	288717
17	Turkey	82017514	214	5115	5674	5955	13531	198613	229891	248117
18	Argentina	45479118	20	1245	3311	5565	820	59933	178996	282437
19	Bangladesh	162650853	5	1783	3083	3625	49	141801	234889	274525
20	Saudi Arabia	34173498	8	1599	2869	3369	1453	186436	274219	297315

* The table shows top 20 countries with the highest number of detected cases of infection as of August 16, 2020.
Ranked by a number of deaths as of August 16, 2020.
Data for 1, 2Q, July – last day of each month, August – latest data at the time of the article preparation (August 16, 2020).
Source: COVID-19 (2019-nCoV) Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University with reference to WHO reports. Available at: https://github.com/CSSEGISandData/COVID-19
** Number of population is based on estimates for July 2020 (Source: *The World Factbook*. Central Intelligence Agency. Available at: https://www.cia.gov/library/publications/resources/the-world-factbook/)

According to the results of the 2nd quarter and currently, the United States is the world's leader in a number of infections and deaths from coronavirus infection.

Russia is on the 11th place according to a number of deaths from coronavirus. According to WHO, as of August 16, 2020, 15685 Russians died because of coronavirus infection, which is 11 times lower than in the USA, and 2–3 times lower than in many Western European countries (Great Britain, Italy, France, Spain).

Insert 2

Dynamics of detected cases of infection and a number of deaths from coronavirus infection per 100 thousand population (in countries with the highest number of infections)*

Position	Country	Population num., people**	Number of deaths				Number of detected cases of infection			
			1Q	2Q	July	August	1Q.	2Q.	July	August
1	Peru	31914989	0.094	29.193	58.957	81.015	3.337	875.510	1255.470	1617.723
2	Great Britain	65761117	2.720	66.263	69.949	62.891	38.244	474.397	459.702	481.091
3	Spain	50015792	16.923	56.674	56.868	57.216	191.785	497.783	570.680	685.410
4	Chile	18186770	0.044	30.654	51.559	57.157	13.466	1517.581	1943.919	2110.886
5	Italy	62402659	19.916	55.677	56.299	56.716	169.531	385.298	396.070	406.133
6	Brazil	211715973	0.095	27.217	42.573	50.314	2.700	634.880	1205.514	1547.129
7	USA	332639102	1.164	37.940	45.110	50.265	56.569	762.880	1319.318	1580.862
8	France	67848156	5.192	43.818	44.417	44.625	76.830	231.296	257.410	297.898
9	Mexico	128649565	0.016	20.714	35.259	43.458	0.772	168.560	317.490	397.490
10	Colombia	49084841	0.020	6.328	19.261	29.524	1.430	186.960	562.404	906.820
11	Iran	84923314	3.412	12.564	19.617	22.952	52.524	265.186	355.062	401.621
12	South Africa	56463617	0.005	4.479	13.835	20.681	2.348	255.499	853.946	1033.680
13	Argentina	45479118	0.044	2.738	7.280	12.236	1.803	131.781	393.578	621.026
14	Germany	80159662	0.967	11.194	11.395	11.516	89.581	242.340	259.268	278.760
15	**Russia**	**141722205**	**0.012**	**6.576**	**9.852**	**11.067**	**1.649**	**457.126**	**592.695**	**651.170**
16	Saudi Arabia	34173498	0.023	4.679	8.395	9.859	4.252	545.557	802.432	870.016
17	Turkey	82017514	0.261	6.236	6.918	7.261	16.498	242.159	280.295	302.517
18	India	1326093247	0.003	1.274	2.696	3.769	0.105	42.745	123.586	195.287
19	Pakistan	233500636	0.011	1.843	2.549	2.642	0.799	89.652	119.188	123.647
20	Bangladesh	162650853	0.003	1.096	1.895	2.229	0.030	87.181	144.413	168.782

* The table shows top 20 countries with the highest number of detected cases of infection as of August 16, 2020 (own calculations).
Ranked by a number of deaths from coronavirus infection (per 100 thousand people) as of August 16, 2020.
Data for 1, 2Q, July – last day of each month, August – latest data at the time of the article preparation (August 16, 2020).
Source: COVID-19 (2019-nCoV) Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University with reference to WHO reports. Available at: https://github.com/CSSEGISandData/COVID-19
** Number of population is based on estimates for July 2020 (Source: *The World Factbook*. Central Intelligence Agency. Available at: https://www.cia.gov/library/publications/resources/the-world-factbook/)

Per 100 thousand people, leader in a number of deaths from coronavirus among population is Peru (81.015 cases as of August 16, 2020).

In Russia, this indicator is 11.064 cases per 100 thousand people (15th position in the world), which is 7 times less than in the United States and 5 times less than in several Western European countries (Great Britain, Italy, Spain).

The gradual lifting of quarantine restrictions in Russia allowed one of the main political and social events of recent years to take place – the all-Russian vote on amendments to the Constitution. It was held for the first time within a few days, and it summed up the large-scale socio-political process launched by the President of the Russian Federation on January 15, 2020 in a regular Address to the Federal Assembly of the Russian Federation.

The discussion of constitutional changes took place during the entire period of the epidemiological crisis and, of course, became one of the important factors consolidating society in a period of uncertainty and anxiety concerning the spread of coronavirus infection, changes in lifestyle due to quarantine measures, and negative socio-economic consequences of the pandemic. No less significant is the fact that the possibility of extending Vladimir Putin's presidential terms removed unnecessary questions about the transit of power until presidential elections of 2024, as we wrote in our previous article[13].

However, it should be emphasized that the main part of constitutional amendments and its general "emotional component", perceived by society, fully corresponded to challenges presented to the public administration system by the objective reality of the post-coronavirus period. These challenges consist of the need for a quick and efficient response to issues that have been troubling Russian society for many years: dynamic increase of the level and quality of life, government guarantee of social protection for general population, growing need for social justice and the reduction of huge inequality[14], and the nationalization of elites, without which it is impossible to solve these problems.

It is no accident that, according to VCIOM surveys, the amendments concerning population's social protection are of the greatest importance for Russians. Thus, more than 90% of respondents noted that it is important for them that the Constitution contains such principles as:

- ✓ government guarantee of affordable and high-quality medical care (95%);
- ✓ children as the top priority of government policy, their social support (93%);
- ✓ mandatory annual indexation of pensions (92%);
- ✓ guarantee of targeted social support, indexation of social benefits and payments (92%);
- ✓ state responsibility for protecting the rights of Russian workers and setting the minimum wage not below minimum subsistence level (92%)[15].

We would like to emphasize that society needs for social justice and dynamic development of the level and quality of life did not arise simultaneously with the lifting of quarantine restrictions but existed long before the epidemiological crisis. Currently, while Russians return to their usual lives, expectations that Russian society has repeatedly given credit to the authorities for implementing, primarily

[13] Ilyin V.A., Morev M.V Efficiency of the state's "manual" management. Challenges of 2020. *Economic and Social Changes: Facts, Trends, Forecast,* 2020, vol. 13, no. 2, pp. 9–24.

[14] Example from current life: "net loss of PAO "Gazprom" amounted to 276.98 billion rubles in the first half of 2020... with this, the income of the top management of PAO "Gazprom" **increased by 33% and exceeded 1 billion rubles** in the first half of 2020. **This increase was in the form bonuses, which are 66% higher than salaries**. On average, one member of the company's management board approximately earned **643 thousand rubles a day, 80 thousand rubles an hour, and a little more than 22 rubles a second** in January-June (if you take into account only 8-hour working days)... at the same time, employees of regional gas companies and subsidiaries of OOO "Gazprom Mezhregiongaz" still cannot receive bonuses for 2019. **Those who really work and provide a stable cash flow from Russian consumers are left without money"** (source: Ivanov A. Unsinkable. Untriable. Insatiable. *Zavtra*, dated August 14, 2020).

[15] Constitutional amendments: Rating of preferences of Russians. VCIOM analytical review no. 4250, dated May 30, 2020. Available at: https://wciom.ru/index.php?id=236&uid=10311

during the presidential elections *(Insert 3)*, emerge again: thus, since 2012, the turnout for presidential elections in all federal districts of the Russian Federation has been at least 60%, and more than 56% of voters, who took part in the vote, consistently cast their votes for the current President of the Russian Federation V. Putin. At the same time, during the last presidential elections of 2018, turnout in all federal districts increased (from 65 to 68% in the whole country, i.e. from 72 to 74 million people) along with support for the head of the state (from 64 to 77%, or from 46 to 56 million people).

Compliance with public needs and time moment that requires its efficient implementation makes the all-Russian vote an important factor that mobilizes and consolidates the country in face of epidemiological and socio-economic threats. **It helps relieve social tension by declaring the readiness and ability of state authorities to feel the mood of society and work for the realization of national interests.** It is no coincidence that the results of the vote, which ended on July 1, 2020, were quite convincing: overall, the turnout in the country was 68% (74.2 million people); 78% (57.7 million people) voted for amendments to the Constitution *(Insert 4)*.

Results of the vote on amendments to the Constitution June 25 – July 1, 2020

Option	%	million people
For	77.9	57.7
Against	21.3	15.8
Turnout	68.0	74.2

However, as the practice of public administration in Russia over the last 15 years shows, the declaration of authorities' intentions to implement policies in interests of the majority of country's citizens does not guarantee the real implementation of its goals and objectives. Considering the previous long-term experience of non-implementation of the President's direct decrees and lack of tangible positive dynamics of changes in population's level and quality of life, a number of experts have great doubts that the system of public administration built by V. Putin during his presidential terms will be able to cope with the implementation of obligations stated in the Constitution, since new tools for this have not been proposed yet.

For more than 10 years, despite the stated goals of "concentrating budgetary and administrative resources on improving the quality of life of Russian citizens"[16], "increasing real salaries by 1.4–1.5 times by 2018"[17], "2 times decrease of the poverty level"[18], "implementing breakthrough development of the Russian Federation, increasing the country's population, raising citizens' living standards, creating comfortable conditions for their living, as well as revealing the talent of each person"[19], etc., a number of people with monetary incomes below the subsistence minimum is 12–13%, or about 18–19 million Russians (since 2007, *Fig. 1*). It includes the "new" government, which has been working since 2018 and has set itself the goal of "improving the quality of life of

[16] V. Putin's speech at the meeting with the cabinet members, the heads of the Federal Assembly, and State Council Members, where he announced the launch of priority national projects in the RF, dated September 5, 2005. *Official website of the President of Russia*. Available at: http://www.kremlin.ru/events/president/transcripts/23157

[17] On measures to implement state social policy: Executive Order of the President of the Russian Federation no. 597, dated May 7, 2012. *Official website of the President of Russia*. Available at: http://www.kremlin.ru/acts/news/15233

[18] On national goals and strategic objectives of the Russian Federation through to 2024: Executive Order of the President of the Russian Federation no. 204, dated May 7, 2018. *Official website of the President of Russia*. Available at: http://www.kremlin.ru/acts/bank/43027

[19] On Russia's national development goals through 2030: Executive Order of the President of the Russian Federation, dated July 21, 2020. *Official website of the President of Russia*. Available at: http://www.kremlin.ru/events/president/news/63728

Insert 3

Share of votes cast for V.V. Putin during presidential elections between 2000 and 2018

Territory	2000*				2004				2012				2018			
	turnout		votes		turnout		votes		turnout		votes		turnout		votes	
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
Central FD	20036294	68.42	9927543	49.64	17519613	60.56	11780015	67.41	18353771	62.48	10354176	56.51	18687906	64.37	14033866	75.16
Northwestern FD	7609592	68.23	4803026	63.23	6373712	58.18	4755388	74.69	6783295	61.63	4003066	59.13	6634513	63.28	4974294	75.08
Southern FD	7182086	68.51	3804869	53.03	6711292	65.03	4622378	68.92	6875173	65.80	4382194	63.79	8590423	70.74	7007737	81.62
North Caucasian FD**	3872006	76.21	2514531	65.12	4340896	81.52	3722602	85.77	4492669	78.60	3713875	82.70	4850814	83.94	4210607	86.86
Privolzhsky FD	17058364	72.31	9435625	55.37	16224425	69.37	12022837	74.14	16186857	68.43	11015125	68.10	15868095	69.65	12270602	77.53
Ural FD	6024326	66.02	3334382	55.43	5910721	63.80	4348233	73.62	6168725	64.54	4132512	67.04	1748424	66.41	4714255	75.56
Siberian FD	8890552	66.99	3728625	42.00	8112177	61.37	5360579	66.14	8482502	63.56	5231807	61.72	8380774	64.54	6171330	73.58
Far Eastern FD	4263093	64.84	2002976	47.05	4099708	64.84	2705513	66.04	3984889	63.44	2438125	61.27	3885955	64.35	2632834	67.78
Average for RF	**75181071**	**68.74**	**39740434**	**52.94**	**69581430**	**64.39**	**49563020**	**71.31**	**71780800**	**65.34**	**45602075**	**63.60**	**73624100**	**67.54**	**56426399**	**76.69**

Federal districts were formed on May 13, 2000, after the presidential elections (held on March 26, 2000), so data for federal districts for 2000 is conditional.
* In 2004, North Caucasian FD did not exist, its regions were included in Southern FD. North Caucasian FD was formed in 2010 that is why presented data for Southern and North Caucasian FD for 2004 is conditional.

In 2018, compared to 2012, all federal districts of Russia registered the increase of voter turnout for the Presidential election, as well as the increase of the share of votes cast for V. V. Putin. On average, more than 56 million Russians (76.69%) voted for him, which is 10 million more than in 2012 and nearly 17 million more than in 2000.

Insert 4

Results of the all-Russian vote on amendments to the Constitution of the Russian Federation, held from June 25 to July 1, 2020 (by federal districts of the Russian Federation)*

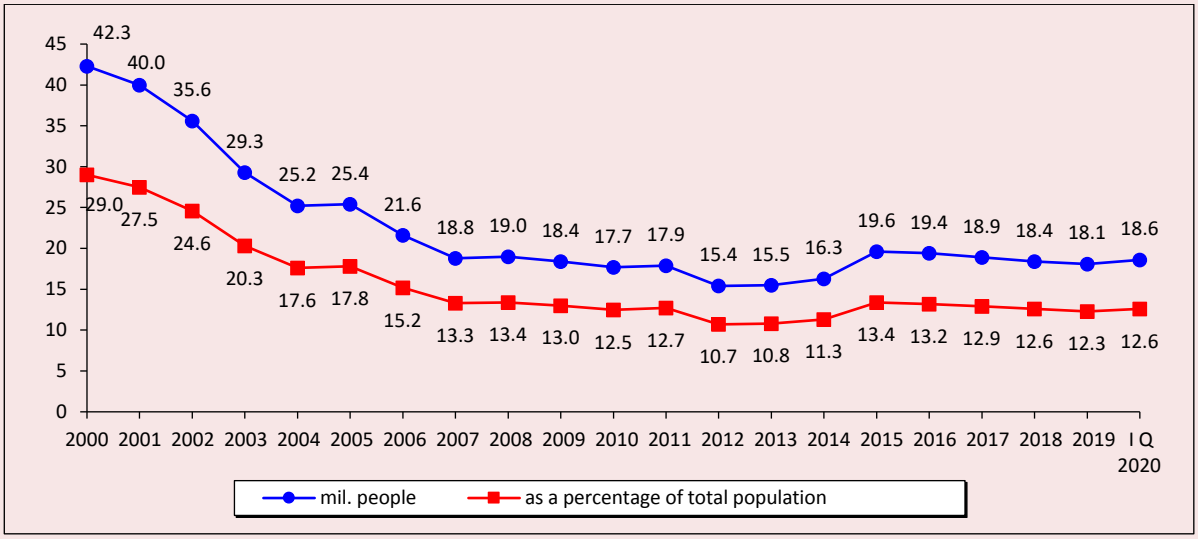
Территория	Number (abs.)		Turnout		Number of votes "for"		Number of votes "against"	
	population	voters	abs.	%**	abs.	%	abs.	%
Central FD	39 433 556	29081341	19158072	65.88	14408730	76.17	4550592	22.95
Northwestern FD	13 981 992	10707867	6789619	63.41	5047418	68.92	1675646	30.19
Southern FD	16 466 084	12367692	10013117	80.96	8654101	85.75	1289863	13.54
North Caucasian FD**	9 930 933	5929820	5068306	85.47	4449487	87.52	564879	11.64
Privolzhsky FD	29 287 683	22698918	16285831	71.75	13016049	77.72	3126339	21.47
Ural FD	12 360 752	9259036	5704587	61.61	4099934	74.81	1553931	24.40
Siberian FD	17 118 387	12915011	7512507	58.17	5450713	72.06	1982563	27.00
Far Eastern FD	8 169 203	6065149	3529842	58.20	2516716	70.27	970678	28.57
Average for RF	**146 748 590**	**109190337**	**74215555**	**67.97**	**57747288**	**77.92**	**15761978**	**21.27**

* Ranked by the absolute number of votes cast "for".
** Here and later, data in % of a number of voters presented.

More than 74 million Russians (68% of a total number of voters) took part in the all-Russian vote on amendments to the Constitution; it is nearly 18 million more than in the 2018 Presidential election.78% of Russians supported the President's initiatives to change the Main Law, while this figure was higher than 70% in most federal districts.

At the same time, a significant share of those who voted against the amendments should also be noted. On average, 21% of voters (almost 16 million people) did not support these amendments across the country; in Northwestern FD – 30% (1.7 million people), in Far Eastern FD – 29% (almost 1 million people), in Siberian FD – 27% (2 million people).

Figure 1. A number of people with monetary incomes below the subsistence minimum



Source: https://www.gks.ru/storage/mediabank/2-3.doc

Table 2. Income growth and inequality in Russia (1989–2016), %

Income group (distribution of pre-tax national income per 1 adult)	Group size as of January 1, 2019* (people)	Average annual growth rate 1989–2016**	Total real growth 1989–2016**
All population	113892000	1.3	41
50% with the lowest income	56946000	-0.89	-20
40% with average income	45556800	0.5	15
10% with the highest income	11389200	3.8	171
including 1% with the highest incomes	*1138920*	*6.4*	*429*
including 0.1% with the highest income	*113892*	*9.5*	*1054*
including 0.01% with the highest income	*11389*	*12.2*	*2134*
including 0.001% with the highest income	*1139*	*14.9*	*4122*

* Population of the Russian Federation aged over 20 years (own compilation according to the Federal State Statistics Service). Available at: www.gks.ru).
** Source: Novokmet F., Piketty T., Zucman G. From soviets to oligarchs: inequality and property in Russia, 1905–2016. National Bureau of Economic Research, August 2017. Cambridge, MA. P. 78.

every person in the country through economic growth and social development"[20].

One of the largest international studies of inequality, which we have already mentioned in one of our previous articles[21], shows that, nearly over the last 30 years (1989–2016), a total real income growth of 50% of Russians with the lowest incomes decreased by 20% (**according to 2019 data, it is about 57 million people**). Income level of 40% of population with average salaries (**nearly 46 million people**) increased only by 15%. For comparison, the share of income of 10% of the wealthiest citizens (**11.4 million people**) had a nearly 2 times increase – 171%, and the income level of 0.001% of the richest Russians (**about 1000 people**) had a nearly 40 (!) times increase – 4122% *(Tab. 2)*.

[20] Transcript of M. Mishustin's report on the work of the Government. *Rossiyskaya Gazeta*, dated July 22, 2020. Available at: https://rg.ru/2020/07/22/otchet-mihaila-mishustina-o-rabote-pravitelstva-stenogramma.html

[21] Ilyin V.A. "Crony Capitalism" – a Source of Social Inequality in Modern Russia. *Economic and Social Changes: Facts, Trends, Forecast,* 2017, vol. 10, no. 6, pp. 9–23.

Perhaps, it is possible to treat data of a particular study differently, but the fact is that it is also confirmed by statistical data. Thus, according to the World Bank, the income concentration index (Gini index[22]) in Russia is comparable to it in the United States (41.4) and China (38.5), but it is significantly higher than, for example, in Germany (31.9), the United Kingdom (34.8), France (31.6) and many other western European countries. However, the main thing is that, in 2000–2018, the Gini index in Russia has not actually changed (in 2000 – 37.1; in 2018 – 37.5); therefore, there are no tangible positive changes in the distribution of income by major social groups and solving the problem of social inequality.

At the same time, the dynamics of a number and size of a wealth of dollar billionaires does not actually change, a number of which has increased from 60 to 100 people over the last 13 years (2006–2019), and their capital – from 153 to 275 billion rubles on average per billionaire *(Tab. 3)*.

Data of public financial reports of large metallurgical corporations indicate a significant increase of funds directed at the personal

According to Forbes[23], heads of mentioned enterprises are among 20 richest businessmen in Russia:

V. Potanin (PAO "Nornickel") – 1st position (welfare is estimated at 19700 million US dollars),

A. Mordashov (PAO "Severstal") – 4th position (16800 mil. US dollars),

V. Rashnikov (PAO "Magnitogorskiy metallurgicheskiy kombinat") – 15th position (7300 mil. US dollars).

Table 3. Dynamics of a number and wealth of Russian dollar billionaires

Year	Number, people	Wealth, bil. dol.	Wealth, bil. rub.*	Average per billionaire, bil. rub.
2006	60	337.3	9168.4	152.8
2007	100	521.7	13355.5	133.6
2008	32	102.1	2542.3	79.4
2009	62	265.0	8400.5	135.5
2010	101	432.7	13141.1	130.1
2011	96	376.1	11057.3	115.2
2012	110	426.8	13269.2	120.6
2013	111	422.2	13426.0	121.0
2014	88	337.0	12940.8	147.1
2015	77	282.6	17224.5	223.7
2016	96	386.3	25882.1	269.6
2017	96	386.4	22565.8	235.1
2018	106	417.7	26189.8	247.1
2019	100	425.1	27504.0	275.0
2019, % to 2006	166.7	126.0	300.0	180.0

* Wealth, given in Forbes in dollars, has been converted to rubles at the exchange rate set by the Bank of Russia.
Sources: Forbes data; VoIRC RAS calculations.

[22] The Gini coefficient, or, as it is also called, the income concentration index, is a parameter that economists use in their calculations to characterize the existing economic inequality between individual segments of population of a country. Thus, **it shows how unevenly income, or total wealth, is divided among members of society**.

It is customary to evaluate it over time, observing a general trend. The Gini index is used to assess the uniformity of income distribution. This indicator is important for analyzing the pace of economic development. The fact is that **the more unevenly income is distributed, the more an imbalance is formed, and each generation becomes poorer in relation to the previous one, while the rich continue to increase their capital.** It creates a specific –poverty trap—that does not allow society to fully develop (Source: The Gini coefficient in Russia. Available at: https://rosinfostat.ru/koeffitsienti dzhini/).

[23] Forbes ranking of the 200 richest businessmen in Russia – 2020. *Forbes official website*, dated April 17, 2020. Available at: https://yandex.ru/turbo/s/forbes.ru/rating/397799-200-bogateyshih-biznesmenov-rossii-2020-reyting-forbes

Table 4. Average salary of employees and average remuneration to management bodies of metallurgical corporations in 2012–2019, thousand rubles per month

Indicator	2012	2013	2014	2015	2016	2017	2018	2019	Average for 2012–2019
PAO "Severstal"									
Salary of employees	39	47	53	54	61	64	65	67	56
Number of management employees, people	10	10	10	22	22	22	22	22	18
Remuneration	9848	10368	7398	2322	2530	2429	2621	2202	9755
To employees' salaries, times	253	221	140	43	41	38	40	33	186
PAO GMK "Nornickel"									
Salary of employees	63	68,5	76	75	85	87	90	97	80
Number of management employees, people	19	24	26	27	27	27	27	27	26
Remuneration	12850	14253	6541	11433	12738	18638	21008	26817	15535
To employees' salaries, times	204	208	86	152	150	214	233	276	190
PAO "NLMK"									
Salary of employees	39	43	48	52	58	60	62	63	53
Number of management employees, people	21	19	18	18	18	17	17	17	18
Remuneration	820	1288	2459	2571	3732	4145	3283	3241	2692
To employees' salaries, times	21	30	51	49	64	69	53	51	49
PAO "MMK"									
Salary of employees	43	46	47	52	55	51	48	50	49
Number of management employees, people	26	25	25	23	23	23	25	24	24
Remuneration	887	2241	828	1539	1449	1858	1937	1885	1578
To employees' salaries, times	20	49	18	30	26	36	40	38	32

Source: annual reports of metallurgical companies. Available at: https://www.severstal.com/rus/ir/results_reports/annual_reports/; https://nlmk.com/ru/ir/reporting-center/annual-reports/; http://mmk.ru/for_investor/annual_reports/index.php; https://www.nornickel.ru/investors/reports-and-results/

consumption of top managers, which causes a glaring gap in incomes in relation to the average salary of enterprises' employees. Thus, in 2012–2019, an average monthly remuneration of one manager was tens or even hundreds of times higher (as at Severstal and Nornickel) than an average monthly salary of one corporate employee and, at the same time, increased at a higher rate *(Tab. 4)*.

Perhaps, this unfair distribution of income was one of the reasons why, in all cities where these corporations are located (with the exception of Norilsk), the share of people who took part in the vote on amendments to the Constitution was lower than regional average numbers, and the share of those who did not support it was significantly (50–60%) higher *(Tab. 5)*.

Table 5. Turnout (%) and percentage of people who voted against amendments to the Constitution on July 1, 2020 (% of turnout)

Territory	Turnout	Percentage of votes "against"	Deviation (+/-) of "against" votes from the Russian average (21.27%)	
			p.p.*	%**
Russia	67.97	21.27	0	0
Vologda Oblast	58.72	28.01	+6.74	+31.69
Vologda	57.19	28.80	+7.53	+35.40
Cherepovets	48.10	32.51	+11.24	+52.84
Lipetsk Oblast	66.31	20.39	-0.88	-4.14
Lipetsk	44.19	34.31	+13.04	+61.31
Krasnodar Krai	58.99	28.97	+7.7	+36.20
Norilsk	79.71	16.23	-5.04	-23.70
Chelyabinsk Oblast	65.88	29.55	+8.28	+38.93
Magnitogorsk	59.64	35.09	+13.82	+64.97

* Difference between the share of votes cast against constitutional amendments in the region/city and the national average, given in percentage points.
** Difference between the share of votes cast against constitutional amendments in the region/city and the national average, given in % of the share of average number of "against" votes in Russia (21.27%).

"Over 25 years, assets worth of at least 750 billion dollars have been withdrawn from Russia, which is half of the country's annual GDP. If these assets were invested in the domestic economy, it could increase production and tax revenues that could be spent on infrastructure development and social programs – but, instead, most of it was spent on foreign assets, including luxury yachts that sail distant seas"[24].

However, negative consequences of the inefficient course of economic development implemented by the liberal bloc of the Russian Government do not affect any specific territories but the country's economy as a whole. Thus, together with the absence of real changes in the dynamics of poverty and inequality, capital outflow has been continuing in the country for more than 10 years. According to the Central Bank's estimates, in January–February 2019, net export of capital from Russia by the private sector amounted to 18.6 billion dollars, which is 2.1 times higher than in the same period of 2018 (8.7 billion dollars)[25]. At the end of 2018, net capital outflow increased 2.7 times in annual terms – from 25.2 billion to 67.5 billion dollars. Net outflow in 2017 amounted to 31.3 billion dollars (1.6 times increase by 2016).

It should be noted that the problem of Russia's financial capital settling in offshore zones of foreign countries has long been ignored by the government. Only after amendments to the Constitution, which prohibit senior officials from "opening and holding accounts (deposits), storing cash and valuables in foreign banks located outside the territory of the Russian Federation"[26], the President decided to tax income in the form of dividends transferred to accounts abroad at a rate of 15%[27], under which the procedure for denouncing the double taxation Treaty with Cyprus began in August 2020 (Malta and Luxembourg are next in line for the corresponding changes to the agreements)[28].

Nevertheless, these measures may contribute to the deoffshorization of the Russian economy in the future, but, for now, the leakage of domestic capital abroad remains one of the most acute problems of the Russian economy.

In this regard, some experts Express well-founded concerns about the prospects for further prolongation of the existing, largely liberal, course of economic policy[29], and also propose concrete measures to improve its efficiency in order to bring it in line with the objectives of global competitiveness and national development. However, for many years, the ruling elites have ignored these proposals, and they do everything to preserve the favorable (primarily for themselves) rules for conducting national economic policy[30].

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[24] Komrakov A. Volume of money export from the Russian Federation exceeded three annual budgets. *Nezavisimaya Gazeta*, dated March 13, 2019. Available at: https://yandex.ru/turbo/s/ng.ru/economics/2019-03-13/1_7529_money.html

[25] *Ibidem*.

[26] New text of the Constitution of the Russian Federation with amendments ™ 2020 (Art. 77. P. 3.). *Official website of the State Duma of the RF*. Available at: http://duma.gov.ru/news/48953/

[27] Instructions following President's Address to the Nation on the spread of coronavirus infection in the country. *Official website of the President of Russia*, dated March 28, 2020. Available at: http://www.kremlin.ru/events/president/news/63080

[28] Alekseev D.A. Cyprus is outraged: What is behind the break in the tax agreement with Russia. Malta and Luxembourg are next in line for corresponding changes to the agreements. *News.ru*, dated August 3, 2020. Available at: https://news.ru/economics/zachem-rossiya-razorvala-dogovor-po-dvojnomu-nalogooblozheniyu-s-kiprom/

[29] Ayvazov A. Invite academician Glazyev to the broadcast. *Zavtra*, dated June 19, 2020. Available at: https://zavtra.ru/blogs/otkritoe_pis_mo_ekonomista_a_ajvazova_zhurnalistu_v_solov_evu

[30] *For reference (on the reaction of the ruling elites to the proposals of experts):*

In April 2020, former adviser to the President of the Russian Federation and now minister for integration and macroeconomics of the Eurasian Economic Commission (EEC) Sergey Glazyev prepared a report **"On forecasts of global economic dynamics within COVID-19 pandemic and possible stabilization measures within EAEU",** which was posted on the official website of EEC. The author suggests a number of measures to stabilize the economy, in particular "the introduction of a tax on currency speculation

Glaz'ev S.Ju.: "An immediate drastic change of economic policy is required. It should ensure the restoration of macroeconomic stability at the same time with putting the Russian economy on a path of rapid growth based on a new technological order. It requires a forced transition to the formation of a new world economic order with its characteristic **institutions of strategic planning,** subordination of monetary policy to the tasks of increasing investment activity, and public-private partnership **aimed at improving people's well-being"**[31].

It forces experts to state: "Finally, it is time to recognize the failure of the economic development model of recent years. The main thing is to formulate an idea of a comprehensive development program... Reliance on national projects does not yet provide the economy with structural growth drivers... **An L-shaped way out of the coronavirus crisis is not the strategy that is needed for an economy that has been living in virtual stagnation for many years, and people who lose their income**"[32].

"The July presidential decree on national development goals is indeed very different from the similar May Decree of 2018. **The achievement of targets is now postponed from 2024 to 2030. At the same time, the targets are significantly worsened... Instead of nine national goals, only five have been identified. For example, there is no goal to make Russia one of five largest economies in the world, to ensure 5% annual growth of labor productivity, to increase the number of technologically innovative enterprises to 50% of their total number, to ensure a steady excess of the birth rate over the death rate, and so on"**[33].

In July 2020, at a Meeting of Council for Strategic Development and National Projects, Russian President V. Putin said: "Despite objective current difficulties, our long-term goals remain unchanged"[34]. However, it seems that the tasks set out in 2018 national projects, which aim to provide Russia with a "decisive breakthrough in people preservation"[35] by 2024, are being postponed for 6 years. At least, in almost identical wording, they are presented

(at a rate of 0.01% of a volume of exchange currency trading – admission to the budget of EAEU to finance targeted programs and projects of EAEU, which is 30 billion Russian rubles a year)" (source: Glazyev S. Yu. On forecasts of global economic dynamics within COVID-19 pandemic and possible stabilization measures within EAEU. *Official website of the Eurasian Economic Union*. Available at: http://www.eurasiancommission.org/ru/covid-19/Documents/1111.pdf). "It is necessary to take measures generally accepted in the world practice to neutralize attacks of currency speculators who use fluctuations of oil prices to manipulate the ruble exchange rate. In order to limit the export of capital abroad, it is possible to introduce a tax on non-trading currency exchange operations, the fees from which can be used for general purposes" – excerpt from the press release.

However, the academician's proposals, as Interfax notes, "upset the Central Bank so much that it made **an unusual request for such discussions**" (source: The Central Bank asked officials to restrain Glazyev's information activity during the pandemic. *Interfax*, dated April 22, 2020. Available at: https://www.interfax.ru/business/705490). In fact, according to experts, it was "**a denunciation with a demand to shut the academician's mouth**" (source: Why did the Central Bank get so excited about Glazyev's report.*Rabler-Novosti*, April 25, 2020. Available at: https://news.rambler.ru/other/44080796-pochemu-tsb-tak-vozbudilsya-na-doklad-glazeva/?updated**).**

As experts' note, "The Central Bank's claims to Glazyev's "communication policy" look at least strange: he is not an actor, the President, the Prime Minister, the Finance Minister, or the Chairman of the Central Bank. His words cannot be interpreted as an attempt at manipulation. **It is clear to everyone that the academician Glazyev is an opponent of the most primitive monetarist course being pursued. And he asks the Bank of Russia fair questions... And, in response, we hear: make him close his mouth and not ask us"** (source: Ivanov A. Nabiullina demands that Glazyev be gagged. *"Strana i ljudi" information blog*, dated April 25, 2020. Available at: https://strana-rf.ru/blog/43263549514/Nabiullina-trebUyet-zatknut-rot-Glazevu**).**

[31] Glazyev S.Yu. Russian economy at the beginning of 2020: Underlying causes of increasing chaos and a set of anti-crisis measures. *Russian Economic Journal*, 2020, no. 2, p. 24.

[32] Skorobogatyi P. Constitutional prologue to the future. *Expert*, July 6–12, 2020, no. 28, p. 18.

[33] Sergeev M. New national projects disavow old national projects. *Nezavisimaya Gazeta*, dated August 12, 2020. Available at: https://yandex.ru/turbo/s/ng.ru/economics/2020-08-12/1_7935_projects.html

[34] Putin V. Meeting of Council for Strategic Development and National Projects, dated July 13, 2020. *Official website of the President of Russia*. Available at: http://www.kremlin.ru/events/president/news/63635

[35] Presidential Address to the Federal Assembly, dated March 1, 2018. *Official website of the President of Russia*. Available at: http://www.kremlin.ru/events/president/news/56957

in the new Executive Order of the President of the Russian Federation "On the national development goals of the Russian Federation through 2030" *(Tab. 6)*. As noted by Prime Minister M. Mishustin, "setting new goals will require changes in national projects and strategic planning documents"[36].

Thus, for more than 10 years, actual facts of public administration practice do not correspond to officially declared goals and objectives. Although many reasons and explanations can be found for "stalling" the implementation of key national development goals (the global financial crisis, economic sanctions, the situation on the world energy market, the pandemic, etc.), they are unlikely to be able to "hold" public dissatisfaction with the lack of social justice for a long time, or, in other words, they are unlikely to prevent a threat to the government legitimacy.

Table 6. Wording of national development goals in key documents of 2018 and 2020

Wording in 2018* ("For the Government to achieve the following national development goals **by 2024:…**")	**Target to be reached in 2024**	**Target to be reached in 2030**	**Wording in 2020**** ("Set the following development goals characterizing achievement of national targets **by 2030:…**")
✓ increase life expectancy to 78 years (80 years by 2030)	**78 years**	**78 years**	✓ increase life expectancy to 78 years
✓ cut poverty in half	**2 times**	**2 times**	✓ reduce the poverty rate by half compared to 2017
✓ ensure the global competitiveness of Russian education, make the Russian Federation one of the world's top 10 countries in the quality of education	**10 countries of the world**	**10 countries of the world**	✓ join the world's top 10 countries in the quality of education
✓ ensure the presence of the Russian Federation among **top five** countries of the world that carry out research in areas determined by the priorities of scientific and technological development	**5 countries of the world**	**10 countries of the world**	✓ join the world's **top 10** countries in the volume of research and development, including through the creation of an effective system of higher education
✓ share of the road network of urban agglomerations that is in a standard state: 85% by 2024	**85%**	**85%**	✓ improve the urban environment quality index by at least 1.5 times; ensure that the road network in major metropolitan areas meets statutory requirements by at least 85 percent;
✓ number of employees in small and medium-sized businesses, including individual entrepreneurs: 25 million by 2024	**25 mil. people**	**25 mil. people**	✓ increase employment in small and medium-sized enterprises, including individual entrepreneurs and self-employed persons, to 25 million people
✓ share of households with broadband Internet access: 97% by 2024	**97%**	**97%**	✓ increase the share of households with broadband internet access to 97 percent
✓ share of socially significant infrastructure objects that can be connected to broadband Internet access: 100% by 2024	**100%**	**95%**	✓ increase the share of essential social services available online to 95 percent

* Source: On national goals and strategic objectives of the Russian Federation through to 2024: Executive Order of the President of the Russian Federation no. 204, dated May 7, 2018. Available at: http://www.kremlin.ru/acts/bank/43027
Passports of national projects on the official website of the RF Government. Available at: http://government.ru/rugovclassifier/section/2641/
** Source: Russia's national development goals through 2030: Executive Order, dated July 21, 2020. Available at: http://www.kremlin.ru/events/president/news/63728

[36] Transcript of M. Mishustin's report on the work of the Government. *Rossiyskaya Gazeta*, dated July 22, 2020. Available at: https://rg.ru/2020/07/22/otchet-mihaila-mishustina-o-rabote-pravitelstva-stenogramma.html

Platoshkin: "The first national projects in our country were formed in 2005. Absolutely the same... So what? Everything was there since then: catching up with Portugal in terms of GDP per capita: no. The program-2020, to create 25 million high-paying jobs by 2020: no one has said anything about it for a long time... **It has been formulated many times, but nothing has been done yet. And judging by this, if people did not do the same thing before, why should the same people do something now?** Are they reforged? Have they completed an internship program? These are the same people"[37].

"The Russian government believes that it is not necessary to worry about the current state of mind in society, which is rather sluggish and in a sense unattended. **But the authorities make a grave mistake of assuming that these attitudes do not have an alarming dynamic**"[38].

«Now it is clear that Putin's new terms **are again only a postponement – for an indefinite period.** It looks something unbearable even at the very beginning. **Unbearable exactly in the current way:** we are invited to enjoy what we have, because it might, they say, get worse. And to do this, we only need to sacrifice, first of all, the dream of the Russian peace, social justice, any ideals, honesty, health, remnants of humanity (the transition to digitalization), culture, and education – barely everything. The balance of this equation - either suffer as it is, or regret it – steadily shifts toward discontent. **Something similar in a small format happens in Belarus"**[39].

Indeed, 6 years have passed since Russian sociologists began to record a steady trend of people's increasing need for change (2014)[40], and today this demand forms the basis of protest actions. **This is a complex challenge for the entire system of public administration, since this problem is not solved by the efficiency of individual services alone but shows the need for general transformation in a changing internal environment and in connection with a prevailing mood in society**[41].

This is quite clearly shown by the situation with the former governor of the Khabarovsk territory – S. Furgal. Mass protests of population in the Khabarovsk Krai (which were either organized by the team of the former governor, or were caused by dissatisfaction with the appointment of the new interim M. Degtyarev) "revealed" a much deeper problem than local corruption.

According to the experts, "**the model of vertical of power in Russia is faced with horizontal young beautiful society**"[42], that is, the system of public administration, which has been arrayed by the President since 2000 in such a way that all the elements are in strict subordination, and balance of different elite forces is regulated directly by the head of state, conflicts with politically, economically, and morally fragile society, which starts to defend their interests more acively.

[37] N.S. Mikhalkov about N.N. Platoshkin, dated June 11, 2020. Available at: https://www.youtube.com/watch?v=Gj-YGFozotk

[38] Kurginyan S. The government is us. *Biznes-online*, dated July 24, 2020. Available at: https://www.business-gazeta.ru/article/475782

[39] Dugin A. Russia is in a state of confusion. *Zavtra*, dated August 18, 2020. Available at: https://zavtra.ru/blogs/rossiya_v_sostoyanii_konfuzii

[40] For example: *Russian society after the presidential election – 2018: Request for change: Information and analytical summary of the results of the all-Russian sociological research.* Moscow, 2018. 55 p.; Petuhov V.V. Dynamics of social attitudes of Russians and the formation of a request for change. *Socis*, 2018, no. 11, pp. 40–53.

[41] A sad example of recent days is the situation in Belarus, where, after the presidential elections on August 9, 2020, a large-scale protest movement broke out against the extension of the presidential term of the current head of state A. Lukashenko. Mass protests in Belarus show not only that a significant part of people are not satisfied with the situation in the country and the dynamics of their personal financial situation, but also that countries that are unfriendly to Russia continue to use various political technologies to weaken or even destroy the foundations of our statehood.

[42] Remchukov K. The political significance of the Furgal case goes deeper than just protest. *Seldon.news,* dated July 21, 2020. Available at: https://news.myseldon.com/ru/news/index/234588256

"It is no secret that the LDPR office in the Khabarovsk Krai has long been outsourced to a group formed during the long-term governorship of Viktor Ishaev (1991–2009), who then served as the presidential envoy to the Far Eastern Federal District for four more years. And now he has been under house arrest for more than a year and a half in a criminal case with a "trifling" amount of 5 million rubles. Furgal and his team have become, in fact, only a new generation of this elite"[43].

"... most likely, the unexpected consequence of Furgal's arrest will be: **in the following years, the insistence of regions, people in these regions, and politicians in these regions to determine a person in charge.** And it will be followed by an even more insistent demand that a significant part of taxes that these regions generate be left in regions, so those elected could implement an agenda necessary for this region's population, who supported the candidate for governor because he proposed this agenda to them, without Moscow's approval"[44].

As it is known, any disease is more efficient to prevent than to treat. And if corruption and criminality in the government are considered to be among the most acute diseases of our society, then **the state administration system did not determine the situation with Furgal, but, on the contrary, "missed" it**. Because, first, this is not the first such case in our country[45]; secondly, it is obvious that Furgal's rise to power was a long, multi-year process that took place within the framework of the system of state administration that was created, and, third, in such cases, it is not about one person but a whole team of people directly or indirectly involved in this criminal system.

At the same time, high-profile cases such as those of S. Furgal, V. Gaiser, A. Khoroshavin and many others should not be misleading, pointing out that all the troubles in Russia are concentrated only around stolen governors. **This is only the "tip of the iceberg", which is actually based on the actions of liberal elites who exist on all (including the highest) levels of government, who pursue mainly their own (rather than national) interests and do not have the sovereign status of the Russian economy in their priorities.**

Famous latest cases: the case of the former minister of economic development of Russia A. Ulyukayev (sentenced to 8 years in

[43] Remchukov K. The political significance of the Furgal case goes deeper than just protest. *Seldon.news,* dated July 21, 2020. Available at: https://news.myseldon.com/ru/news/index/234588256

[44] Germanenko D., Rodin I. Domestic policy in the regime of special operations. *Nezavisimaya Gazeta*, dated July 12, 2020. Available at: https://yandex.ru/turbo/s/ng.ru/politics/2020-07-12/1_7908_politics.html

[45] Here are just some examples of "high-profile" arrests of heads of Russian regions (source: Nikolaeva V. Became the 13th: How many governors were arrested before Furgal. *Komsomolskaya Pravda*, dated July 9, 2020. Available at: https://www.vologda.kp.ru/daily/27153/4250501/):

V. Yurchenko – ex-head of the Novosibirsk Oblast (year of arrest – 2014, sentence – 3 years probation);

A. Khoroshavin – ex-head of the Sakhalin Oblast (year of arrest – 2015, sentence – 13 years in a maximum security prison, fine of 500 million rubles);

N. Denin – ex-head of the Bryansk Oblast (year of arrest – 2015, sentence – 4 years of general regime colony);

V. Gaiser – ex-head of the Komi Republic (year of arrest – 2015, sentence – 11 years in a maximum security prison, fine of 160 million rubles);

V. Torlopov – ex-head of the Komi (year of arrest – 2016, sentence – 6.5 years of general regime colony, fine of 500 thousand rubles);

N. Belykh – ex-head of the Kirov Oblast (year of arrest – 2016, sentence – 8 years in a maximum security prison, fine of 48.2 million rubles);

M. Yurevich – ex-head of the Chelyabinsk Oblast (year of charge – 2017, on the international wanted list, case is not closed);

A. Solovyov – ex-head of the Udmurt Republic (year of arrest – 2017, case is not closed);

L. Markelov – ex-head of the Mari El Republic (year of arrest – 2017, case is not closed);

A. Vinnikov – ex-head of the Jewish AO (year of arrest – 2019, sentence – 4 years of probation);

P. Konkov – ex-head of the Ivanovo Oblast (year of arrest – 2019, case is not closed).

"Bureaucratic body, as well as the political and business elite, all trained according to the notes of the "Washington consensus", can not be transferred overnight to the rails of a different, alien ideology"[46].

maximum security penal colony in 2017 for especially large bribe reception – 2 million dollars) and even more egregious case – the case of the former RF minister for open government M. Abyzov, who organized a criminal community which carried out illegal money manipulations equal to billions of rubles for several years[47].

It could be seen as the main reason for the "stalling" of national projects, May decrees, and many election promises of the President, the implementation of which was and remains the basis of the government power legitimacy in the country. Long-term strategic objectives of public administration related to the implementation of national interests remain in the hands of liberal officials who still hold key positions in the public administration system.

It is no accident that experts say that "**in fact, Russian monetary policy is conducted in the interests of financial speculators**. Monetary authorities guarantee super profits and encourage the flow of money from the real sector to the financial sector and further abroad. At the same time, the main part (from 60 to 90%) of turnover in the Russian currency and financial market is made by American hedge funds and its affiliates. After the Bank of Russia let the ruble exchange rate float freely, they manipulate it, swinging it in order to extract excess profits due to the depreciation of ruble income and savings of Russian individuals and legal entities... **Today, monetary authorities make the same mistakes, the consequences of which have a negative impact on the economy which have been stagnant for 5 years"**[48]**.**

And the dynamics of public opinion, as one of the main criteria for the efficiency of the public administration system, "does not take long", and it sensitively reacts to the lack of promises fulfilled by the authorities through the reduction of personal support to a person who is at its center – the head of state. According to the results of regional and all-Russian sociological studies, we may observe a slow but fairly stable growth in a number of Russians who negatively respond to the President's activities, not only in the current dynamics (which may partly be caused by the socio-economic and psychological consequences of the COVID-19 pandemic) but also in the annual retrospect. Thus, in comparison with the third presidential term (2012–2017), the level of V. Putin's approval decreased from 77 to 63–64% across the whole country by 2019–2020 *(Fig. 2)*. According to regional studies – from 63 to 53–56% *(Fig. 3)*.

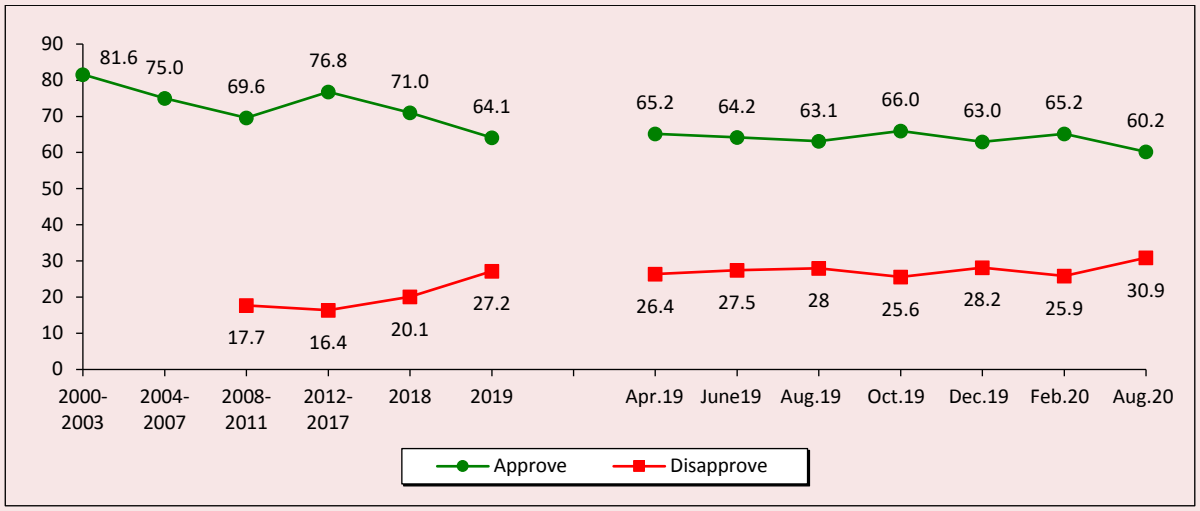
Thus, long-term unresolved issues related to the increase of the level and quality of life which would be noticeable by wider population, as well as more equitable distribution of national wealth *(Tab. 7)*, has a negative impact on the dynamics of public opinion regarding the efficiency of the system of public administration and the President's activities.

[46] Skorobogatyi P. Constitutional prologue to the future. *Expert,* July 6–12, 2020, no. 28, p. 18.

[47] From April 2011 to November 2014, Abyzov, who is the beneficial owner of a number of offshore commercial organizations, created and headed a criminal community. In total, 15 persons became Abyzov's accomplices. Four defendants are on the international wanted list. The total value of the seized property is worth more than 32 billion rubles (source: ICR completed investigation on case of Abyzov's criminal association. *Interfax*, August 13, 2020. Available at: https://www.interfax.ru/russia/721657).

[48] Glazyev S.Yu. Russian economy at the beginning of 2020: Underlying causes of increasing chaos and a set of anti-crisis measures. *Russian Economic Journal,* 2020, no. 2, p. 24.

Figure 2. In general, do you approve or disapprove of the activities of the President of the Russian Federation? (in % from a number of respondents; VCIOM data for Russia)*

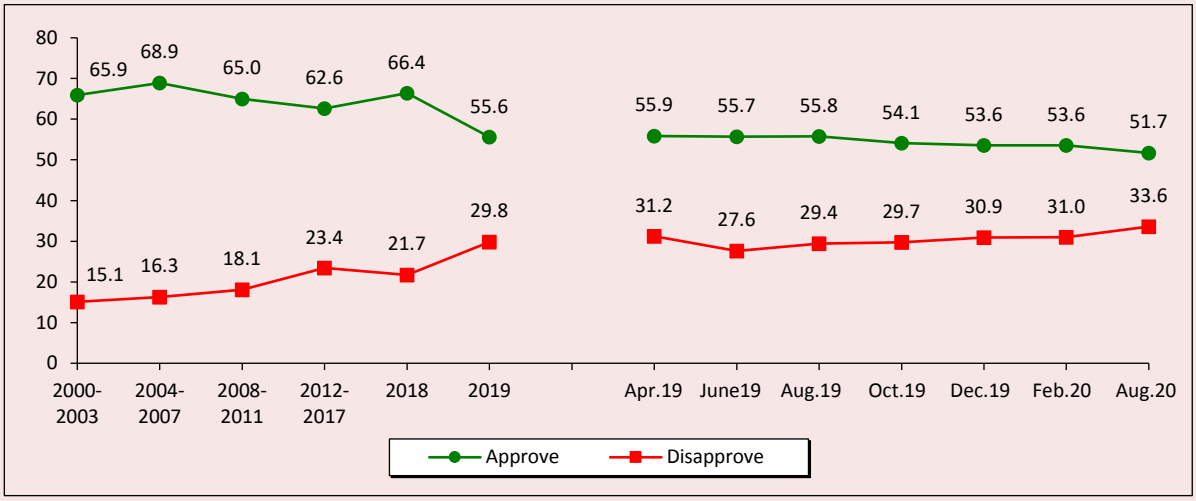


* There is no data on the level of disapproval of the President's activities for 2000–2007.

According to VCIOM, in 2012–2017, the level of approval of the President's activities (V. Putin's 3rd presidential term) was 77%. In 2018, it decreased by 6 p.p. (to 71%), in 2019 – by 7 p.p. (to 64%). According to latest data for August 2020, it decreased by 4 p.p. and is equal to 60%.

In general, in comparison with an average approval level of the President's activities for 2012–2017, in August 2020, it decreased by 17 p.p. (from 77 to 60%).

Figure 3. Do you generally approve or disapprove activities of the Russian President? (in % from a number of respondents, data of FSBIS VolRC RAS in the Vologda Oblast)



According to data of the Vologda Research Center (FSBIS VolRC RAS), the average share of residents of the Vologda Oblast who approve of the President's activities in 2012–2017 was 63%. By 2018, it increased slightly (by 3 p.p., to 66%), but in 2019 it decreased by 10 p.p. (from 66 to 56%), and, by August, it decreased by another 4 p.p. (from 56 to 52%).

In general, in comparison with an average approval level of the President's activities for 2012–2017, in August 2020, it decreased by 11 p.p. (from 63 to 52%).

Table 7. Distribution of total monetary income and characteristics of differentiation of population's monetary income, %

20% groups of Russia's population	2000–2004	2005–2008	2009–2012	2013–2018	2019
First (with the lowest income)	5.6	5.2	5.2	5.3	5.3
Second	10.3	9.9	9.8	10.0	10.1
Third	15.3	14.9	14.9	15.0	15.1
Fourth	22.6	22.6	22.5	22.6	22.6
Fifth (with the highest income)	46.2	47.4	47.6	47.1	46.9

Source: Distribution of income of population. *Federal State Statistics Service*. Available at: https://rosstat.gov.ru/storage/mediabank/urov_31g.doc

It is also evidenced by the fact that, in most regions of the Russian Federation (47 out of 86), the proportion of people who voted against amendments to the Constitution on July 1, 2020 was above national average numbers (*Insert 5*).

The all-Russian vote on amendments to the Constitution may, in some sense, be considered a referendum on the vote of confidence for the President. After all, it was V. Putin who launched this initiative, stimulated public discussions, created expert groups, and held meetings with their representatives. In addition, amendment on a potential possibility of extending the presidential term of the current head of the state was among the changes to the Main Law as well, and Russians voted, among other things, for it, too.

Based on this, it is logical to compare the results of the all-Russian vote, held on July 1, 2020, with the previous presidential election, held on March 13, 2018. Despite the increase of votes for adopting amendments to the Constitution in the whole country per 1.3 million people (+2.29%), in the regional centers and large industrial towns of 47 regions, where the share of votes against amendments was higher than the national average, a number of votes for amendments to the Main Law was **significantly less than a number of people who voted for V. Putin in the presidential elections of 2018 (by nearly 33%, or 2.6 million people). In major cities of the Northwestern Federal District – less by 50% (294 thousand people), the Siberian Federal District – by 70%** (768 thousand people; *Tab. 8*).

It means that residents of these territories over the past two years ("may be the most nondescript years in all of Vladimir Putin's terms"[49]) have become more critical of how efficiently the government's promises are being fulfilled. **They supported the amendments to the Constitution, especially its social and patriotic component, but they are not sure that the efficient implementation of the government's new social obligations is possible with elites who do not put social (i.e. public) interests in priority.**

In oblast capitals of 36, out of 47, analyzed entities of the Russian Federation, the share of those who voted against amendments to the Constitution was higher than the average number for the region. Given that it is in oblast centers where administrative resources are most often concentrated, we may assume that such a vote, first, is a reaction of people to unfulfilled promises for breakthrough development in the level and quality of life, and it indicates their pessimistic attitude about the prospects for fulfilling these promises in the future, and, second, some kind of assessment of regional elites; conditions that they created as a relation to the norms of the Constitution. For example, in Moscow, the share of voters who voted against amendments to the Main Law on July 1 was 34% (in the Moscow Oblast – 20%), in Khabarovsk – 39% (in the Khabarovsk Krai – 37%), in Irkutsk – 41% (in the Irkutsk Oblast – 35%), and so on *(Insert 5)*.

[49] Skorobogatyi P. Constitutional prologue to the future. *Expert,* July 6–12, 2020, no. 28, p. 18.

Table 8. Increase/decrease of a number of votes for amendments to the Constitution on July 1, 2020, compared to a number of votes for V. Putin in the Russian Presidential election on March 18, 2018

Territory*	For amendments to the Constitution (all-Russian vote, July 1, 2020)	For V.V. Putin (Presidential election, March 18, 2018)	Deviation**	
			abs.	%
Russia	**57747288**	**56426399**	**+1320889**	**+2,29**
Northwestern Fed. Distr.	5047418	4974294	+73124	+1,45
8 regions	1756603	2277051	-520448	-29,63
9 towns	585868	879929	-294061	-50,19
Far Eastern Fed. District	2516716	2632834	-116118	-4,61
9 regions	1 620 659	2 020 741	-400 082	-24,69
9 towns	602764	752946	-150182	-24,92
Siberian Fed. District	5450713	6171330	-720617	-13,22
8 regions	3 752 864	4 597 616	-844 752	-22,51
9 towns	1094324	1862818	-768494	-70,23
Ural Fed.District	4099934	4714255	-614321	-14,98
4 regions	3 086 407	3 750 461	-664 054	-21,52
5 towns	961940	1201400	-239460	-24,89
Central Fed. District	14408730	14033866	+374864	+2,60
11 regions	9623436	9782037	-158601	-1,62
9 towns	902925	1332911	-429986	-32,26
Privolzhsky Fed. District	13016049	12270602	+745447	+5,73
7 regions	3 492 484	4 042 900	-550 416	-15,76
7 towns	1033091	1440654	-407563	-39,45
TOTAL in all districts (8)	**57643148**	**56015525**	**1627623**	**+2.82**
in all regions (47)	**23332453**	**26470806**	**-3138353**	**-11.86**
in all towns (49)	**5180912**	**7470658**	**-2289746**	**-30.65**

* Regions where the percentage of votes cast against constitutional amendments was higher than the national average (21.27%); its regional centers; and some major industrial towns (all of them are shown in insert 5).
** The difference between the share of votes for amendments to the Constitution on July 1, 2020 and the share of votes for the President of the Russian Federation on March 18, 2018.

"Critics of the Constitution state that we must recognize not only the great support for Putin and the Constitution but also a significant number of those who said "no". There were a lot of them in the industrial regions of Central and Northern Russia – about 40%. **Given the huge turnout, we must admit that this is a deliberate step by citizens who considered it their duty to say "no". And this is serious...** People who said "no" did not say this to Russia's sovereignty, national science, education, or industry. **They expressed doubts that the current elite, which so easily lived in an integration model with the ungracious West and, in general, did not care about inequality, poverty, and economic helplessness of the country, is not able to build and even start thinking about way of building a strong sovereign Russia"**[50].

Based on these facts, it is difficult not to agree with the opinion of experts that "the consolidation of society around amendments to the Constitution did not work out. The result is high, but there is no monolithic support"[51]. The vote of confidence, once again given to the current government by society (as well as the constitutional majority of United Russia in the 2016 State Duma elections, or the record support for V. Putin during the 2018 presidential elections), is not infinite; it must be justified – even despite any force majeure circumstances. Otherwise, it may well be the last one[52].

[50] It is only the beginning. *Expert*, July 6–12, 2020, no. 28, p. 11.
[51] Skorobogatyi P. Constitutional prologue to the future. *Expert*, July 6–12, 2020, no. 28, p. 18.
[52] Khazin M. It is necessary to change the financial and economic team at any cost. *Zavtra*, dated July 19, 2020. Available at: https://zavtra.ru/blogs/lyuboj_tcenoj_nuzhno_menyat_finansovo-ekonomicheskuyu_komandu

<?> It is only the beginning. *Expert*, July 6–12, 2020, no. 28, p. 11.

Insert 5 (A)

Results of the all-Russian vote on amendments to the Constitution in regions where the share of votes cast "against" is higher than the national average number*, % of turnout

Territory	Vote on amendments to the Constitution (July 1, 2020)							RF Presidential election (March 18, 2018)			
	turnout		for		against		Deviation (%)** of the share of votes "against" in the Okrug, Oblast from the average number in the RF (21.27%)	turnout		for V.V. Putin	
	abs.	%	abs.	%	abs.	%		abs.	%	abs.	%
RUSSIA	**74215555**	**67.97**	**57747288**	**77.92**	**15761978**	**21.27**	**0**	**73624100**	**67.54**	**56426399**	**76.64**
NORTHWESTERN FEDERAL DISTRICT	6789619	63.41	5047418	68.92	1675646	30.19	+41.94	6634513	63.28	4974294	75.08
Nenets AO	21879	58.36	9 567	43.78	12 074	55.25	+159.76	25109	63.62	17863	71.14
Murmansk Obl.	261887	45.15	163 735	62.54	95 095	36.33	+70.80	398049	66.36	303796	76.32
Komi Republic	340092	51.82	221 113	65.08	115 322	33.94	+59.57	407116	60.40	290716	71.41
Arkhangelsk Obl.	452371	50.58	297 432	65.78	150 935	33.38	+56.93	541192	59.20	407190	75.24
Karelia Republic	239077	46.07	168 389	70.46	68 304	28.58	+34.37	297227	57.20	216899	72.97
Vologda Obl.	546230	58.72	388 615	71.16	152 983	28.01	+31.69	626993	66.20	453576	72.34
Novgorod Obl.	242208	49.34	172 997	71.44	66 616	27.51	+29.34	288184	57.30	209286	72.62
Kaliningrad Obl.	465476	56.59	334 755	72.15	125 341	27.02	+27.03	495245	62.18	377725	76.27
FAR EASTERN FEDERAL DISTRICT	3529842	58.20	2516716	70.27	970678	28.57	+34.32	3885955	64.35	2632834	67.78
Republic of Sakha	350707	55.56	204 435	58.34	142 464	40.65	+91.11	457065	71.00	294166	64.36
Kamchatka Krai	106091	44.08	65 485	61.76	39 406	37.16	+74.71	161930	67.74	112401	69.41
Khabarovsk Krai	435944	44.24	271 421	62.28	159 662	36.64	+72.26	648550	64.23	426385	65.74
Magadan Obl.	54911	55.67	34 035	62.03	20 090	36.62	+72.17	73800	71.91	53341	72.28
Amur Obl.	367667	59.17	103 726	70.42	258 548	28.25	+32.82	394681	62.15	264493	67.01
Republic of Buryatia	458277	64.60	329 208	71.95	121 205	26.49	+24.54	453654	75.20	334381	73.71
Zabaykalsky Krai	471093	60.08	352 670	74.92	114 010	24.22	+13.87	458138	57.99	329911	72.01
Sakhalin Obl.	254486	67.99	189 466	74.84	60 853	24.04	+13.02	229139	61.22	153289	66.90
Jewish AO	90853	72.11	70 213	77.30	19 430	21.39	+0.56	77627	60.25	52374	67.47
SIBERIAN FEDERAL DISTRICT	7512507	58.17	5450713	72.06	1982563	27.00	+26.94	8380774	64.54	6171330	73.58
Omsk Obl.	985663	64.98	610 278	62.09	360 348	36.66	+72.36	928746	60.49	624934	67.29
Irkutsk Obl.	824360	44.18	529 770	64.28	287 131	34.84	+63.80	1045720	55.70	763810	73.06
Tomsk Obl.	344033	44.57	223 046	64.86	117 232	34.09	+60.27	461270	59.27	328296	71.17
Altai Republic	83571	51.46	55 291	66.16	27 433	32.83	+54.35	102919	64.77	72674	70.61
Novosibirsk Obl.	1034355	47.79	698 857	67.58	323 674	31.30	+47.16	1304738	60.41	926858	71.04
Republic of Khakassia	203523	51.48	141 381	69.52	59 758	29.38	+38.13	245366	65.87	169615	69.13
Krasnoyarsk Krai	1211774	58.99	848 638	70.10	350 687	28.97	+36.20	1267615	60.34	941151	74.25
Altai Krai	897951	49.49	645 603	71.91	241 132	26.86	+26.28	1191630	65.40	770278	64.64

Territory	Vote on amendments to the Constitution (July 1, 2020)							RF Presidential election (March 18, 2018)			
	turnout		for		against		Deviation (%)** of the share of votes "against" in the Okrug, Oblast from the average number in the RF (21.27%)	turnout		for V.V. Putin	
	abs.	%	abs.	%	abs.	%		abs.	%	abs.	%
URAL FEDERAL DISTRICT	5704587	61.61	4099934	74.81	1553931	24.40	+14.72	1748424	66.41	4714255	75.56
Sverdlovsk Obl.	1715988	51.55	1 132 182	65.99	565 242	32.94	+54.87	2085667	62.35	1555532	74.58
Khanty-Mansi AO	707553	61.72	487 750	69.00	212 434	30.05	+41.28	788075	69.72	600404	76.19
Chelyabinsk Obl.	1711446	65.88	1 190 097	69.54	505 597	29.55	+38.93	1748424	66.41	1275822	72.97
Kurgan Obl.	397258	57.83	276 378	69.58	117 294	29.53	+38.83	434836	61.74	318703	73.29
CENTRAL FEDERAL DISTRICT	19158072	65.88	14408730	76.17	4550592	22.95	+7.90	18687906	64.37	14033866	75.16
Moscow	7861697	55.93	2 855 547	65.29	1 485 963	33.98	+59.76	4521355	59.94	3199214	70.76
Moscow Obl.	*4423963*	*76.18*	*3488197*	*78.85*	*888794*	*20.09*	-5.55	*3707556*	*63.60*	*2758911*	*74.41*
Kostroma Obl.	266283	50.97	180 846	67.92	83 044	31.19	+46.64	322346	60.51	221449	68.70
Yaroslavl Obl.	548819	55.85	374 053	68.29	168 930	30.84	+44.99	658208	64.12	472666	71.81
Kaluga Obl.	483705	61.05	338 748	70.17	140 003	28.99	+36.30	543898	68.17	414027	76.12
Vladimir Obl.	5889661	53.26	419 606	71.18	164 025	27.82	+30.79	741964	65.01	546042	73.59
Tver Obl.	571390	54.94	410 421	71.87	155 409	27.21	+27.93	616279	57.58	459198	74.51
Smolensk Obl.	412772	54.33	296 792	71.97	111 247	26.98	+26.85	473596	61.27	347859	73.45
Kursk Obl.	527068	57.83	389 300	73.92	133 471	25.32	+19.04	595354	64.48	482257	81.00
Ivanovo Obl.	512070	64.21	390 256	76.23	117 846	23.02	+8.23	474184	58.55	338335	71.35
Lipetsk Obl.	*610631*	*66.31*	*479670*	*78.56*	*124509*	*20.39*	*-4.14*	*670716*	*72.16*	*542079*	*80.82*
PRIVOLZHSKY FEDERAL DISTRICT	16285831	71.75	13016049	77.72	3126339	21.47	+0.94	15868095	69.65	12270602	77.53
Udmurt Republic	661721	56.25	455 908	68.92	199 121	30.10	+41.51	749943	63.27	571623	76.22
Perm Krai	1040935	52.49	734 802	70.75	293 643	28.27	+32.91	1318884	66.51	993076	75.30
Kirov Obl.	579696	55.61	409 702	70.89	163 247	28.25	+32.82	661861	62.72	465948	70.40
Ulyanovsk Obl.	533103	54.24	379 056	71.16	148 346	27.85	+30.94	643360	64.33	477654	74.24
Chuvash Republic	588237	64.11	426 779	72.57	154 351	26.25	+23.41	697527	76.22	539036	77.28
Orenburg Obl.	1135011	73.55	834 406	73.60	286 720	25.29	+18.90	1003460	66.09	731838	72.93
Mari El Republic	332430	61.86	251 831	75.76	77 884	23.43	+10.16	356511	66.43	263725	73.97
SOUTHERN FEDERAL DISTRICT	10013117	80.96	8654101	85.75	1289863	13.54	-36.34	8590423	70.74	7007737	81.62
NORTH CAUCASIAN FEDERAL DISTRICT	5068306	85.47	4449487	87.52	564879	11.64	-45.28	4850814	83.94	4210607	86.86

* The table shows all entities of the Russian Federation where the percentage of votes cast against amendments to the Constitution was higher than the national average (21.27%).
Ranked by the percentage of votes cast "against", average for federal districts. Within federal districts – by the percentage of votes cast "against", in oblasts. Information in italics is provided for reference.
** Difference between the percentage of votes cast "against" in the Okrug, Oblast, and the average number for the Russian Federation (21,27%), expressed as % of the average for the RF.
Source: Central Election Commission of the Russian Federation data (http://www.cikrf.ru/); own calculation according to CEC RF data.

Insert 5 (B)

Results of the all-Russian vote on amendments to the Constitution in centers of regions where the percentage of votes cast "against" is higher than the national average*, % of turnout

Territory	Vote on amendments to the Constitution (July 1, 2020)							RF Presidential election (March 18, 2018)			
	turnout		for		against		Deviation (%)** of the share of votes "against" in the Okrug, Oblast from the average number in the RF (21.27%)	turnout		for V.V. Putin	
	abs.	%	abs.	%	abs.	%		abs.	%	abs.	%
RUSSIA	**74215555**	**67.97**	**57747288**	**77.92**	**15761978**	**21.27**	**0**	**73624100**	**67.54**	**56426399**	**76.64**
NORTHWESTERN FEDERAL DISTRICT	6789619	63.41	5047418	68.92	1675646	30.19	+41.94	6634513	63.28	4974294	75.08
Naryan-Mar	9640	56.13	3583	37.13	5960	61.83	+190.69	10495	59.98	7477	71.24
Syktyvkar	85793	57.84	50877	59.30	33811	39.41	+85.28	91656	61.33	63097	68.84
Arkhangelsk	119726	45.91	75470	63.04	43140	36.03	+69.39	154698	56.97	113964	73.67
Murmansk	93230	40.57	59074	63.36	33310	35.73	+67.98	154220	64.84	118573	76.89
Petrozavodsk	90694	43.81	59232	65.31	30648	33.79	+58.86	126708	60.31	90310	71.27
Veliky Novgorod	73241	41.73	47967	65.49	24509	33.46	+57.31	103741	58.19	72314	69.71
Kaliningrad	167868	40.93	110773	65.99	54747	32.61	+53.31	231627	58.61	171805	74.17
Vologda	143099	57.19	100809	70.45	41214	28.80	+35.40	165684	66.41	115236	69.55
Cherepovets	*116984*	*48.10*	*78083*	*66.75*	*38029*	*32.51*	*+52.84*	*173602*	*69.30*	*127153*	*73.24*
FAR EASTERN FEDERAL DISTRICT	3529842	58.20	2516716	70.27	970678	28.57	+34.32	3885955	64.35	2632834	67.78
Yakutsk	93561	49.41	47703	50.99	44754	47.83	+124.87	142244	70.34	85732	60.27
Magadan	31649	46.46	18834	59.51	12427	39.27	+84.63	47484	68.36	34124	71.86
Khabarovsk	191174	43.59	115673	60.51	73735	38.57	+81.34	290651	64.32	192140	66.11
Petropavlovsk-Kamchatskiy	47135	35.97	29539	62.67	17219	36.53	+71.74	84136	63.58	57450	68.28
Ulan-Ude	176511	58.70	113508	64.31	58252	33.00	+55.15	183368	76.53	129065	70.39
Blagoveshchensk	93459	55.79	65842	70.45	26705	28.57	+34.32	102507	59.35	69301	67.61
Birobidzhan	37373	65.74	27087	72.48	9727	26.03	+22.38	34509	59.93	22906	66.38
Yuzhno-Sakhalinsk	102722	73.38	74409	72.44	26478	25.78	+21.20	83644	61.24	55060	65.83
Chita	145829	59.90	110169	75.55	33751	23.14	+8.79	150385	60.78	107168	71.26
SIBERIAN FEDERAL DISTRICT	7512507	58.17	5450713	72.06	1982563	27.00	+26.94	8380774	64.54	6171330	73.58
Irkutsk	179303	38.88	105292	58.72	72734	40.56	+90.69	270021	57.20	193813	71.78
Omsk	59158	70.43	36326	61.41	22158	37.46	+76.12	524929	57.93	341495	65.06
Tomsk	149307	39.64	92385	61.88	55343	37.07	+74.28	222124	57.84	155189	69.87
Novosibirsk	423886	35.17	264068	62.30	156482	36.92	+73.58	705527	58.59	499141	70.75
Gorno-Altaysk	18440	41.68	11578	62.79	6690	36.28	+70.57	27837	62.09	18110	65.06
Abakan	51503	39.44	32831	63.75	18272	35.48	+66.81	77884	61.16	52830	67.83
Krasnoyarsk	464465	62.27	302612	65.15	127148	27.38	+28.73	431323	58.09	323312	74.96
Norilsk	*87235*	*79.71*	*72209*	*82.78*	*14156*	*16.23*	*-23.70*	*78052*	*67.13*	*59172*	*75.81*
Barnaul	247589	46.53	177023	71.50	66652	26.92	+26.56	342211	64.28	219756	64.22

Territory	Vote on amendments to the Constitution (July 1, 2020)							RF Presidential election (March 18, 2018)			
	turnout		for		against		Deviation (%)** of the share of votes "against" in the Okrug, Oblast from the average number in the RF (21.27%)	turnout		for V.V. Putin	
	abs.	%	abs.	%	abs.	%		abs.	%	abs.	%
URAL FEDERAL DISTRICT	5704587	61.61	4099934	74.81	1553931	24.40	+14.72	1748424	66.41	4714255	75.56
Yekaterinburg	499808	45.02	315951	63.21	179632	35.94	+68.97	667461	60.51	493257	73.90
Kurgan	121234	46.44	81054	66.86	38873	32.06	+50.73	152170	57.19	108743	71.46
Chelyabinsk	567560	65.97	402896	70.99	159386	28.08	+32.02	612728	70.17	407677	66.53
Magnitogorsk	*185924*	*59.64*	*118860*	*63.93*	*65246*	*35.09*	*+64.97*	*218836*	*70.28*	*155139*	*70.89*
Khanty-Mansiysk	47253	91.63	43179	91.38	3884	8.22	-61.35	44196	80.04	36584	82.78
CENTRAL FEDERAL DISTRICT	19158072	65.88	14408730	76.17	4550592	22.95	+7.90	18687906	64.37	14033866	75.16
Lipetsk	*149898*	*44.19*	*96981*	*64.70*	*51433*	*34.31*	*+61.31*	*257064*	*62.94*	*189357*	*73.66*
Yaroslavl	221596	47.54	143985	64.98	74512	33.63	+58.11	301071	63.33	213687	70.98
Tver	144480	44.16	95355	66.00	47754	33.05	+55.38	196125	58.89	144310	73.58
Kostroma	40184	40.73	26673	66.38	13185	32.81	+54.25	133449	60.26	94644	70.92
Smolensk	128963	48.96	87224	67.63	40410	31.33	+47.30	166347	62.49	120411	72.39
Kaluga	141838	48.65	97606	68.82	42776	30.16	+41.80	191555	64.63	144473	75.42
Kursk	163423	46.95	113363	69.37	48773	29.84	+40.29	209698	59.72	164948	78.66
Vladimir	158490	57.84	117847	74.36	39209	24.74	+16.31	183164	65.76	131985	72.06
Ivanovo	202347	64.85	123891	61.23	47024	23.24	+9.26	180154	57.21	129096	71.66
PRIVOLZHSKY FEDERAL DISTRICT	16285831	71.75	13016049	77.72	3126339	21.47	+0.94	15868095	69.65	12270602	77.53
Ulyanovsk	200830	40.03	128476	63.97	69963	34.84	+63.80	302507	59.23	218414	72.20
Cheboksary	175431	47.41	112675	64.23	60899	34.71	+63.19	259231	67.72	191454	73.85
Izhevsk	226684	45.81	146034	64.42	78522	34.64	+62.86	300004	60.44	224497	74.83
Yoshkar-Ola	96014	45.99	62778	65.38	32301	33.64	+58.16	133282	63.38	96365	72.30
Kirov	186650	44.42	121688	65.20	62295	33.38	+56.93	250155	59.44	174508	69.76
Perm	312642	47.35	214198	68.51	95121	30.42	+43.02	441367	64.08	328367	74.40
Orenburg	324985	76.77	247242	76.08	73915	22.74	+6.91	278241	69.93	207049	74.41
SOUTHERN FEDERAL DISTRICT	10013117	80.96	8654101	85.75	1289863	13.54	-36.34	8590423	70.74	7007737	81.62
NORTH CAUCASIAN FEDERAL DISTRICT	5068306	85.47	4449487	87.52	564879	11.64	-45.28	4850814	83.94	4210607	86.86
Baikonur	6886	50.11	4 288	62.27	2 548	37.00	+73.95	9659	66.27	7568	78.35

* The table shows all entities of the Russian Federation where the percentage of votes cast against amendments to the Constitution was higher than the national average (21.27%).

Ranked by the percentage of votes cast "against", average for federal districts. Within federal districts – by the percentage of votes cast "against", in oblast centers. Information in italics is provided for reference.

** Difference between the percentage of votes cast "against" in the Okrug, Oblast, and the average number for the Russian Federation (21,27%), expressed as % of the average for the RF.

Source: Central Election Commission of the Russian Federation data (http://www.cikrf.ru/); own calculation according to CEC RF data.

"Even minor events, managerial and political mistakes may cause a sharp outburst of population's dissatisfaction, not political, but socio-economic... There is no strong demand for protests, but there is **a weariness of a splinter positive agenda, distrust in the institutions of power, and disbelief in its efficiency. Now loyalists and opponents of the President wait for changes, for which Putin has already received a strong mandate twice over the last two years. What will they be like?"**[53]

Thus, despite rather tense economic situation in the world (mostly due to the pandemic), **the main challenge for the President and his system of public administration is now "inside" the country. Failure to comply with constitutional obligations and the lack of tangible progress in solving vital problems for population threatens the legitimacy of the government and the existence of the state itself. Therefore, in the coming months, the Russian state and V.V. Putin personally will face no less and, perhaps, even more serious tests than ones during the acute phase of the coronavirus infection spread**.

The persistence of such problems as the non-functioning strategic planning system, the amorphous nature of officials' personal responsibility, continuing practice of "delaying" the implementation of national projects, economic "reins" of the country in the hands of liberal elites of the Russian Government – all this makes the prospects for Russia's socio-economic development extremely vague, confirming experts' forecasts, to which we addressed back in 2017[54]: Russia is expected to have "a scenario of the liberal model prolongation, a scenario of balancing on the threshold of sustainable development..."[55].

On July 1, 2020, by supporting the amendments to the Constitution, Russian society, though with difficulty, issued another vote of confidence for the government and the President of the Russian Federation personally in order to further build the model of a nationally oriented state that he began to create back in 1999, which is based on the "Russian idea", "strong state" and "efficient economy"[56]. Now the task of the

From the expert opinion of the RF Accounting Chamber (Feb. 2020): **"The system of strategic planning for activities of Federal Executive bodies is currently unbalanced and inefficient, insufficiently regulated and methodically provided, with a low level of control and executive discipline. In this state, it does not contribute to the achievement of national goals and requires improvement.**

In strategic planning, the problems of legislative regulation, methodological support, organization of control, openness, and availability of information are identified. The analysis showed that the normative legal acts, regulating this sphere, do not form a complete system of strategic planning. They are not coordinated with each other and **are not updated in accordance with documents defining national goals and strategic objectives of the country's socio-economic development. As the result, none of the approved activity plans of Federal Executive bodies for 2019–2024 meet the established requirements.** Only 26% of state and subprograms' programs indicators, for which they are responsible, are included in the activity plans of federal executive bodies. Out of indicators of national and federal projects, 55% are taken into account in the plans"[57].

[53] Skorobogatyi P. Constitutional prologue to the future. *Expert*, July 6–12, 2020, no. 28, p. 18.

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[57] *Bulletin of the Accounts Chamber of the Russian Federation: Governance 2020.* No. 1 (266). P. 6.

"I am convinced that the achievement of necessary growth dynamics is not only an economic problem. This is also a political problem and, I am not afraid to use this word, in a certain sense, an ideological one. **More precisely, it is ideological, spiritual, and moral. And the last aspect at the present stage seems to me particularly significant from the point of view of the Russian society consolidation"**[58].

government administration system is to make sure that the most pessimistic forecasts of the expert community turn out to be wrong. The vote of confidence, issued by society, must be fully justified by the President, otherwise it may become the last, and not only for him.

Personal responsibility for resolving key issues of national security, which V. Putin took over himself on December 31, 2015[59], does not allow him to stare blankly at the ruling elite continuing to implement the course of national development, which is profitable for them personally, when prospects for the Russian economy, level, quality of life, and social stability in the country remain uncertain.

* * *

It seems that expectations of the majority of Russians were formulated in a concentrated form by S. Konovalov in "Nezavisimaya Gazeta" no. 170, dated August 12, 2020: **"We need our own "new course", a new direction of movement, we need an institutional understanding of the new reality, we need to be ready for new challenges, we need to be ready to confront "black swans"... The "new course" is not only about tripling the economy, increasing the well-being of citizens, or fighting corruption. It is about the creation of a unified coordinate system, if you want – about a national idea that will change the idea of Russia in the world, but, most importantly, change the idea of citizens about their own country"[60].**

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[58] Putin V.V. Russia at the turn of the Millennium. *Nezavisimaya Gazeta,* dated December 30, 1999. Available at: https://www.ng.ru/politics/1999-12-30/4_millenium.html

[59] "Implementation of the government policy of the Russian Federation in the sphere of national security is carried out through coordinated actions of all elements of the system of ensuring it **under the leadership of the President of the Russian Federation** and with the coordinating role of the Security Council of the Russian Federation" (source: On Russia's National Security Strategy: Executive Order of the President of the Russian Federation no. 683, dated December 31, 2015. *Rossiyskaya Gazeta*. Available at:: http://www.rg.ru/2015/12/31/nac-bezopasnost-site-dok.html).

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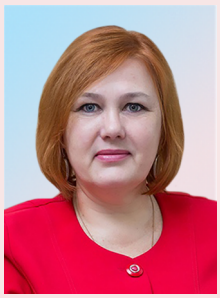
DOI: 10.15838/esc.2020.4.70.2
UDC 314, LBC 60.7

On the Necessity to Develop Models of Optimal Conditions for the Formation and Implementation of Demographic Attitudes*



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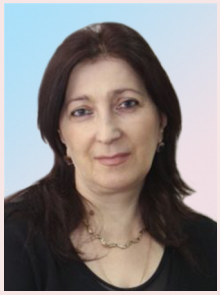

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Abstract. The article represents the conceptual foundations of a unique interregional study on the population's demographic behavior based on a sociological monitoring "Demographic well-being in Russia", the key points of its methodology are described here, and a range of possibilities for analyzing sociological data is shown as well. The purpose of this paper is to define a comprehensive methodology that not only allows identifying individual practices of the population's demographic behavior and the information field of its formation but also makes it possible to develop a model of optimal conditions for the formation and implementation of demographic attitudes. The relevance of this work is caused by the necessity to timely receive complete, scientifically justified data on the state and determinants of demographic development of Russian regions and the efficiency of demographic policy; in particular,

* The reported study was funded by RSF, project no. 20-18-00256 "Demographic behavior of the population within Russian national security".

For citation: Shabunova A.A., Rostovskaya T.K. On the necessity to develop models of optimal conditions for the formation and implementation of demographic attitudes. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 38–57. DOI: 10.15838/esc.2020.4.70.2

while implementing the national project "Demography". The theoretical foundations of the presented research take into account the institutional and evolutionary concepts of demography, sociology, economics, and philosophy in relation to its object – the population's demographic behavior – implemented in a sociodemographic approach that defines the demographic behavior of the population as a set of demographic attitudes (ideas) and actions that result in the acquisition of demographic status relative to childhood, marital status, health status, and territory of residence. The uniqueness of the monitoring is an opportunity to assess demographic behavior in the cohesion of its types (reproductive, matrimonial, self-preservatory, migration), as well as the efficiency of the demographic policy. The authors describe options of analyzing demographic behavior, such as cross-analysis of components and determinants of the demographic behavior, search for territorial features of socio-demographic processes and its regulation, and determination of the characteristics of the population's socio-demographic groups. The results of the first wave of this monitoring allow getting a detailed picture of a current demographic situation, provide ample opportunities for obtaining and analyzing information, and it will become a foundation for determining directions of an in-depth research and a search for ways and mechanisms to adjust Russia's socio-demographic policy. All-Russian nature of the study contributes to a balanced approach to an analysis and adjustment of the situation in the regions, which is extremely important because it will make it possible to take into account regional specifics and identify successful practices. As the result, a model of conditions may be created. In it, demographic attitudes and real behavior patterns, which lead to the results determined by the country's demographic policy, are formed.

Key words: demographic development, population's demographic behavior, monitoring "Demographic well-being of Russia", national project "Demography".

Introduction

Demographic development of Russia from a point of view of national security is a key sphere of public governance. Population's quantitative and qualitative parameters determine labor, innovation, and economic potential of a country. Understanding of the demographic issue priority is evidenced by the activation of policies concerning birth support and strengthening of public health after the Address of the President of the Russian Federation to the Legislative Assembly in 2006. The success of the demographic policy and the efficiency of new measures to support families with children brought quite significant results: by 2013, the natural population growth was achieved, and the net reproduction rate increased to 0.81 (from 0.62 in 2006). Implemented measures were supported by families wishing to have two or more children, and it promptly stopped the collapse of the population in the last demographic wave [1; 2]. However, after 2016, the demographic situation in the country began to deteriorate again. Today, the national project "Demography" is being implemented in the Russian Federation, but the prospects for its implementation are ambiguous, and many scientists predict depopulation[1] [3] and argue that the resources for increasing the population are insufficient, if not exhausted. In this regard, an issue of obtaining operational comprehensive information about trends and determinants of demographic development, taking into account existing territorial differentiation of processes, including its usage in

[1] *Russia's Population in 2017: 25rd Annual Demographic Report.* Executive editor S.V. Zakharov; Moscow: HSE Publishing House, 2019. 480 pp.; Demographic forecast for Russia until 2035. *Rosstat.* Available at: https://www.gks.ru/folder/12781

the preparation and management decisions within the framework of the national project "Demography" becomes relevant.

In modern conditions, impact of the behavior factor, population's demographic behavior specifically, in the determination of demographic processes increases. Thus, fertility parameters are largely determined by demographic (reproductive, marital) and health-preserving attitudes, toward one's own reproductive health too. Morbidity and mortality parameters largely depend on an attitude of each person toward their own health, the implementation of healthy lifestyle practices or destructive habits; so it is important to study population's self-preservation behavior based on an analysis of statistical information and data from sociological studies. Demographic parameters of territories may also be significantly affected by population migration, which, in turn, depends on migration mobility.

In recent decades, there has been a significant transformation of population's reproductive behavior: practice of pregnancy planning [4] became widespread, medium-sized reproductive attitudes (focus on the birth of 3–4 children) changed to small-sized (about 60% of Russians are focused on 1–2 children) [5], average age of childbearing increased (mothers' age at the first birth was 19 in the 1990s to, in the 2000s – 27) [6]. At the same time, norms of marital behavior changed which resulted in a wide spread of cohabitation as a form alternative to formal marriage, or as relations that precede the registration of a partnership (40% of Russians think that it is necessary "to live together" before the first marriage; in case of the second marriage – 60%), the increase of marriage age (from 19 to 25 years for women and from 23 to 27 for men in comparison with the mid-1990s) [7]. The orientation of the country's population toward fewer children, "ageing" of marriage and motherhood will have a noticeable impact on the birth rate[2].

The parameters of the self-preservation behavior, on the contrary, change slightly, and destructive practices are common. It increases the risks of achieving goals set in the national project: in particular, an objective of increasing healthy life expectancy to 67 years by 2024.

Search for methodology and techniques, which will allow synthesizing statistical indicators of changes in population number and social studies of socio-cultural, socio-economic, and socio-political conditions of population's demographic attitudes in different Russian regions, raises a whole layer of research questions. For example, what mechanisms of socio-demographic policy operate efficiently at the federal, regional, and municipal levels, and which ones will not lead to the achievement of goals; how well is population informed about measures of children birth support; what factors influence a decision to give birth to the second and subsequent children; what difficulties do families face while giving birth to children, and, most importantly, what are the differences and its reasons in the implementation of demographic behavior of various generations and socio-demographic groups. Registration of differences in the demographic behavior, practices, culture, and motivation among various age groups is a relevant theoretical problem that helps fix the mechanisms of changing demographic behavior, and it will allow forecasting trends and develop recommendations for development of socio-demographic policy.

[2] Zakharov S.V. What will be the birth rate in Russia? *Demoscope Weekly*, no. 495–496, January 23 – February 5, 2012. Available at: http://www.demoscope.ru/weekly/2012/0495/tema01.php

In order to implement this task, it is necessary to obtain empirical data for the description and classification of different generations' demographic practices, to identify the factors, resources, problems, and the results of socio-demographic policy implementation at different historical stages in the USSR and the RF, as well as to conceptualize obtained results which will allow developing recommendations on the adjustment of socio-demographic policy measures, including maximizing the efficiency of the national project "Demography".

In modern Russia, demographic policy is formed in a contradictory research field. A debate about the qualitative interpretation of demographic dynamics and the management of demographic development between scientific schools actively continues [8; 9]. We share the position of a reasonable influence on controlled factors of demographic development for the purposes of national security and population's well-being. In particular, this factor is the demographic behavior, the contribution of which to population's reproduction and health is difficult to overestimate.

The purpose of this article is to define a comprehensive methodology that not only allows identifying individual practices of population's demographic behavior and the information field of its formation, but it also makes it possible to develop a model of optimal conditions for the formation and implementation of demographic attitudes.

Theoretical and methodological basis of the research

The object of our research is population's demographic behavior and demographic attitudes as its element and determinant, an interdisciplinary category that is studied within sociology, demography, and psychology. Demographic attitudes represent the readiness to implement specific actions, and it is a significant predictor of population's demographic behavior as a whole.

Given variability, determination, and mechanism of demographic behavior that we are interested in, it is important to understand socio-economic context and its dynamics, socio-cultural nature of the object.

The research is based on the works, which reveal the mechanisms of social change, transformation of social behavior and culture, from such authors as K. Marx and F. Engels (change of socio-economic formations), F. Giddings, A. Comte, Ch. Cooley, K. Mannheim, M. Mead, P. Sorokin, G. Tarde, P. Sztompka, etc. Social changes as a reaction to the tension of institutional systems are studied by E. Durkheim, T. Parsons, N. Smelser, H. Spencer. Within the integrated approach, implemented in the works of P. Bourdieu, A. Giddens, etc., social changes act as the result of an individual's activity and external changes of the institutional system. Based on the institutional theory, the resources for implementing socio-demographic policies are also assessed (M. Abolafia, N. Biggart, F. Block, K. Polanyi, V.V. Radaev, N. Fligstein, M.A. Shabanova, etc.) Among Russian authors dealing with social changes and modernization processes in the RF, there are L.E. Vostryakov, Z.T. Golenkova, N.I. Lapin, Ju.A. Levada, V.S. Magun, N.M. Rimashevskaya, Zh.T. Toshhenko, M.F. Chernysh, A.E. Chirikova, O.I. Shkaratan, V.A. Yadov, etc. The usage of conceptual schemes for studying the essence of human and social capital, considered as the actor resources, is promising (G.S. Becker, P. Bourdieu, M. Granovetter, T. Moliterno, R. Putnam, R. Ployhart, F. Fukuyama).

Methodological matrix of the research is based on the works of Russian demographers where the reasons of the evolution of childbearing norms are revealed, the types of demographic behavior are classified (A.I. Antonov, V.N. Arhangel'skiy, R.I. Akjulov, E.I. Akjulova, A.G. Vishnevskiy, etc.), trends of changes of the RF socio-demographic policy are studied (V.N. Arhangel'skiy, N.V. Zvereva, A.G. Vishnevskiy, V.A. Gorshkov, G.I. Klimantova, L.I. Kravchenko, N.M. Rimashevskaya, etc.), and the role of family and education institutions in the formation of value attitudes is defined (M.K. Gorshkov, O.V. Kuchmaeva, T.K. Rostovskaja, L.I. Savinov, A.B. Sinel'nikov, T.A. Gurko, N.E. Tihonova, F.E. Sheregi, etc.). To understand the features and patterns of demographic attitudes, it is important to turn to sociology of youth – namely, to the theories that justify the allocation of youth to a special socio-demographic group with its inherent features (E D. Voznesenskaya, G.S. Goncharova, D.L. Konstantinovskiy, G.A. Cherednichenko, V.N. Shubkin, etc.), studies on social changes related to youth self-determination (T. Lisovskiy, V.F. Levicheva, V.A. Lukov, etc.), research on the influence of environmental risks on young people's behavior in conditions of uncertainty and the concept of a socio-cultural mechanism of the formation and reproduction of social reality (Ju.A. Zubok, V.I. Chuprov, N.A. Romanovich).

Human and demographic potential of Russian regions, as well as institutional space, is studied in several works (by O.V. Baydalova, E.S. Gubanova, M.M. Guzev, N.V. Dulina, Z.M. Dyl'nova, S.M. Imyarekov, O.V. Inshakov, A.E. Kalinina, E.V. Kargapolova, N.I. Lapin, N.M. Tokarskaja, A.A. Shabunova, K.P. Yurtaev, etc.).

The influence of behavior factors on population dynamics is also recognized in well-known concepts of the demographic transition [10; 11], especially the second and third ones [12–14]. The concepts of the third and fourth demographic transitions, developed by A.V. Iontsev, also determine the significance and impact of the migration on the demographic appearance of territories [15]. The concept of epidemiological transition draws attention to the importance of the self-preserving (health-preserving, vital) behavior of population in the formation of public health at the present development stage [16; 17].

The demographic behavior from demographers' point of view is a system of relatively independent types: reproductive, marital (matrimonial), self-preservatory, and migration. Each one has its own structure, which is distinguished on non-identical grounds within different approaches. Thus, the psychological approach involves an analysis of values, motives, goals/attitudes, decisions, actions, and control of the result. The medical approach, used in relation to self-preservatory behavior, focuses on medical activity and the norms of a healthy lifestyle, i.e. actions that are directly included in the area of healthcare responsibility (*Tab. 1*).

The matrimonial behavior is primarily studied together with the reproductive one. This is a well-justified research design: in the 20–21st centuries, more than 70% of children are born in marriage. Among the most well-known are estimates of the historical evolution of these behavior types due to social transformations of family and marriage institutions (*Tab. 2*). Presented characteristics of behavior types are described within the sociodemographic approach.

The sociodemographic approach integrates socio-psychological foundations of behavior and its demographic meaning, defining two enlarged components in all types – an idea of what actions should be, its final result, and

Table 1. Theoretical approaches to the interpretation of self-preservatory behavior and its structure

Approach	Representatives	SPB interpretation	SPB components
Medical	Ju.P. Lisitsyn, O.V. Grinitsyn, A.M. Izutkin, I.F. Matyushin	Self-preservatory behavior is equal to a healthy lifestyle (or hygienic behavior), i.e. an activity of an individual, certain groups of people, most characteristic for specific socio-economic, political, environmental, and other conditions, aimed at preserving and improving, strengthening of health	1. Key element is a medical activity 2. Its subordinate elements (HLS norms): - labor hygiene and safety; - refusal of smoking and alcohol abuse; - psychohygienic and psychotherapeutic self-help; - physical activity; - balanced nutrition; - timely request for medical help; - first aid skills
Psychological	M. Becker, L. Maiman, M. Fishbein, A. Eisen, J. Prochazka, K. DiClemente, N.V. Yakovleva, N.N. Ulanova, L.G. Ulyaeva	Self-preservatory behavior (more commonly called health-saving behavior) is viewed in different ways: - as a decision-making act (M. Becker, L. Maiman, M. Fishbein, A. Eisen); - as a stadial process (N. Weinstein, P. Sandman, J. Prochazka, K. DiClemente); - as an activity (N.V. Yakovleva, N.N. Ulanova, L.G. Ulyaeva)	SPB basic components: 1) motivation; 2) assessment of current health status (self-assessment); 3) goals (attitides); 4) system of actions; 5) control of the result
Socio-demographic	A.I. Antonov, V.M. Medkov, V.A. Borisov, V.A. Zotin, T.V. Lifar', I.V. Zhuravleva, L.S. Shilova, E.B. Babin, L.V. Shibut, I.S. Vjalov, G.A. Ivahnenko, V.Ya. Shklyaruk, L.Yu. Ivanova, A.A. Shabunova	Self-preservatory behavior is a system of actions and relationships of an individual aimed at preserving health throughout a life cycle and extending life span	1. Needs (for health and longevity) 2. Attitudes (self-assessment of health, value of health, socially approved norms) 3. Motives 4. Actions (measures): - med. activity; - phys. activity; - compliance with work and rest regime; - sexual behavior; - compliance with nutrition regime; - presence of bad habits; - stress counteraction

Source: [18].

directly implemented behavioral acts. The first component, which is a formed image of a family, family life, and health saving in a certain sense, is measured using demographic attitudes; the second one – by the parameters of specific actions.

The demographic behavior, childbearing and birth rates, and public health depend on population's demographic attitudes. The scientific problem is in the definition of the formation mechanism of these attitudes, identification of factors and conditions that have a direct and indirect impact on this process. One of the determining factors of the socio-demographic policy is sociodemographic policy, which influences the formation of conditions for the implementation of the demographic behavior. Hypothetically, adverse conditions lead to delayed childbirth, reduced childbearing, increased risks of implementing "positive" demographic attitudes, implemented destructive practices in the area of health, leaving of population from territories with subjectively and objectively "bad" living conditions. Favorable conditions, in turn, do not always help increase birth rates, strengthen public, individual health, and migration attractiveness. The scientific problem expands,

Table 2. Historical types of reproductive and marriage behavior in Russia and Europe

Reproductive behavior type	Characteristics	Period	Marriage behavior type	Characteristics	Period
Many children (traditional type)	5 or more children in a family; lack of birth control practices (contraception, abortion); predominance of economic motives for childbearing (children are workers, assistants at home)	Until the mid. 19th cent. in West. Europ. countries; in Russia – until the mid. 19th cent.–early 20th cent.	Traditional (Eastern European)	Early age of marriage (below 24 years), universal marriage, i.e. high percentage of married population (more than 90%) and low percentage of celibacy (less than 10%)	Unt. the end of the 17th cent. in West. Europ. countries; in Russia – before the 20th cent.
Average number of children (intermediate type)	3–4 children in a family; weakening of intra-family motivation for childbearing; application of birth control (abortion, contraception)	From the mid 19th cent. In West. Europ. count.; in Russia – starts in the second half of 19th cent. in urban regions, from the 1920s – main part of the country	Western European (European)	Late age of marriage (over 24 years), low percentage of married population, high percentage of celibacy (over 10%)	In West. Europe and other developed countries – since the late 18th cent.–early 19th cent.; in Russia – since early 20th cent. until the 1940s
			Post-war	Early age of marriage (below 24 years), universality of marriage	In West. Europ. countries – after the Second World War (the 1940s–50s) until the 1960s-70s; in Russia – until the 1980s
Few children (modern type)	1–2 children in a family; pregnancy planning; common spread of methods for intra-family regulation of a number of births	From the 1960–70s in West. Europe and developed countries; in Russia – from the late 1960s	Modern	Late age of marriage (over 25 years), high level of final celibacy, high divorce rate	In West. Europe and other developed countries – since the 1960s–70s; in Russia – since the 1980s–90s
Source: [19].					

since it is not only necessary to determine the mechanisms of forming demographic attitudes, but also to decide what content we should put in concepts of "favorable" and "unfavorable" conditions for childbirth, a healthy lifestyle, and life in general. Hypothetically, it may be assumed that favorable conditions are associated with the economic growth. However, practice shows that this is not the case; the socio-economic situation is not an only factor, and the birth rate declines even faster in many economically developed countries and regions in comparison with poorly developed ones. The relationship between health development and health parameters, living standards, and migration is more noticeable. The theoretical problem is the search for a balance of different factors and an optimal model of conditions for the formation and implementation of demographic attitudes. That is why it seems important to analyze the efficiency of socio-demographic policy taking into account socio-cultural conditions of its implementation while developing the methodology and research methodology, since optimal models may differ depending on regional specifics. It seems that the all-Russian study of the demographic behavior (in its broad sense) and population's well-being, conducted in the monitoring format, will allow justifying the choice of a model of socio-demographic policy considering territorial characteristics.

The project "Demographic behavior of the population within Russian national security", implemented by a creative team of Russian scientists from academic institutions and leading universities, supported by the Russian Science Foundation, is aimed at such a deep and comprehensive analysis. Within the current study, tools of the all-Russian sociological monitoring "Demographic well-being of the population in Russian regions", which allows conducting a comprehensive assessment of demographic behavior types, from the position of its formation and factors of demographic attitudes too, were developed. A questionnaire consists of five blocks that may provide data on all types of demographic behavior (marital, reproductive, self-preservatory, migration) and the efficiency of demographic policy. In addition, the selection of blocks will help notice a mutual relationship of attitudes and behavioral practices of various types of the demographic behavior, determine its interconnections, and identify ones that are more responsive to managerial influences. A common block of socio-demographic characteristics of respondents, which specifies the targeting of conclusions, also expands analysis opportunities. A set of questions about demographic policy allows assessing the significance of implemented measures for population as a whole, individual region, socio-demographic groups, population's loyalty to the demographic policy at federal and regional levels, and its real effect in the form of results of the demographic behavior.

In February–March 2020, the first wave of selective sociological survey was carried out by means of a questionnaire survey. Ten Russian regions were covered: Moscow, Republic of Bashkortostan, Tatarstan, Vologda Oblast, Volgograd Oblast, Ivanovo Oblast, Leningrad Oblast, Moscow Oblast, Nizhegorod Oblast, Sverdlovsk Oblast. The total sample size included 5.616 people.

The survey implements a multi-stage typological selection. At the first stage, territories for conducting the survey and types of settlements (urban and rural localities) were selected; at the second stage, each one went through a systematic selection (a quota sample taking into account respondents' age groups, gender, and professional sphere). The usage of multi-stage sampling increases accuracy of the results, a confidence interval for calculating data for the all-Russian sample is +/–0.4% (with the 99.7% confidence level), for regional samples +/–4% (with the 95.4% confidence level). The results are representative for Russia as a whole and for the regions included in the sample [20]. Thus, we can get data on the parameters of demographic behavior of Russians, including its results, recorded by demographic statistics, and its determining factors. The first wave of monitoring, conducted before an active phase of the pandemic in the country, allowed obtaining unique data on the characteristics of demographic behavior considering population's socio-demographic stratification and in the complex of its kinds (matrimonial, reproductive, health, migration) and laying the foundation for the next wave of research in the post-pandemic period. It significantly expands opportunities for finding ways of improving the efficiency of demographic policy in general and the national project "Demography" in particular.

Results. Possible ways of analyzing data of the first monitoring wave

A comprehensive nature of tools provides extensive opportunities for an analysis, which allow understanding trends, identifying main factors or motives of people's behavior, and, moreover, revealing issues that require an in-depth study, mechanisms, and tools for solving

problems. A monitoring nature of the study will allow noticing the dynamics of the situation, a reaction to measures of socio-demographic policy. Even the first wave provides wide opportunities. In this paper, we will indicate only possible directions for analyzing obtained sociological cross-section study.

– *Cross-analysis of blocks (comparison of reference points of questionnaire's different blocks*), which allows seeing deep diverse connections and take it into account in the subsequent analysis. For example, interconnections between demographic behaviors are noticeable. People focused on large families are more oriented on longevity (average 95 years vs. 88–89 among those who want less children or are childless) which is caused by a desire to stay longer with family members, take care of them (*Tab. 3*). In this group, there are higher people's estimations of their own health

Table 3. Parameters of self-preservation behavior in population groups with different reproductive plans

Option	Average in the survey	How many children (including existing ones) Do You want to have?		
		"Childfree"	Planning few children (1–2 kids)	Planning many children (3+)
Number of a category in the sample (people)	***5616***	*272*	*3121*	*927*
If you had a choice, how many years Would you like to live with the most favorable conditions? (years)				
Average value	***90***	*89*	*88*	*95*
Median value	***90***	*85*	*90*	*90*
Why would You like to live this many years? (average value on a 5-point scale)				
I would like to live for myself, without work	**3.8**	3.8	3.9	3.8
I don't want to lose my retirement savings and use it completely	**2.8**	3.0	2.9	2.8
Older people are respected in society	**2.4**	2.5	2.4	2.4
I want to work longer in retirement age	**2.4**	2.5	2.3	2.5
I want to help my adult children	**3.6**	2.5	3.7	3.9
I do not want to leave my spouse without my help and support	**3.7**	3.0	3.8	4.0
I want to live long enough to see my grandchildren	**4.2**	2.8	4.3	4.5
How would You assess your lifestyle? (% of a number of respondents)				
It can be called healthy	**32.8**	31.1	30.8	38.4
It is not quite healthy	**50.1**	46.1	52.6	48.6
I am far from a healthy lifestyle	**17.1**	22.8	16.6	13.1
What do you personally do to preserve and strengthen your health? (% of a number of respondents)				
A number of measures taken to preserve and strengthen own health				
None of the measures are marked	**11.8**	13.2	11.3	10.4
1–2 measures	**25.9**	38.6	23.8	23.0
3–4 measures	**30.4**	29.0	32.8	25.4
5 and more measures	**31.9**	19.1	32.1	41.3
Including, for example:				
Adhere to recommendations about healthy nutrition	***20.3***	*20.2*	*19.8*	*26.7*
Abuse alcohol	***45.8***	*39.0*	*46.2*	*47.4*
*Do not drink alcohol at all or do it moderately**	***54.2***	*61.0*	*53.8*	*52.6*
Do not consult a doctor in case of illness	***29.0***	*28.3*	*27.4*	*34.6*
Seek medical help in case of illness	***70.9***	*71.8*	*72.5*	*65.5*
Toughen up regularly	***34.2***	*21.7*	*35.3*	*39.1*

* This group includes people who do not drink alcohol at all or consume it moderately – none alcoholic beverages are consumed often ("daily", "on weekends") and, over the last month, there was no fact of consuming 5 or more standard portions of alcohol at once.
Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.

(53% consider it very good and good, compared to 40% among those focused on having fewer children) and lifestyle (38% believe that it can be called healthy). However, an analysis of specific practices cautions us not to jump to simple straightforward conclusions. It revealed that families focused on having many children have lower medical activity, and alcohol abuse is more common among them.

Combined motives of matrimonial behavior and reproductive plans of individuals are quite logical. Marital status of respondents is partly determined by their age characteristics (there are more young people among childfree people). Legitimate marriage, in its traditional basics, is more intensively supported by those who are focused on having many children: average score for proposed reasons-motives for registering a marriage is higher than an average number (*Tab. 4*). However, among couples focused on having fewer children, the share of cohabiting couples is higher (8% vs. 4 and 6%).

While analyzing migration flows and attitudes, it is important to understand population's reproductive plans. Migration moods are not linked to reproductive orientations so clearly and closely. About 30% of respondents would like to change their place of residence (*Tab. 5*). In any case, this is a signal for management structures that requires comprehension. Probably, among the reasons for leaving, the chain of evaluating steps and motives stops at solving the most acute problems. People leave for better living conditions, which are clearly linked to a job with a high salary, i.e. the construction "I want to leave because there will be better conditions for the birth and children upbringing", which would seem to be really important, is hidden (not visible) behind the search for better living standards in general. The results of this stage of the study show that this issue requires an in-depth analysis; perhaps, with help of a focus group study, it is necessary to deepen

Table 4. Some parameters of marital behavior in population groups with different reproductive plans

Option	Average in the survey	How many children (including existing ones) Do You want to have?		
		"Childfree"	Planning few children (1–2 kids)	Planning many children (3+)
Size of a category in the sample (people)	*5616*	*272*	*3121*	*927*
Are you married? (% of a number of respondents)				
I am in a registered marriage	**47.4**	10.3	52.4	55.1
I am in an unregistered marriage	**7.1**	4.4	8.4	5.5
Widower (widow)	**1.4**	0.7	1.4	0.9
Divorced	**8.5**	8.8	7.7	4.9
I have never been married	**35.6**	75.7	30.2	33.6
If you think that marriage should be registered, why is that? (an average score for assessing the significance of each of these factors on a 5-point scale: "1 " means that it is almost irrelevant, "5" means that it is very important)				
It corresponds to the norms of public morality and opinion of others	**3.1**	2.7	3.1	3.3
Desire to have a child in a registered marriage	**3.9**	2.9	4.0	4.2
If there is a confidence that cohabitation in an unregistered marriage has "challenged marriage" (or if people already know each other well)	**3.2**	2.9	3.2	3.3
Ensures material rights of a parent who remains with children in case of a possible divorce	**3.5**	3.4	3.5	3.6
It guarantees that a couple will live a long life together	**2.7**	2.3	2.8	2.9
Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.				

Table 5. Population's migration attitudes

Option	Average in the survey	How many children (including existing ones) Do You want to have?		
		"Childfree"	Planning few children (1–2 kids)	Planning many children (3+)
Do you want to leave this locality? (% of a number of respondents)				
Yes	**30.4**	28.8	30.4	31.1
No	**50.9**	50.6	50.7	53.9
I have not thought about it	**18.7**	20.6	18.9	15.0
If yes, why so? (%of a number of those who would like to leave)				
Bad ecology	**26.3**	37.7	26.3	28.2
No work	**25.0**	16.9	29.0	20.2
Low salary	**44.9**	41.6	48.4	36.1
There are no relatives left here	**4.6**	2.6	4.4	5.4
No prospects	**48.5**	46.8	53.0	41.9
Other	**6.8**	6.5	4.9	11.2
Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.				

the territorial aspect (at the regional and the municipal level as well).

Clarification of a degree of impact and demand for support measures in population groups with different reproductive plans allows drawing more precise conclusions. Among those who plan to have many children, there are more recipients of government support (67% vs. 28% among childless people and 60% among those who are focused on having few children, *Tab. 6*). It is also explained by a higher percentage of families that already had children at the time of the survey. A degree of significance of government support for them is also more important (3.5 points on a 5-point scale against 2.7 and 3.3 points, respectively). For many-children-oriented groups, the significance of almost all options for support measures is higher than for other groups, especially for measures related to child rearing and flexible work hours.

The activation of the demographic policy was most highly appreciated by a group of Russians planning three or more children. New support measures helped 40% people of this group to implement their existing reproductive intentions. Among those who plan 1–2 children, there are two times fewer such people – 21%. One factor of underestimating the importance of implemented support measures and refusal of receiving it is the lack of awareness of support forms and a procedure for receiving it. Average score for the assessment of the level of information proficiency on this issue is 2.6 on a 5-point scale: among those who do not plan children – 1.9 points, among those who plan fewer children – 2.7, and among those who plan many children – 3.0. The need for information among those who are aimed at having many children is noticeably higher, which is obviously determined by a higher need for support.

– *Search for territorial features of socio-demographic processes and its regulation*

Another important advantage of the all-Russian monitoring is an opportunity to identify regional characteristics of the demographic behavior and susceptibility to demographic policy measures. The results of the first wave showed that regions differ, for example, in population's reproductive orientations. A desired number of children in the Moscow and Sverdlovsk oblasts and the Tatarstan and Bashkortostan republics is above

Table 6. Government support: receiving, assessment, and informing

Option	Average in the survey	How many children (including existing ones) Do You want to have?		
		"Childfree"	Planning few children (1–2 kids)	Planning many children (3+)
Does Your family receive or have previously received any government support? (% of a number of respondents)				
Currently receiving support	**21.2**	8.4	19.8	33.4
Used to receive support but not anymore	**36.3**	19.6	39.5	34.2
Have never received any support	**42.5**	72.0	40.7	32.4
Significance of received support for a family (for those who use or have previously used any government support, average score on a 5-point scale)				
Average score	**3.4**	2.7	3.3	**3.5**
What social assistance and support measures are necessary for Your family? (degree of necessity, average score on a 5-point scale)				
Pre-school child care	**3.0**	2.2	2.9	3.5
School child care	**2.9**	2.2	2.9	3.1
Disabled family member care	**2.6**	2.7	2.5	2.6
Employment assistance with flexible work hours	**3.2**	2.8	3.1	3.3
Assistance in providing household services (go to a store, clean an apartment)	**2.3**	2.6	2.3	2.4
Assistance in organizing a family business	**2.6**	2.7	2.5	2.7
Help in finding extra work	**3.0**	2.8	3.0	3.0
Additional education for children	**3.3**	2.6	3.3	3.6
Consulting and medical services	**3.5**	3.3	3.5	3.6
Assistance in organizing leisure activities	**2.8**	2.6	2.7	3.0
Assistance in organizing family vacations	**2.9**	2.8	2.8	3.0
How exactly did increased government support for families with children help make a decision on giving birth to Your youngest (only) child? (% of those who have children)				
Greatly affected	**5.9**	0.0	4.1	11.5
Affected a little bit	**18.4**	7.1	17.0	28.8
Did not affect	**57.2**	78.6	61.8	44.4
It is difficult to tell	**18.5**	14.3	17.2	15.2
Awareness of government family policy measures existing in the region (average score on a 5-point scale, 1 – "barely know anything", 5 – "fully aware")				
Average score	**2.6**	1.9	2.7	**3.0**
Do You need additional information about getting support and assistance for Your family? (% of a number of respondents)				
Yes	**33.5**	28.6	33.5	40.3
No	**37.8**	54.3	38.4	35.6
Hesitate to answer	**28.6**	17.1	28.1	24.1

Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.

average values (*Tab. 7*). According to a value of an average expected number of children, the Stavropol Krai is among these territories. It is logical to assume that reproductive attitudes remain connected with population's plans and determined by the assessment of a degree of favorable conditions for its implementation.

From a point of view of realization of a desired number of children, conditions are assessed in the most critical way by residents of the Ivanovo, Sverdlovsk, Moscow, Nizhegorod oblasts and the Republic of Tatarstan. In other regions, the difference is smaller, i.e., on the one hand, people assess the conditions for the birth of a desired number of children as more favorable, on the other – in these regions, the need for children itself is averagely lower. In both republics, there is a noticeably higher

Table 7. Preferred number of children, regional aspect

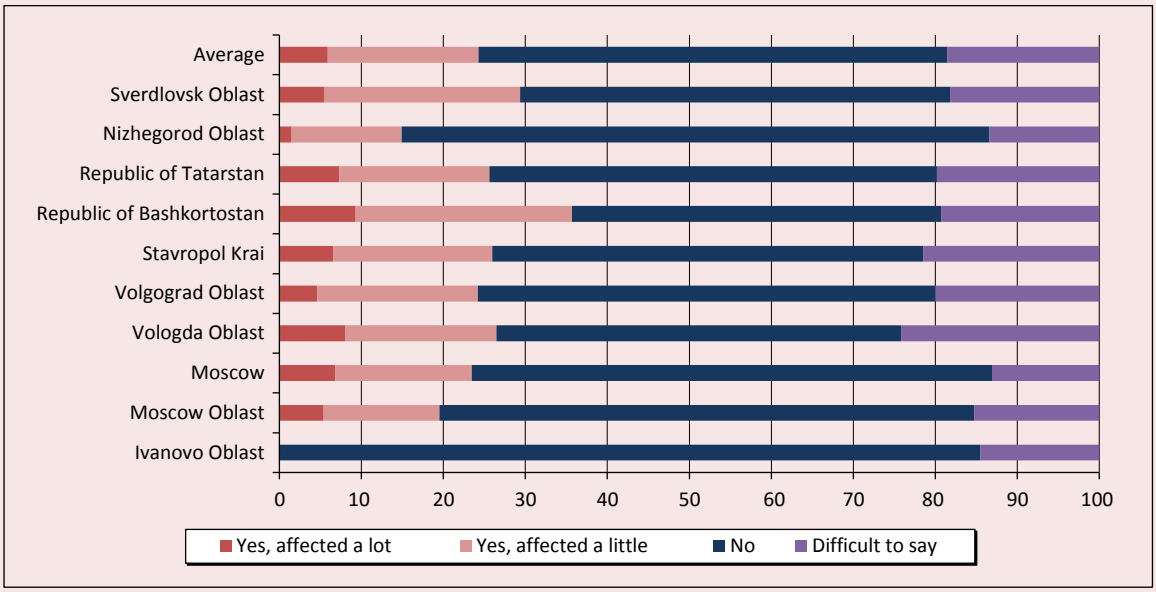
	Ivanovo Oblast	Moscow Oblast	Moscow	Vologda Oblast	Volgograd Oblast	Stavropol Krai	Republic of Bashkortostan	Republic of Tatarstan	Nizhegorod Oblast	Sverdlovsk Oblast	**Average in the survey**
How many children (including existing ones) would You like to have if You had all the necessary conditions? (% of a number of respondents)											
0	0.0	2.1	5.5	3.6	5.0	2.9	7.7	3.0	5.9	3.4	**4.1**
1	6.5	9.2	13.1	10.0	12.6	9.4	7.8	7.5	10.2	6.1	**9.4**
2	48.7	41.0	39.5	44.7	39.7	45.9	30.4	37.2	49.2	41.4	**41.3**
3	**28.6**	**26.4**	23.5	22.8	23.8	23.8	25.4	**34.6**	20.3	30.4	**25.8**
4	0.6	2.6	2.9	3.0	3.0	3.1	3.1	4.7	2.5	3.0	**2.9**
5 and more	0.0	7.5	4.6	1.8	1.5	2.9	6.1	3.4	1.7	5.9	**3.8**
It is difficult to tell	15.6	11.1	10.9	14.2	14.5	12.0	19.5	9.7	10.2	9.9	**12.7**
Average desired number of children	*2.3*	***2.5***	*2.2*	*2.2*	*2.1*	*2.3*	***2.4***	***2.5***	*2.1*	***2.5***	***2.3***
How many children (including existing ones) are You going to have? (%of a number of respondents)											
0	6.5	4.8	8.7	2.7	4.9	4.3	6.9	4.2	5.7	4.2	**5.2**
1	28.6	17.7	21.7	17.1	18.0	16.3	10.8	14.6	24.5	17.7	**18.1**
2	42.2	40.3	35.7	47.5	40.5	46.6	31.3	44.5	45.3	46.5	**41.9**
3	**7.8**	**15.2**	15.1	11.6	15.5	12.6	21.3	18.9	6.6	15.3	**14.5**
4	0.0	2.2	1.1	1.2	1.9	2.6	3.1	2.9	0.0	1.2	**1.7**
5 and more	0.0	3.6	3.4	0.5	0.5	1.3	2.4	1.2	0.9	1.5	**1.6**
It is difficult to tell	14.9	16.1	14.4	19.4	18.7	16.3	24.2	13.7	17.0	13.7	**17.0**
Average desired number of children	*1.6*	***2.1***	*1.9*	*1.9*	*1.9*	*2.0*	***2.1***	***2.1***	*1.7*	*2.0*	*1.9*
Difference between average desired and expected number of children	*0.7*	*0.4*	*0.3*	*0.3*	*0.2*	*0.3*	*0.3*	*0.4*	*0.4*	*0.5*	*0.4*

Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.

expectation of having many children, and the proportion of people planning three children is almost twice as high as in the Ivanovo, Vologda, and Stavropol oblasts. It is interesting that, in the Republic of Bashkortostan, however, the second most represented group is childfree people – 7% – and the largest number of undecided people is also in it. While comparing shares of population focused on childlessness in a desired and planned number of children, an interesting pattern is also visible: in the Ivanovo, Moscow, Sverdlovsk oblasts, Moscow, the Stavropol Krai, the share of those who plan to be childless is higher than the share of those who want to remain childless. It indicates the presence of a population group that is very critical of their abilities to implement parenthood in proposed living conditions.

Among the regions of the first wave, the Republic of Bashkortostan, the Sverdlovsk and Vologda oblasts, the Stavropol Krai, the Ivanovo and Nizhegorod oblasts were the most labile to new support measures (the share of responses that demographic policy measures affected a decision to give birth to a child, respectively, were 36, 29, 26, 26; 0, 15%; *Figure*).

Distribution of answers to the question "How did the strengthening of government support measures for families with children influence the decision to give birth to Your youngest (only) child?" (% of a number of respondents)



Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.

An interesting and informative form of analysis is the construction of various matrices, such as the matrix of demand for social support measures for families with children in the territorial context. Regional differences in important measures are quite clear. The most popular ones are additional education for children and flexible work hours (*Tab. 8*). In the Republic of Bashkortostan and the Moscow Oblast, assistance in finding additional work is important, in the Republic of Tatarstan, an issue of looking after schoolchildren is relevant, in the Stavropol Krai and Sverdlovsk Oblast – an issue of looking after preschool children. Vologda residents experience difficulties and expect help in organizing leisure and family recreation. The Nizhegorod Oblast has a complete match of a set of measures with average Russian ones.

A set of three least popular positions differs significantly less than a range of the most important ones. Least important for families with children are assistance in providing household services, assistance in caring for a disabled family member, and assistance in organizing family affairs.

The combination of the constructed matrix with the analysis of the legal framework of socio-demographic policy in studied regions will strengthen the reasonableness and accuracy of conclusions and proposals.

– *Detailed analysis of each personal data block. Socio-demographic profile in relation to any selected population or for each question.*

The basis for further in-depth and extended analysis, additions, and cross-connections is a consistent, logical, and complete discussion of the information for each questionnaire block. This analysis may be carried out either on the basis of data from the survey as a whole, or with the selection of a separate region or group of regions. A single "passport" for all blocks also provides additional opportunities for comparisons and conclusions.

Table 8. Matrix of regional differences in the importance of social support measures for families with children (three most and three least necessary measures, average score on a 5-point scale)

Region	Three most important measures for family support	Points	Three least important measures for family support	Points
Ivanovo Oblast	Assistance in finding employment with an opportunity to work flexible hours	3.39	Assistance in organizing a family business	2.46
	Assistance in looking after a child of preschool age	3.30	Assistance in providing household services (go to a store, clean an apartment)	2.12
	Assistance in organizing family leisure	3.18	Assistance in looking after a disabled family member	2.07
Moscow Oblast	Additional education for children	3.41	Assistance in looking after a disabled family member	2.75
	Assistance in finding employment with an opportunity to work flexible hours	3.38	Assistance in organizing a family business	2.57
	Assistance in finding extra work	3.29	Assistance in providing household services	2.43
Moscow	Assistance in finding employment with an opportunity to work flexible hours	3.23	Assistance in looking after a child of school age	2.60
	Additional education for children	3.12	Assistance in providing household services	2.57
	Assistance in organizing family leisure	3.09	Assistance in organizing a family business	2.56
Vologda Oblast	Assistance in organizing family leisure	3.19	Assistance in looking after a disabled family member	2.29
	Other (specify what it is)	3.14	Assistance in organizing a family business	2.23
	Assistance in organizing leisure activities	3.05	Assistance in providing household services	2.12
Volgograd Oblast	Assistance in organizing family leisure	3.17	Assistance in looking after a disabled family member	2.44
	Additional education for children	3.17	Assistance in organizing a family business	2.43
	Other (specify what it is)	3.10	Assistance in providing household services	2.20
Stavropol Krai	Additional education for children	3.56	Other (specify what it is)	2.99
	Assistance in looking after a child of preschool age	3.33	Assistance in looking after a disabled family member	2.94
	Assistance in finding employment with an opportunity to work flexible hours	3.27	Assistance in providing household services	2.70
Republic of Bashkortostan	Additional education for children	3.50	Assistance in organizing a family business	2.77
	Assistance in organizing family leisure	3.14	Assistance in looking after a disabled family member	2.44
	Assistance in finding extra work	3.11	Assistance in providing household services	2.41
Tatarstan Republic	Additional education for children	3.63	Assistance in organizing a family business	2.81
	Assistance in finding employment with an opportunity to work flexible hours	3.33	Assistance in looking after a disabled family member	2.79
	Assistance in looking after a child of school age	3.33	Assistance in providing household services	2.62
Nizhegorod Oblast	Additional education for children	3.27	Assistance in looking after a disabled family member	2.24
	Assistance in organizing family leisure	3.25	Assistance in organizing a family business	2.13
	Assistance in finding employment with an opportunity to work flexible hours	3.22	Assistance in providing household services (go to a store, clean an apartment)	1.92
Sverdlovsk Oblast	Additional education for children	3.53	Assistance in organizing a family business	2.48
	Assistance in organizing family leisure	3.20	Assistance in looking after a disabled family member	2.46
	Assistance in looking after a child of preschool age	3.18	Assistance in providing household services (go to a store, clean an apartment)	2.16
Average	**Additional education for children**	**3.33**	**Assistance in organizing a family business**	**2.56**
	Assistance in finding employment with an opportunity to work flexible hours	**3.18**	**Assistance in looking after a disabled family member**	**2.55**
	Assistance in organizing family leisure	**3.15**	**Assistance in providing household services (go to a store, clean an apartment)**	**2.34**

Source: own compilation.

Russians highly value health and declare the importance of achieving this goal in life. Longevity occupies the third most important position together with a desire to have a close person and to give a good education to children (*Tab. 9*).

Good health also has the most important instrumental value: according to Russian estimates, it ranks second in the list of conditions for successful life – right after communication skills, and Vologda residents placed it first (*Tab. 10*).

However, declaration of the health importance is not enough for its preservation and strengthening throughout life: widespread usage and daily usage of health-saving practices are important. Older people, women over 55 years of age, and residents of rural areas mostly value health, while young women (42%), people with higher and postgraduate education (36%), owners of their own businesses (35%), urban residents (33%), and people who highly assess their financial situation (7 or more points on a 10-point scale – 35%) take care of it.

While assessing their lifestyle, half of respondents identified it as "not quite healthy", while only 33% of respondents identified it as "healthy". 17% of respondents realize that "they are far from a healthy lifestyle".

What are the most common self-preservation practices (actions consciously and unconsciously aimed at preserving and strengthening one's own health)? Most often, Russians say that they give up smoking to preserve their health (53%). Slightly more than one third of respondents visit baths and saunas (31 and 36%), control weight (34 and 35%), resort to water purification or buy bottled water (33%), try to walk at least 30 minutes a day (34%) and moderately consume alcohol (31%). However, the vast majority of these practices do not require much effort or daily effort. Everything about constant morning exercises, regular physical education, optimal

Table 9. Importance of life goals (average score on a 5-point scale, where 1 is "not important at all", 5 is "very important")*

Goal	Vologda Oblast	Average in the survey
Have a good heath	4.6	4.7
Own good home	4.7	4.6
Financial well-being of my family	4.6	4.6
Have a loved one around	4.5	4.5
Give children a good education	4.5	4.5
Live a long life	4.6	4.5

* Only positions with an average score of at least 4.5 points are shown.
Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.

Table 10. Conditions necessary for achieving success in life (average score on a 5-point scale, where 1 is "basically not important", 5 is "very important")*

Conditions for success in life	Vologda Oblast	Rank by importance	Average in the survey	Rank by importance
Ability to build relationships with people	4.4	2	4.5	1
Good health	4.5	1	4.4	2
Capabilities, talent	4.2	4	4.3	2
Ability to work hard and conscientiously	4.3	3	4.2	2
Ability to adapt	4.0	6	4.2	3
High level of education, upbringing, culture	4.1	5	4.2	4
Luck	3.9	7	4.1	5

Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.

Table 11. Distribution of responds to the question "Over the last 12 months, have you seriously tried...?", % of a number of respondents

Option	Vologda Oblast			Average in the survey		
	Yes, I tried and succeeded	Yes, I tried and failed	No, I didn't try	Yes, I tried and succeeded	Yes, I tried and failed	No, I didn't try
Improve performance	37.4	11.7	50.9	40.0	18.6	41.4
Increase your physical activity	38.1	14.5	47.4	37.0	23.8	39.3
Reduce alcohol consumption	16.4	6.5	77.1	25.4	8.6	66.0
Quit smoking, % of those who smoke	5.3	30.2	64.5	8.8	31.8	59.4
Reduce weight	19.1	18.6	62.3	25.7	21.2	53.1
Increase weight	2.5	3.1	94.4	8.0	7.3	84.6
Consume less fat	24.0	11.5	64.5	24.4	14.5	61.2
Consume less salt	24.8	9.5	65.7	22.0	14.4	63.6
Consume less sugar	28.5	10.9	60.6	27.7	16.2	56.1

Note: the sum of responses is 100% per line (for the Vologda Oblast and average for the survey).
Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.

combination of workloads and rest has a significantly lower prevalence (from 20% and below). The spread of health-improving procedures in sanatoriums and dispensaries is also low (7%). In addition, 17% of Russians do nothing to preserve and strengthen their own health.

The analysis of the successfulness of attempts to change a lifestyle is very demonstrative. Averagely, more than a half of respondents tried to bring it closer to healthy in one way or another (*Tab. 11*). The most significant areas of healthy lifestyle are the improvement of performance and physical activity, which are also the most efficient ones (40 and 37% of attempts are successful). Almost a half of those who tried to lose weight reached this goal, and their nutrition adjustments were quite successful. The worst situation is with smoking: the success rate of attempts to quit smoking is only 9% (in the region – only 5%).

We see an interesting distribution of responses while comparing self-assessment of health and actions of preserving it. First, the share of those who do not take care of their health is higher in a group with its low self-assessment and lower among those who rated their health as good and excellent (*Tab. 12*). Second, low-energy practices are equally common among people with different self-assessments of health. Active physical activity is more typical for people who defined their health as very good and good – 36% (against 14–15% of those who called it satisfactory and bad). Third, it is noteworthy that people with low self-assessment of health do not manage to optimally combine work loads and rest. It requires additional thinking and analysis. Fourth, people with poor health visit baths less often (24% vs. 33% among people with satisfactory health and 33% among those who rated their health as very good and good), have higher medical activity (35% vs. 28 and 29%, respectively), are undergo treatment more often (10% vs. 6 and 8%); at the same time, among unhealthy people, there are fewer of those who moderately consume alcohol (26% vs. 33 and 30%) and care about an optimal combination of work and rest (16% vs. 22 and 24%).

The analysis suggests that people's assessment of their lifestyle is not always adequate. For example, among those who consider it healthy, one third of respondents either do not implement self-preservation

Table 12. Distribution of responds to the question "What do you personally do to maintain and improve your health?" depending on self-assessment of health, % of a number of respondents

What do you personally do to maintain and improve your health?	Average in the survey	Health self-assessment groups		
		Very good, good	Satisfactory	Bad, very bad
Size of a category in the sample (people)	5616	2449	2586	308
I am actively engaged in physical culture, body toughening	24.1	36.2	15.2	13.6
I use household appliances for cleaning drinking water, buy bottled water, use water from special sources (springs, wells)	33.5	37.3	31.4	34.7
Control my weight	34.3	37.3	33.4	29.2
I do not smoke	52.8	55.7	51.2	55.8
I go to the doctor at the first signs of illness, regularly undergo a medical examination	27.8	28.9	27.9	34.7
If possible, I undergo a treatment in a sanatorium, resort, etc.	6.9	7.9	5.8	10.4
I visit a bathhouse, sauna	31.4	33.1	32.7	23.7
I moderately consume alcohol	30.9	30.4	32.9	26.0
I try to walk more, I take walks in places of rest	34.5	35.6	34.5	37.7
I try to control my mental state	28.3	29.0	28.5	29.5
I try to optimally combine work and rest	22.2	24.4	21.7	15.6
I try to organize my free time with a benefit for health, self-development, and self-realization	21.9	25.3	19.8	23.1
I'm not doing anything on purpose	17.5	13.2	20.8	20.5
Other	0.5	0.7	0.3	0.6
A number of measures taken to preserve and strengthen health				
None of the measures are marked	11.8	8.2	12.9	15.3
1–2 measures	25.9	25.0	25.4	27.9
3–4 measures	30.4	29.8	32.9	27.6
5 and more measures	31.9	37.0	28.8	29.2
Source: data from a sample sociological study conducted in February–March 2020 in 10 Russian regions.				

practices at all, or adhere to 1–2 most common ones. Awareness of an unhealthy lifestyle is higher – more than 50% of respondents admitted it. Longevity-oriented Russians make much more effort to preserve their health: a number of healthy lifestyle practitioners and their range of practices are noticeably higher among them.

However, an analysis of the prevalence of risk factors shows that they are significantly less differentiated in both groups: lifestyle self-assessment and longevity attitude. Among modern risk factors for bad health, absolute leaders are neglect or ignorance of the norms of a healthy diet and the ratio of work and rest (almost 40%), frequent stress, a feeling of distress (55%) and associated alcohol consumption (53%, while 27% of respondents have obvious abuse). Smoking and alcohol often act as a "cure" for stress or intermediaries in communication, a quarter of its users acknowledge their need to drink and/or smoke (among Vologda residents, the share of such responses is critical – 43%). It is quite difficult to work with traditions of feasts and communication practices, but it is possible and necessary to work systematically to replace destructions in the complex of relaxation and anti-stress behavioral programs.

Concluding a brief overview of the block "health and self-preservation behavior", it is necessary to note that Russians tend to declare a high value of health. At the same time, there is a persistent gap between understanding how to live to preserve health and what practices are implemented in everyday life.

It is obvious that most Russians, using the health resource to achieve other life goals, live in an uncompensated high rhythm, stressful conditions and aggravate the situation by an inadequate way of relaxing and reducing stress.

In such situation, it is important to act with soft power by creating a need for self-preservation practices and leading to its mandatory implementation; it is necessary to simultaneously create an accessible infrastructure that allows implementing these practices.

In this article, we deliberately avoided mathematical methods of analyzing received information, since it is important at the next stage of understanding obtained primary data while searching for patterns, conducting factor analysis, and making forecasts. Undoubtedly, while developing a model of optimal conditions for the formation and implementation of demographic attitudes, it is impossible to do without a mathematical apparatus.

Thus, realizing the responsibility and complexity of forming a methodology that allows synthesizing numerous indicators of population's demographic behavior and refracting it from a point of view of possible directions for adjusting socio-demographic policy, the creative team of the project "Demographic behavior of the population within Russian national security" believes that formed sociological tools will help solve this task.

A comprehensive nature of the study will allow understanding the current situation, provide extensive opportunities for obtaining information and analyzing it, and become the basis for understanding the directions of deepening the study and finding ways and mechanisms for adjusting socio-demographic policy after the results of the first wave of monitoring.

An all-Russian nature of the study will allow a balanced approach to the analysis and adjustment of situations in regions, which is extremely important since there can be no unified solutions for many demographic problems for the whole country, and the regional aspect is important.

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Received July 23, 2020.

MODELING AND FORECAST OF SOCIO-ECONOMIC PROCESSES

DOI: 10.15838/esc.2020.4.70.3
UDC 614.4:519.876.5:004.942:332.144, LBC 51.9:32.972:60.8

COVID-19 Epidemic Modeling – Advantages of an Agent-Based Approach

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For citation: Makarov V.L., Bakhtizin A.R., Sushko E.D., Ageeva A.F. COVID-19 epidemic modeling – advantages of an agent-based approach. *Economic and Social Changes: Facts, Trends, Forecast,* 2020, vol. 13, no. 4, pp. 58–73. DOI: 10.15838/esc.2020.4.70.3

Abstract. The article presents the authors' approach to creating a model tool for predicting epidemiological development depending on quarantine measures with an assessment of peak loads on the health system. An agent-based model is proposed as such a tool, where agents-people go through the stages of disease from infection to recovery or death. The difference of an agent-based epidemiological model from the classical one is that these transitions are modeled not at the group level but at the individual one, which makes it possible to account for the heterogeneity of the population by the characteristics related to people's sensitivity to the infection and their involvement in the spread of the disease. Thus, the probability of the agents' severe disease complications depends on the individual basic level of health, and the infection spread is simulated taking into account the agents' social (family) relationships. The novelty of the presented agent-based model of epidemics lies in the use of the mechanism of family formation, which makes the simulation of contacts at the level of an individual agent as close to reality as possible. The model was tested on the example of the COVID-19 epidemic in the city of Moscow. For a plausible simulation of the agents' disease, the epidemiological characteristics of COVID-19 were used, set by expert practitioners involved in the examination and treatment of patients. Using computer simulations, the researchers obtained estimates of the epidemic course for various values of the model parameters, including the impact of quarantine measures on such characteristics as the number of infected and dead over the entire period of the epidemic, the date of the infection peak and its scope, and the peak need for beds, including intensive care. The used socio-demographic structure of the population and epidemiological characteristics of a specific infection are the parameters of the model, which allows it to be adjusted to the particular qualities of other regions and infections for its further practical use as a tool for supporting management decisions in regional and sectoral situation centers. A supercomputer version of the model is planned to be developed for this purpose.

Key words: epidemic modeling, agent-based models, computer modeling, computational experiments on social processes models, information technologies of decision-making intellectual support.

Introduction

The system of making important management decisions requires the usage of specially developed software which makes it possible to model the real socio-economic situation, predict its development, and pre-evaluate the consequences of certain planned measures. In the context of the COVID-19 pandemic, managers at various levels have to quickly make unprecedented decisions, which makes the availability of such model tools even more relevant, since it allows accumulating and analyzing the "virtual" experience of efficient and inefficient decisions obtained during model (computer) experiments. This experience can be used in the future when similar situations occur, that is, it will help quickly make better prepared decisions in the event of a new epidemic caused by a similar or any other infection.

Epidemics' spread is a well-studied and well-formalized process, which makes it possible to model it. The main model of epidemics is the model developed by Anderson G. McKendrick and William O. Kermack. It describes the spread of infection transmitted from person to person [1]. The entire population, according to their concept, is divided into groups depending on the status in relation to a studied infection. In the basic SIR model, these groups are: S – Susceptible (those who

do not have immunity and can be infected), I – Infectious (infected and infectious), R – Recovered (recovered and acquired immunity), which corresponds to the main stages of the disease. Over time, as the infection spreads, the status of individuals may change, which means that they move to another group. The sequence of letters in the abbreviation of SIR means the sequence of people's moving from one group to another. The basic SIR model was becoming more complex as time passed, new stages of a disease (and related groups) were added to it, which allowed taking into account the propagation characteristics of various types of infections in more details. There appeared such modifications of the SIR model: SIS – for infections that do not form a stable immune system (for example, seasonal flu); SEIR – for infections with an incubation period (which includes the COVID-19 virus), and others. In addition, for all these modifications of the basic model, there are options with adding D at the end – death stage for a separate account of the dynamics of the deceased.

Based on the SIR class models, a field of epidemic modeling has developed, which has experience in successful practical developments using various technological approaches.

Traditionally, to describe the dynamics of the epidemic, differential equations were used, for which the coefficients were selected characterizing the proper infection – its contagiousness, duration of the incubation period, lethality, etc. – and specific conditions for its spread – population size, initial number of infected people, presence/absence of immunity among population, etc. It is important that the usage of differential equations implies population's homogeneity in terms of its participation in the spread of the epidemic. Therefore, in order to account for the heterogeneity existing in reality, conscientious researchers divide the population into groups (e.g. by age) and/or select the indicators characterizing, for example, the proportion of the infectious people among the infected ones or the starting point of the epidemic, achieving coincidence of the results of the model calculations with the observed real data. Only then they do move on to predictive calculations. M.V. Tamm's work[1] is a good example of such kind of a research, where the author used the COVID-19 Scenarios model[2] [2], created under the supervision of Richard Neher, for calculations. It is also significant in another respect – the author emphasizes that data on detected infected people do not reflect the true picture of the infection spread and offers his own way of solving this problem.

Another approach to implementing the epidemic model is also possible: it is modeling from the point of view of an individual who is susceptible to infection and can move from one stage of the disease to another with a probability that depends on many factors. The most flexible method that implements modeling at the level of individuals is a special type of simulation – an agent-based one. The agent-based model (ABM) simulates the behavior of individual agents who are able to act independently in accordance with their interests and/or under the influence of the external environment, including under the influence of other agents. Main advantages of the agent-based approach, which has been commonly used in recent years for solving the problem of modeling epidemics, are:

[1] Tamm M.V. Coronavirus infection in Moscow: Forecasts and scenarios. *Meduza*. Available at: https://meduza.io/feature/2020/03/30/v-moskve-vveli-zhestkie-karantinnye-mery-pohozhe-eto-pravilno-matematicheskaya-model-pokazyvaet-chto-inache-mogli-by-pogibnut-bolshe-100-tysyach-chelovek (accessed: May 30, 2020).

[2] An interactive version of the model is available for conducting experiments at: *COVID-19 Scenarios*. Available at: https://covid19-scenarios.org/

• ejection from the requirement of knowledge about interdependencies of various global characteristics, since, in case of the agent-based model, change of a state of society as a whole (artificial society) is obtained as the result of aggregation of changes of individual members' (agents') state. As a result, it is possible to rely on more reliable information about processes at the micro level, that is, to describe the conditions for the agents' transition from one stage of the disease to another, based on the experience of experts-practitioners involved in the patients' examination and treatment;

• ability to reproduce an actual population structure on a population of agents based on characteristics associated with their sensitivity to the infection, and with their participation in the spread of the disease; in other words, to naturally take into account population's heterogeneity and create the most realistic simulation of the epidemic.

A number of studies on ABM epidemics has become so great recently, that it has even led to the emergence of works suggesting their classification system. For example, there are four main groups of epidemiological ABM components: features of the disease and its spread; recreating society's characteristics; simulating everyday movements of the population or social contacts; characteristics of the terrain and natural environment (climate, etc.) [3]. All models are conditionally divided into those that study the nature and dynamics of the epidemic spread in order to predict the epidemiological situation, and those that are designed to test measures to combat epidemics. A separate group includes those models that assess the cost-effectiveness of anti-epidemic measures, such as vaccination.

Let us show some examples of successful epidemiological ABM based on the transition of agents from one stage of the disease, corresponding to the scheme of the SEIR model, to another. Simulating the infection spread is based on individual agents' social interactions. The models use geographic information systems (GIS) to visualize the epidemics spread on the map, resulting from modeling. These include the following works:

• a model of the spread of a measles outbreak in Burnaby, Canada [4], designed to study spatial diffusion of infectious diseases in an urban environment through a network of human contacts;

• a model of the 2009 H1N1 flu outbreak in Mexico [5], designed to assess the impact of government measures to restrict citizens' mobility through official passes;

• a pandemic model in the Greater Toronto Area of Ontario, Canada [6], which takes into account individual levels of agents' exposure to infection and their ability to transmit the disease, correlated with real demographic data and population behavior. The model is used by the Ontario Agency for Health Protection and Promotion as a tool for defining a strategy for mitigating the pandemic effects.

A classic example of a very large ABM that was created to solve an applied problem is Joshua Epstein's full-scale distributed agent model of epidemics [7]. Initially, it included 300 million agents moving around the US map according to a 4000×4000 correspondence matrix, then expanded to 6.5 billion agents to simulate the effects of the influenza A (H1N1/09) virus spread across the entire planet.

There are also works that use different approaches. For example, two simulations – a system-dynamic and an agent-based one are compared using flu propagation models [8]; the results obtained using stochastic ABM

and a structured metapopulation stochastic model for modeling the baseline scenario of a pandemic in Italy are compared [9]. The socio-demographic structure of the Italian population is reproduced in detail on the population of agents in the ABM. The global metapopulation model used data from censuses around the world, as well as data on airline travel flows with charts of people's mobility. Both models were synchronized in their initial conditions, including parameters of a disease and a volume of infected people coming from international trips.

Special attention should be paid to the models developed for the current COVID-19 pandemic directly. First, we should note the classic example of using the SEIR class model [10] to simulate and analyze the COVID-19 outbreak in Wuhan, taking into account individual behavioral responses of people and government actions (holiday extension, travel restrictions, hospital deployment, and quarantine). The paper compares it with the 1918 flu pandemic in London.

In general, there is already a lot of research on the COVID-19 pandemic. It is sufficient to point to the portal MedRxiv. The Preprint Server for Health Science[3], dedicated to the study of the most diverse aspects of the SARS-CoV-2 coronavirus pandemic, which hosts almost four and a half thousand scientific preprints, and most of them contain various types of epidemiological models. A wide variety of approaches are presented here, for example:

The econometric model [11] that evaluates the parameters of time series of data on COVID-19 mortality for such countries as South Korea, Italy, Spain, France, the United Kingdom, Germany, and the United States.

The global macroeconomic model Global VAR (GVAR) [12], which considers social interactions of people from different countries (Facebook data were used) and the impact of these interactions on the assessment of risks associated with the COVID-19 epidemic. The attitude to risks provides the basis for people's behavior in an epidemic situation, their compliance or non-compliance with social distancing (aggregated indicators of mobility tracking obtained from Google Mobility Reports were used). The model also tracks the impact of the epidemic on important components of the economy, such as the labor market and unemployment.

The models of the SIR class. The model [13], in which the Greek population is divided into two groups, those younger and older than 40. It is investigated how the weakening of isolation measures separately for a particular group affects overall mortality rates. The model [14], which was experimented with using data from nine European countries, revealed pandemic characteristics that are invariant in different countries. The model also revealed a minor impact of average temperature in the country on the likelihood of infection in each contact, and higher temperatures are usually associated with lower infectivity.

The agent model [15] for assessing the impact of social distancing on the mitigation of the epidemiological situation.

However, the authors were most interested in cases of epidemic models that: a) use population differentiation by susceptibility to infection; b) explicitly take into account the characteristics of the infection itself; c) provide an opportunity to assess the impact of the epidemic on the health system; d) have an interface allowing to test various measures to counter the epidemic spread, since these components are considered by the authors

[3] *MedRxiv. The Preprint Server for Health Science.* Available at: https://connect.medrxiv.org/relate/content/181

to be key in creating an adequate simulation of the epidemic with the possibility of its further practical usage as a tool of supporting management decisions. From this point of view, the following works were the most important for us:

• a combined model of cholera spread [16] using differential equations that take into account the epidemiological characteristics of this disease in detail, as well as the mechanism of cellular automata to simulate people's (agents') ability to move;

• Richard Neher's COVID-19 Scenarios model[4] based on the usage of differential equations, which allows differentiating population groups by their susceptibility to infection and intensity of social contacts, depending on age, and varying the characteristics of the infection. The model is configured to assess the need for hospitalization, including resuscitation;

• ABM, developed by American and Indian scientists [17], which takes into account the differentiation of population by health level, economic status, and access to medical care, and uses data on actual prevalence of serious chronic diseases among population of different age cohorts. The model is designed to evaluate various vaccination strategies in terms of the achieved reduction in morbidity, as well as the financial burden of costs incurred. Cost efficiency is estimated by their correlation with the cost of disability that was prevented;

• ABM of H1N1 pandemic influenza in Egypt [18], developed by Egyptian scientists. Agents in the model are differentiated by age and social roles (including the intra-family ones), which is used to simulate their interaction and infection. The parameters that characterize the proper infection are set. In addition, the model allows evaluating the efficiency of various measures to combat the epidemic spread.

The purpose of the present research is to develop ABM as a tool for predicting epidemiological dynamics depending on quarantine measures which would assess the peak loads on the health system based on a plausible simulation of the processes of individuals' infection and their passing through the stages of COVID-19 disease.

ABM of the COVID-19 epidemic in Moscow

Problem statement

The COVID-19 infection itself is new and insufficiently studied, so the information about its epidemiological characteristics, the features of infection, the duration of various periods, etc. has been largely contradictory since the beginning of the epidemic. As of today, we can say the following with confidence:

• the infection is new; no one is immune to it;

• the infection is transmitted from person to person; face-to-face contacts between infected play a huge role;

• there is a fairly long incubation period from a moment of a person's infection up to the disease; this period passes unnoticed for a person and others;

• during the incubation period, a person is a source of infection through face-to-face contact, that is, the latent period nearly coincides with the incubation (this information has not yet been clarified; practically, we focused on one-day difference, characteristic of the flu);

• most of the diseased may have an asymptomatic or mild form of the disease, but they are also sources of infection through face-to-face contacts;

• the disease may be extremely severe, cause complications that lead to a critical condition,

[4] *COVID-19 Scenarios*. Available at: https://covid19-scenarios.org/

require long-term treatment in intensive care units, and even lead to a fatal outcome;

• a person's basic level of health (if he or she has or does not have serious chronic diseases) plays a significant role in how the disease will proceed and what outcome it will lead to. Due to the fact that the proportion of people suffering from chronic diseases is much higher among older people, the risk of complications for them is also much higher.

Taking into account these features of COVID-19, we selected a modification of the SEIRD epidemic propagation model as a basis; created ABM provides transitions between corresponding stages for agents-people.

When creating realistic ABM, the results of which could be used as an assessment of development of processes occurring in real life, it is necessary to provide at least two conditions: first, to reproduce the structure of the simulated system as accurately as possible at the selected initial time; second, to achieve the most accurate simulation of actions of agents involved in the modelled processes. In addition, it should be possible to change environment characteristics that affect the agents' behavior. Typically, such characteristics are entered into ABM as parameters that can be changed during computer experiments. This very approach allows simulating various scenarios for the processes' development and / or the impact of management measures in order to assess their consequences.

It is important to emphasize here that the structure of agent population should reproduce the differentiation of real community by characteristics that significantly affect the agents' behavior in the processes that the model is configured to simulate. In our case, this is the differentiation of people by their susceptibility to the infection, and the ways and speed of its transmission. As a minimum, we should ensure that basic demographic characteristics, such as age and gender, as well as some measure of health status, are correctly distributed among the agents' population. In addition, it is necessary to form families, since it is within families where constant intensive contacts between people take place.

Moscow was chosen as the modeling object. In a megalopolis, we can speak about intensive interactions of residents with more confidence, that is, the SEIRD model is expected to be more plausible. In addition, Moscow faced the COVID-19 problem earlier than other regions, and authorities were forced to take measures that affected development of the epidemic situation.

In addition to the modeling object, it was important to determine which data can be considered reliable enough to be used as a source for the model building. If we talk about data related to population, we should understand that it is quite difficult to separate Moscow from the Moscow agglomeration. There is data on the age and gender composition of the permanent population of Moscow, but there is also shuttle labor migration, there is regular migration, including the unofficial one, and there are huge traffic flows through train stations and airports. All these people can take part in the process of spreading the infection. However, at the first stage of creating the COVID-19 epidemic ABM in Moscow, when developing its prototype, it was important to test the mechanisms of simulating the processes of infection spread and the agents' passing through the disease stages, which made the task easier. So, we limited ourselves to considering the permanent population of Moscow. In addition, for the purity of the experiment, the processes of natural population movement, birth rate and mortality from other causes, were not taken into account during the simulated period.

If we talk about data related to the proper coronavirus infection, it should be noted that daily published data on a number of infected people do not and cannot provide a whole picture, since it depends on a number of tests performed and testing scheme itself. Thus, at first, testing was conducted mainly among those who had suspicious symptoms, and/or among those who had contacts with already identified patients. However, it is now reliably known about the long incubation period, and a large proportion of asymptomatic patients. In this regard, we considered data on a number of cases to be not reliable enough to base the work of the model on them.

The main source of information used to simulate the processes of new patients' infection and the disease features were the official guidelines[5], prepared by domestic experts-epidemiologists, taking into account the experience of the Chinese, American, and European centers for disease control, the results of scientific research and data prepared by WHO specialists.

The prototype of the COVID-19 epidemic ABM in Moscow was developed at the Central Economic Mathematical Institute of the Russian Academy of Sciences in the Java programming language. The model reads initial data required for building the model, creating a population of agents, and distributing its properties from an external file in Excel format and stores the simulation results in a file of the same format for further processing and analysis.

As well as the creators of the COVID-19 Scenarios model, we considered it important to assess the burden on the health care system, so the presented model calculates the number of necessary beds in hospitals, including intensive care units, at each step of the simulation (which corresponds to one day), in addition to the number of groups of agents at different stages of the disease.

ABM implementation of COVID-19 epidemic

Source data: population of Moscow and its distribution by age and gender; population of agents; the distribution of child births by the age of a mother; the distribution of the population by health level.

Model parameters: initial number of infected; initial reproductive number R_0 (a number of people infected by one virus carrier on average); proportion of mild cases; minimum and maximum duration of the incubation period; minimum and maximum duration of the disease.

Setting the model starting state

Values of the agents' demographic characteristics such as age and gender are distributed using scaling procedures on the population of agents of a given number in such a way as to reproduce the age and gender structure of the population of Moscow corresponding to the original data in an artificial society. The model also takes into account the differentiation of people by health level, which is set on a scale of "excellent", "practically healthy", "weak" (the latter category implies the presence of chronic diseases). Initially, the agents are assigned a basic level of health in accordance with the initial data on the groups ratio, after which a value is adjusted for their age (with ageing, the probability of the agent's health moving to the worse category increases). Then the agents form families, which uses initial information about the distribution of child births by the age of a mother. An agent "remembers" family ties with the help of individual collections (lists) of

[5] *Temporary Guidelines of the Ministry of Health of the Russian Federation. Ver. 5.* April 8, 2020. Available at: https://xn--80aesfpebagmfblc0a.xn--p1ai/ai/doc/114/attach/vremennie_mr_COVID-19_versiya_5.pdf (accessed: May 30, 2020).

immediate family members: spouse; parents; children; siblings (see [19] for more information about the procedures used to simulate family formation in the model).

Simulation of COVID-19 infection propagation processes

At each step of the model, agents are infected from other agents, diseased or infected (except for those who are in hospital, quarantined or self-isolated). Each source agent can transmit the infection further at each step of the simulation in two different ways: to relatives (the probability of getting sick for each relative is assumed to be 0.2) and to outside agents, who are randomly selected from population of agents. The probability of infection for the source agent in the latter case is defined as a ratio of a number of possible infections to the length of the period during which it is considered infectious (the sum of the incubation period and the disease period duration). In case of "successful" infection, a number of possible infections for the source agent is reduced by one, and this agent does not infect anyone else during the simulation step. For newly infected agent by the plan of the disease is determined: the duration of the incubation period, severity of illness and length of hospitalization (including intensive care) and the outcome of the disease – agent's recovery with the immunity development or death. In both cases, such diseased agent does not participate in the process of spreading the infection in the next steps of the simulation. The specific values of all these parameters are determined for each agent in a probabilistic way in accordance with the rules presented in *Table 1.*

Table 1. Agents' characteristics associated with COVID-19 and the ways to determine them

Indicator	Possible values in the model	Way for value determining	Expert evaluations and their source
Stage of the disease	Integer in the range [0, 4]: 0 – susceptible; 1 – infected; 2 – deseased; 3 – recovered; 4 – death	Initial value = 0. Changing in the next simulation steps when moving to the following categories according to the disease course plan	
Duration of the incubation period, days	Integer in the interval [Min, Max]	Selected probabilistically using a beta distribution with specified boundaries. The distribution parameters are selected so that the average value (≈6) matches the expert value (5-7)*	For agents over 18: Min = 2; Max = 14; The average value is 5-7 days. For children: Min = 2; Max = 10*
Severity of the disease	Integer in the range [0, 2]: 0 – mild condition; 1– serious condition; 2 – critical condition.	Default value = 0. With a probability depending on the level of the agent's health, 1 is assigned to serious cases, and from those who got 1, having a critical condition of the disease are selected with a given probability	80% of patients have the disease in a mild form. The proportion of critically ill patients is 0.25 of all serious patients*
Duration of the desease, days	Integer in the interval [Min, Max]	Selected probabilistically using a beta distribution with specified boundaries. The distribution parameters are selected so that the duration of treatment increases with increasing severity of the disease	For agents over 18: Min = 2; Max = 14; The average value is 5-7 days. For children: Min = 2; Max = 10*

Continuation of Table 1

Indicator	Possible values in the model	Way for value determining	Expert evaluations and their source
Hospitalization	Integer with values: 0 – necessary; 1 – not necessary	Default value = 0. If the severity of the disease is greater than 1, then 1 is set. The agent is placed in the hospital at the current simulation step	
Intensive care	Integer with values: 0 – necessary; 1 – not necessary	Default value = 0. If the severity of the disease is greater than 1, then 1 is set and the agent is placed in intensive care at the current simulation step If the severity of the disease is 1, then 1 is set with a probability of 0.33 and the time of the patient's transfer to the intensive care unit is determined.	The probability of transfer to the intensive care unit is calculated taking into account that the need for resuscitation is estimated as 0.5 of the number of the hospitalized**. The time of the crisis and the corresponding transfer of the agent to the intensive care unit is set taking into account the experts' data – the 8th day since the beginning of the disease*
Outcome of the disease	Disease stage = 3 Disease stage = 4	Default value = 3. If the agent is in intensive care, then 4 is set with a probability of 0.09	The probability of death is calculated taking into account the official data on the actual lethality for the city of Moscow
Number of possible infections	Integer indicating the maximum possible number of non-related agents that can be infected by the agent	Calculated probabilistically according to the parameter value in decimal format	WHO's estimate dated 20.03.2020***: 2-3, 1
Isolation mode	Integer in the range [0, 2]: 0 – free movement; 1 – self-isolation; 2 – isolation	If the agent is hospitalized, 2 is set. If the agent falls into a category that has a self-isolation mode, then 1 is set	

Compiled using the following data:
* *Temporary Guidelines of the Ministry of Health of the Russian Federation. Ver. 5.* April 8, 2020. Available at: https://xn--80aesfpebagmfblc0a.xn--p1ai/ai/doc/114/attach/vremennie_mr_COVID-19_versiya_5.pdf (accessed: May 30, 2020).
** Amendments to the Order of the Ministry of Health of the Russian Federation no. 198n, dated March 19, 2020, "On the temporary procedure for organizing the work of medical organizations in order to implement measures to prevent and reduce the risks of spreading a new COVID-19 coronavirus infection", dated April 2, 2020. P. 8.
*** How dangerous is coronavirus: Infectivity, lethality and risk groups. *RIA*. March 20, 2020. Available at: https://ria.ru/20200319/1568742369.html (accessed: May 30, 2020).

At the end of each step, the statistics on the agent populations' state are collected; the results are displayed in the model interface window and saved in the output file.

COVID-19 epidemic ABM prototype testing analysis

Figure 1 shows an area of the model interface where the user can set the experiment parameters, and summary results achieved with the specified parameter values at the current modeling step.

In this case – as of September 1, 2020, with the absence of restrictive measures for entire population but compliance with quarantine regulations by hospitalized agents' family members.

Testing of the model and evaluation of its properties, such as realism, stability of the results obtained, their dependence on various parameters, etc., were carried out using computer experiments. Each experiment scenario included a series of samples, then the results were averaged and its stability (spread of values) was evaluated. A number of agents in all experiments is 100 thousand. During the simulated period, the processes of natural

Figure 1. Interface of the COVID-19 epidemic ABM in Moscow

population movement, such as birth rate and mortality from other causes were not taken into account.

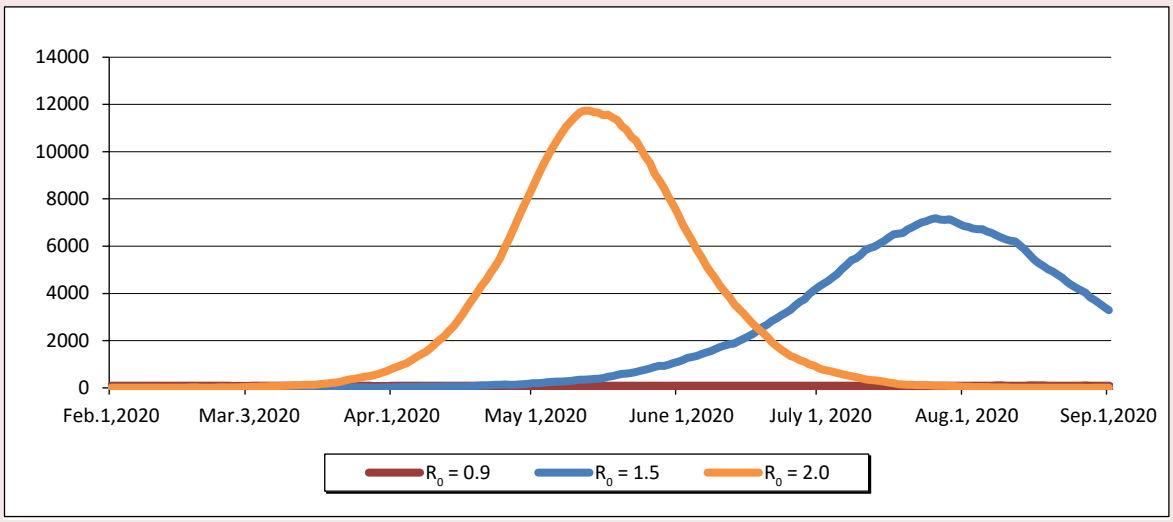
The first series of the experiments was conducted to assess the adequacy of the model's response to changes in the initial reproductive number. For comparison, the following values were selected: $R_0 = 0.9$ (if a value is less than one, the epidemic should fade); $R_0 = 1.5$ (which corresponds to the swine flu indicator) and $R_0 = 2.0$ – according to WHO's experts for COVID-19. The dynamics of the infected agents number, obtained from the simulation results at different values of R_0 and in the absence of quarantine measures, is presented in *Figure 2*.

The graph in figure 2 shows that the results of modeling using the agent-based approach are similar to the results obtained on the classic SEIRD model. Thus, at $R_0 = 0.9$, a number of infected people is extremely small (the maximum number of infected agents does not exceed 17) and does not increase until the end of the simulated period; at $R_0 = 2$, there is a high peak of infection (11.5–11.6 thousand agents), which falls on May 8–10, and, with $R_0 = 1.5$, the peak is significantly lower (7.1–7.2 thousand agents) and shifted to the right (July 25–27), so that the epidemic does not end by the end of the period, although the process of new agents' infection is on the wane.

The next series of experiments was aimed at assessing the impact of restrictive measures on the epidemic's speed and scale. The following options have been calculated for $R_0 = 2$:

- option 1– no restrictive measures;

Figure 2. Dynamics of the infected agents number at different values of the initial reproductive number R_0 and the absence of quarantine measures



Source: calculated according to the results of computer experiments with the COVID-19 epidemic ABM in Moscow.

• option 2 – the implementation of the decree of the Moscow mayor, dated March 23, 2020[6], was simulated in terms of compliance by citizens over the age of 65 with the self-isolation regime starting from March 26 and until September 1. It was considered that citizens of this category are sufficiently disciplined (the probability of their compliance with the order is 0.9);

• option 3 – in addition to conditions of option 2, self-isolation of all other categories of citizens, discipline – 0.5.

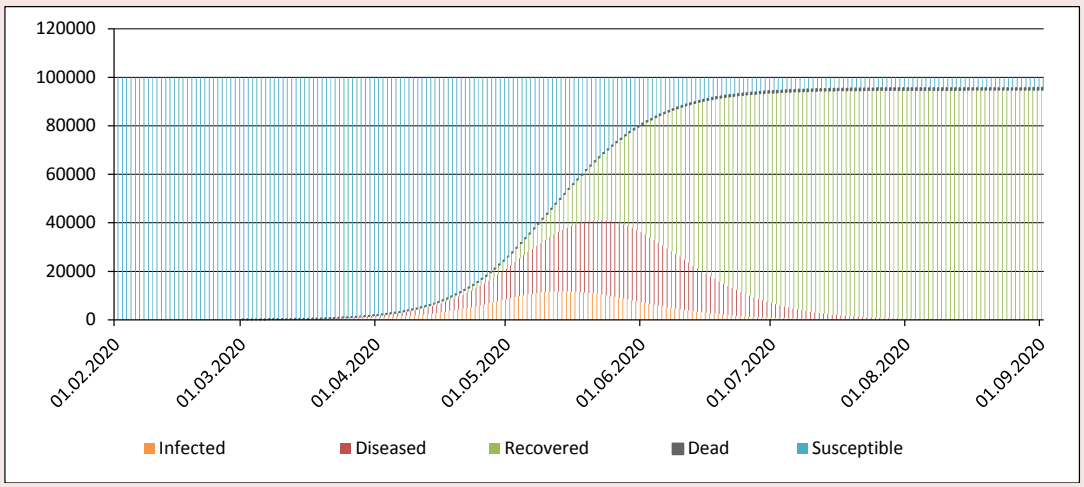
The simulation results showed that the introduction of restrictive measures can significantly reduce a number of deaths (-16.4%), as well as peak loads on the health system (-26.8%). The simulation results are presented in more detail in *Table 2*, where a number

Table 2. Assessment of epidemiological indicators with the absence of quarantine measures and self-isolation of citizens over 65 years of age (R_0 = 2)

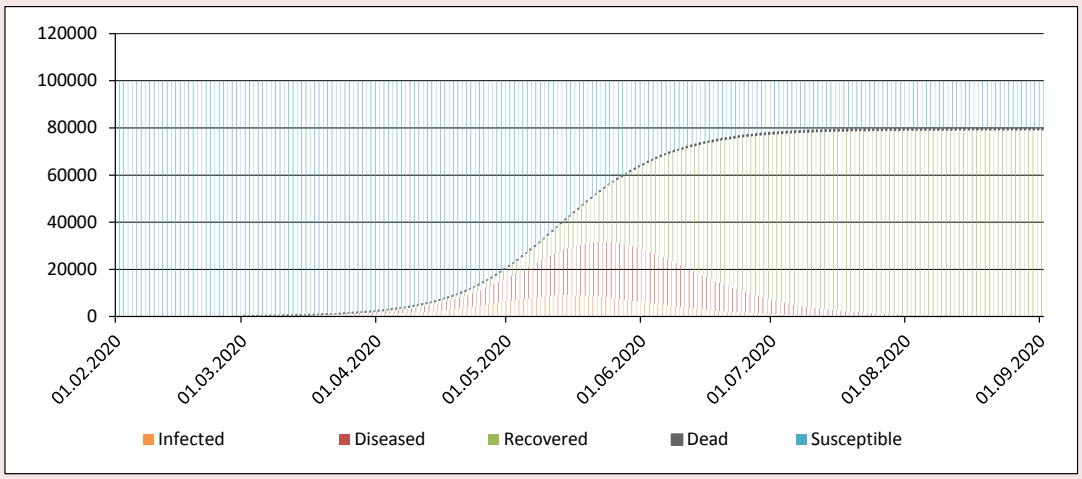
Indicator	Option 1	Option 2	Option 3
Total number of infected for the entire period, thousand people	12067.922	10083.283 (-16.4%)	Similar to Option 2
Percentage of the infected in the total population, %	95.7	79.9	Similar to Option 2
Maximum number of the required places in hospitals, thousand.	861.120	630.513 (-26.8%)	Similar to Option 2
including intensive care units, thousand.	359.410	257.857 (-28.3%)	Similar to Option 2
requirement peak	May 27	May 26	June 29
Number of deaths, thousand people	105.842	88.433 (-16.4%)	79.098 (-25.3%)
Compiled according to the results of computer experiments with the COVID-19 epidemic ABM in Moscow.			

[6] On amending the decree of the Moscow Mayor no. 12-UM, dated March 5, 2020: Decree of the Moscow Mayor no. 12-УМ, dated March 23, 2020.

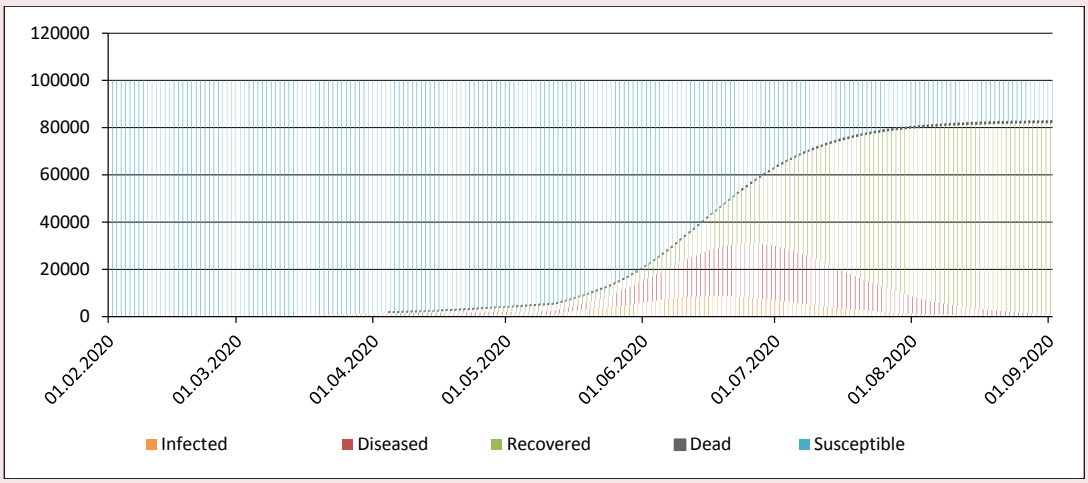
Figure 3. Dynamics of a ratio of agent population groups. Options: a) no restrictive measures; b) self-isolation of citizens over 65 years of age; c) self-isolation of all citizens since April 4, 2020 to May 11, 2020



a)



b)



c)

Source: calculated according to the results of computer experiments with the COVID-19 epidemic ABM in Moscow.

of agents and a number of beds required are converted to a scale corresponding to population. In option 3, there is a noticeable improvement only in a number of deaths (-25.3% compared to option 1), and the peak of the disease is pushed back by a month – until June 29–30. The course of the epidemic for studied options is illustrated in *Figures 3a-c*.

Comparison of different forecast options indicates an adequate response of the model to the introduction of appropriate restrictive measures. As for absolute values of a number of different agent groups, it is obvious that the model needs to be calibrated to clarify the parameters set by experts, primarily the date of the epidemic start and initial number of infected people. In our opinion, the model, calibrated in this way, may be used in solving practical problems related to testing restrictive measures.

It should be noted that observed variation in the results of various samples is quite large, which is caused by the very usage of probabilistic mechanisms for a large number of model parameters on a relatively small agent population. In order to improve the stability of the model, it is necessary to increase the agent population. This will require switching to supercomputer technology. A supercomputer version of the epidemic ABM is planned to be developed on the basis of the MOEBIUS software system created at the Central Economic Mathematical Institute of RAS [20], which allows designing ABM with up to 1 billion agents.

Conclusion

After analyzing the results of testing the presented prototype of the demographic epidemic COVID-19 ABM in Moscow, the following conclusions could be drawn.

The usage of an agent-based approach made it possible to create a realistic epidemiological model that explicitly takes into account: a) the specifics of the course of a particular infectious disease that caused the epidemic; b) the heterogeneity of the region's population in terms of its susceptibility to infection; c) the individuals' social ties that significantly affect the frequency of contacts and, as a result, the probability of the infection transmission. A special feature of the presented design, which distinguishes it from other known epidemic ABMs, is the usage of the family formation mechanism, which makes the simulation of contacts as close to reality as possible at the level of an individual agent.

The model showed an adequate response in the course of computer experiments to the variation of the main epidemiological parameters and to the control actions aimed at restricting the infection spread.

Used socio-demographic structure of population and epidemiological characteristics of a particular infection are the parameters of the model, which makes it quite universal and allows adjusting it to the characteristics of other infections and other regions.

The proposed approach to epidemics modeling can be expanded. For example, in ABM, agents may be differentiated simultaneously in terms of their participation in different types of economic activities. Moreover, taking into account intersectoral links, it is possible to build chains of the final product creation, which will allow computer experiments to assess the direct and long-term consequences of the epidemic, various restrictive measures, and measures to support population and business not only for the economy as a whole but also for its individual industries.

Thus, based on the presented epidemic ABM, it is possible to develop universal software packages designed for decision support systems for departmental and regional situation centers.

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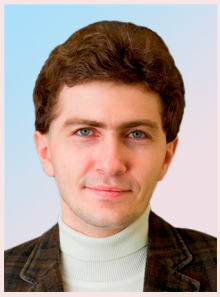
Received June 04, 2020.

DOI: 10.15838/esc.2020.4.70.4
UDC 330.5, 338.001.36, LBC 65.012.3, 65.6

Structural Dynamics of the Economy: Impact of Investment in Old and New Technologies



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Abstract. The purpose of the study is to determine the degree of impact of investment in technological renewal on economic growth, to establish the ratio of the contribution of investment in old and new technologies to the growth rate. This problem is solved when considering the GDP structural dynamics by expenditure in the case of the United States, Germany, Russia and China. The research methodology is based on structural analysis, which establishes a "structural formula" assessing the contribution of investment in new and old technologies to the growth rate of the economy, as well as the contribution of other GDP components by expenditure. This approach allows us to distinguish the existing models of economic growth in the countries under consideration – consumer, investment, mixed models and technological development modes according to the sensitivity of the overall technological economy to investment in new and old technologies. Investment in new technologies is understood as investment in technological innovations, and the overall technological efficiency of the economy is determined

For citation: Sukharev O.S., Voronchikhina E.N. Structural dynamics of the economy: impact of investment in old and new technologies. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 74–90. DOI: 10.15838/esc.2020.4.70.4

by the ratio of the volume of innovative goods shipped and the volume of non-innovative goods, works, and services. The investment breakdown method helps to assess the contribution of investment in new technologies to economic growth, both in a comparative way relative to other GDP components, and for the considered countries. The result of the study is the identification of the economic growth model by the largest contribution to GDP component in the period under review, the contribution to the rate of investment in new and old technologies, as well as the determination of the sensitivity of technology to investment in new and old technologies in the United States, Germany, China and Russia. The analysis found that the impact of investment on the GDP dynamics and the level of technology is not synchronized, which requires to change the approach to macroeconomic policy, aimed not only at stimulating investments as a driver of growth, but also their distribution in such a way which would lead to an increase in the technology of the economy together with changing the institutions.

Key words: GDP structure by expenditure, investment, old and new technologies, manufacturability, economic growth, "structural formula", model of economic growth, mode of technological development.

Introduction

The structural dynamics of the economy is covered by the problem of growth with permanent changes in elements of the economic structure, and the growth of these elements is determined by their interaction and mutual influence. This vision of economic changes has not been reflected in economic growth theories for a long time [1]. The problem was not only the complexity of the phenomenon and the long-term nature of structural changes, but also the fact that the aggregate approach in growth modeling prevailed over the structural representation. Industry shifts, measured by labor movement, or skill changes, or industry diversification models [2], due to the effect of productivity [3–5] have only recently been used, not to mention taking into account the effect of structural reforms or integration on economic growth [6; 7] or the effect of effective structural changes on growth [8]. Schumpeter's direction in economic science over the past quarter of a century made it possible to take into account technological and institutional changes in its impact on economic growth [9–11].

Structural dynamics began to be presented in models that are not focused on a long period, since rapid changes in technologies and institutions affect the rate of development of economic elements that contribute to the overall dynamics in a period of rapid global changes [12].

Thus, economic growth can be decomposed by the contribution of elements of the economic structure to the overall rate, tracking short-term changes. Each element, its share in the economy, and its dynamics are influenced by factors that can act together or separately. In particular, lowering the interest rate can increase gross consumption and boost investment, but worsen, for example, the country's export position through the mechanism of foreign exchange inflows and the strengthening of the national currency, which will constrain exports and reduce the cost of imports. Accordingly, the ratio of the contribution of gross consumption and investment to the rate of economic growth, as well as net exports, will change. Structural reforms, carried out simultaneously, can somehow strengthen or weaken this process by changing the contribution of the GDP component to the overall dynamics. In addition to changing the contribution and the rate of gross investment, its structure also changes. This aspect is very poorly considered in models of technological changes and economic growth [2; 13], and

economic diversification does not always reduce development risks [14] and contributes to the progress in the technology field [15]. The structure of investments becomes a determining factor in influencing economic dynamics and technological changes.

There are studies showing the impact of foreign direct investment on economic growth [16], but aspects of how investments in new and old technologies affect producibility and growth need to be disclosed, especially in the comparative part of established growth models and modes of technological change in different countries. Structural changes outside the context of considering investments in new and old technologies, especially when studying the issues of industrial development, the effects of deindustrialization, and technological renewal are problematic to study in full [17; 18]. The new industrial policy requires not only an assessment of the state of institutions, policy tools, or R&D investments [19] but also its impact on the investment structure [20], which determines the possibilities of technological renewal [21]. This requires the creation of structural models of economic growth and conducting empirical research with the identification of interacting elements of the economy in the course of structural analysis [13].

Let us review the problem of determining the contribution of investments in new and old technologies to the rate of economic growth, as well as determining the modes of technological development according to the sensitivity of the economy producibility to each type of investment. The solution to this task, undertaken below, will allow identifying not only structural, macroeconomic growth policies in the strategic dimension but also creating diagnostic tools in structural dynamics for studied countries (the USA, Germany, Russia, and China) in the current mode of technological development.

Research methodology. Structural analysis of GDP dynamics and economy producibility

The structural dynamics of the economy can be determined by changing the elements of the aggregate indicator, which is a generalized characteristic of this dynamics, GDP in particular. Modern development is expressed in its permanent increase, but its components change their share in GDP value and the rate of dynamics, which affects the value of the overall rate of economic growth. By changing the ratio of the shares of GDP components and its rate, it is possible to assess structural changes that take place, and to investigate the problem of structural dynamics and economic growth. However, we note that each GDP component is very heterogeneous. In particular, investments are made in various types of activities, projects and technologies, so the investment structure also changes permanently and has an impact on the rate of economic growth.

We understand new technologies as newly created advanced technologies, and we consider previosly used technologies to be old ones[1]. Producibility, in the strict sense, should be understood as a possibility of obtaining the same result but with lower costs, which can be achieved by using more advanced or completely new technology for the studied time interval. Moreover, at the initial stage of applying the

[1] The indicator "costs of technological innovations" is overviewed as investment in new technologies (source for Russia is available at: https://www.gks.ru/folder/14477). Due to the absence of a similar indicator (costs of technological innovation) in international statistics sources, including countries' statistics services, of the United States, Germany, and China, the indicator "domestic research and development costs" is used for other countries as the closest one to the cost of technological innovation (available at: https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?view=chart; calculation methodology is available at: https://ec.europa.eu/eurostat/cache/metadata/en/rd_esms.htm). Investment in old technologies refers to the difference between gross fixed capital formation (gross investment – I, source is available at: https://data.worldbank.org/indicator/NE.GDI.TOTL.ZS) and costs of technological innovation (for all studied countries, the indicator is calculated), since an average difference in Russia is 30%, which is acceptable, from our point of view, for research tasks.

technology, these issues usually grow due to the high cost of the technology, but then they pay off with wide opportunities for using this new technology. However, within the task of quantitative assessment of producibility, we apply the "level of producibility" indicator, which can be defined as the ratio of the volume of shipped goods and services created using new innovative technologies to a total volume of goods and services related to non-innovative ones[2]. The distribution of investments can be represented between new and old technologies. It is this distribution that can be used to characterize technological renewal, since it has a certaineffect on producibility – the creation of benefits on new and old technologies. In this case, gross investment as a component of GDP can be represented as the sum of investments in new and old technologies, namely $I = In + Is$. GDP $Y = C + I + G + Nx$, representing the sum of gross consumption (C), investment (I), government spending (G) and net exports (Nx) will be written as $Y = C + In + Is + G + Nx$. By differentiating both expressions for GDP by expenditure, we obtain structural formulas that allow estimating the contribution of each GDP element to the rate of economic growth. The structural formula with total investments will be the following:

$$g = gc * c + gI * i + gG * a + gNx * b, \quad (1)$$

where:

$g = \left(\frac{1}{Y}\right)\left(\frac{dY}{dt}\right)$; $gc = \left(\frac{1}{C}\right)\left(\frac{dC}{dt}\right)$; $gI = \left(\frac{1}{I}\right)\left(\frac{dI}{dt}\right)$; $gG = \left(\frac{1}{G}\right)\left(\frac{dG}{dt}\right)$; $gNx = \left(\frac{1}{Nx}\right)\left(\frac{dNx}{dt}\right)$ – GDP growth rates and its component;

$c = \frac{C}{Y}, i = \frac{I}{Y}, a = \frac{G}{Y}, b = \frac{Nx}{Y}$ – structural GDP parameters by expenditure, the share of gross consumption, investment, government spending and net exports respectively.

$$g = gc * c + gIn * n + gIs * s + gG * a + gNx * b, \quad (2)$$

where:

g_{In}, g_{Is} are the growth rate of investment in new and old technologies respectively,

n, s are shares of new investments ($n = \frac{In}{Y}$) and old ($s = \frac{Is}{Y}$) technologies in GDP.

Expressions (1)–(2) are the "structural formula" that allows estimating the contribution of each GDP component to the rate of economic growth.

According to structural formulas (1) and (2), it is clear that each GDP component contributes to the country's economic growth rate. We would like to note that this contribution changes, and we may talk about the dominance of a particular GDP component at a certain interval in terms of its contribution to the growth rate. As the contribution changes over time, so does the dominance of components. If the main contribution of growth rate is made by gross consumption, we can talk about the consumer model of economic growth, if investment spending – about the investment growth model. If net exports dominate the contribution, then there is a foreign economic growth model. Provided that government spending will make the main contribution to the growth rate, although this is not a typical case for the countries, this will be growth model at the expense of the public sector. In any case in the theoretical sense it is possible

[2] The volume of goods, works, and services shipped using new technologies is defined as the volume of innovative goods, works, and services shipped (sources for Russia are available at: https://www.gks.ru/folder/14477; for the United States, Germany, and China, the calculation is made by summing up the volume of goods shipped by types of innovative activities according to the Eurostat methodology: aerospace industry, computer technology, electronic equipment, pharmaceutical products, scientific instruments, electrical equipment, chemical products, non-electrical equipment, and weapons. Sources: Eurostat data is available at: https://ec.europa.eu/eurostat/data/database; The Bureau of Economic Analysis of the USA data is available at: https://www.bea.gov/data/gdp; China's statistics data is available at: http://www.stats.gov.cn/english/).

The volume of goods, works, and services shipped using old technologies is equal to the difference in the total volume of goods, works, and services shipped, minus the volume of innovative goods, works, and services shipped.

only in terms of assessing the impact of the considered components. In case when it is not possible to determine the dominant value of any component, its contribution to the time interval is mixed, we can talk about a mixed growth model without an explicit dominant. In order to influence economic growth, looking for economic policy tools, it is not superfluous to assess the range of these components and factors that affect their dynamics and share in GDP. Without a doubt, changing GDP components can show coherent dynamics and have the same reasons for their change. For example, if the percentage decreases, both investment and consumption can increase. However, it is not a fact that investments will increase in the same way as new and old technologies. It depends on the size of the interest rate offset, its initial level and other institutional conditions that affect the process of technological substitution.

Occuring changes usually cover all elements of the structure and, therefore, the ratio of investments in new and old technologies constantly changes. Moreover, the ratio may change in different ways with this dynamics of the total investment value.

Thus, total investments grow, and the structure of investment distribution in new and old technologies, for example, is maintained with a corresponding increase in the value of each investment. However, the distribution structure may change as the total investment increases or decreases. It is also quite possible that the total amount of investment does not change, but the structure of investment distribution between old and new technologies changes. Similar changes can occur not only when total investment increases, but also when it decreases. No matter how the investment distribution schemes change, they undoubtedly affect the process of technological renewal, that is how old technologies are replaced by new technologies. Technological renewal affects the process of creating new types of goods and its effectiveness. The scale and speed of production, in turn, also depend on how investments are distributed, and the distribution is determined by the initial efficiency. Each economy has its own share of benefits generated by new technologies and investments in new technologies. In this regard, they differ in their contribution to the rate of economic growth, since the dynamism of technological renewal also depends on many institutional conditions and the initial increased technological potential.

Expression (2) can be converted to the following form, taking into account the structure of investments in "new-old" technologies. Then it is possible to write that:

$$\begin{aligned} &\frac{dI}{dt} = Is\frac{d\gamma}{dt} + \frac{dIs}{dt}(1+\gamma) \\ &\gamma = \frac{In}{Is} \\ &\frac{d\gamma}{dt} = \gamma(g_{In} - g_{Is}) \\ &d_{is} = \frac{Is}{I} \\ &i_s = \frac{Is}{Y} \\ &I = Is + In = (1+\gamma)Is \end{aligned} \quad . \qquad (3)$$

Considering (3), the structural formula (2) is rewritten as:

$$\begin{aligned} g \;=\; & g_{In} * (1+\gamma) * \gamma * i_s * di_s \;+ \\ & + g_{Is} * (1+\gamma) * \; i_s * di_s \;+ \\ & + gc * c \;+\; gG * a \;+\; gNX * b \end{aligned} \quad . \qquad (4)$$

From expression (4), which differs from expression (2) only by writing, it follows that the contribution of investments in new and old technologies to the growth rate differs and depends, first, on the value of the rate of each type of investment and secondly, on the share of investments in the total amount of investment or on the size of the investments distribution: $\gamma = In/Is$.

The growth rate of each type of investment will be determined by the current regime of technological development and renewal. This mode is determined by how much producibility

will increase from ongoing investments in new and old technologies. In particular, the most significant value is the increase in producibility from the implementation of investments in new technologies. It is quite possible that investments in new technologies do not lead to a significant increase in producibility, which is more influenced by investments in old technologies. This suggests that the economy is hampered by technological replacement and renewal processes for one reason or another.

If the share of investments in new technologies depends entirely on the amount of investment in new technologies, i.e. how it is possible to increase investment in new technologies, the growth rate of such investments will depend on the rigidity of the institutions that regulate decisions on technology replacement. In addition, credit institutions, the motives of agents to switch to new technologies, the availability of these new technologies before their practical implementation, as well as the readiness of all parts of the economy to accept such technological innovations will affect both the emerging mode of technological development and the amount of investment in new technologies and their dynamism. Increased investments in new technologies may lead to the increase of the overall level of technology, but it may not lead to a significant increase. The same applies to investments in old technologies. Thus, the following technological development regimes can be distinguished according to the sensitivity of technology to investments in new and old technologies (*Tab. 1*).

The increase of investments in old technologies can boost the overall technological level of the economy and hinder it in new technologies. In this case, the overall producibility may increase. In this regard, the modes called "leadership" and "rapid progress" suggest that technology increases. Moreover, main contribution to the increase should be made by investments in new technologies, especially for the "leadership" mode of technological development. The growth of investments in old technologies in this mode acts in the direction of reducing the producibility, but the overall producibility increases. In this case, this increase is solely caused by new technologies, and the mechanism for replacing old technologies with new ones also works at the level of investment. When developing under the "renunciation" mode, the growth of investments in new technologies does not increase producibility – it decreases, and investments in old technologies act in the direction of increasing producibility. In this case, the overall producibility may increase. We see a technological rapid progress, when both types of investments contribute to improving the technological level. Here is the elasticity of producibility for each type of investment, which characterizes which type of investment provides a greater increase in producibility. Given the fact that this mode of technological development is designated as a "rapid progress", investments in new technologies should have a greater impact on improving overall producibility. If the growth of investments in new and old technologies does not lead to the increase in the producibility of

Table 1. Main modes of technological development of the economy in terms of sensitivity to the elements of the investment structure

Investment growth In, Is	Producibility (increase / decrease)			
	Leadership	Renunciation	Rapid progress	Degradation
In	Increase	Decrease	Increase	Decrease
Is	Decrease	Increase	Increase	Decrease

Source: own compilation.

the economy, then this regime can be described as technological degradation. A high level of technological backwardness, significant costs, and low efficiency are characteristics of this mode of technological development.

Using the proposed matrix of main technological regimes in Table 1, it is possible to rank countries or individual regions by the type of technological regime, linking it to the model of economic growth.

The increase of the technological level has a lot of aftereffects, so investments alone are not enough. In addition, there may be a saturation effect – when the increase of the technological level becomes more difficult to achieve further due to growing costs, expanding needs for new investments, and increasing institutional development problems. Emerging imbalances on labor and capital markets also act in the same way, affecting technological renewal.

The initial technological level also determines the dynamism and efficiency of the economy and the possibility of replacing it with technology. The process of replacing technologies is focused on the expected revenue, payback, which depends on the current technological capabilities and the state of markets.

Presented structural analysis is useful not only for identifying a specific economy from a point of view of its implemented growth model but also for technological development. It can also be used in comparative studies while comparing the results of countries' economic development, for obtaining forecast in the field of technology development and the quality of economic growth, the structure of the economy. It can be used for verification of macroeconomic policy measures, since the identification of the growth and technological development model makes it possible to coordinate the methods of sectoral and macroeconomic impacts, which often conflict with each other.

Next, we will overview the application of the presented approach on the example of the largest players in the global dynamics: the United States, Germany, China, and Russia as an important player in modern global competition in some technological areas. We will perform a structural analysis of GDP dynamics according to the received expression (2), taking into account the structure of investments – the division of investments into investments in technological innovations and other investments, as the difference between gross investments and investments in technological innovations (they are considered investments in old technologies). Then we will analyze the sensitivity of technology, which is understood as the ratio of the volume of innovative goods and services shipped to the value of non-innovative products, to investments in new and old technologies, which will allow identifying the current model of technological development of each country. The result of the analysis is an assessment of the impact of the investment structure and technological renewal on countries' economic growth, showing different economic dynamics and characterized by different levels of technological development.

Comparative analysis of structural dynamics of the USA, German, Chinese, and Russian economies

Let us present the structural dynamics of GDP in the following countries: the United States, Germany, China, and Russia in the period of 2001–2017[3] *(Fig. 1–4)*[4], separately

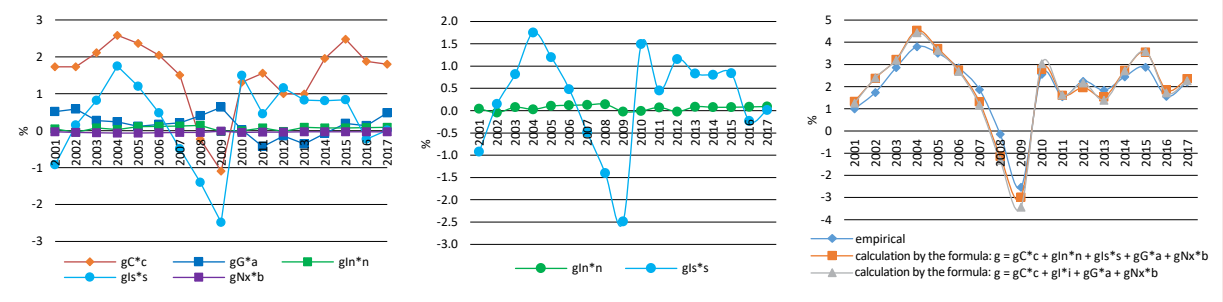
[3] For the Russian Federation, the 2006–2018 period is used, since statistics on investments have been available since 2005.

[4] The source for calculations is the data World Bank data and Rosstat (https://www.gks.ru/accounts). According to the Rosstat methodology, elements of GDP by expenditures are given at comparable prices, taking into account the deflator index and physical volume index of elements of GDP by expenditures. 2002–2011 – in 2008 prices, 2012–2015 – in 2011 prices, 2016–2018 – in 2016 prices.

Sources for other countries: https://data.worldbank.org/indicator/NE.CON.PRVT.KD.ZG?locations=DE; https://data.worldbank.org/indicator/NE.CON.PRVT.ZS; https://data.worldbank.org/indicator/NE.CON.GOVT.ZS?locations=DE https://data.worldbank.org/indicator/NE.GDI.TOTL.ZS?locations=DE; https://data.worldbank.org/indicator/NE.CON.PRVT.KD.ZG?locations=CN

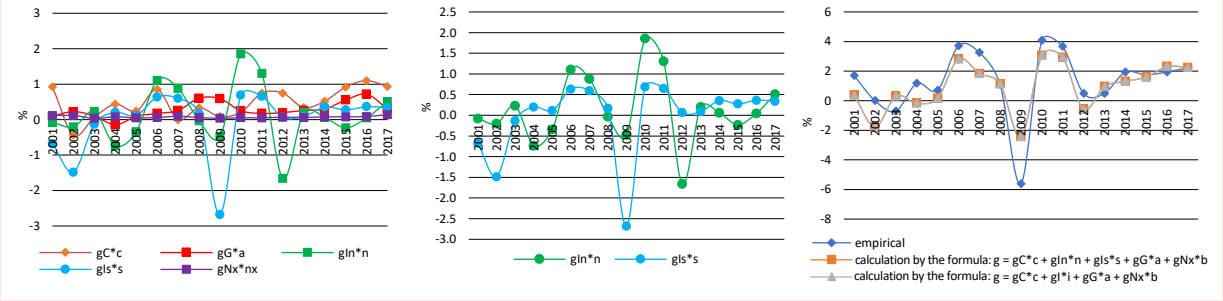
highlighting the change in the contribution of investments in new and old technologies (*Fig. 1–4*, in the center) and evaluating the accuracy of calculation (*Fig. 1–4*, right), comparing the calculation using "structural formulas" (1) and (2) with the actual data on the growth of these countries' economies. For China and Russia, the deviation of calculated values from actual values is the most significant, which can be associated with the quality of data

Figure 1. Structural dynamics of GDP by component (left), investment contribution (center), and calculation accuracy (right), USA, 2001–2017



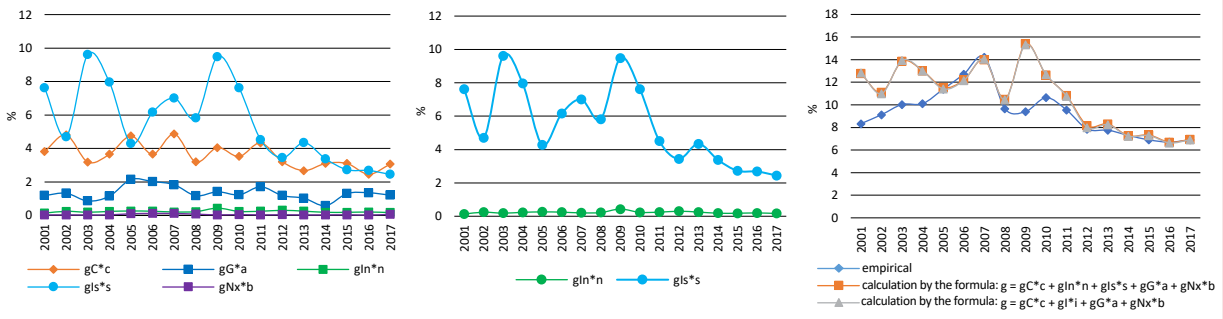
Source: World Bank data. Available at: https://data.worldbank.org/

Figure 2. Structural dynamics of GDP by component (left), investment contribution (center), and calculation accuracy (right), Germany, 2001–2017



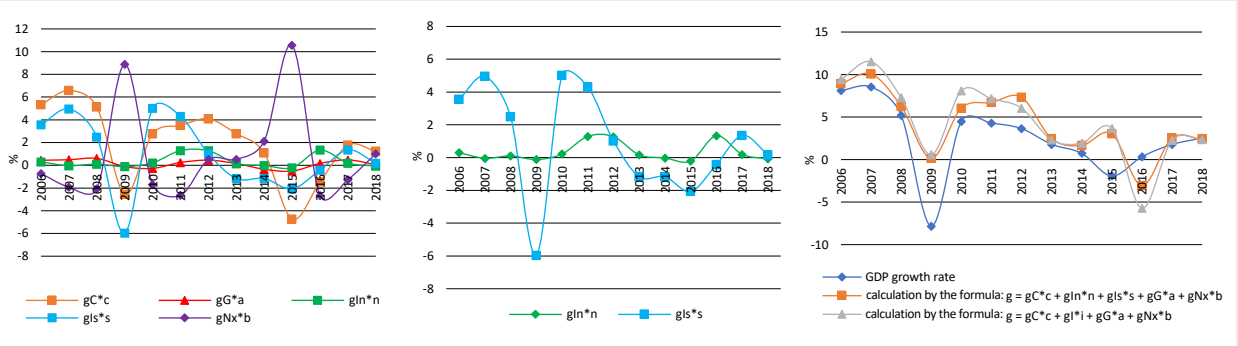
Source: Eurostat data. Available at: https://ec.europa.eu/eurostat/data/database

Figure 3. Structural dynamics of GDP by component (left), investment contribution (center), and calculation accuracy (right), China, 2001–2017



Source: World Bank data. Available at: https://data.worldbank.org

Figure 4. Structural dynamics of GDP by components (left), investment contribution (center), and calculation accuracy (right), Russia, 2006–2018



Source: Rosstat data. Available at: https://www.gks.ru/accounts

or with peculiarities of its presentation. For Germany and the United States, the accuracy of the calculation is quite high.

Figure 1 shows that the USA has developed a consumer growth model over the period, since gross consumption contributes mainly to economic dynamics. The second most important contribution is made by investments in old technologies. Investment in new technologies contributes very little to the growth rate.

The German economy had been characterized by the mixed model of economic growth before 2012, which does not show a single dominant component of GDP as a contribution to the growth rate. However, the peculiarity is that investments in new technologies make the main contribution to the rate of economic growth in Germany in certain years. Over a significant period of time, the contribution to the growth rate of investments in new technologies is comparable to or higher than the contribution to the growth rate of investment in old technologies. Since 2012, gross consumption has become dominant in terms of its contribution to the growth rate, and the contribution of investments in old technologies has become higher than the contribution to the growth rate of investments in new technologies. Thus, it can be argued that the consumer growth model in the United States and Germany has been characterized by a higher contribution to the rate of investments in old rather than new technologies since 2012.

In the Chinese economy, the investment model of economic growth has developed, since it is investments that make the greatest contribution to the growth rate. However, the contribution to the rate of investments in old technologies is much higher than the contribution to the growth rate of investments in new technologies. It is noteworthy, in contrast to the United States, that government spending makes a significant contribution to China's growth rate. However, the fundamental contribution to the growth rate is made by investments in old technology, which is a symbol of development of traditional sectors of the Chinese economy.

Averagely, the growth rate of the Russian economy was higher than the growth rate of the US and German economies in 2006–2017. According to figure 4 (left), Russia is characterized by the consumer-mixed model of economic growth, and there are years when

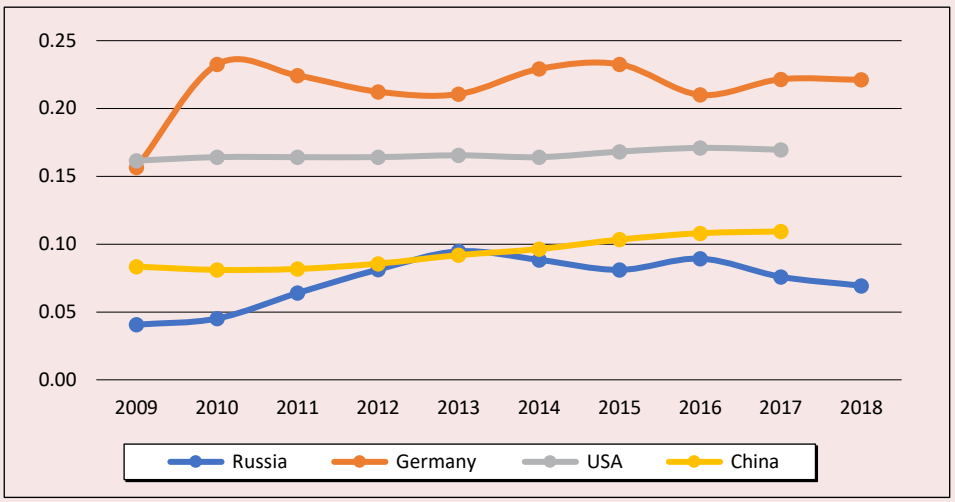
gross consumption completely dominates in the contribution to the growth rate, and there are only three years in the studied period when the main contribution is made by investments in the growth rate. In 2009 and 2015 crisis years, the main contribution to the growth rate was made by net exports, acting as a component of resistance to the crisis. In 2016, the main contribution to the growth rate was made by investments in new technologies, which is associated with local support for innovation and the implementation of appropriate programs for the modernization of the Russian economy. However, these priority implementations did not significantly increase the overall producibility of the Russian economy (*Fig. 5*).

Figure 5 provides an overview of the overall producibility in the countries. As we can see, the highest level is demonstrated by Germany, for which investments in new technologies make the greatest contribution to the economic growth rate. The USA is inferior to it. The producibility of China and Russia coincide in 2013 alone, and Russia is inferior to China all the time according to this indicator, and, if the producibility in Russia had been increasing until 2013, it has been averagely declining since 2013. There are increase and decrease periods of producibility in Germany, but the value of this indicator is about 2.5 times higher than in Russia.

In addition to the amount of investment in new and old technologies, studied countries differ in the sensitivity of producibility to investments in new and old technologies. Next, an econometric analysis was undertaken that allowed distinguishing link models between producibility and investments in new and, separately, in old technologies *(Fig. 6–9)*.

The United States' economy shows the dependence on investments in new and old technologies as the main factors for increasing the producibility. It should be noted that, in terms of investments in old and new technologies, the United States is an undisputed leader among studied countries, investing from

Figure 5. Producibility in the United States, Germany, China and Russia, 2009–2018



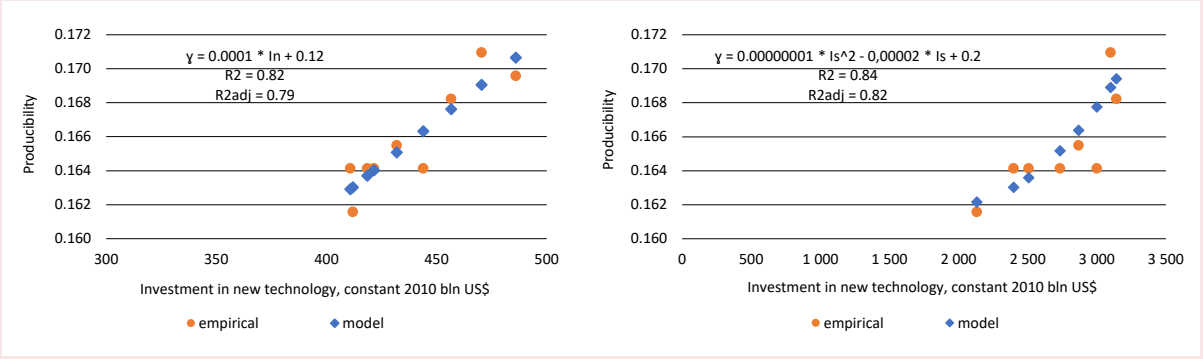
Source: World Bank data. Available at: https://data.worldbank.org/; Eurostat data. Available at: https://ec.europa.eu/eurostat/data/database; Rosstat data. Available at: https://www.gks.ru/accounts; данные The Bureau of Economic Analysis data. Available at: https://apps.bea.gov/iTable/iTable.cfm?ReqID=51&step=1; National Bureau of Statistics of China data. Available at: http://www.stats.gov.cn/english/Statisticaldata/AnnualData/

2 to 3 trillion US dollars annually in old and from 400 to 500 billion US dollars in new technologies[5]. The second position is occupied by China, investing from 2.5 to 4 trillion annually in old technologies and from 100 to 220 billion US dollars in new technologies.

Germany invests 530–650 billion US dollars in old technologies, and 90–120 billion US dollars in new technologies. Russia is inferior to all studied countries, having the smallest amount of investment in old and new technologies – 400 billion and 18 billion dollars, respectively. It is less than China's investments, 2–6 times less than Germany's, and more than 20 times less than the United States' investments in new technologies.

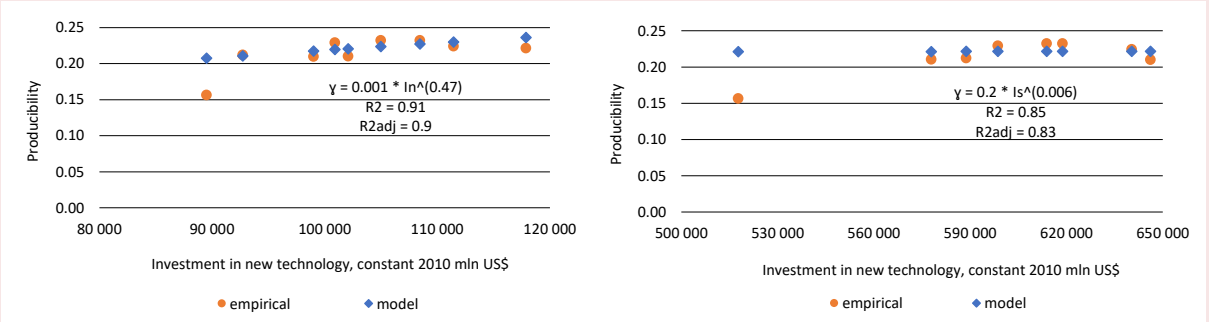
The German economy highly depends on investments in new technologies to improve its producibility and less – on investments in old technologies *(Fig. 7)*. Both types of investments act in the direction of increasing overall producibility.

Figure 6. Producibility and investment in new technologies* (left) and old** (right) technologies in the United States, 2009–2017, in 2010 prices



* Model statistics: F-test = 33, D-Wcalculation = 2.6 Є [1.32; 2.68], White test: $\chi 2$ calculation = 1.17, $\chi 2$ crit. = 15.5
** Model statistics: F-test = 18.6, D-Wcalculation = 1.7 Є [1.32; 2.68], White test: $\chi 2$ calculation = 2.25, $\chi 2$ crit. = 15.5
Source: World Bank data. Available at: https://data.worldbank.org/

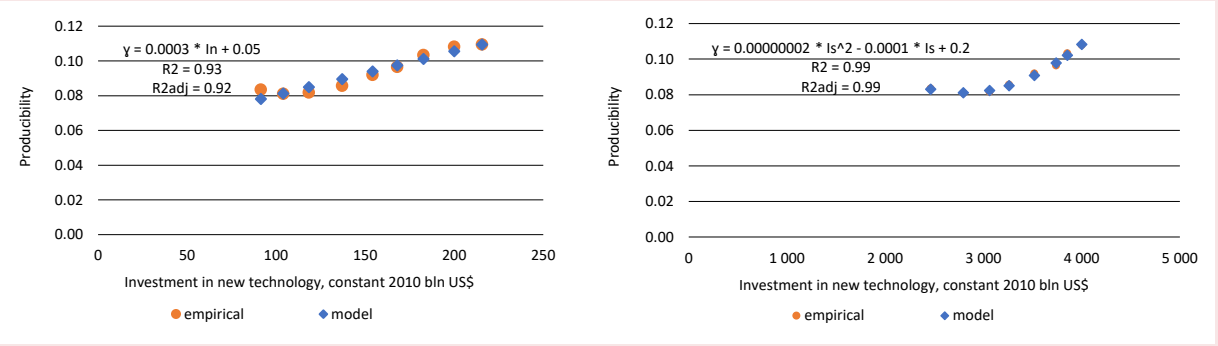
Figure 7. Producibility and investments in new* (left) and old** (right) technology in Germany, 2009–2017, in 2010 prices



* Model statistics: F-test = 11.7, D-Wcalculation = 2 Є [1.32; 2.68], White test: $\chi 2$ calculation = 0.22, $\chi 2$ crit. = 15.5
** Model statistics: F-test = 5.7, D-Wcalculation = 1.7 Є [1.32; 2.68, White test: $\chi 2$ calculation = 0.09, $\chi 2$ crit. = 15.5
Source: Eurostat data. Available at: https://ec.europa.eu/eurostat/data/database

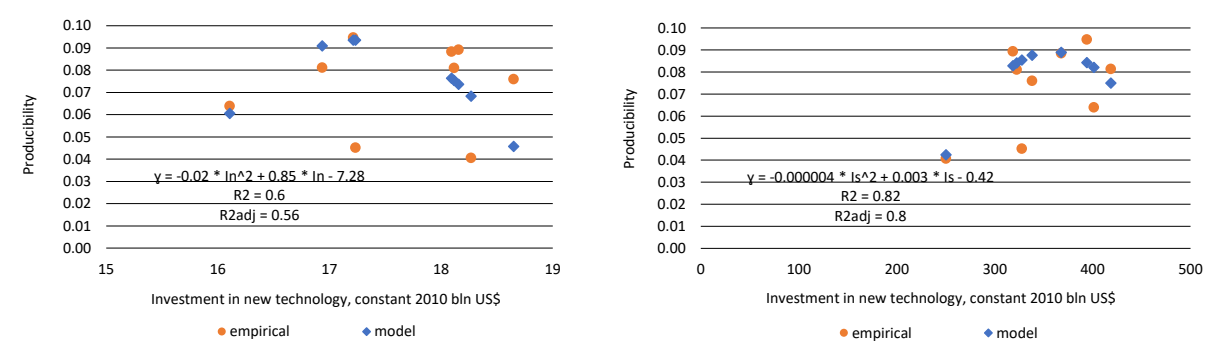
[5] The studied interval is 2009–2017 (according to fig. 6–9).

Figure 8. Producibility and investments in new* (left) and old** (right) technology in China, 2009–2017, in 2010 prices



* Model statistics: F-test = 94.2, D-Wcalculation = 1.4 Є [1.32; 2.68], White test: $\chi 2$ calculation = 1.55, $\chi 2$ crit. = 15.5
** Model statistics: F-test = 923.4, D-Wcalculation = 1.7 Є [2.6; 2.68], White test: $\chi 2$ calculation = 0.39, $\chi 2$ crit. = 15.5
Source: World Bank data. Available at: https://data.worldbank.org/

Figure 9. Producibility and investments in new* (left) and old** (right) technology in Russia, 2009–2017, in 2010 prices



* Model statistics: F-test = 7.2, D-Wcalculation = 1.6 Є [1.32; 2.68], White test: $\chi 2$ calculation = 4.78, $\chi 2$ crit. = 15.5
** Model statistics: F-test = 23.2, D-Wcalculation = 2.5 Є [1.32; 2.68], White test: $\chi 2$ calculation = 2.25, $\chi 2$ crit. = 15.5
Compiled according to: Rosstat data. Available at: https://www.gks.ru/accounts

China's economy has shown the increase of producibility with increased investment in new and old technologies *(Fig. 8)*, although there were more investments in old technologies than in new technologies.

As it is shown in *Figure 9*, in the Russian economy, in 2009–2017, a certain increase of investments in old technologies increased producibility and then led to its decline. The increase of investments in new technologies was accompanied by a general decline of the producibility. The reasons are, presumably, the low sensitivity of technological chains due to their existing gaps to investment in new technologies and its insufficient scope.

Therefore, there was a period when the producibility increased due to investments in old technologies, and it decreased while investing in new and old technologies.

Since there is the growth of investments in new technologies with the reduction of overall producibility in the Russian economy, and the increase of investments in old technologies takes place with the growth and decline of producibility, the nature of technological development is between "renunciation" and

"technological degradation" modes *(Tab. 2)*. Moreover, there is a movement from one mode to another.

The Chinese economy demonstrates the "breakthrough" type of technological development mode. Due to the fact that, in the German economy, investments in new technologies have the greatest impact on technological growth, and investments in old technologies have almost no effect on increasing producibility, this regime can be classified as the "technological leadership" type (Tab. 2). The United States has seen the increase of producibility from two types of investments, but this growth is not high, which is typical for the "technological leadership" regime, and the breakthrough can only be observed in certain technological areas. Thus, in the United States, in general, two modes of technological development are combined.

According to Table 2, which shows the current model of the economic growth and technological development for each country, leadership in the field of technological development is provided with the mixed and consumer growth model, the technological breakthrough is characteristic of the investment growth model. The loss of positions and technological degradation are evident for the consumer-mixed growth model. Despite the existing conditionality of regime allocation, however, the technological breakthrough is characteristic of the investment model of economic dynamics. Other modes of technological development can be manifested in different models of economic growth.

An average annual growth rate in Russia was second after China's *(Tab. 3)* in 2001–2017. However, the stability of growth, measured by

Table 2. Economic growth models and technological development regimes in the USA, Germany, China, and Russia

Country	Economic dynamics model* (according to Fig. 1–4)	Sensitivity of producibility to investments in new technologies	Sensitivity of producibility to investments in old technologies	Technological development mode** (according to Fig. 6–9)
Unites States	Consumer	Investment growth – producibility growth (minor)	Investment growth – producibility growth (minor)	Leadership / rapid progress
Germany	Mixed	Investment growth – producibility growth (strong influence)	Investment growth – producibility weak growth (weak impact)	Leadership
China	Investment	Investment growth – producibility growth	Investment growth – producibility growth	Rapid progress
Russia	Consumer mixed	Investment growth – reduced producibility	Investment growth – reduction and slight increase in producibility	Renunciation / Degradation

* Economic dynamics models for the USA, Germany, China for 2001–2017, for Russia – from 2006–2018 due to available data for the relevant years.
** Technological development regimes are highlighted for countries in the period of 2009–2017 due to the availability of data for the indicated years at the time of the study.
Source: own compilation according to Fig.1–9 and Tab. 1.

Table 3. Average annual growth rate and its sustainability, 2000–2018

	Average annual GDP growth rate, %	The standard deviation of the change in GDP per capita constant 2010, $
Russia	3.77	1 932.09
Germany	1.41	3 284.1
United States	2.07	912.3
China	9.14	222.4

Source: World Bank data. Available at: https://data.worldbank.org/; Eurostat data. Available at: https://ec.europa.eu/eurostat/data/database; Rosstat data. Available at: https://www.gks.ru/accounts

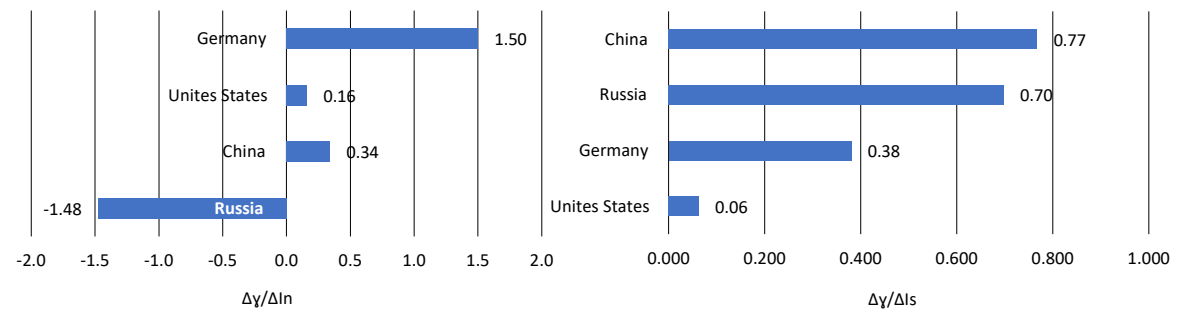
the standard deviation of per capita GDP for 2000–2018, was low (the deviation is high), unlike China and the United States. However, the innovative growth model in Germany was characterized by the greatest instability, which is inherent in the innovation dynamics.

The rate of economic growth strongly depended on the contribution to the rate of investments in new and old technologies for Germany and China; moreover, it depended more on the contribution to the investment growth in old technologies. As for the United States, the contribution of investments' growth rate in new technologies practically did not affect the growth rate, unlike the contribution of investments in old technologies, which had a stronger impact on the growth rate. In Russia, the contribution to investments' growth rate in new technologies hardly affected the growth rate, but the contribution of investments in old technologies significantly affected the growth rate.

In *Figure 10*, there is a calculation of the sensitivity of producibility to changes in investments in new and old technologies for 2010–2017. The graph includes an indicator that expresses a change of producibility as a percentage with the increase of investments per one percentage point.

1% increase of investments in new technologies reduced the Russian economy's producibility by 1.48%. This result requires an intensification of efforts to invest in new technologies, expanding the scope of its application and the volume of investments. Particular attention should be paid to increasing the economic environment's susceptibility to new technologies. The producibility of German economy is especially sensitive to investments in new technologies. With 1% increase of investments in new technologies, the producibility increased by 1.5%, which is approximately equal to the decrease of the producibility of the Russian economy. In terms of producibility sensitivity to investments in new technologies, China is placed second after Germany, and the former is followed by the United States. China's economy producibility is sensitive to investments in old technologies the most, while the Russian economy is the second most sensitive one in this aspect. Next, there is Germany with a two-fold margin and the United States with a ten-fold margin in terms of producibility's sensitivity to investments in old technologies in relation to the Russian and Chinese economies. It led to a very interesting ratio. Investments in old technologies can make a significant contribution to GDP dynamics,

Figure 10. The sensitivity of producibility to changes in investments in new (left) and old (right) technologies, 2010–2017



Source: World Bank data. Available at: https://data.worldbank.org/; Eurostat data. Available at: https://ec.europa.eu/eurostat/data/database; Rosstat data. Available at: https://www.gks.ru/accounts

but producibility does not significantly increase. Investments in new technologies may not contribute to GDP dynamics, but it can significantly influence the increase of producibility. In Germany alone, the impact on GDP dynamics and producibility for investment in new technologies are the same. It is clear that two pairs were formed out of four countries. The first pair is Germany and the United States, where the sensitivity of producibility is high in relation to investments in new technologies and low – in relation to investments in old ones. The second pair is Russia and China, where, on the contrary, the sensitivity is high in relation to investments in old technologies and low – in relation to investments in new technologies.

Thus, an important task is to change the conditions of investment distribution between new and old technologies, change institutions, investment motives in order to change the sensitivity of producibility reaction to the incoming resource in the form of investments, etc. Therefore, a usual increase of investments to ensure growth is not enough. Moreover, the contribution to growth may take place, but producibility will not change significantly. In our opinion, this circumstance is a valuable condition for planning a growth policy, since narrowing the situation down solely to the growth rate may result in the fact that, in the future, corresponding factors might be underdeveloped and lead to the country's competitive defeat on global market.

Conclusions

The conducted research contributes to development of the theory of economic growth and technological change by taking into account the structure of investments in new and old technologies, highlighting the modes of technological dynamics. This allows assessing not only the contribution of investments in various types of technological opportunities but also the impact of technological renewal on the growth rate. The applied value is narrowed down to an opportunity to conduct a comparative analysis of trajectories of technological development and growth for different countries and regions, taking into account the sensitivity of the technology level to investments in new and old technologies.

Summing up the results of the research, we come to the following most important conclusions that make up a certain perspective for further search work within this topic.

First, the achievement of macroeconomic development goals requires a structural analysis of the dynamics of target indicators, which is necessary to determine causes and extent of instruments' impact on its change. Investments can accelerate growth even in the current mode, but, for example, it will not be able to quickly increase producibility, especially if investments in older technologies increase. The current proportion of investments in leading economic development countries is not in favor of investments in new technologies. However, in some countries, it makes the main contribution to the dynamics of the economy and to producibility growth, in others – the contribution to the change in dynamics and producibility is very modest. There are examples, Russia in particular, where technological growth is achieved through investments in old technologies – through its renewal.

Second, the rapid increase of investments in new technologies may have a positive impact on the contribution to the rate of economic growth, but it does not mean that producibility responds to such rapid growth and increases. It may even decline, which is clearly shown by development of the Russian economy. It creates a mismatched dynamics, when investments can have a positive impact on the growth rate but do not provide the increase of economic producibility.

Third, investments in new and old technologies can provide the technological development mode in the form of a breakthrough, i.e. significantly increase producibility and, at the same time, make a major contribution to the rate of economic growth. In this case, as it can be seen in the Chinese economy, investments in old technologies may dominate. However, investments in new technologies allow gradually taking leading competitive positions in the field of high technologies.

Fourth, investments in new technologies can make a more significant contribution to the growth rate and be an engine for increasing producibility, which is typical for Germany, despite the fact that the economic growth model is mixed. However, it clearly shows the contribution of investments in new technologies, unlike other studied countries.

Fifth, it is possible to change the impact of investments on producibility not only by increasing the volume of investments in, for example, new technologies but also by institutional adjustments that regulate the distribution of investments, flows, and technological renewal. Undoubtedly, the initial state of the technological basis will strongly influence the sensitivity of producibility to the increase of corresponding investments, and achieved technological level will also influence it. The higher it is, the lower the sensitivity will probably be. It could be clearly seen in the change of Germany and the United States' producibility, which are leaders in terms of producibility.

Thus, while planning an economic growth policy, it is necessary to take into account not only the current model of economic dynamics with an assessment of the behavior of structural elements but also take into account the sensitivity of producibility to the formed investment structure in the era of rapid technological changes. In other words, it is necessary to make efforts to form such a structure in a reasonable way. The analysis presented in this paper helps solve such problems at the macromanagement level.

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Received February 17, 2020.

DOI: 10.15838/esc.2020.4.70.5
UDC 339.9, LBC 65.5

The Effects of Asia-Pacific Countries' Trade Integration in the Context of Globalization and Regionalization

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Abstract. The aim of the research is to assess the trade effects of integration in the Asia-Pacific region, arising from the processes of globalization and regionalization, which is manifested in the functioning of trade agreements and their proliferation. It is shown that mutual trade barriers are reduced in the context of the formation of a sub-global network of bilateral and multilateral trade agreements as part of the regionalization process in the Asia-Pacific region. It is determined that the vast majority of free trade zones functioning in the world is concentrated in the Asia-Pacific region while the share of intraregional trade is tending to increase. The authors reveal general regularities of integration processes in the Asia-Pacific region based on the decomposition assessment of the effects of trade agreements in the framework of a synthesized modern approach to the assessment of gravitational dependencies. Integration processes in the Asia-Pacific region in the long term have been generating the effect of creating trade for the countries of the sub-global region that concluded trade agreements, and the effect of globalization contributed to an increase in the overall effect of integration. Based on the obtained estimates, it is determined that the contribution of the globalization effect to the overall effect of integration between the Asia-Pacific countries was higher than from the conclusion of trade agreements. The effects of globalization more than doubled the overall effect of integration for the Asia-Pacific countries that concluded trade agreements. It is clarified that for the Asia-Pacific countries that are carrying out the proliferation of trade agreements, the increase in the overall effect of integration was mainly due to regionalization. The obtained estimate confirmed the assumption that there is discrimination against the economies of the Asia-Pacific countries

For citation: Izotov D.A. The effects of Asia-Pacific countries' trade integration in the context of globalization and regionalization. *Economic and Social Changes: Facts, Trends, Forecast,* 2020, vol. 13, no. 4, pp. 91–107. DOI: 10.15838/esc.2020.4.70.5

that do not expand the geography of concluded trade agreements in the region. Based on the obtained estimates, it is argued that the effective strategy for Russia is to increase the coverage of the Asia-Pacific countries to conclude trade agreements in order to diversify foreign trade and support export-oriented sectors of the economy.

Key words: trade, integration, regionalization, globalization, trade agreement, free trade zone, customs Union, overall effect of integration, effect of globalization, effect of concluding trade agreement, accumulated effect of integration, exporting country, importing country, Asia-Pacific region.

Introduction

Over the last quarter of a century, trade turnover between countries has increased by more than nine times; an average import duty has decreased by three times, a weighted average – by two times; the share of duty-free commodity groups in world import increased by more than two times, accounting for half of its value[1]. A significant expansion of trade relations between countries was made possible by integration processes in the global and sub-global economy.

First, the practice of multilateralism has spread [1] in international economic relations on the basis of common mechanisms that allow each country to enjoy privileges in relations with all partner countries. Agreements to liberalize trade between the world's leading economies within the General Agreement on Tariffs and Trade (GATT), followed by the accession to the World Trade Organization (WTO) of nearly all countries since 1994, contributed to a total reduction of the customs burden on trade and its intensification [1; 2].

Second, there is a process of regionalization, understood as the construction of trade and economic relations between certain countries and groups of countries on the basis of two- and multilateral interstate agreements initially caused by a significant increase of intra-industry and intra-firm trade in the global corporate sector [3; 4], and then – due to the lack of progress within the Doha WTO Round in 2001, which involves the reduction of tariff measures and non-tariff restrictions between developed and developing countries to facilitate mutual access to each other's markets. Regionalization processes and the lack of opportunities for finding a global compromise between developed and developing countries contributed to the independent conclusion of bilateral and multilateral trade agreements [1; 5]. Some groups of countries managed to move to more mature integration formats: to create a common market that involves relatively free movement of capital and labor resources; an economic union that consists of coordinating economic policies and unifying institutional norms. More mature formats may include the European Union within the "traditional" integration model [5; 6].

Other countries and associations are at the initial stage of bilateral/multilateral economic integration. Initially, they made partial scope agreements (PSA)[2], agreements on the creation of free trade zones (FTA)[3], and the Customs Union (CU)[4]. Inevitably, the

[1] Calculated according to UN and World Bank statistics.

[2] In accordance with PSA, the reduction of various restrictions applies only to certain product groups.

[3] FTA implies a significant liberalization of trade between member countries in terms of reducing tariff measures and non-tariff restrictions, as well as the right to determine the trade regime in relation to third countries.

[4] If CU is created, countries will introduce a single customs tariff and a single system for regulating non-tariff measures regarding third countries.

functional component of the PSA, FTA, and CU began to expand covering other areas of economic interaction between countries through the conclusion of economic integration agreements, including the liberalization of trade in services. As the result, there was an expansion of trade agreements, according to the "new regionalism" model [7], and original formats became mixed, characterized by some features of the common market. Therefore, a number of agreements, made in initial integration forms, began to exist in an expanded format. The mass conclusion of bilateral trade agreements contributed to the "domino" effect [8], which means the expansion of two- or multilateral trade agreements at the expense of new member countries in order to offset negative consequences of non-participation in this association. As the result, currently, there are 19 PSAs, 250 FTAs and 17 CUs functioning in the world: out of it, 1, 143, and 5, respectively, function in the expanded format.

Third, the regionalization process inevitably led to attempts to create large trade formats that can be joined by a large number of participating countries, which concluded trade agreements. As the result, existing bilateral and multilateral trade agreements were considered the basis for building larger forms of economic integration in the world [9].

Despite the general reduction of barriers in global trade, some researchers see risks to free trade in the regionalization process [10]. The simultaneous participation of countries in various trade agreements contributed to a significant complication and non-systemic fragmentation of the global economic space due to the distortion of free trade rules and discrimination [11]. On the other hand, it is noted that the mass conclusion of trade agreements, along with the GATT and WTO mechanisms, helps to reduce the tariff burden on the flows of goods between countries, increasing the scale of global trade [12], and it, in turn, contributes to strengthening peaceful relations between states, significantly increasing the costs of armed conflicts between them [13].

Integration processes within the framework of regionalization were most clearly manifested in the Asia-Pacific region, which accounted for more than half of global trade by 2018. Intraregional trade significantly increases in the APR due to the reduction of tariff measures and non-tariff restrictions, the expansion of the regional network of bilateral and multilateral trade agreements. It may be assumed that the economies of Asia-Pacific countries that did not conclude trade agreements are discriminated in the sub-global region. Now, Russia is among such states, since only one signed trade agreement with the countries of the sub-global region entered into force[5] – the expanded FTA agreement (hereinafter – FTA+) between Russia, as a member of the Eurasian Economic Union (EAEU), and Vietnam in 2016. On the other hand, the APR includes quite different economies and trade agreements, signed by them, may not be efficient enough. There are opinions [1] that the conclusion of trade agreements was a political act without any economic reasons in some cases. According to these points of view, it is important to assess the effects of the implementation of existing trade agreements in the Asia-Pacific region in order to understand whether integration processes within the regionalization framework have a positive impact on the trade of countries, involved in it, and how this impact relates to the impact of multilateralism or globalization.

[5] In 2019, an agreement was signed on the creation of FTA between the EEC and Singapore, which has not yet entered into force. Negotiations between Russia and New Zealand to sign expanded FTA agreement, announced in 2010, were suspended after 2014.

Traditionally [14], the effectiveness of trade integration occurs when the effect of the creation exceeds the effect of trade rejection[6]. Estimates of the effectiveness of trade integration in the APR for existing trade formats/agreements were built primarily in the second half of the 1990s within classical gravity models (see, for example: [15; 16; 17]), which, due to endogeneity of the parameters included in it, led to incorrect conclusions. While constructing more complex models, interest is shifted toward exclusively promising estimates of the effects of creating large trade formats in the APR [18; 19]. In modern studies of trade integration, using the correct methodology for estimating gravity dependencies [20; 21], sub-global components are usually not considered. Certain studies on some East Asian countries showed a positive impact of trade agreements on the economies of these states and third countries [22; 23]. However, for the APR as a whole, such assessments were not carried out. Based on everything mentioned, it is important to assess the effects of the implementation of trade agreements between the APR countries and to determine the contribution of globalization to the overall effect of trade integration based on the synthesis of modern approaches to the assessment of gravity dependencies.

Thus, the purpose of the study is to assess trade effects of integration in the APR, resulting from globalization, the functioning of trade agreements, and its proliferation. The following objectives are expected to be solved: analysis of the process of trade and economic integration in the APR; selection of an applied model for evaluation and generation of data set; evaluation of trade integration effects in the APR. The initial year for analysis was 1994 which is related to the creation of the modern global institute for regulating trade interactions – the WTO.

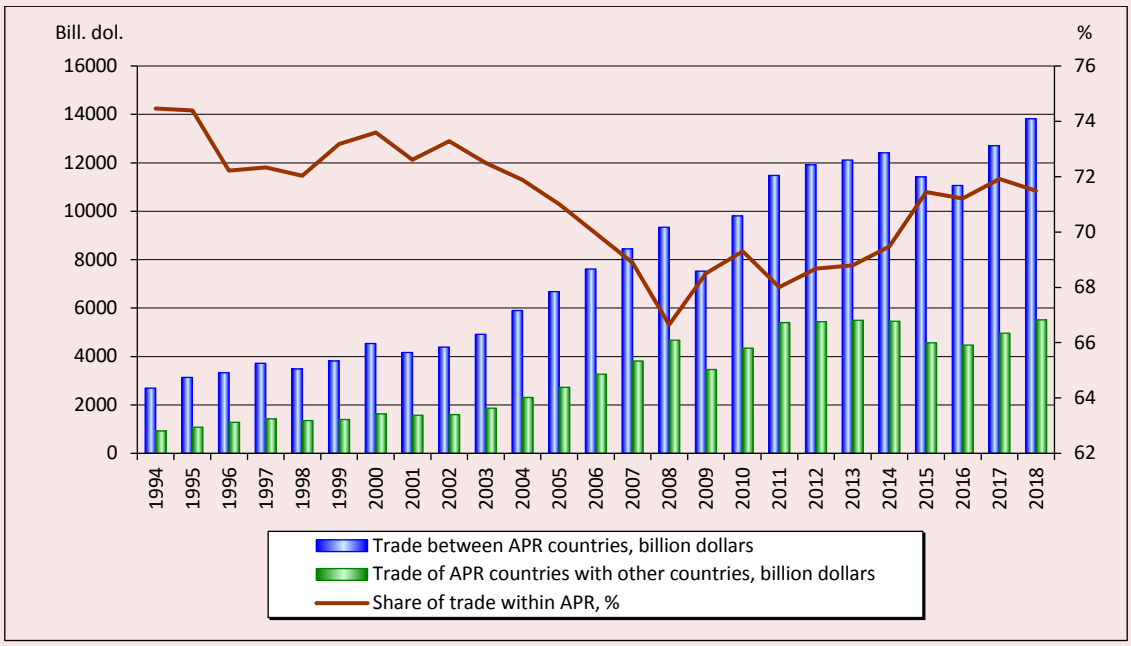
Trade integration process in the APR

In the 1990s, the main driving force of integration processes in the APR was a large sub-global (at the first stage, Japanese [24; 25]) and global corporate sector, which carries out the production process within the framework of vertical trade for the subsequent distribution of finished products around the world [26]. As the result, in the APR, the fragmentation of production in space became clearly visible as a characteristic element of the process of modern global integration [27]. In combination with the production spatial fragmentation, the distances, over which final and intermediate demand goods were distributed, significantly increased, which served as the basis for the integration of regional markets [28]. The growth of trade and production in the APR, primarily in East Asia, was achieved through the creation of assembly plants based on foreign direct investments (FDI) in developing countries with excess labor; increased returns on scale of production within the lowering of costs and levelling of barriers for intra-firm trade. As the result, in the 1990s, the share of intraregional trade in the APR was characterized by high values due to the gradual creation of a production structure of interaction between developed and developing countries located mainly in East Asia (*Fig. 1*).

Then, in the 2000s, the share of intraregional trade declined due to the mass transfer of industrial enterprises to China and Southeast Asian countries in order to increase exports of finished products produced with minimal costs around the world. Also, the decrease of its share

[6] The effect of trade creation reflects the reorientation of the national market from a less efficient source of supply to a more economically viable import of the country, or association of countries, with which trade liberalization is being implemented. The trade deflection effect refers to the reorientation of the domestic economy from the purchase of a certain number of goods on the world market to the purchase of products from the country or group of countries with which a preferential trade agreement is concluded.

Figure 1. Intraregional and foreign trade of the Asia-Pacific countries



Source: calculated according to the World Bank statistics.

was caused by high prices for energy resources supplied to the APR from the Persian Gulf countries, which accounted for up to a third of imports of oil and petroleum products in the sub-global region.

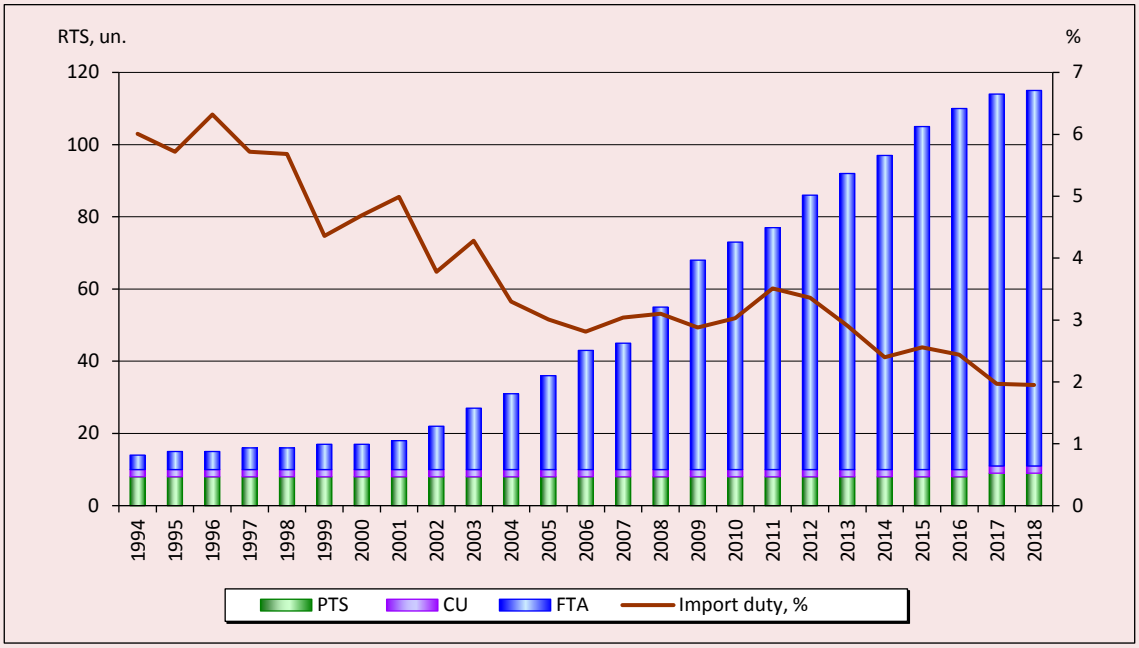
In the 2010s, the share of trade within the APR began to increase. Due to high rates of economic growth caused by direct or indirect participation in sub-global and global production links, the market capacity of most developing countries in the APR has significantly grown, stimulating trade with intermediate and final demand goods within the sub-global region [29]. The main generator of trade growth between the APR countries was the Chinese economy, which, by the mid-2010s, accounted for up to a quarter of intraregional trade, compared with 4% in the late 1980s. As the result, by 2018, trade between the countries of the APR accounted for more than 70% of a total trade turnover of the countries of the sub-global region.

In addition to trade with goods, the APR economy became the main accumulator and translator of foreign direct investment (FDI) in the world. With the exception of a few situations, from the mid-1990s to the present, the share of the APR countries, averagely, is 55–60% of a global volume of outgoing and incoming FDI[7]. Flows of horizontal, vertical, and export FDI in the APR started to be manifested in varying degrees and became known as "network" [30].

A number of countries in sub-global region do not directly participate in the production cooperation in the APR, playing a role of an exporter of commodities or provider of limited contingent workforce, because of the specific structure of the economy, the lack of surplus labor resources and technologies (Russia, Mongolia, some countries in Latin America), and political reasons (DPRK).

[7] Calculated according to UN and World Bank statistics.

Figure 2. Number of trade agreements and weighted average import duty in the APR



Note: values of the efficient applied weighted average import duty are shown; a number of trade agreements is shown as a cumulative total. PSA – partial trade agreement, CU – customs union, FTA – free trade zone. By 2018, there were 114 operating trade agreements in the APR: 9 PSA, 103 FTA, and 2 CU, out of which 1, 95, and 0, respectively, are in the expanded format,.

Source: statistical database of the WTO and the World Bank.

Significant results of the expansion of intraregional trade would not be possible without a significant reduction of various barriers due to globalization and regionalization. Since the second half of the 1990s, trade agreements have been actively concluded in the APR, which initially expanded the economic interaction of the countries of the sub-global region with each other and the outside world [31], mainly due to the reduction of trade barriers. The APR countries also actively concluded trade agreements with states not geographically related to the sub-global region. In the 2000s, nearly all APR countries joined the WTO[8]. In this regard, compared to the 1990s, the weighted average import duty of the APR countries decreased by almost three times by 2018[9] (*Fig. 2*).

Until the 1990s, there were no prerequisites for regionalization and fragmentation in the APR, and political motives for integration prevailed over economic ones: actions were taken to create an economic and political union in Latin America and Oceania, as well as to support developing countries (The Protocol on Trade Negotiations, Global System of Trade Preferences among Developing Countries, and the Asia-Pacific Trade Agreement). A trade agreement was also signed between the countries of Southeast Asia.

[8] With the exception of some small island states, DPRK and Russia, which became a full member of the WTO only in 2012.

[9] Import duties between APR countries were characterized by lower values compared to countries outside the sub-global region.

Further, development of economic interactions in the APR generated the emergence of integration forms between geographically close countries and between states belonging to a certain group of economies. In the 1990s, multilateral FTAs+ were concluded between the three largest economies in North America (NAFTA) and almost all countries in Southeast Asia (within ASEAN[10]) [5]. If a motive for creating NAFTA was the necessity to expand trade and economic ties, then the creation of the FTA+, based on ASEAN, was not initially characterized by such a goal without having any noticeable impact on trade between the association member countries. The situation changed after the 1997 crisis, when the FTA+ ASEAN mechanisms were used for deep trade integration and cooperation within the monetary policy, as well as the involvement of other major APR economies in the FTA mechanisms [32].

In the 2000s, countries with the largest economies located in the South Pacific (New Zealand, Singapore, Chile, and Brunei) signed an agreement on the establishment of the Trans-Pacific Strategic Economic Partnership in the FTA+ format [9]. At the same time, attempts were made to link the economies of Central and South American States to the NAFTA (The North American Free Trade Agreement) market. There was a rapprochement of the ASEAN countries with the Big three of Northeast Asia – China, Japan, and the Republic of Korea (hereinafter – the FTA ASEAN+3 format), and other key partners of the association – India, New Zealand, and Australia (hereinafter – the FTA ASEAN+6 format).

In accordance with the logic of events, by the end of the first decade of the 21st century, it seemed that conditions were being created in the APR for concluding a major multilateral trade and economic agreement within the framework of the Asia-Pacific economic cooperation, covering almost all national economies of the region, which could function in the ARP format. However, subsequent development of economic interactions in the APR generated a convergence of geographically close countries. In the 2010s, further prerequisites are being created for the formation of FTA+ between the NAFTA countries and the economies of Latin America (The Trade Agreements between Mexico and Central America, the Framework Agreement of the Pacific Alliance). Since the beginning of the 2010s, there have been active negotiations on the creation of FTA+ between three major countries of Northeast Asia. The activation of the USA role in integration processes initially made serious adjustments to the inertial expansion of trade agreements in the sub-global region, creating the basis for the formation of large trade formats in the APR. Also, the prerequisites for the creation of large trade formats in the APR were the growth of negative externalities due to the complexity of negotiating trade agreements and reducing the benefits of its exclusivity [33], the crises of the 2000s. This process, on the one hand, was the source for the emerging dualism between the USA and China in sub-global region, and, on the other hand, it has been able to bring trade and economic cooperation in the APR, at least for some countries in the region, to a more advanced level. Subsequently, the United States suspended its participation in the creation of the Asia-Pacific mega-format, and, in 2018, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership agreement was concluded in the FTA+ format, without the American economy. Simultaneously,

[10] Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

negotiations were held on the conclusion of a Comprehensive Regional Economic Partnership, which is based on expanding the scope of trade and economic cooperation within the framework of the FTA ASEAN+6.

As the result, by 2018, almost 70% of the world's functioning FTZs+ were concentrated in the APR. The growing proliferation of FTA+ in the APR created conditions for the emergence of the "spaghetti bowl" effect [34], which is manifested in the costs of concluded agreements for a number of exporters [35]. At the same time, there is a growing trend of the share of intraregional trade. From this point of view, it is important to assess the trade effects arising from the process of globalization, the functioning of trade agreements, and its proliferation for exporting and importing countries of the APR.

Data and evaluation methodology

Evaluation methodology. Gravity modeling is one of the most common methods for evaluating integration effects, but clear methodological recommendations for solving such research problems were formulated only in the last decade. Despite the problem of endogeneity of trade policy [36], which led to a significant bias in estimates and, consequently, to incorrect conclusions, for a long time, the estimation of integration effects in gravity models was constructed by including a fictitious variable of the presence/absence of a trade agreement between countries in the right side of the equation, along with variables that are constant over time and have cost characteristics [15; 16; 17; 37; 38].

Due to the problem of endogeneity in determining the effects of integration by including fictitious variables of trade agreements, the estimation of gravity dependence has its own peculiarities [20], since it does not explicitly include the distance, size of traded economies, and key institutional indicators. To explain this feature, we need to decompose the original gravity equation between countries *i* and *j* (1)

$$X_{ij} = \frac{A_i w_i^{-\theta} \tau_{ij}^{-\theta}}{P_j^{-\theta}} E_j \,, \qquad (1)$$

where: X_{ij} is export from country i to country j; E_j – total expenditure in country j on goods of various origins, including goods produced in j; the share of country j's expenditure is allocated to goods i and directly depends on three following factors: A_i – characteristics of production technologies available in the country i, w_i – amount of remuneration in i, τ_{ij} – trade costs of the "iceberg" type that occur when goods are sold from country i to country j. It is assumed that goods are imperfect substitutes, so the effect of trade and production costs on the trade depends on the constant elasticity of substitution in trade, i. d. $\theta>1$. All cost factors only affect the size of trade relative to the overall level of competition in the import market from country j, which is taken into account by summing in the denominator (1), i. e.: $P_j^{-\theta} = \Sigma_i A_i w_i^{-\theta} \tau_{ij}^{-\theta}$. Indicator $P_j^{-\theta}$ reflects internal multilateral resistance for the importing country (j) and external multilateral resistance for the exporting country (i) [39].

Then equation (1) is expressed in exponential form [40; 41], when time – t and the error vector are included – $\varepsilon_{ij,t}$:

$$X_{ij,t} = \exp\left[\ln A_{i,t} w_{i,t}^{-\theta} + \ln \frac{E_{j,t}}{P_{j,t}^{-\theta}} + \ln \tau_{ij,t}^{-\theta}\right] + \varepsilon_{ij,t} \,. \quad (2)$$

Equation (2) is solved by the Poisson quasi-maximum likelihood method in order to avoid the problem of heteroscedasticity [41] and to include "zero" trade flows [42]. In order to determine the impact of trade agreements on trade interactions, the vector of trade costs

($\ln\tau_{ij,t}^{-\theta}$) is decomposed into the following components [43]:

$$\ln\tau_{ij,t}^{-\theta} = Z_{ij}\delta + \beta_1 FTA_{ij,t} + u_{ij,t}\ , \quad (3)$$

where: Z_{ij} is a set of time-independent variables included in a total level of trading costs between *i* and *j* with a vector of coefficients δ; $FTA_{ij,t}$ is a dummy variable that reflects whether or not there is a trade agreement between i and j. Thus, the variable Z_{ij} includes geographical (distance, borders, etc.) and institutional (common language, colonial connections, etc.) characteristics. According to the recommendations [43], a set of time-independent variables is taken into account as fixed effects for trading pairs of countries, i.e. $\mu_{ij} = Z_{ij}\delta$, since δ is not a necessary parameter for evaluating the effects of trade agreements. Also to avoid problems of endogeneity [44] the cost characteristics in the right part of equation (1) for *i* and *j* are absorbed and taken into account when estimating fixed effects for the exporter/importer with respect to time, i.e.: $\pi_{i,t} = \ln A_{i,t} w_{i,t}^{-\theta}$, $\chi_{j,t} = \ln E_{j,t}/P_{j,t}^{-\theta}$.

Thus, the basic equation for estimating the effects of concluding trade agreements, which differs from the classical gravitational dependencies, has the following form:

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_0 + \beta_1 FTA_{ij,t}\right] + \varepsilon_{ij,t}, \quad (4)$$

where: π_i – fixed effects for the exporting country based on the year; χ_j – fixed effects for the importing country based on the year; μ_{ij} – fixed effects for trading country pairs. The estimation of equation (4) allows us to determine changes (in %) in bilateral trade flows of countries that concluded trade agreements ($[e^{\widehat{\beta}_{FTA}} - 1] \times 100$), as well as its tariff equivalent ($[e^{\widehat{\beta}_{FTA}/(1-\theta)} - 1] \times 100$)[11].

[11] Elasticity of substitution (θ) is selected in the range from 5 to 10 [39].

In addition to including the above-mentioned fixed effects in accordance with the recommendations [45], which allow getting unbiased estimates, it is necessary to use interval panel data with a lag of 3–5 years to adjust changes in trade policy and other trade costs, arising in the process of bilateral trade [46]; to include intra-country trade in the panel data [47].

The extension of the basic equation (4) for the problems of our study allows us to quantify other integration effects: in particular, the *effects* of deviation/creation of trade for exporting and importing countries from the *expansion of trade agreements* [21]:

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_0 + \beta_1 FTA_{ij,t} + \beta_2 FTA_{i,-j,t}^{out} + \beta_3 FTA_{-i,j,t}^{out}\right] + \varepsilon_{ij,t}, \quad (5)$$

where: $FTA_{i,-j,t}^{out}$ – a dummy variable that takes a value equal to one if the exporting country *i* has entered into a trade agreement with any trading partner country in the APR other than country *j*, and equal to zero otherwise; $FTA_{-i,j,t}^{out}$ – a dummy variable equal to one if the importing country *j* has entered into a trade agreement with any APR country other than *i*. $FTA_{i,-j,t}^{out}$ and $FTA_{-i,j,t}^{out}$ are the effects of deviating/creating trade for the exporting and importing countries from expanding a number of trade agreements at negative/positive values β_2 and β_3.

Next, the inclusion of lag values of the component $FTA_{ij,t}$ in the model (4) allows *evaluating the accumulated effect of trade agreements* [48]:

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_0 + \sum_{n=1}^{n=3} \beta_n FTA_{ij,t-(1-n)}\right] + \varepsilon_{ij,t}, \quad (6)$$

where: *n* is a number of lags.

Integration effects in (4–6) from the implementation of trade agreements can be significantly overestimated due to the inclusion

of globalization effects. In this regard, to distinguish between the *direct effect of a trade agreement conclusion and the effect of globalization*, a set of new variables should be included in (4–6), reflecting the presence of barriers between countries *i* and *j* for each year T [40]. This method is possible only if the estimated panel includes data reflecting a value of domestic trade volumes of the analyzed countries. Based on (4–6), these dependencies take the following form:

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_0 + \beta_1 FTA_{ij,t} + \right. \\ \left. + \sum_{T=1}^{T=n} \beta_T INTL(T)_{ij}\right] + \varepsilon_{ij,t}), \quad (7)$$

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_0 + \beta_1 FTA_{ij,t} + \right. \\ + \beta_2 FTA^{out}_{i,-j,t}\left] \times \left[\beta_3 FTA^{out}_{-i,j,t} + \right.\right. \\ \left. + \sum_{T=1}^{T=n} \beta_T INTL(T)_{ij}\right] + \varepsilon_{ij,t}, \quad (8)$$

$$X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_0 + \right. \\ + \sum_{n=1}^{n=3} \beta_n FTA_{ij,t-(1-n)} + \\ \left. + \sum_{T=1}^{T=n} \beta_T INTL(T)_{ij}\right] + \varepsilon_{ij,t}, \quad (9)$$

where: $INTL(T)_{ij}$ is a dummy variable that takes a value equal to one for international trade for each year T and zero – for intra-country trade. Due to multicollinearity with other fixed effects, it is not possible to estimate cross-country border effects for all years in the array at once, i.e. you must select a year as the base indicator.

Thus, values β_1 from (4), β_2 and β_3 from (5), $\sum \beta_n$ from (6) show *overall effect of integration*, and β_1 from (7), β_2 and β_3 from (8), $\sum \beta_n$ from (9) is a *direct effect of a trade agreement*. Respectively, difference between values β_1 from equations (4) and (7), β_2, β_3 from (5) and (8), $\sum \beta_n$ from (6) and (9) will show *globalization effect* for countries, which concluded trade agreements.

Data for evaluation. In total, there are 50 countries and economic territories in the APR whose mutual trade is reflected in the UN and World Bank statistics for 1994–2018. In accordance with the guidelines, in order to obtain unbiased estimates, it is necessary to include trade in the domestic market in the panel being evaluated. One of the ways to take into account the impact of the domestic market is to include an indicator that reflects the output of goods in the national economy with the exception of exports [40; 45]. The necessary components of this indicator were obtained from special CEPII and UN databases. However, the lack of reliable statistics describing the size of its domestic market is a limitation for including all countries and economic territories of the APR in the estimated panel. For this reason, 11 states and three economic territories (Overseas Territories of France) were excluded from further analysis: the DPRK and the APR small island economies (Vanuatu, East Timor, Kiribati, Marshall Islands, Nauru, New Caledonia, Palau, Samoa, Solomon Islands, Tuvalu, Wallis and Futuna, French Polynesia). The exclusion of these countries is not critical, since its share in trade within the APR was minuscule: 0.59% in 1994 and 0.12% in 2018. As the result, the panel included 36 countries and economic territories of the sub-global region: Australia, Brunei, Cambodia, Canada, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Fiji, Guatemala, Honduras, Hong Kong, Indonesia, Japan, Laos, Macau, Malaysia, Mexico, Mongolia, Myanmar, Nicaragua, New Zealand, Panama, Papua New Guinea, Peru, the Republic of Korea, Russia, Singapore, the United States, Thailand, Taiwan, Tonga, and Vietnam.

In accordance with the recommendations [21], data on the presence or absence of FTA and CU, which entered into force, should be used to assess the effects of integration as trade agreements, thus excluding PSA. Information from the WTO database was used to construct

Table 1. Results of the assessment to determine the effects of trade agreements between the APR countries

Variable	I		II		III		IV	
	1	2	1	2	1	2	1	2
FTA	0.105** (0.039)	**11.06/ -2.59**	0.083** (0.039)	8.61/ -2.04	0.083** (0.039)	8.63/ -2.05	–	–
FTA(exp)	–	–	0.323* (0.064)	**38.09/ -7.75**	–	–	–	–
FTA(imp)	–	–	–	–	0.319* (0.064)	**37.62/ -7.67**	–	–
FTA(cumul)	–	–	–	–	–	–	0.133** (0.055)	**14.21/ -3.27**
$INTL_{1994}$	-0.356* (0.057)	**-29.98/ 9.32**	-0.235* (0.058)	-20.92/ 6.04	-0.234* (0.058)	-20.87/ 6.03	-0.341* (0.065)	-28.88/ 8.89
$INTL_{1998}$	-0.332* (0.055)	**-28.22/ 8.64**	-0.215* (0.051)	-19.32/ 5.51	-0.216* (0.051)	-19.42/ 5.55	-0.316* (0.064)	-27.12/ 8.23
$INTL_{2002}$	-0.265* (0.051)	**-23.28/ 6.85**	-0.146* (0.047)	-13.54/ 3.70	-0.147* (0.047)	-13.65/ 3.74	-0.260* (0.052)	-22.86/ 6.70
$INTL_{2006}$	-0.121* (0.031)	**-11.40/ 3.07**	-0.103* (0.031)	-9.82/ 2.62	-0.104* (0.031)	-9.84/ 2.62	-0.115* (0.032)	-10.83/ 2.91
$INTL_{2010}$	-0.075** (0.030)	**-7.19/ 1.88**	-0.071** (0.029)	-6.85/ 1.79	-0.071** (0.029)	-6.86/ 1.79	-0.068** (0.031)	-6.56/ 1.71
$INTL_{2014}$	-0.004 (0.031)	–	-0.005 (0.030)	–	-0.005 (0.030)	–	-0.002 (0.031)	–
constant	-9.13* (0.443)	–	-0.97** (0.379)	–	-4.81* (0.599)	–	-1.34* (0.407)	–
log of quasi-maximum likelihood	-6.3E+03	–	-6.3E+03	–	-6.3E+03	–	-6.3E+03	–
Pseudo R^2	0.99	–	0.99	–	0.99	–	0.99	–

* p < 0,01, ** p < 0,05.

Robust values of standard errors are shown in brackets. Column 1 presents β coefficients and characteristics of the corresponding regression in general; column 2 shows the increase of mutual trade (%) / tariff equivalent of trade barriers (%), i. e. $\left[e^{\hat{\beta}_{FTA}} - 1\right] \times 100$ / $\left[e^{\hat{\beta}_{FTA}/(1-\theta)} - 1\right] \times 100$, with θ = 5. FTA(exp) and FTA(imp) corresponds to parameters $FTA^{out}_{i,-j,t}$ and $FTA^{out}_{-i,j,t}$ within model (8), FTA(cumul) – $\sum_{n=1}^{n=3} FTA_{ij,t-(1-n)}$. The base year for the INTL variable is 2018. Estimates of the obtained fixed effects are not given for the sake of brevity.

Source: own calculations.

dummy variables that reflect the existence of trade agreements with other countries in the sub-global region that entered into force. As the result, 102 trade agreements were selected to generate dummy variables[12]. In our study, in accordance with the recommendations, we used interval values of trade interactions with a four year lag: 1994, 1998, 2002, 2006, 2010, 2014 and 2018. The study covered 9072 observations.

[12] If the trade agreement between the countries entered into force in the first half of the current year, it was assigned to the current year, if in the second – to the next one.

Estimation results

In accordance with the described methodology, at the first stage, an estimate of direct effects (7–9) of concluding trade agreements between the APR countries was obtained by including a dummy variable of inter-country trade. Calculations showed that the APR that concluded trade agreements within the sub-global region increased mutual trade by 11.1%, while reducing trade barriers by 2.6% (*Tab. 1*).

Preliminary analysis showed that simultaneous inclusion of dummy variables $FTA^{out}_{i,-j,t}$ and $FTA^{out}_{-i,j,t}$ in dependence (8) is impossible due

to its close correlation, so these were evaluated within two dependencies (columns II and III in *Tab. 1*). According to the assessment, the expansion of trade agreements in the APR had the effect of creating trade for exporting and importing countries. On average, during the studied period, countries that carried out the proliferation of trade agreements with other APR economies exported 38.1% and imported 37.6% more, while reducing trade barriers by 7.8 and 7.7% for exports and imports, respectively.

As for the assessment of the accumulated effect of trade agreements (column IV in *Tab. 1*), applying the approach of total factor assessment [45], which implies the summation of lag and interval components, a statistically significant parameter was obtained, indicating that the APR countries that concluded trade agreements increased bilateral trade by 14.2% and reduced mutual trade barriers by 3.3%. As the result, an additional effect of the accumulated effect of trade agreements in the APR was the increase of the trade of countries, which signed agreements, by 3.2 p.p. and the reduction of trade barriers by 0.7 p.p. (the difference between the data, presented in columns 2 for IV and I in *Tab. 1*).

The inclusion of regression variables for trade between countries (INTL) for the respective years indicated the manifestation of globalization in the APR, which was primarily due to the general decline of tariff and non-tariff barriers, including in connection with the accession of most countries of the sub-global region to the WTO. As the result, over a quarter of a century, there has been a gradual reduction of trade barriers between the APR countries, which, in turn, led to a multiplication of trade in the sub-global region. However, there was the lack of statistical significance of INTL for 2014 that can be explained, on the one hand, by a slowdown of global economic growth in this period, on the other – by possible exhaustion of the contribution of globalization to the growth of trade in the APR. The results on the manifestation of the globalization effect in the APR are confirmed by the assessment of the

Table 2. Results of the assessment to determine the overall effect of integration between the APR countries

Variable	I		II		III		IV	
	1	2	1	2	1	2	1	2
FTA	0.249* (0.036)	**28.27/ -6.03**	0.131* (0.036)	13.97/ -3.22	0.131* (0.036)	13.99/ -3.22	–	–
FTA(exp)	–	–	0.506* (0.064)	**65.81/ -11.88**	–	–	–	–
FTA(imp)	–	–	–	–	0.503* (0.064)	**65.41/ -11.82**	–	–
FTA(cumul)	–	–	–	–	–	–	0.361* (0.044)	**43.44/ -8.62**
constant	-8.38* (0.455)	–	-2.04* (0.361)	–	-5.71* (0.673)	–	-11.08* (0.713)	–
log of quasi-maximum likelihood	-6.4E+03	–	-6.3E+03	–	-6.3E+03	–	-6.4E+03	–
Pseudo R^2	0.98	–	0.98	–	0.98	–	0.98	–

* $p < 0.01$.

Robust values of standard errors are shown in brackets. Column 1 presents β coefficients and characteristics of the corresponding regression in general; column 2 shows the increase of mutual trade (%) / tariff equivalent of trade barriers (%), i. e. $\left[e^{\hat{\beta}_{FTA}} - 1\right] \times 100 / \left[e^{\hat{\beta}_{FTA}/(1-\theta)} - 1\right] \times 100$, with $\theta = 5$. FTA(exp) and FTA(imp) corresponds to parameters $FTA^{out}_{i,-j,t}$ and $FTA^{out}_{-i,j,t}$ within model (8), FTA(cumul) – $\sum_{n=1}^{n=3} FTA_{ij,t-(1-n)}$. Estimates of the obtained fixed effects are not given for the sake of brevity.

Source: own calculations.

Table 3. Effects of trade integration in the APR

Trade effect	FTA		FTA(exp)		FTA(imp)		FTA(cumul)	
	1	2	1	2	1	2	1	2
Overall integration effect	28.28 [100.0]	-6.04 [100.0]	65.80 [100.0]	-11.87 [100.0]	65.40 [100.0]	-11.82 [100.0]	43.45 [100.0]	-8.63 [100.0]
Globalization effect	17.22 [60.9]	-3.45 [57.1]	27.72 [42.1]	-4.12 [34.7]	27.79 [42.5]	-4.15 [35.1]	29.23 [67.3]	-5.36 [62.1]
Effect of a trade agreement	11.06 [39.1]	-2.59 [42.9]	38.09 [57.9]	-7.75 [65.3]	37.61 [57.5]	-7.67 [64.9]	14.22 [32.7]	-3.27 [37.9]

Note: 1 – change in mutual trade (%); 2 – tariff equivalent of trade barriers (%).Square brackets indicate the contribution of the effects of globalization and the conclusion of a trade agreement to the overall effect of integration in the APR. FTA – effect of trade creation from the implementation of trade agreements; FTA(exp) – effect of trade creation for the exporting country; FTA(imp) – effect of trade creation for the importing country; FTA(cumul) – accumulated effect of implementing trade agreements.
Source: own calculations.

overall effect of trade integration between the countries of the sub-global region, excluding a dummy variable of trade between countries (*Tab. 2*).

Calculations showed that, taking into account the impact of the globalization process, the conclusion of a trade agreement between the APR countries led to the increase of their mutual exports by 28.3% and the reduction of trade barriers by 6%. Globalization also significantly multiplied the overall effect of integration with the proliferation of trade agreements with other APR countries. According to the assessment, the countries of the APR, which practice this policy, exported by 65.8% and imported by 65.4% more with the reduction of trade barriers for exports by 11.9% and by 11.8% for imports.

The assessment of the accumulated overall effect of integration in the APR indicated the increase of trade by 43.5% and the reduction in mutual trade barriers by 8.6% for countries that concluded trade agreements. These effects are comparable to estimates obtained for the global economy in an earlier period [21]. An additional overall effect of integration into the APR for 1994–2018 was the increase of trade between the countries that concluded trade agreements by 15.2 p.p. and the decrease of trade barriers by 2.6 p.p.

Thus, the obtained estimates allow us to decompose the overall effect of integration in the APR into two components: the effect of concluding a trade agreement and the effect of globalization (*Tab. 3*).

The comparison of effects showed that, for the APR countries implementing trade agreements, the overall positive effect of integration within the sub-global region was achieved mainly due to globalization, which was manifested in the liberalization of tariff and customs regulation and the reduction of non-tariff barriers. The contribution of the trade agreement effect to the overall effect of integration between the APR countries was less than that of globalization: by 1.6 times – without accumulated effects (FTA), and by 2.1 times – with it (FTA(cumul)). At the same time, it should be noted that trade agreements play a significant role in reducing trade barriers between the countries that concluded them (column 2 in *Tab. 3*). From this point of view, globalization in the APR became a necessary condition for increasing bilateral trade exchanges, and the conclusion of trade agreements played a rather auxiliary role.

However, for countries that practice the proliferation of trade agreements in the APR, the contribution of the effect from concluding a trade agreement to the overall integration

effect was predominant: approximately 58% for exporting and importing countries (FTA(exp) and FTA (imp)). At the same time, these agreements provided approximately 65% of a total reduction (100%) of bilateral trade barriers for exporting and importing countries. From this position, the estimation explains the motivation of leadership of several APR countries to increase a number of agreements, resulting in the "domino effect" in sub-global region.

Conclusion

As the center of global economic activity shifts to the Pacific region, mutual trade barriers in the APR are reduced in the context of the formation of a sub-global network of bilateral and multilateral trade agreements as part of the regionalization. As the result, currently, the vast majority of the world's functioning FTA+ is concentrated in the APR. With the trend of increasing the share of intraregional trade, the further expansion of a number of participating countries that concluded FTA+ in the APR created conditions for the emergence of "domino" and "spaghetti bowl" effects. It is likely that the regionalization process in the APR is being preserved due to the fact that, for a number of countries, the implemented trade agreements are mainly based on sensitive lists of traded industrial goods of intermediate demand, which, in the near future, will not significantly bring the region's economies closer together by reducing trade barriers for other traded goods. Despite several attempts, the creation of large trade formats in the APR, which can absorb numerous trade agreements in the region, has not yet been successful due to fundamental differences between potential participating countries. Discussion and creation of various trade formats, on the one hand, generates a process of systemic fragmentation of the sub-global trade and economic system, on the other – creates conditions for further trade liberalization, in terms of reducing non-tariff barriers, complementing the functions of the WTO.

The study revealed general patterns in the framework of integration processes in the APR using a decomposition assessment of the effects of trade agreements. Based on the synthesis of modern approaches to the assessment of gravity dependencies, it is determined that integration processes in the APR had a long-term positive impact on the trade of countries of the sub-global region that concluded trade agreements, generating the effect of creating trade for them. The obtained estimates indicated that the effect of globalization contributed to the increase of the overall integration effect in the APR. During the analyzed period, there was a gradual decrease of trade barriers between the APR countries due to the process of globalization, which caused the increase of trade in the sub-global region.

According to the obtained estimates, it was revealed that the contribution of the globalization effect to the overall integration effect between the APR countries was higher than from the conclusion of trade agreements, i.e. from regionalization. The obtained estimates provide reasons to say that the APR countries, involved in the integration processes, achieved a positive effect through the widespread practice of multilateralism, which was manifested in the general liberalization of tariff and customs regulation and the reduction of non-tariff barriers in sub-global region. As the result, globalization effects more than doubled the overall integration effect for the APR countries that concluded trade agreements. At the same time, it should be noted that trade agreements play an important role in reducing trade barriers between the countries of the APR which concluded them.

An important clarification concerns the APR countries that are engaged in the proliferation of trade agreements. For them, the effect of concluding trade agreements (regionalization), on the contrary, prevailed over the globalization effect. The resulting assessment suggests that the "spaghetti bowl" effect had a negligible impact on trade in the APR, thus explaining the practice of increasing the number of FTA+ in the sub-global region, which, in turn, was manifested in the "domino effect". From this point of view, one of the most efficient strategies for any economy in the region to expand trade with the APR countries was the conclusion of trade agreements with a wide range of countries in the sub-global region. Only in this case, the overall integration effect will be multiplied more by implementing trade agreements, rather than by globalization.

These estimations confirmed the assumption that hidden discrimination is evident in the sub-global region in relation to the APR economies that do not strengthen the liberalization of trade relations with the countries of the region by expanding the geography of concluded trade agreements. This circumstance indicates the need for the Russian side to significantly expand the geography of trade agreements, concluded with the APR countries, in order to geographically diversify foreign trade and support export-oriented sectors of the economy.

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Received June 5, 2020.

DOI: 10.15838/esc.2020.4.70.6
UDC 332.15, LBC 65.9 (2-Rus)-05

Role of Small Business in Providing Employment in the Russian North*

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Abstract. The article is devoted to the study of the level and dynamics of small business in the Russian North in current conditions on the basis of official statistics and the author's sociological survey. The reasons of the functioning and development of small business in market conditions are revealed. Regions of the Far North and territories equated to such are studied. The object of the research is small business in the northern Russian regions. The subject of the research is the study of the features of business development in the northern Russian regions. The purpose of this work is the study of processes taking place in the sphere of employment in the small business sector and its development in the northern regions of Russia. The information basis of this paper consists of domestic and foreign economists' works, materials of periodicals, and Internet resources on this topic. The results of the study show that employment in small businesses in the northern Russian regions, which are characterized by the dominance of extractive industries in the economy, does not have a strong impact on overall employment which is caused by this sector's current insufficient advancement. There is a narrowing of the small business sector on studied territories. With a case study of one northern region (the Komi Republic), we showed a contribution of small business into the provision of employment. The impact of small business on primary socio-economic indicators of the region is revealed. The assessment was conducted, and a low level of residents' business activity was noted: northerners do not seek to open a business due to a low level of expectations associated with the improvement of the economic situation and understanding of spatial development

* The reported study was funded by RFBR and the Komi Republic, project no. 18-410-110002 "Employment of population in small business (case study of the Komi Republic)" for 2018–2020.

For citation: Terentyeva M.A. Role of small business in providing employment in the Russian North. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 108–124. DOI: 10.15838/esc.2020.4.70.6

problems on the territory of residence. The main reasons of northerners' low business activity are the lack of entrepreneurial skills, the lack of start-up capital and difficulties with its attraction. The key directions of the increase of employment in the small business sphere of the northern regions are highlighted.

Key words: small business, employment, unemployment, business activity, age, Russian North.

Introduction

Opinions of scientists on the role and significance of small business in the modern economy differ. Some give it a priority role, calling it an integral part of the modern economic world [1, p. 15]. Others believe that the government and large corporations in economic terms should pave a way for small forms, since the latter are not able to independently create a developed economic space [2]. The experience of developed countries that rely on small business shows that small business is a leader in the manufacturing sector. Its share in these countries' GDP exceeds 50%; as the result, small business determines the economic growth. In Russia, a current situation of economic development is as follows: up to 80% of GDP is created by large enterprises, which define development of socio-economic systems [3].

It is important to note that it is not necessary to speak unequivocally about the need to develop either small or only large economic entities. They are complementary: small businesses cannot develop without the government and large businesses' support, and, similarly, state structures and large enterprises require services of small businesses. In other words, all three structures – the state sector, large business (corporations), and the small business sector – should complement each other organically. The Nordic countries – Denmark, Norway, Finland, and Sweden – have this harmonious development. In Russia, small business plays a significant role, especially in an area of employment provision. However, this task has not yet been implemented in our country and in most its regions, which is caused by a severe differentiation of entities in terms of socio-economic development [4]. For the regions of the Russian North, where life activity takes place in difficult natural and climatic conditions that make living costs rise, an even more noticeable degree of socio-economic differentiation is natural [5]. It is determined by a focal settlement pattern, small population, single-industry economy, a narrow sphere of labor application, transport underdevelopment, low living standards, and so on. Development of small businesses will solve some of these problems: first of all, ones related to territorial development.

Understanding of the importance of small business for economic development determined development and adoption of federal and regional government measures[1] to stimulate business activity. Measures to increase the impact of small business on employment have not yet caused significant changes in the country's economy [6]. However, foreign studies show that small business may be the main "producer" of jobs by providing stable employment [7]. The controversy of an issue of the small business' impact on the employment level and labor markets defined a choice of a research topic, its theoretical and practical significance.

[1] The national project "Small and medium-sized businesses and support for individual entrepreneurs". *Official website of the Government of the Komi Republic*. Available at: https://econom.rkomi.ru/nacionalnye-proekty (accessed: May 28, 2020).

Based on the research relevance, its purpose was to study processes taking place in a sphere of employment in the small business sector, as well as development of small business in the Russian North. Research objectives: to assess the state of small business development in the country's northern regions; to determine the impact of small business on employment; to identify main problems of small business development. These objectives defined the following stages of work:

– review theoretical concepts of small business development and its role in providing employment;

– determine development dynamics of small business structures in the North;

– reveal small businesses' impact on employment in the northern Russian regions;

– identify key areas of small business development of in the Russian North.

Theory

Within Global Entrepreneurship Monitor (GEM), "entrepreneurship is an any attempt to create a new business or enterprise, such as an individual employment, a new commercial organization, or an expansion of an existing business, made by an individual, group of individuals, or pre-existing commercial organizations" [8]. The study of the entrepreneurial process, according to GEM, includes several stages, starting with the identification of potential entrepreneurs (assessing the population's entrepreneurial activity) to owners of already established businesses. In market conditions, while choosing a form of employment, qualities like an initiative, organizational skills, leadership qualities, etc., which are necessary for the implementation of entrepreneurial activity, become significant [9]. Its growth provides the increase of employment (emergence of new jobs).

Until the end of the 1970s, it was assumed that new jobs are created by large firms. However, J. Birch, with case study of USA, proved that large ("elephants") and small ("mice") enterprises grow slow and just slightly affect the increase of employment and GDP. According to his estimates, only 4% of certain enterprises called "gazelles" (a main requirement for assigning a firm to this category is, at least, 20% of annual income growth over four years and the presence of income of, at least, one hundred thousand dollars per year in the base year) are capable of creating 70% of jobs in a country [10]. At the same time, "gazelles" are not always innovation companies. The author conducted a comparative analysis on the basis of identifying a size of enterprises by a number of companies' employees and growth rates. He recommends implementing public policies aimed at supporting this type of enterprise. It should be mentioned that J. Birch's studies were seriously criticized because of the calculation method and the sole usage of the growth criterion in it. B. Kirchhoff proposed a classification of enterprises, which was based not only on growth but also on the pace of innovations' implementation [11]. His calculations showed that firms with low innovation rates but high growth rates created the largest number of new jobs [12].

Thus, small forms of enterprises play a crucial role in creating new jobs and ensuring sustainable employment. In China, more than 75% of able-bodied population works at small enterprises, in Germany and the European Union – more than 70%, in the USA – slightly over 52% [13, 14]. The share of people employed at small enterprises in Russia is below developed countries' indicators: it was 15% in 2018 [15]. Regions of the Russian Federation are largely differentiated by socio-

economic development and, as the result, by the development level of small firms [16]. There are three theoretical models that explain the growth of small businesses considering regional specifics [17; 18]. First, there is a model of small business growth due to the emergence of new technologies and innovations. Second, it is a revenue growth model that proves the growth of small business due to increased demand for products and services. Third, it is a model of economic decline, which considers unemployment as a factor of small businesses' growth. Various authors add other factors: government expenditures on infrastructure maintenance [19], openness of the information space, availability of research results, including ones related to new technologies [20], a degree of business risks [21], and availability of human capital, the sectoral structure of the regional economy [22].

According to the first theoretical model, the growth of a number of small forms of enterprises is caused by the emergence of innovations. W. Baumol suggests creating a favorable innovation climate in regions which would contribute to territorial development. In this regard, one of the elements of the government and municipalities' social policy should be the provision of a favorable innovation climate. All of this will not lead to full development of small business; it is necessary to promote it by increasing economic competition by using the potential of possible entrepreneurs [7]. We should add that, in the terminology of W. Baumol [23], only productive entrepreneurship develops due to innovation activities which require labor-intensive work of government structures.

Within the second model, the growth of small enterprises is driven by changes (increase) of demand for products and services. It is caused by the growth of incomes among population. The third theoretical model shows that the growth of small forms of enterprises is possible due to the economic downturn and the increase of the unemployment rate. A problem of unemployment is a social one. Let us take a look at it in details. A number of scientific papers show that small enterprises make the greatest contribution to the creation and elimination of jobs in the region [24]. Often, government policies to support small businesses in this aspect are considered and implemented as a counteraction to unemployment.

Foreign and domestic authors agree that small businesses contribute to development of self-employment thereby easing tensions on the labor market [17; 25–27]. It helps the government to significantly reduce financial costs of maintaining a proper level of unemployment in the regions.

D. Audretsch and R. Thurik note that, at a low level of entrepreneurial development, the growth of small firms will lead to the increase of corporate incomes and, ultimately, to the decline of unemployment [28]. They suggest that the government should monitor compliance with low barriers of business entry/exit, which is necessary for the maintenance of market balance.

It is important to look at development of small business from the position of the third theoretical model, in which unemployment is considered to be a factor of small business' growth. In comparison with national numbers, the northern Russian regions have fairly high unemployment rates. Thus, in 2018, the unemployment rate in the North was 6.8%, which is 2% higher than a national average value. We see the solution of this unemployment problem in development of small businesses. It will allow expanding employment opportunities for population (its individual groups) and improve the quality of life.

Further, we attempt to analyze and evaluate the level of small business' development in the regions of the Russian North.

Methods

To analyze and evaluate development of small business in regions, an approach based on natural and climatic characteristics was chosen: northern regions with specific features that affect the assessment of socio-economic development were identified. In the European part of the Russian North, these also include Karelia and Komi republics, Arkhangelsk and Murmansk regions, and the Nenets Autonomous Okrug. In the Asian part, these are Khanty-Mansi, Yamalo-Nenets, and Chukotka Autonomous okrugs, Tuva and Sakha (Yakutia) republics, Kamchatka Krai, Magadan and Sakhalin oblasts.

The information basis of the research consists of data of Federal State Statistics Service and regional statistical authorities; materials of a sociological survey, legislative and regulatory acts; information from periodicals, scientific publications, conferences, the Internet, and other research results. Methods of dynamic and static analysis of employment in small business are used.

The problem of employment in small business in the northern Russian territories is more thoroughly examined with case study of the Komi Republic – a region with unfavorable climatic conditions but a significant natural resource potential. The share of extractive industries in the structure of the Komi GRP exceeds 33%, while the share of people employed in these industries slightly exceeds 6%, and unemployment is quite high: the unemployment rate is almost 3% higher than a national average value.

To characterize entrepreneurial work, the study defines the entrepreneurial activity of regional population by assessing the share of population who belong to potential entrepreneurs – those who see opportunities in the external environment to create their own business and are confident with knowledge necessary to manage their own company.

To assess entrepreneurial activity, a sociological method (a survey) was used. It was conducted by the Komi Research Center of the Ural Branch of RAS in the fourth quarter of 2018 in four cities of the Komi Republic – single-industry towns (Vorkuta, Inta, Usinsk) and a capital (Syktyvkar). These towns combined have population of 413.1 thousand people (or 76.1% of Komi population). The survey involved people aged 16–60 and older (at the age of economic activity); a total sample size was 640 respondents. The sample is targeted, quota-based, and coordinated with the general totality of towns' residents by gender and age. The sampling error did not exceed 5%.

The survey was conducted with a questionnaire. In the context of studied issue, the most interesting information is how respondents assess a set of conditions for doing business and development prospects. The questionnaire included a set of questions: 1) socio-demographic characteristics (gender, age, education, marital status, income level); 2) labor biography (works/does not work, sphere of labor, experience, implements/does not implement professional knowledge, skills); 3) assessment of entrepreneurial activity (willingness/unwillingness to organize own business, reasons of willingness/unwillingness, assessment of the level of citizens' awareness about existing mechanisms for supporting entrepreneurial activity).

Results and discussion

The northern regions of Russia are characterized by difficult working conditions due to a natural and climatic factor, but the northern territories have vast natural resources, and

their strategic importance for the country is huge. According to Rosstat, studied northern regions accounted for only 3.3% of the Russian turnover of small and micro-enterprises and 4.1% of the average number of employees, excluding external part-timers, in 2018.

Small business has a dual impact on employment processes. Thus, the growth of small business enterprises provides jobs for a free labor force, but it is characterized by a fierce competition (between small business enterprises and between medium and large businesses) and a high dependence on external conditions (high risks, uncertainty on domestic and foreign markets, low availability of basic financial resources, etc.). It often leads to bankruptcy resulting in job lay-offs. In this regard, it is necessary to create a favorable business climate where employment growth would be constant [29].

Employment in the North is characterized by a downward trend. A number of people, employed in the northern regions, decreased by 2.3% in 2008–2018. The share of people who worked at small enterprises in 2018 was 10.3% (*Tab. 1*).

Despite the decline of a number of unemployed people, coupled with the decline of general unemployment in 2008–2018, the unemployment rate in the North increased (the increase was 1.4 p. p.). However, over the last three years (2016–2018), it has decreased (Tab. 1).

In the Russian North, there is a negative trend concerning general employment and employment in small business (*Tab. 2*).

In the sphere of business activity without legal entity formation, employment has had positive trends until 2012. After the adoption of Federal Law no. 243-FZ "On amendments to certain legislative acts of the Russian Federation on compulsory social security" by the State Duma on December 3, 2012, a number of people employed in individual entrepreneurship began to decline, because insurance payments were significantly increased for individual entrepreneurs. 8.5% increase of people employed in individual entrepreneurship in 2016, in comparison with 2015, could be explained by the adoption of Federal Law no. 477 "Amendments to article 346 and chapter 26 of part two of the Tax Code of the Russian

Table 1. Dynamics of a number of employees in the northern Russian regions, 2008–2018

Year	Number of people employed in the economy, thousand people	including a number of employees at small enterprises		Unemployment level, %*	
		thousand people	%	RF	Northern regions
2008	4342.2	408.2	9.4	6.2	8.2
2009	4310.3	449.1	10.4	8.3	8.9
2010	4259.7	512.6	12.0	7.3	8.4
2011	4253.8	506.5	11.9	6.5	7.7
2012	4258.7	482.3	11.3	5.5	6.9
2013	4235.0	475.4	11.2	5.5	6.9
2014	4197.7	454.6	10.8	5.2	6.6
2015	4262.0	476.9	11.2	5.6	7.0
2016	4223.0	421.8	10.0	5.5	7.0
2017	4260.9	458.4	10.8	5.2	6.8
2018	4244.9	436.2	10.3	4.8	6.2

* A number of unemployed people is defined according to ILO methodology.
Calculated according to: *Regions of Russia. Social and Economic Indicators*, 2009–2019. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138623506156 (accessed: May 21, 2020).

Table 2. Employment dynamics in the northern regions of Russia, 2008–2018

Indicator	Years										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Annual increase of total employment, %	-	99.3	98.8	99.9	100.1	99.4	99.1	101.5	99.1	100.9	99.6
Annual growth of employment in small enterprises, %	-	96.3	97.7	99.0	100.3	99.0	98.3	97.8	98.6	98.2	95.2
A number of employed in the sphere of entrepreneurial activities without forming a legal entity, thousand people	357.5	332.3	359.2	323.8	371.7	342.4	338.2	315.7	342.6	330.2	331.5
Annual increase (decrease) of people employed in business activities without legal entity formation, %	-	93.0	108.1	90.1	114.8	92.1	98.8	93.3	108.5	93.2	100.4
Total annual increase of employment in small business sphere, including organizations and entrepreneurs without legal entity formation, %	-	95.9	98.8	98.1	101.8	98.2	98.4	97.3	99.6	97.6	97.4

Calculated according to: *Regions of Russia. Social and Economic Indicators*, 2009–2019. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138623506156 (accessed: May 21, 2020); *Small and Medium Business in Russia*, 2009–2019. Available at: https://www.gks.ru/folder/210/document/13223 (accessed: May 21, 2020).

Federation" on December 29, 2014. According to the document, individual entrepreneurs, who open their business in the industrial, social, and scientific spheres, may be exempted from taxes for two tax periods. Moreover, there was the adoption of Government Decree no. 98-p "On priority measures to ensure sustainable economic development and social stability in 2015", which also envisioned a number of tax benefits for small and medium business. Despite these benefits, employment in individual entrepreneurship declines. In 2008–2018, in general, a number of people employed in individual entrepreneurship decreased by 7.5%.

The distribution of individual entrepreneurs by age in 2018 shows that an average entrepreneur is a person aged 30–49 (in total, their share exceeded 60%). Individual entrepreneurship is not common among young people in the North, which is usually related to these people's absence or insufficiency of finances to start a business up (*Tab. 3*).

In 2008–2018, a number of Russian small businesses doubled; the increase was slightly more significant in the Northern regions. The 2.3 times increase of a number of small businesses in the North in 2008–2018 led to the 6.8% increase of employment in this area [30]. The turnover of small businesses in the Northern regions has doubled over this period [30].

The dynamics of small business development in the North is unstable (*Tab. 4*).

The complexity of this sector's formation is associated with problems of business and society criminalization, excessive interference of the state policy, and a number of others [31]. Data for the country's northern regions, given in table 4, show that the growth of a number of small businesses took place in 2010 and 2012, but it was insignificant in general. The increase of a number of officially registered small enterprises may largely be explained by "injections" of public finances, which are not

Table 3. Distribution of a number of individual entrepreneurs by age in the northern Russian regions, 2018, %

Region	Total, people	including age (years)				
		15–29	30–39	40–49	50–59	60–72
European North	**64367**	**13.1**	**32.4**	**28.5**	**19.5**	**6.4**
Republic of Karelia	12242	12.2	34.9	28.9	17.1	7.0
Komi Republic	14937	16.3	27.6	23.5	28.1	4.5
Arkhangelsk Oblast	23660	11.3	33.7	28.0	21.2	5.8
Nenets Autonomous Okrug	411	11.7	30.9	35.5	21.9	-
Murmansk Oblast	13117	13.7	33.3	34.6	9.0	9.4
Asian North	**87759**	**14.5**	**27.6**	**31.7**	**21.0**	**5.3**
Khanty-Mansi Autonomous Okrug	23799	14.7	26.5	31.7	24.8	2.3
Yamalo-Nenets Autonomous Okrug	5309	5.2	27.0	40.4	18.5	8.9
Tyva Republic	9886	14.4	35.5	30.5	14.4	5.3
Republic of Sakha (Yakutia)	29950	18.0	26.1	30.1	22.7	3.1
Kamchatka Krai	5503	9.1	29.5	29.1	21.4	10.9
Magadan Oblast	2848	8.2	27.0	39.4	18.3	7.2
Sakhalin Oblast	9965	13.9	26.7	32.0	14.2	13.2
Complied according to: *Results of Labor Force Sample Survey*, 2019. Available at: https://www.gks.ru/compendium/document/13265 (accessed: May 21, 2020).						

Table 4. Dynamics of a number of small businesses (Russian North), 2008–2018

Indicator	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total businesses, thousand people	45.3	52.1	76.2	83.2	95.9	105.4	110.8	109.7	105.6	114.4	107.6
Increase of a number of businesses, % (2008 – 100%)	-	46.3	59.7	84.1	102.3	112.7	110.6	102.7	119.6	106.5	99.4
Calculated according to: *Regions of Russia. Social and Economic Indicators*, 2009–2019. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138623506156 (accessed: May 21, 2020).											

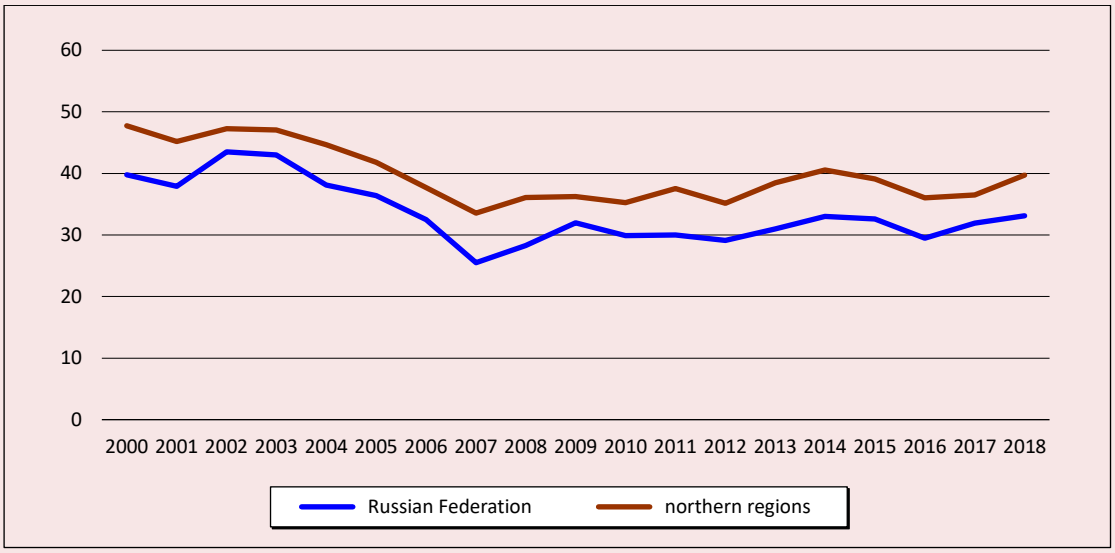
Table 5. Share of all enterprises in the Russian North in the service sector in 2018, units

Indicator	All enterprises	Including a number of employed people.			
		until 15	16–100	101–250	251 and more
Number of enterprises in all sectors	182804	87156	583066	453927	1152372
Number of enterprises in the service sector	136173	78887	498650	341088	579913
Calculated according to: *Regions of Russia. Social and Economic Indicators*, 2019. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/ publications/catalog/doc_1138623506156 (accessed: May 21, 2020).					

systemic. It is worth noting that most often the state policy on business development is aimed at startups [32], which does not contribute to the creation of a significant number of jobs. For example, in the United States, at least 43 people need to start their own business in order to have 9 stable jobs in 10 years [7]. The specifics of small business development include its accumulation in the service sector, since it does not require significant investments in the organization of the production process. *Table 5* data for 2018 show that more than a half of enterprises in the North (74.4%) operate in the service sector, while the share of small enterprises in the service sector was 64.3%.

The viability and sustainability of small business in modern Russian conditions remain relevant issues. The share of loss-making small businesses in the North in 2018 was 39.7%,

Figure 1. Dynamics of unprofitable small enterprises in the northern regions of Russia, 2000–2018, %



Source: *Regions of Russia. Social and Economic Indicators*, 2019. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138623506156 (accessed: May 21, 2020).

which is 6.6% higher than an average value for the Russian Federation (*Fig. 1*). Over the last 20 years, a number of unprofitable small businesses has decreased by 8%. A striking example of a high dependence of small businesses on external factors is the reduction of unprofitable enterprises in 2002–2007, when there was a stable and sustainable economic situation in the country. The decrease in the studied indicator in the northern regions was 13.7%; in the Russian Federation in general it was 18%.

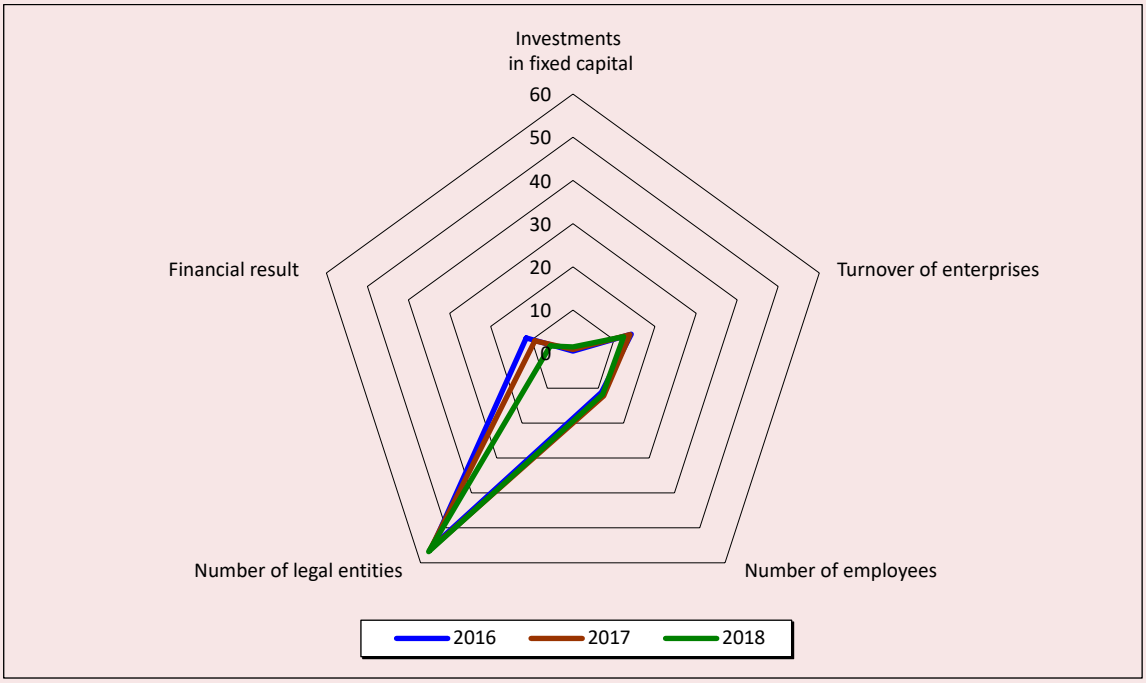
Small business in the North is subjected to significant risks associated with underdeveloped market relations, insufficient financial resources, high taxation and high cost of credit resources, low level of property rights protection, high inflation, instability of the country's economic situation, and bureaucratic pressure in the industry [33]. In addition, along with all-Russian problems, small businesses in studied regions are affected by the northern specifics: higher products' prices because of natural and climatic conditions, remoteness, etc. Small enterprises' contribution to main economic indicators in the Russian North is still insignificant (*Fig. 2*).

Thus, employment in small business does not yet have a significant impact on the socio-economic situation in the Northern regions. Over the analyzed years, the share of population employed in the small business sector in a total number of employed population has been decreasing, the decline was 13.8%.

Next, let us examine one of northern Russian regions – the Komi Republic. There, 2008–2018 were the years of general employment decrease (by 1.18 years)[2]; in 2008–2016, unemployment level rose by 1.6%. This is the highest growth rate among the northern regions of Russia. Komi is a region that has a single-profile specialization of many settlements, which causes a high risk of unemployment subsequently leading to the extinction of single-

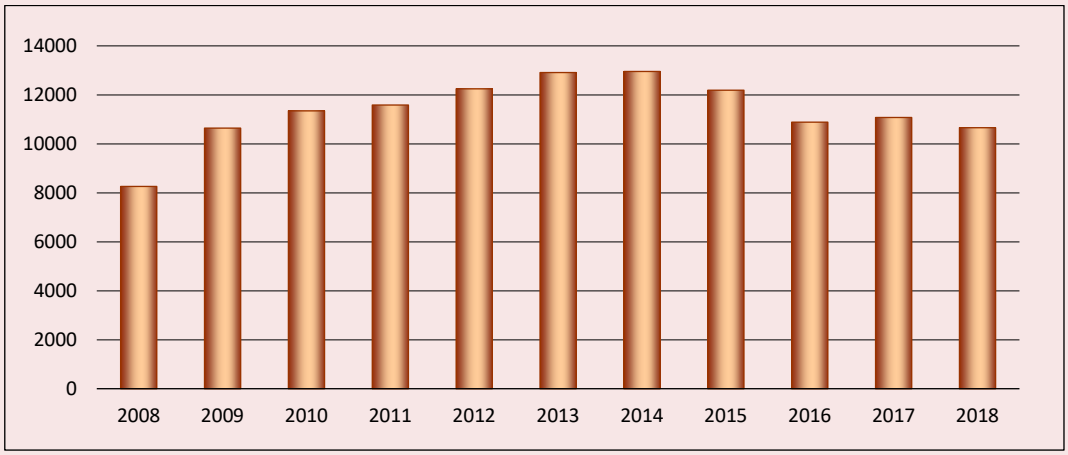
[2] *Results of Labor Force Sample Survey*, 2009–2019. Available at: https://www.gks.ru/compendium/document/13265

Figure 2. Share of small business in main economic indicators of the Russian North for 2016–2018, %



Source: *Regions of Russia. Social and Economic Indicators,* 2019. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138623506156 (accessed: May 21, 2020).

Figure 3. Dynamics of a number of small enterprises in the Komi Republic, units

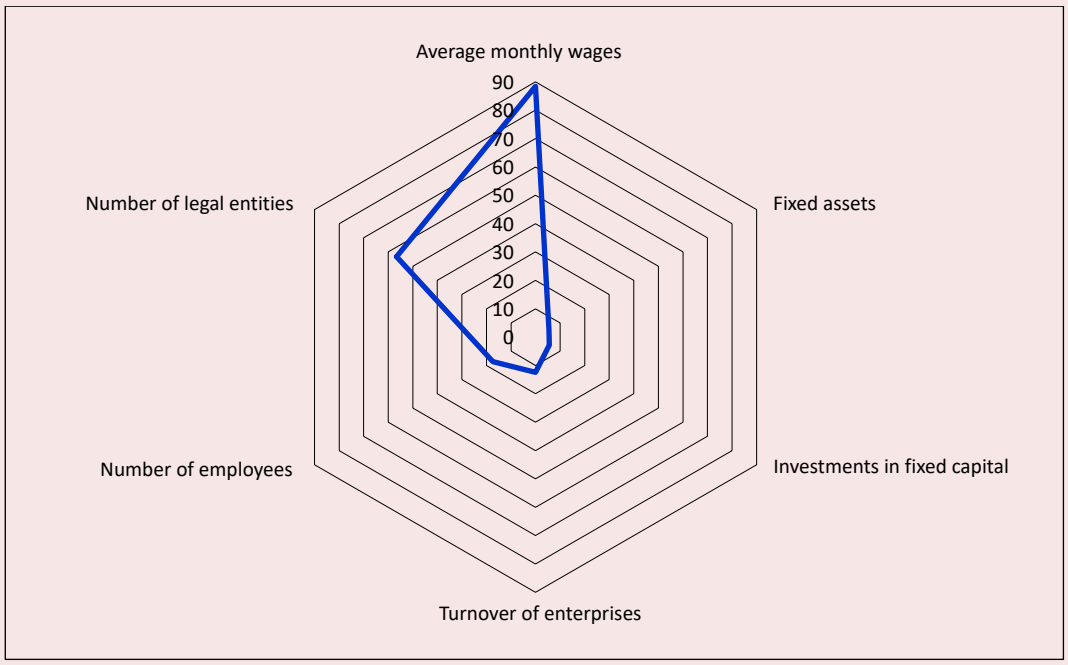


Source: *Regions of Russia. Social and Economic Indicators,* 2019. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138623506156 (accessed: May 21, 2020).

industry towns and workers' settlements, mass migration into other regions [34]. Development of small business will help smooth out these trends.

Over the last ten years, the republic has seen nearly two times decrease of the employment level in small business due to the reduction of small enterprises (*Fig. 3*).

Figure 4. Share of small business entities in main economic indicators of the Komi Republic, 2018, %



Source: *Statistical Yearbook of the Komi Republic. 2019: Stat. Coll.* Syktyvkar: Komistat, 2019. 347 p.

The growth of a number of small enterprises in the republic, observed in certain years, was caused by the state policy to support startups.

According to statistical data (*Fig. 4*), in 2018, the share of indicators of a number of small enterprises in overall economic indicators of the Komi Republic was 57%. A comparison of an average monthly income for small business and a full range of enterprises and organizations shows a gap of incomes in small business, and it reaches 12%. Low average incomes in the business sector reduce an ability to attract highly qualified specialists.

Approximately one sixth part of population, employed in the Komi economy, works in the small business sector. Small business is characterized by low shares of investment indicators in fixed capital, fixed assets, and enterprises' turnover. However, in general, for 2000–2018, financial results of small enterprises in the Republic had a positive dynamics (*Fig. 5*).

The chart shows that financial results of small enterprises were seriously affected by the economic crisis of 2014 caused by the ruble devaluation, lower prices for hydrocarbons, and adverse external conditions, which resulted in a drop of turnover from 1472.1 mil. rub. in 2015 to 1326.6 mil. rub. in 2016[3]. In 2017, there was a significant increase of profit amounts by 47.1%, in 2018 – another 7.1% decrease. Economic crises are cyclical and inevitable but its impact on the region's economy may be mitigated by timely measures. Thus, measures, taken in Komi to support small business, are implemented within the framework of targeted programs of federal significance, state programs of the Komi Republic, and departmental subprograms. A national program "Economic development" for 2013–2021 and

[3] Data used: *Statistical Yearbook of the Komi Republic*, 2009–2019. Available at: https://komi.gks.ru/statistical-compilation/document/67052

Figure 5. Dynamics of financial results of small enterprises of the Komi Republic for 2000–2018, mil. rub. (in prices of 2000)

Source: *Small and Medium Business in Russia*, 2009–2019. Available at: https://www.gks.ru/folder/210/document/13223; *Statistical Yearbook of the Komi Republic*, 2009–2019. Available at: https://komi.gks.ru/statistical-compilation/document/67052

a subprogram "Small and medium business in the Komi Republic" function there. The budget for 2013–2021, according to the program, is 1.668.585.6 thousand rubles, including federal budget funds is 1.151.043.9 thousand rubles. Within the framework of this sub-program, target indicators for increasing employment are the growth of the share of an average number of employees (without external part-timers) at micro-enterprises and small enterprises in a total number of employed population. However, for example, such important indicator as a number of newly created jobs (including newly registered individual entrepreneurs) by small businesses that received the state assistance, with the support of municipal programs (subprograms) containing activities aimed at the development of small business was excluded from January 1, 2018.

The following approaches are used to support small businesses in the republic: 1) in 2016, direct financial support was provided to small business; 2) in 2017, a project approach was used; 3) in 2018 until now, a "patchwork" model; 4) by 2024, it is planned to switch to a centralized model of support for small business.

In recent years, support for small businesses has been provided in order to reduce administrative burden on small businesses, expand property support for small business entities, create favorable conditions for self-employed citizens, develop infrastructure, and promote entrepreneurship (regional and municipal business support centers, business incubators, industrial parks, guarantee funds, microfinance funds, etc.). Activities of these structures allowed increasing the entrepreneurial activity of the region's population in some way.

Evaluation of population's entrepreneurial activity in the Komi Republic, a region with a high level of involuntary unemployment and

population's high economic activity [35], the results of a poll, conducted in Komi towns by employees of the Research Center of RAS Ural Branch in the fourth quarter of 2018, showed that 70.1% of respondents, including economically active population, have a positive attitude toward business (this number exceeded 80% across Russia[4]). While analyzing opportunities for business development in towns, opinions of respondents, their perception of prospects for opening a business in the next five years in terms of development of a territory where they live were considered. Thus, a majority (44.2%) noted existing difficulties of territorial development which are quite solvable, 28.8% of people said that the situation in the town was not good, and there will be no changes, and 25.9% of respondents pointed out that there will be changes for the worse. Only 10.3% of people see positive prospects for the town, and they link it with development of industrial production (41.2%), small business (24.1%), and the service sector (18.7%).

The definition of conditions for development of entrepreneurial activity shows its insufficiency. Thus, 31.5% of respondents point out unfavorable situation with territorial development and note that these trends will remain unchanged. 44.3% of active citizens noticed that existing problems of territorial development are quite solvable.

The level of entrepreneurial activity is influenced by population's prevailing perceptions of business opportunities, abilities and competencies to run business. Within economic crises, this assessment is influenced by a competence self-assessment. In other words, the higher the entrepreneurial activity is, the higher the respondents' assessment of their competencies becomes [36]. In the Komi Republic, 25.2% of able-bodied respondents, living in urban areas, would like to do business. Moreover, men have 10% higher level of entrepreneurial activity than women. If we compare entrepreneurial activity of population from single-industry towns (Vorkuta, Inta) and the administrative center (Syktyvkar), the situation is as follows: it is higher in a capital. The figures were 30% and 21%, respectively.

Citizens indicated the following reasons for their reluctance to start business: lack of business experience (25.4 %), lack of initial capital (24.9%), uncertainty about success (15.4 %), delay of business startup for the future (12.1%), lack of connections and ignorance of business information (10.6%), other reasons include lack of entrepreneurship interest (6.5%), age restrictions (4.8%).

The level of entrepreneurial activity in Komi towns decreases with the increase of respondents' age[5]: youth of 16–29 – 28.2%, average age of 30–44 – 24%, 45–50/54 years old – 4.9%, older than 50/54 – 1.4%; in other words, it significantly decreases with age. Young people are ready to do business, but the lack of financial capital is often the reason that they do not want to proceed with it. A low level of entrepreneurial activity in older ages is associated with a "reluctance" to start something new again, with or without financial resources.

The distribution of responses to a question about the implementation of professional knowledge, skills, and abilities showed that those who have the highest level of knowledge

[4] Analytical review "Business in Russia: Trust, barriers, and success factors". VCIOM. Available at: https://wciom.ru/index.php?id=236&uid=116444 (accessed: May 21, 2020).

[5] This indicator was calculated as a specific weight of population who plan to open their own business in a total number of population positively responding to a question "Would You like to start your own business?" (in a total number of those planning to open their own business and taking active actions to organize it).

Table 6. Assessment of labor market opportunities in Komi towns in 2018

Indicator	Overall for the sample	Syktyvkar	Vorkuta	Inta	Usinsk
1. Availability of jobs	2.3	2.3	2.2	1.7	3.0
2. Variety of jobs	2.1	2.6	2.1	1.7	2.7
3. Opportunities for professional realization	2.3	2.5	2.3	2.1	2.9
4. Career opportunities	2.5	2.7	2.4	2.2	3.2
5. Population's living standards in towns	2.5	2.7	2.4	2.3	3.4
Note: evaluation from 0 to 5 points: 5 – very good, 4 – good, 3 – satisfactory, 2 – bad, 1 – very bad.					

implement it the least (a respond "implement only a small part" was given by every third respondent). At the same time, the lack of funds (about 30%) restrains respondents the most. The respondents' assessment of such factor as the availability of local labor market opportunities showed that it is dominated by low values. Only residents of Usinsk estimate labor market higher. In comparison with other towns, their average estimations are 3 points higher (*Tab. 6*).

As a part of our survey, we assessed the level of population's awareness about measures of state support for entrepreneurship. The results of the study among young people of the republic showed that 42.1% of them lack information on all issues related to starting a business. One third of young respondents said that they do not know anything about government programs aimed at supporting local business and population (34.6%). 15.6% of them said that they had heard something about government programs but did not delve into its essence. Only 7.7% of respondents were aware of programs and projects aimed at developing entrepreneurship.

Thus, in the Republic of Komi as a whole, over the last 10 years, there has been the increase of a number of small enterprises coupled with a steady increase of its financial results, and the average number of employees at small enterprises has decreased. In 2018, a number of small enterprises in the Komi Republic increased by 28.6% in comparison with 2008. The average number of employees at small enterprises decreased by 29.4% over the studied years, and the proportion of employees at small enterprises in the total average number of employees was 17% in 2018. According to the survey of urban population, conducted in 2018 for the assessment of entrepreneurial activity, it may be noted that its level in northern single-industry towns (Vorkuta, Inta, and Usinsk) is below values of the same indicator in an administrative town (Syktyvkar). The entrepreneurial activity of citizens decreases with age in all studied cities. There is a low share of potential entrepreneurs, and population is poorly informed about state and municipal authorities' measures to support small business. Northern factors (market limits, underdeveloped infrastructure), as well as citizens' low assessment of their entrepreneurial skills and lack of startup capital, have a significant impact on this situation.

Conclusions

Summing up, it should be noted that each historical stage of economic development has its own characteristics. Modern trends of global economy development, which is characterized by rapid advancement of high technologies, show that small forms of economic entities are the most successful. As the result, employment in this sector in foreign countries sharply increased. The Russian reality is different. The country is dominated by large-scale economic forms, and, respectively, employment at large enterprises is common. The purpose of this study was to study population's employment

at small businesses in the North of Russia. The results of the analysis showed that the dynamics of small business development in the North is uneven, small businesses primarily develop in the service sector, and overall employment in the North has been declining over the last ten years. In certain years (2010 and 2012), the Russian North has seen the increase of a number of small enterprises which could be explained by the following statement: this type of economic entities has developed not because of the increase of incomes but due to the economic downturn, the increase of the unemployment rate in regions. In this case, the role belongs to the state policy that prevents the growth of unemployment but does not solve the problem of creating jobs, the growth of which was impacted be self-employment in the North.

Case study of one northern region (Komi Republic) shows that the role of small business in the economy is still insignificant, a number of small businesses and employees declines, and an amount of small business profits for 2008–2018, in comparable prices adjusted for inflation, decreased.

Data of our own sociological survey show a low level of entrepreneurial activity of urban population in the Komi Republic, which is caused by the northern specifics of life (transport underdevelopment, remoteness, "small" size of markets, infrastructure, etc.). As the result, northerners assess the prospects of territorial development and labor market opportunities as low; at the same time, they have a generally positive attitude toward entrepreneurship.

Therefore, as a part of the state support for small businesses in the North, it is necessary to: 1) continue work on promoting entrepreneurship; 2) continue information and advisory work with small businesses; 3) continue reducing administrative barriers; 4) monitor small businesses to determine a possibility of their expansion (creating new jobs).

The research results contribute to development of the economic analysis theory (reveal of the specifics of small business formation and highlighting of the impact of small business on employment in the northern regions). The practical significance of the work is caused by a possibility to use the results in drafting regional programs to stimulate entrepreneurial activity and small business development.

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Received October 8, 2019.

DOI: 10.15838/esc.2020.4.70.7
UDC 332.146, LBC 65.049(2)

New Basic Principles of the State Policy in an Area of Local Self-Government Development in Russia

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Abstract. The purpose of the article is to highlight the most important economic, legal, and institutional foundations which are advised to be included in the new "Basic principles of national policy on local self-government development through to 2030". It was concluded that it was a late decision to prepare a new version of the Principles which caused significant difficulties in the practical implementation of reforms in the municipal environment of the Russian Federation along with many gaps and numerous subsequent additions and amendments in Federal Law no. 131-FZ "On the general principles of the organization of local self-government in the Russian Federation". Nowadays, update of the Principles is very important. It is related to five significant novations which make us reexamine aims and instruments of the state policy in the local self-government area. The first one is a global trend of management decentralization that noticeably strengthens the role of a local link of socio-economic systems. The second important novation is the relevance of a task to implement "federalization" of the government's management of local self-government. The third novation is a necessity to naturally include local self-government in a unified vertical of strategic planning: its efficient functioning takes a crucial part in providing sustainability of the country, its regions, and municipal territories' socio-economic development. The fourth demanded novation is expediency to secure a formula, or a principle, that would allow stopping an infinite series of reorganizations of Russian self-government together with various dividing and unifying processes in this sphere. Finally, the fifth novation is a necessity to finish the transformation of Russian local self-government from a low-level component of the administrative and command system into a

For citation: Bukhval'd E.M. New basic principles of the state policy in an area of local self-government development in Russia. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 125–135. DOI: 10.15838/esc.2020.4.70.7

socio-economic institution that naturally combines features of social authority and the beginning of a modern civil society and practically implements an institutional principle of "independent solution of local issues by people".

Key words: local self-government, transformations in the municipal environment, state policy for local self-government development, federal entities, civil society.

Introduction

The approval and efficient functioning of the strategic planning system are possible only with its implementation on the basis of a power-management "vertical" with a balanced range of powers and responsibilities at all levels. The system of institutions of local self-government becomes a necessary component of this vertical and the whole economic and legal mechanism of federal relations. A fair opinion has been firmly established that local self-government, combining the attributes of public authority and the principles of civil society, allows implementing population's initiatives, strengthening the measure of its initiative and responsibility for territories' stable socio-economic development. At the same time, in modern foreign economic theory, the role of local self-government, being an institution that can "relieve" public administration authorities of excessive administrative functions with an opportunity to focus on national strategic tasks and provide conditions for its solution, is of similar importance [1; 2].

The increasing role of local self-government in addressing the key issues of socio-economic development creates, however, a growing difficulty of ensuring a balance between the role of these institutions as public authority, working closely with all government management structures, and, simultaneously, as an institution of civil society aimed at maximum implementation of methods of direct or direct people's rule. Besides, using the principles of civil society, local self-government always acts in a rigid legal framework of legislative regulations. Moreover, terms of a federal government originally imply specifics of local self-government institutions' development [3], as a balance of regulatory origins coming from a federal center and entities of the Federation, too [4]. The mechanism of these principles' implementation includes state concepts, or a program of local self-government development, a new version of which is currently extremely demanded not only for the interests of the country's economy but also for its sustainable socio-political development.

Description of the research methodology and justification of its selection

The justification of the selection of the paper's topic is connected with the existence of significant risks that a new stage of conceptual documents' development, related to state policy concerning Russia's local self-government, may repeat previous mistakes. It is about documents in which proposed changes in the area of local self-government were not sufficiently linked to development of the Russian model of federalism, it did not set specific goals for planned changes, and did not form clear ideas about the solution of problems. The methodology of our research is based on a combination of economic, legal, and institutional approaches to assessing the problems and prospects for development of Russian local self-government, a consideration of inevitable diversity in the formation and activities of municipal communities in various

regions of Russia. It should be noted that problems of creating new "Basic principles of national policy on local self-government development through to 2030" (hereinafter – Principles), as a document of strategic planning, was not basically considered from scientific point of view. Because of this, the scientific novelty of the research is the justification of ways to "include" municipal link of management in the "vertical" of strategic planning and development of ideas about a dual nature of local government as a public authority and an institution of civil society. This duality is interpreted not as a contradiction but as a complementary mechanism that allows integrating the efforts of public authorities, representatives of civil society, and entire population in implementing a unified strategy for the socio-economic transformation and achievement of national development goals in the Russian Federation.

Principles as an element of the institutional component of strategic planning

A meeting of the Council for Local Self-Government Development (hereinafter – Council), which happened on January 30, 2020 and was devoted to the role of local self-government in the implementation of national projects[1], covered a wide range of issues related to the functioning and further transformation of municipal space in the Russian Federation. It is possible to say that the Council's work, its results, and recommendations disrupted quite a long period of blatant silence and the absence of clear prospects of Russian self-government's following development. Previous similar events included, for example, the All-Russian Congress of Municipalities, conducted in Suzdal on November 2013, and the following meeting of the RF President V.V. Putin with some members of this congress in Moscow. A formal occasion for these events was the "triple" anniversary of several events that are essential for the functioning of local self-government system in the country.

First of all, 10 years since the adoption of Federal Law "On the general principles of the organization of local self-government in the Russian Federation", 15 years since the ratification of European Charter of Local Self-Government, and 20 years since the adoption of the current Constitution of the Russian Federation. In the resolution of this congress, quite critically assessing a state of all components of Russian municipalities' development, "long- and medium-term elaboration of main areas of local self-government development in the Russian Federation" was called "necessary and sensible"[2]. However, in fact, such a document, as the basis of this vector of the state's socio-economic policy, did not appear at that stage.

Adoption of Federal Law "On strategic planning in the Russian Federation"[3] in 2014 gave some hopes to believe that a subject of such planning will be not just different economic and social processes in the country but the novations of institutional nature that should have provided executability of all other goals of strategic planning. However, the institutional component of strategic planning, in fact, was not implemented, and such institutions, which are systematically important for the country and its economy, like federative structure and

[1] Meeting of the Council for Local Self-Government Development. Available at: http://kremlin.ru/events/president/news/62701

[2] The resolution of All-Russian Congress of Municipalities. Available at: http: http://www.vsmsinfo.ru/vserossijskij-s-ezd-munitsipalnykh-obrazovanij/rezolyutsiya-vserossijskogo-s-ezda-munitsipalnogo-obrazovaniya.

[3] On strategic planning in the Russian Federation: Federal Law no. 172-FZ, dated June 28, 2014. Available at: http://www.consultant.ru/document/cons_doc_LAW_164841/

the organization of local self-government did not receive a strategic perspective for the future [5].

In this sense, the RF President V.V. Putin's initiative, proposed at the Council on January 30, 2020, "to start drafting new basic principles of national policy on local self-government development through to 2030" should be assessed as very important and relevant. What should we start from in this work, what should we accept from what we have already learned, and what should we reject? To answer these questions, it is necessary to refer to documents that are currently formally available for this area. Before the drafting and adoption of the new Principles, a document "Basic principles of national policy on local self-government development in the Russian Federation" remains officially active. It was adopted in 1999[4], and, currently, it is registered in legal databases as active.

Reading of the "Basic principles..." of 1999 gives certain reasons for thinking about expectations from a new similar document. Surely, from a current point of view and the country's accumulated experience of political and socio-economic transformations, it is possible to argue that the key theses of this document are too declarative and vague. This is what often creates an impression that, even now, a number of provisions in documents on local self-government development are constantly repeated. However, it is not always true, because many documents repeatedly simply double inaccuracies, which were originally formed in a constitutional and legal framework of Russian local self-government, and/or defects of the formation of its economic foundations.

For example, the "Basic principles..." of 1999 just repeated one constitutional thesis which is de facto invalid. This is a thesis on the right of local self-government to "establish local taxes and fees". In fact, local self-government of the Russian Federation cannot set local taxes (it is set only by the federal legislator) but only introduce, collect, and, within certain limits, administer these taxes. The "Basic principles..." pointed to the need to "reallocate federal budget funds, directed at consolidated budgets of the Russian Federation's entities, ensuring a financial independence of municipalities in order to resolve issues related to its competences". However, in the course of reforms in the system of Russian local self-government on the basis of 131-FZ of 2003[5], changes in the structure of consolidated budgets of the Federation's entities moved in the opposite direction: the share of local budgets in it decreased, not increased. Scarce financial resources of Russian self-government were simply "smeared" all over thousands of new municipal budgets [6].

We think that the following thesis from the "Basic principles..." of 1999 is very important: "serious difficulties in practical activities of local self-government cause ambiguities in the understanding of certain norms of Russian municipal law, including ones ensured by the Constitution of the Russian Federation". The document did not clarify an exact meaning of it, but, until now, amendments to this block of constitutional provisions have not appeared. Although, this need may be considered fully conscious exactly now. It is important, however, that a reform of legal foundations of Russian local self-government should not stop at the

[4] On the approval of basic principles of national policy on local self-government development in the Russian Federation: Presidential Decree no. 1370, dated October 15, 1999. Available at: http://www.consultant.ru/document/cons_doc_LAW_24661/

[5] Basic principles of national policy on local self-government development in the Russian Federation: Federal Law no. 131-FZ, dated October 6, 2003. Available at: http://www.consultant.ru/document/cons_doc_LAW_44571/

level of constitutional amendments, but it should lead to their detailed interpretation in federal laws that affect this block of issues in one way or another.

Nevertheless, a number of important provisions of the "Basic principles..." of 1999 may be considered at least formally implemented. The document pointed to the existence of territories in the Russian Federation where the population could not actually exercise their right to local self-government. Currently, there are no such gaps in the country except, of course, the problematic organization of local self-government in federative cities – Moscow and St. Petersburg [7]. In these megalopolises, a major part of population either has no idea about the existence of a special institution of inner-city municipalities or associates it with district councils, although, in fact, it is not local self-government (for example, in Moscow, district councils are the lowest link of the Moscow Government apparatus as a federal entity).

In the "Basic principles..." of 1999, it was noted that there were ambiguities regarding the separation of powers between local self-government and state authorities. It may be argued that, in general, this problem was solved during the adoption of the aforementioned 131-FZ, when a list of "own" powers on local issues was formed for each type of municipality, and then the institution of so-called "voluntary" powers was introduced [8]. The problem, however, is that, in the entire period after the adoption of the 131-FZ, a list of "own", i.e. mandatory, powers of municipalities has constantly increased, and a range of revenue sources for local budgets has not been seriously expanded. Local self-government, especially at the settlement level, has not become economically viable. Although rural settlements account for, approximately, 80% of all active municipalities, they account for only 7.4% of local budgets' own revenues. Such self-government lost the trust and respect of population or, as experts noted, "self-government of population" gradually turned into "self-government of municipal officials".

An actual range of emerging problems with the practical implementation of the 131-FZ on local self-government has revealed an obvious fact that the "Basic principles..." of state policy in this area, approved in 1999, are outdated and need to be updated in order to set goals for ongoing reforms. However, this demand, as noted above, did not get a real feedback, which gives an exceptional socio-political significance to the RF President's initiative to prepare the new Principles.

Consistency and concreteness as the basis of design for Russian local self-government

A proposal of the President of the Russian Federation to develop a new "Basic principles of national policy on local self-government development through to 2030" gives a real chance to move from petty and often inconsistent adjustments in the economic and legal framework of the Russian municipal community to a clear and goal-oriented program of actions in this direction. A central point in the new Principles will undoubtedly be an issue of closer, coordinated interaction between state and municipal authorities in the solution of priority economic and social tasks, including ones recorded in current national projects of the Russian Federation.

At the same time, it is not possible to agree with a statement that our local self-government is allegedly "separated from the government". It seems that such attitude is like a quite simplified interpretation of Article 12 of the RF Constitution ("Local self-government bodies are not a part of the system of government authorities"). There are, at least, three

reasons why it is incorrect to speak of such "separateness". First, main legal frameworks of the local self-government functioning in Russia, as in all countries of established democracy, are legally determined by the government (by federal and regional legislators). Second, it is not an exaggeration to say that local self-government exists on "government funds', because, according to the latest monitoring of the Ministry of Finance of the Russian Federation (for 2019)[6], local taxes (there are only two) account for 15.8% of tax revenues of local budgets and 6.7% of their own revenues in general. Third, a "connection" of state and municipal management is provided by a broad involvement of the municipal level in the execution of state powers, primarily the powers of federal entities (although, at the same time, there is a reverse process – redistribution of powers from municipalities to the regional level). Financing of delegated state powers is an essential component of local budgets' expenditure part. According to estimates of the Ministry of Finance of the Russian Federation, expenditures on the exercise of government powers in 2019 amounted to 33.3% of all local budgets' expenditures.

At the same time, as V.V. Putin noted at the Council for Local Self-Government Development on January 30, 2020, consistency of actions of government and municipal management should not result in the loss of the latter's independence. We believe that, due to the current multiplicity of interpretations, the aforementioned constitutional formula from Article 12 should receive an "official" specification in a new framework and in Federal Law no. 131-FZ on local self-government in paragraphs related to state regulation, state control, and state financing of local self-government.

It is equally important to avoid an endless repetition of the same general statements which have long been perceived not as a basis of real actions but as a set of slogans and exclamations. It concerns, first of all, an emphasis on strengthening a financial and budgetary basis of local self-government. In current conditions, unlike previous years, it should be achieved not by pumping funds from higher-level budgets but largely by an efficient stimulation of measures to expand and make fuller usage of municipalities' tax potential. It is possible that a time has come to actually implement a constitutional principle of local self-government bodies' right to establish local taxes and/or expand a list of local taxes, allowed to be imposed and collected at the local level on the basis of federal legislation [9]. It is unacceptable to further delay the solution of this problem, because only an economically self-sufficient local government can make a significant contribution to the achievement of significant priorities of the government's socio-economic policy and take an active part in the implementation of state programs and national projects, etc.

One of the main tasks to be solved in the course of preparing the new Principles is, undoubtedly, an issue of optimal institutionalization of local self-government in the Russian Federation. At the same time, it is necessary to strictly adhere to principles of a federative government. We believe that, in this case, the new Principles could fill in or specify certain gaps in the constitutional regulation of local self-government, which were presented, as

[6] Information on the results of monitoring of the implementation of local budgets and interi budgetary relations in entities of the Russian Federation at regioni al and municipal levels for 2019. *Official website of The Ministry of Finance of the Russian Federation*. Available at: https://www.minfin.ru/ru/perfomance/regionsresults/Monitoring_local/results/?id_57=130321.

previously mentioned, in the 1999 document. First of all, it is about the need to finally clearly define what exactly are those "general principles" of the organization of local self-government, the establishment of which, according to the Constitution of the Russian Federation (Paragraph "n" Art. 72), refers to powers according to entities of the Russian Federation and its entities' joint management. Moreover, in relation to this sphere of socio-economic relations, it is necessary to specify the mechanism of "joint management". Specifically, to distinguish between issues that are subjected to the regulation by the federal legislator and ones that should be subjected to the agreement with entities of the Russian Federation in a certain way [10].

We consider such a targeted load to be of fundamental importance, because 131-FZ, in comparison with previous local self-government legislation, although it tried to copy the German experience of organizing local self-government [11], actually had an "anti-federative" nature. The law significantly limited federal entities' powers to organize the system of local self-government and eventually abolished a diversity of such organizations that existed before the introduction of 131-FZ. It is possible that a formula of "general principles" will be too narrow and vague for legislative provision of unity and interaction of state authorities and local self-government. Then it will inevitably require corresponding constitutional novations.

We believe that the main and exclusive role of the federal legislator in this case is to maintain a balance between ensuring an equal right of all citizens of the Russian Federation for local self-government and a flexible variety of forms of its organization in different regions, taking into account their socio-economic, natural-geographical, national-ethnic, and other features. It also applies to an issue of institutionalization of the local self-government system. In this case, there is a need to maintain a balance between legalizing types of municipalities that can be used, and a constitutional formula, repeated in various documents, that the structure of local self-government bodies is determined independently by population (Part 1 of Article 131 of the RF Constitution). In the regulation of the institutional structure of local self-government, it is necessary to clearly distinguish between what is regulated by federal laws and laws of the Federation's entities, and what is, and how, "determined independently by population".

In the practical implementation of the formula, in a statement "determined independently by population", it is advisable to maximally expand the usage of direct forms of democracy (for example, local referendum), corresponding to self-government being the institute of civil society, and to reduce a range of situations when, according to the law, public opinion is expressed not by it but through decisions of local representative authorities [12]. It is no accident that, in Russian and foreign scientific literature, local self-government, based on the principles of civil society, is considered to be an important sign of democracy, including population's political culture, as a manifestation of its initiative and responsibility [13; 14]. For this purpose, local communities everywhere master qualitatively new tools for communication, interaction, and decision-making on local issues, on a network basis too [15].

Apparently, it is uncertainty of aforementioned division of powers that has become one of the reasons for undulations of ideas about what local self-government structure meets Russia's specifics and its population's interests the most. As we have repeatedly noted, changes in the system of Russian

local self-government, which began after the adoption of 131-FZ, significantly modified the structure of the country's municipal organizations; moreover, in two different trends. In other words, the structure of Russian local self-government has undergone a certain polarization.

On the one hand, municipalities have been split up due to the mandatory introduction of settlement municipalities in all regions that were a part of local government's (municipal districts) two-level system. On the other hand, as the result of the same mandatory liquidation of intra-city municipalities (except for federal cities) in the Russian Federation, unified municipalities (urban districts) with a population of up to 1 million people, or even more, emerged. However, at the current moment, this disparity is somewhat smoothed due to the consolidation of municipalities, when settlement municipalities merge and/or form a single urban or municipal district. Also, large cities of the country, primarily "capitals" of federal entities, got back an opportunity to form intra-city municipalities. Although, currently, only three cities – Makhachkala, Samara, and Chelyabinsk – decided to decentralize urban local self-government.

Certainly, it is impossible to completely "freeze" changes in the institutional structure of Russian local self-government. However, in our opinion, the task of the new Principles is to secure a formula or a principle that would stop an endless series of reorganizations of municipalities in the form of various types of unification or separation processes, etc. [16; 17]. In general, it is necessary to distinguish between issues of reorganization of local government institutions and administrative-territorial reforms [18].

It is possible that a principle of economic feasibility of an independent municipality may play the key role here. For example, it is possible to do in the form of the establishment of such a criterion as an ability of a municipal formation to function fully and to exercise its powers at a maximum standard of local budget expenditures for management purposes in the amount of this budget's expenditure part not exceeding 25% (at the meeting of Council for Local Self-Government Development on January 30, 2020, municipalities, where 70% (or more) of local budgets' expenditure part is spend for these purposes, were mentioned). It is, so to speak, a minimum requirement "from below". Accordingly, certain restriction "from above" may be the establishment of a maximum population size in a single municipality, which technically corresponds to a possibility of using direct forms of people's rule. This formula may be implemented by introducing a requirement on a necessity of the formation of intra-city municipalities in towns with, for example, population of 500 thousand people or more.

However, organizational changes of the local self-government's institutional structure alone cannot ensure the efficiency of its functioning, including the adequacy of its financial and economic basis. Without radical progress in this area, the result of any unifying reorganizations, at the settlement level in particular, may only lead to something that was characterized by K. Marx in "The German Ideology" as "equality of people in poverty".

The question of how to radically improve the situation in the field of local finance has been discussed for more than 20 years but without much positive progress. The problem is that the Principles and federal laws, regulating certain aspects of the functioning of local self-government institution, cannot have an impact on the situation with local budgets (previously, there was Federal Law "On the financial foundations of local self-government in the

Russian Federation"; it became invalid on January 1, 2009). Currently, this range of issues is the exclusive prerogative of the federal tax and budget legislation, which is very conservative, and it rarely responds to calls to significantly strengthen the financial basis of Russian local self-government. How can we overcome this persistent impasse?

It seems that there are no clear, economically motivated ideas about how to significantly strengthen the financial basis of Russian local self-government. At the meeting of the Council for Local Self-Government Development on January 30, 2020, nearly all participants spoke about financial problems of municipalities, and there were just a few specific proposals on this issue. In fact, it all came down to the problem of paying off municipal debts on budget loans, transferring certain types of tax revenues to the local level, and calling for more complete consideration of municipalities' needs in the system of budget-transfer relations. The exchange of opinions revealed a dilemma – how to contribute to municipalities' socio-economic development in the best way: by adding tax and other revenues to their budgets or by including municipalities in the implementation of various federal programs and projects. There is no universal solution here. This is another niche for a fairly complex and regulated balance of levers of financial and economic policy of the state in relation to local self-government.

In our opinion, the new Principles should include a clear program of government actions to develop the economic basis of Russian local self-government. First of all, the program should identify the key stages and areas to justify the optimal scheme for achieving financial and budgetary stability of Russian local government, based on the interaction of several channels. It includes the increase of the role of local taxes with a more comprehensive usage of a local tax base; inter-budget transfers with an increased importance of their incentive ("premium") component; participation of municipalities in the implementation of government (federal and regional) programs and projects. In the latter case, it is important to achieve a reasonable spatial equalization of funds' distribution for programs and projects and, most importantly, a full compliance of its "material content" (usually capital construction projects) with real needs of respective municipalities and its population; a balance of capital and current expenditures for these objects, since the latter is usually left to municipalities.

Conclusions

Despite the fact that changes, which occurred in Russian local self-government after the adoption of 131-FZ, are usually referred to as a municipal reform, or its next stage at least, in our opinion, the "reform" concept is not quite appropriate in this case. A reform is a system of actions "cemented" by a clear vision of what is expected to be achieved in its course through the totality of its goals and mechanisms for its achieving. At the studied stage of transformations, it was not formed. Nowadays, it is difficult to say whether a reform has been completed or not; if not, what further steps it may imply.

In this regard, we may assume that the new Principles will represent a system of strategic goal-setting with the further transformation of Russian local self-government and provide these goals with novations of an economic, legal, and institutional nature, which corresponds to the "reform" concept in every sense of the word. The theoretical and methodological justification of such goal-setting and development of ways to practically implement it currently set the most important task associated with further scientific studies in this area.

Considering a general emphasis on the transition to the practice of socio-economic strategizing, the Principles should form the government's strategy in local self-government area, which is closely interrelated with all other components of the strategic planning system and, most of all, with The Strategy of Spatial Development of the Russian Federation until 2025[7]. It is necessary to expand and specify powers of federal entities to regulate all aspects of development of Russian self-government, taking into account the specifics of different types of the country's regions [19].

The Principles should ensure an active role of local self-government institutions in improving the efficiency of Russia's overall macroeconomic, innovation, and investment policy [20], as well as in the implementation of such novations of spatial regulation policy as various "growth points", territories with special economic conditions, small and single-industry towns, etc. Much more attention should be paid to issues of inter-municipal cooperation, which gives municipalities significant benefits, including economic ones [21; 22].

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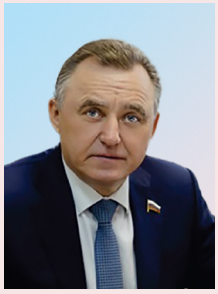
Received February 25, 2020.

ISSUES OF MANAGEMENT IN TERRITORIAL SYSTEMS

DOI: 10.15838/esc.2020.4.70.8
UDC 334.025, LBC 65.050

On Approaches to Constructing a New Public Administration System of Developing Rural Territories of the Russian Federation



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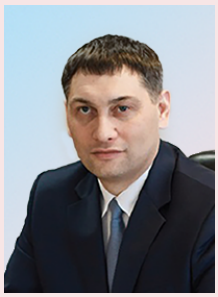

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For citation: Shulepov E.B., Zadumkin K.A., Shcherbakova A.A. On approaches to constructing a new public administration system of developing rural territories of the Russian Federation. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 136–153. DOI: 10.15838/esc.2020.4.70.8

Abstract. The main focus of the article is one of the most pressing issues to date: how a public administration system of socio-economic development of Russian rural territories corresponding to modern realities can be created? The authors have analyzed the main challenges and trends in the transformation of the management object. The first important trend is the formation of an active mobile social group of dachniki (summer residents) breaking the stereotypes about the extinction of the Russian village by their desire to buy real estate in rural areas. And furthermore, they have a request for environmental friendliness and aesthetics of the place of residence. They are joined by enterprising businessmen who are trying to become the leaders of a new resurgent village. However, the unattractiveness of rural areas for business has been revealed due to the lack of access to the main factors of production. All this is happening against the background of outdated rural engineering and social infrastructure, which requires high maintenance costs. However, the world does not stand still and the transition of humanity from an industrial to an information society is characterized by a change in the technological basis, a creative person becomes the main productive force. Today, all spheres of human activity are being digitalized, accessibility borders are being erased, and the time factor is being eliminated. Thus, rural areas should be integrated into these global processes. This, accordingly, requires fundamentally new approaches to the transformation of the subject of management and control actions. The authors propose a new approach for rural areas' sustainable development through a range of measures: introducing strategic planning and project approach, development of local and territorial public self-government, development of the local mixed economy, cooperation development, introduction of modern technologies, removal of legislative restrictions, introduction of PSEDA (Priority Social and Economic Development Area) mode, effective public administration.

Key words: public administration, development, rural territories, system approach, strategic approach, worldview, restrictions.

Introduction to the problematics

Russian rural areas have a powerful natural, economic, historical, and cultural potential, which, if used efficiently in the 21st century, may ensure sustainable multi-sectoral development [1], full employment, and a high level and quality of life of population. These areas have all opportunities for improving the health of the nation and increasing demographic indicators through a good environmental situation [2], organic farming, the formation of environmental thinking, and responsible consumption. Today, 37.3 million people[1] permanently live in Russian rural areas, including 23.6% of young people, aged 15–34[2]. According to surveys by Russian Public Opinion Research Center (VCIOM), more than 42% (61.6 million people) of Russians have real estate outside a town[3], which is used for temporary residence – primarily, in the summer. Such commonness of this phenomenon is typical only for Russia, although it is popular in many countries. In European countries, dachas (country real estates) are limited to three

[1] *The Demographic Yearbook of Russia. 2019: Stat. Coll.* Rosstat. Moscow, 2019. 252 p.

[2] Population of the Russian Federation by gender and age as of January 1, 2019: Bulletin. Available at: https://gks.ru/bgd/regl/b19_111/Main.htm (accessed: May 7, 2020).

[3] Russian dacha: Request for a new level of comfort. Available at: https://wciom.ru/index.php?id=236&uid=9818 (accessed: May 7, 2020).

hundred acres, and activities there are strictly regulated (for example, in Germany, 1.2% of population have dachas); in the United States, only wealthy people have real estate in a town and outside it; in Finland, country dachas are intended for recreation, Finns do not engage in gardening and horticulture.

Currently, the majority of Russian citizens are interested in developing rural areas, but socio-economic processes in rural areas have been recently characterized by a number of negative trends.

1. A total number of villages and settlements decrease. According to the all-Russian population censuses of 2002 and 2010, a number of rural localities decreased by 1.4% (from 155.3[4] to 153.1 thousand[5]). According to the Ministry of Finance of the Russian Federation[6], there were 153.5 thousand rural localities in Russia at the end of 2018: since 2010, there was 0.3% increase.

In the 1990s, widespread territorial movements from urban areas to countryside became important for some time, but it did not provide a real tangible increase of rural population. From 1989 to 2002, about 300 former urban-type settlements were returned to the rural settlement network, mainly due to small population. As the result, a total number of rural localities in Russia increased by almost 2.5 thousand. However, the increase was mainly caused by small localities: in 1989, only 20% of villages and other settlements in Russia had 10 inhabitants maximum, and, by 2002, this number doubled (39.3%) [3].

In recent years, the change of dynamics could be explained by the creation of "rural agglomerations" around the largest and biggest cities, but these are mainly formed by temporary residents (summer residents), or permanent residents working in a city. Nevertheless, the negative trends of "Russian village" depopulation continue to increase.

2. A total number of rural residents decrease. Low life expectancy and migration outflow are observed, and the issue of keeping young people is particularly acute [4]. Thus, life expectancy at birth in rural areas is 71.67 years, which is 1.67 years lower than in urban areas[7]. From 2010 to 2019, a number of rural residents decreased by 0.8% (from 37.6[8] to 37.3 million people[9]).

3. In 2015–2019, there was a steady trend of shifting poverty toward rural areas [5]; the poverty threshold in rural areas is 30.7%[10] amid increased unemployment. In Russia, the poverty line is at the level of the minimum wage – 12.13 thousand rubles per person. Rural poverty is poverty caused by low income, insufficient access to basic public social services, and limited life opportunities.

If we divide rural society into groups[11], then the most numerous group will include rural residents who take a passive position and do not see the future. The second group is active self-employed entrepreneurs who create jobs. It is also possible to point out a separate active group – summer residents (dachniki). In fact,

[4] All-Russian population census 2002. Available at: http://www.perepis2002.ru/index.html?id=11 (accessed: May 7, 2020).

[5] All-Russian population census 2010. Available at: https://gks.ru/free_doc/new_site/perepis2010/croc/perepis_itogi1612.htm (accessed: May 7, 2020).

[6] Information on a number of localities in the Russian Federation as of December 31, 2018. Available at: https://www.minfin.ru/common/upload/library/2019/10/main/naselennykh_punktov_po_subektam_31.12.2018.xlsx (accessed: May 7, 2020).

[7] *The Demographic Yearbook of Russia. 2019: Stat. Coll.* Rosstat. Moscow, 2019. 252 p.

[8] All-Russian population census 2010. Available at: https://gks.ru/free_doc/new_site/perepis2010/croc/perepis_itogi1612.htm (accessed: May 7, 2020).

[9] *The Demographic Yearbook of Russia. 2019: Stat. Coll.* Rosstat. Moscow, 2019. 252 p.

[10] Tarasov A. Poverty level in Russia. Available at: https://visasam.ru/russia/goroda/bednost-v-rossii.html (accessed: May 7, 2020).

[11] On the "extinction" of the countryside. *Svobodnaya pressa. Nizhniy Novgorod.* No. 16 (54), July 19, 2007. Available at: http://svpressa-nn.ru/2007/16/o-vymiranii-derevni.html (accessed: May 7, 2020).

these citizens most clearly refute the theses about village extinction, and, although there are not a lot of them, they can have a significant impact on development of rural areas.

According to VCIOM surveys, 31% of Russians would like to buy a dacha in the future[12]. The most important characteristics while buying a suburban property are the distance from home (68%), the presence of a house on the site and its arrangement (70%), ready-made garden equipment (51%), and availability of utilities – electricity (85%), water supply and sanitation (81%), gas (62%).

4. Modernization of engineering, social, and transport infrastructure in rural areas proceeds slowly, while the rate of destruction is much higher. Thus, according to the Center for Economic and Political Reform, in 2005–2015, a number of medical institutions decreased by 3.3 times (from 3.6 to 1.1 thousand), a number of schools – by 35.9% (from 40.4 to 25.9 thousand)[13]. At the same time, in 2005–2015, there was a positive but insufficient dynamics in development of engineering infrastructure. Provision of housing stock increased by 14% for cold water supply, by 11% – for sanitation and hot water supply, and by 22% – for gasification[14].

5. A number of functioning enterprises decreases. According to the all-Russian agricultural censuses of 2006 and 2016[15], a number of agricultural organizations decreased by 39.2% (from 59.2 to 36.0 thousand). At the same time, the area of farmland decreased by 31.2% (from 132.3 to 90.2 million hectares), and a number of cattle – by 17.8% (from 23.5 to 19.3 million heads). A number of private subsidiary farms has decreased by 8% over 10 years and amounted to 23.5 million units, while a number of abandoned farms increased by 1.1 million units.

6. Technological, socio-cultural innovations, and advanced technologies are being very slowly introduced in rural areas, and not enough attention is paid to energy efficiency and energy saving. If you look at the statistics of 2017, agricultural production in Russia accounted for only 1.4% of all energy consumed in the country, and the household sector – for 14.3%[16]. In Russia, the issue of establishing a social norm of electricity consumption in the amount of 300 kW/h per family per month is sometimes discussed. In 2017, the specified norm was exceeded in rural settlements of 34 regions[17]. It is natural, since rural residents are traditionally forced to use electricity to improve the comfort of their homes and due to economic necessity. The household electricity tariff significantly differs for urban and rural consumers: for rural residents, the tariff is 30% lower than for urban ones. If we overview the experience of other countries, in 2010, more than 37% of American homes, including seasonal ones, used electricity as the main source for heating, nearly 44% – for hot water, 60% of homes were equipped with electric stoves (in Russia in 2017 – about 22%)[18].

7. The pressure on ecological systems increases due to development of large-scale animal husbandry, fires, illegal garbage dumps,

[12] Russian dacha: Request for a new level of comfort. Available at: https://wciom.ru/index.php?id=236&uid=9818 (accessed: May 7, 2020).

[13] Russia is a country of dying villages. Available at: http://cepr.su/wp-content/uploads/2016/12/Россия-страна-умирающих-деревень.pdf (accessed: May 7, 2020).

[14] *Ibidem*.

[15] All-Russian agricultural census 2006. Available at: https://www.gks.ru/folder/520 (accessed: May 7, 2020); All-Russian agricultural census 2016. Available at: https://www.gks.ru/519 (accessed: May 7, 2020).

[16] Electricity production and consumption in the Russian Federation in 2017. Available at: https://1prime.ru/sience/20181115/829538943.html (accessed: May 7, 2020).

[17] Norms and actual electricity consumption by households (social and regional aspects). Available at: https://1prime.ru/sience/20181205/829580690.html (accessed: May 7, 2020).

[18] Electricity production and consumption in the Russian Federation in 2017. Available at: https://1prime.ru/sience/20181115/829538943.html (accessed: May 7, 2020).

predatory deforestation, and pollution of reservoirs and rivers. For the most part, it is caused by the loss of government control, since powers and responsibilities of local self-government bodies are significantly limited.

Thus, trends and challenges that reflect ongoing changes of the object of government administration – rural territories – become more and more clear:

1. Russians mostly own and purchase real estate in agglomerations around large and the largest towns, simultaneously requesting for environmental friendliness and aesthetics of a place of residence. Today, citizens are very mobile, ready to go out of a city often and combine life in a city and outside it.

2. Transition to a new technological order. The transition of humanity from industrial to information society is characterized by a change of the technological basis. In the information industry, human intelligence becomes the main productive force that creates an intelligent product [6]. In this regard, the role and place of a person in the economy radically changes. Only a creative person can produce new knowledge and information – the main resource of the information economy.

Unlike the industrial economy, which is national in scale, the network economy is global, which significantly expands a number of interacting parties. In the network economy, transactions are performed electronically, leading to the creation of virtual relationships. There is a digitalization of all spheres of human activity: the boundaries of accessibility and the time factor are erased. Under these conditions, it is possible to improve the quality of rural life on the basis of digital technologies and introduce intelligent automation in agriculture.

3. Currently, there are high operating costs for maintaining outdated engineering and social infrastructure in rural areas. This problem can only be solved by creating a new multifunctional infrastructure [7] that will meet modern conditions.

4. Rural areas are unattractive for business, since access to the main factors of production is closed: access to natural resources and land is difficult, there are no highly qualified personnel, and the costs of creating new industries that require additional investments in production infrastructure development are high.

These challenges and trends are also typical for rural areas abroad [8]. Research shows[19] that the formation of rural areas of the future has already begun, and it is a promising field for technological innovation, maintenance of a healthy and environmentally friendly lifestyle, and development of regional markets for organic products.

The indicated trends related to the transformation of the management object require a radical change in the subject of management – the system of state administration of rural development. This task becomes more and more urgent, since creation of conditions for sustainable development of rural areas is one of the most important strategic goals of government policy, the achievement of which will ensure food security, increase the competitiveness of the Russian economy and the well-being of citizens.

Thus, the article is aimed at developing a modernized system of public administration of rural development in the Russian Federation, based on strategic planning "from the bottom-up", project management, and intersectoral partnership.

To achieve the goal, the following objectives should be solved:

– structure existing scientific approaches, consider modern government policy in relation to development of rural territories in Russia and abroad;

[19] RSHB named seven global trends in rural development until 2050. Available at: https://www.rshb.ru/news/401393/ (accessed: May 7, 2020).

– formulate and structure primary management problems that hinder sustainable development of rural areas in Russia;

– develop new elements of public administration system for rural development in Russia.

At the same time, the UN targets in the field of sustainable development may be adopted as targets that a modernized administration facility should achieve[20]:

1. Economic growth must be inclusive in order to ensure sustainable jobs and equality.

2. Investment in infrastructure is essential for achieving sustainable development.

3. Energy becomes a key factor contributing to the solution of modern problems.

4. Food and agriculture sectors offer key solutions for development and are central for the fight against hunger and poverty.

5. Work toward sustainable development is not possible without building partnerships at the global, regional, and local levels.

6. Protection and restoration of ecosystems and promotion of their rational usage will help to achieve sustainable development.

Rural development in countries is managed using various principles and mechanisms *(Tab. 1)*. Australia and the United States use the market model with minimal government intervention. At the same time, the USA, like the EU countries, restricts agricultural production through government support mechanisms. China and India are focused on overcoming poverty [8; 9].

There are different approaches to the problem of rural development at the level of theoretical development and practical policy implementation. These concepts are often applied together, superimposed on one another,

Table 1. Foreign experience of rural development

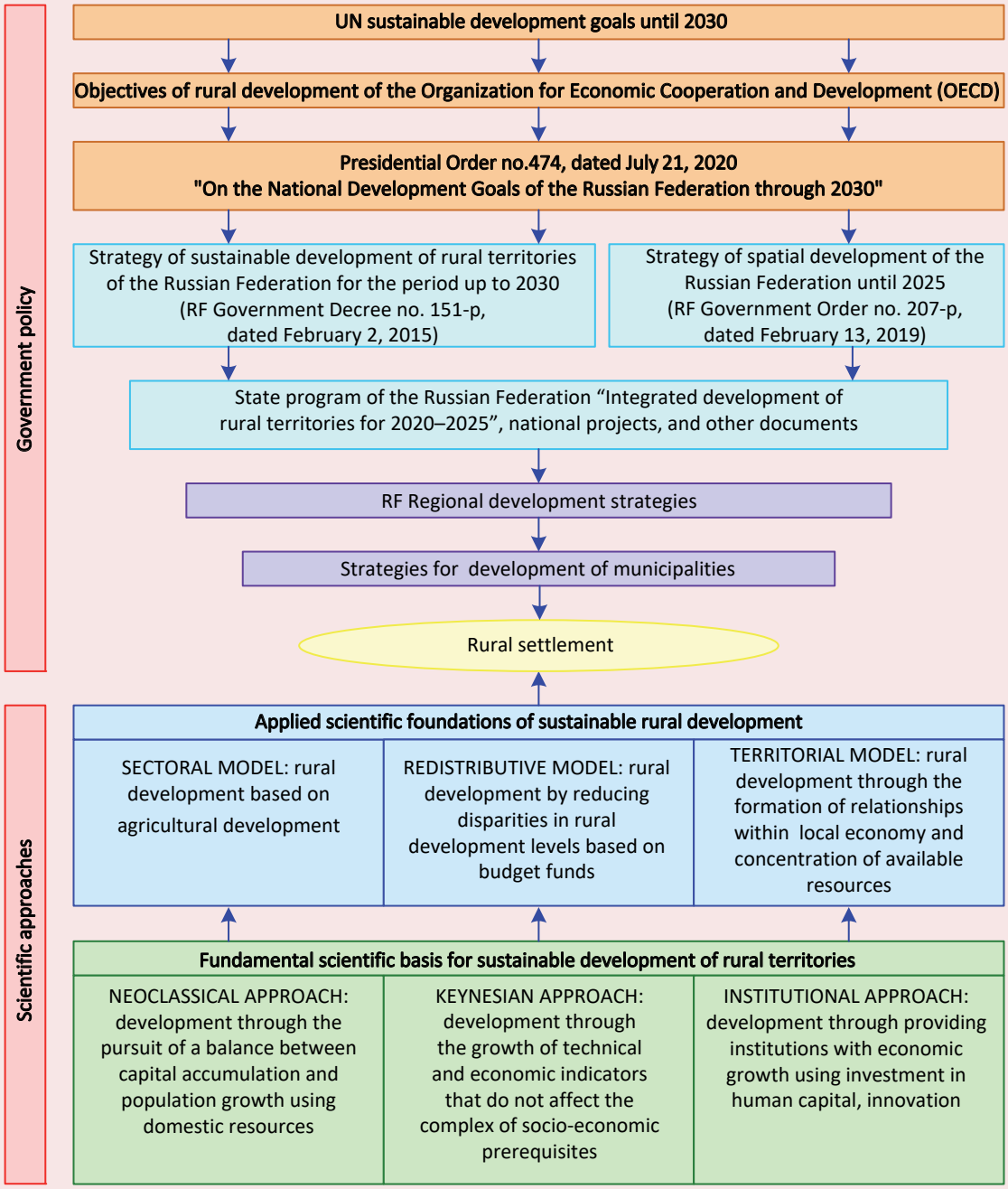
Country	Brief description of measures applied
EU countries	There is a multi-level and interdepartmental system of management and financing of agriculture. In Germany, rural areas are developed based on the principle of preserving the traditional way of living, in the UK and Spain, rural tourism is actively supported, in the Netherlands, development has an ecological and economic orientation. European rural development policy 2014–2020 – 118 programs; budget of the European Fund for rural development – 100 billion euros, EU countries – 61 billion euros, 30% – environmental goals, 5% – support for local initiatives.
USA	In 2017, a task force on agriculture and rural prosperity was created; the main goals are to integrate rural territories into a single information space, to improve the quality of life, to ensure employment of rural population, to spread innovations, and economic development. The basis of rural development is the functioning of local communities.
Canada	Rural development on a decentralized basis – 118 programs, 15 "regional development corporations"; reliance on local initiatives and the Canadian Rural Partnership network structure (established in 1998); focus on residents of sparsely populated and remote areas – a matrix criterion for allocating funds for these indicators.
China	An interesting experience is the creation of village and volost enterprises, which should become the most important element of the cooperative sector in rural areas. The basis for rural development in China is the creation of rural social infrastructure and the implementation of large-scale national projects in rural areas. There are programs "Rural revitalization" (until 2022), "Agricultural modernization" (until 2035), "Rural rejuvenation" (until 2020), and "Creating a strong agricultural sector and achieving full self-realization of farmers" (until 2050).
India	Mahatma Gandhi's rural employment guarantee act functions. National flagship programs are being implemented that guarantee 100 days of work for rural households. Goals: smoothing social disadvantage, environmental guidelines.
Australia	The model of extensive agricultural production (low level of government support for agricultural producers, focus on other activities) is implemented. Electricity generation through alternative energy sources is widespread in rural areas, which affects the nature of public relations.
Brazil	Development of rural areas is largely due to the extensive method of farming, combined with the usage of new technologies. Divisions of Embrapa Corporation are created in each state, which are engaged in development of industry specialization, having financial autonomy, which allows implementing public-private partnership projects.
According to: Semin A.N., Strelka E.A. Analysis of relations arising in the process of strategic planning of rural development. *ETAP: Economic Theory, Analysis, and Practice,* 2019, no. 3. Available at: https://cyberleninka.ru/article/n/analiz-otnosheniy-voznikayuschih-v-protsesse-strategicheskogo-planirovaniya-razvitiya-selskih-territoriy (accessed: July 8, 2020).	

[20] Goals of sustainable development. Available at: https://www.un.org/sustainabledevelopment/ru/sustainable-development-goals/ (accessed: May 7, 2020).

and implemented through complex interactions of institutional, political, and social forces that have their own specific goals.

Studies of Russian (N.M. Edrenkina, A.E. Kremin) and foreign (F. Mantino, J.D. Van Der Ploeg) scientists [8; 10; 11; 12] on generalization and standardization of approaches to rural development, as well as the legal framework at different levels of public administration, were reviewed *(Fig. 1)*.

Figure 1. Government policy and scientific approaches to rural development in Russia



Source: own compilation.

Recently, at the federal level, there has been an understanding of the need to review approaches to managing rural development [13]. A number of strategic documents have been approved to address this issue:

1. The strategy of sustainable development of rural territories of the Russian Federation for the period up to 2030 (RF Government Decree no. 151-p, dated February 2, 2015).

2. The strategy of spatial development of the Russian Federation until 2025 (RF Government Order no. 207-p, dated February 13, 2019).

3. State program of the Russian Federation "Integrated development of rural territories for 2020–2025" (Decree no. 696, dated May 31, 2019).

4. The state program for the development of agriculture and regulation of agricultural commodities markets in 2013–2020 (RF Government Decree no. 717, dated July 2012).

5. Main directions of development of the financial market of the Russian Federation for 2019–2021.

All submitted documents are designed to reverse the situation with the degradation of Russian rural territories, but this has not yet been achieved. Analyzing the current trends and studying the positive experience of the world [8; 14], we came to the conclusion that the reason lies in the existing system of state administration of rural development, which does not meet modern challenges outlined above. Formed in an industrial administrative-planned economy, it has a number of systemic problems:

– ideological problems;
– managerial (organizational) restrictions;
– legal restrictions and contradictions that make rural areas unattractive for living and doing business;
– the need to switch to the new technological order.

It is the awareness of the totality of these problems and its solution that makes it possible to develop a qualitatively new state policy in the field of rural development. The archaic state policy, implemented in previous years, naturally required actions that restricted rural development. These actions, in turn, provided the results that we have today. If the policy is not changed, the degradation of most rural areas will continue. The new policy will allow outlining fundamentally different actions at all levels of government that will let achieve different results. Next, we will analyze its main elements.

Ideological problems

Ideological problems are dominant, as they determine a set of future actions for changing the situation in rural areas. Outdated ideas, which prevail among managers, do not allow moving forward, and there are still no clear guidelines on key issues related to rural development. Today, a value of rural areas and the need to invest in development of its infrastructure is not obvious to most managers. The countryside is perceived as a burden, which is not capable of self-organization without strict government regulation, and its residents – as dependents who must be supported by the government. An equal sign is put between the countryside and agriculture. Rural lifestyles are considered less progressive, less attractive, and these are opposed to urban lifestyles which are more progressive, attractive, and providing more opportunities. Such beliefs significantly limit the range of studied management decisions. In this regard, in order to develop an efficient strategy for rural development, we consider it important to consolidate a number of basic theses in the public consciousness, management and scientific community:

1. Rural areas of Russia have a huge potential: it may not just provide food, environmental and territorial security of the country,

but also allow it to become a driver of development of the domestic economy and exports, to achieve a high level and quality of life for rural residents and urban residents, and systematically generate resources for development of own engineering and social infrastructure.

2. Development of rural areas is not the same as development of large-scale agricultural production. Development of rural areas involves strategic planning, local government development, development of local mixed economy, development of cooperation, introduction of modern technologies, removal of legislative restrictions, introduction of TASED[21], and good governance. The government needs to give local stakeholders (local governments, entrepreneurs, active residents) the competence to develop their small homeland at the expense of local resources and allow them to manage these processes with full responsibility, including the right to make mistakes.

3. Rural and urban lifestyles should not oppose but complement each other, making people's lives richer, more vivid, calmer, more harmonious, and the future –more defined and protected [15; 16]. The request for such association was very accurately expressed by the Vologda poet Nikolai Rubtsov in the poem "Facets": "... I want to live in a town and a village at once". Own apartment and access to developed social infrastructure in a city and, at the same time, a well-maintained, energy-efficient house with a spacious plot that allows enjoying nature, silence, organic products, which can be reached at any time within 1–1.5 hours should become a generally accepted standard of living in Russia. Such a standard, which is not available for many reasons to people in a lot of other countries, may become a key competitive advantage of our government in the fight against demographic problems. The most surprising thing is that, in fact, a huge number of Russians already live in cities and villages at the same time, but Russian management science, public administration, and legislation do not take this circumstance into account at all[22].

Administrative (organizational) restrictions

The current budgetary approach to rural development, which is embedded in all adopted programs and budgets, is a "up-bottom" approach. Within its framework, comprehensive development is ensured at the national level through the movement of budget funds from the federal center to rural areas in all functional social areas (education, health, etc.).

Along with its advantages, it has a number of limitations:

a) all key decisions are made by officials with minimal participation of residents of the territory, summer residents, and entrepreneurs;

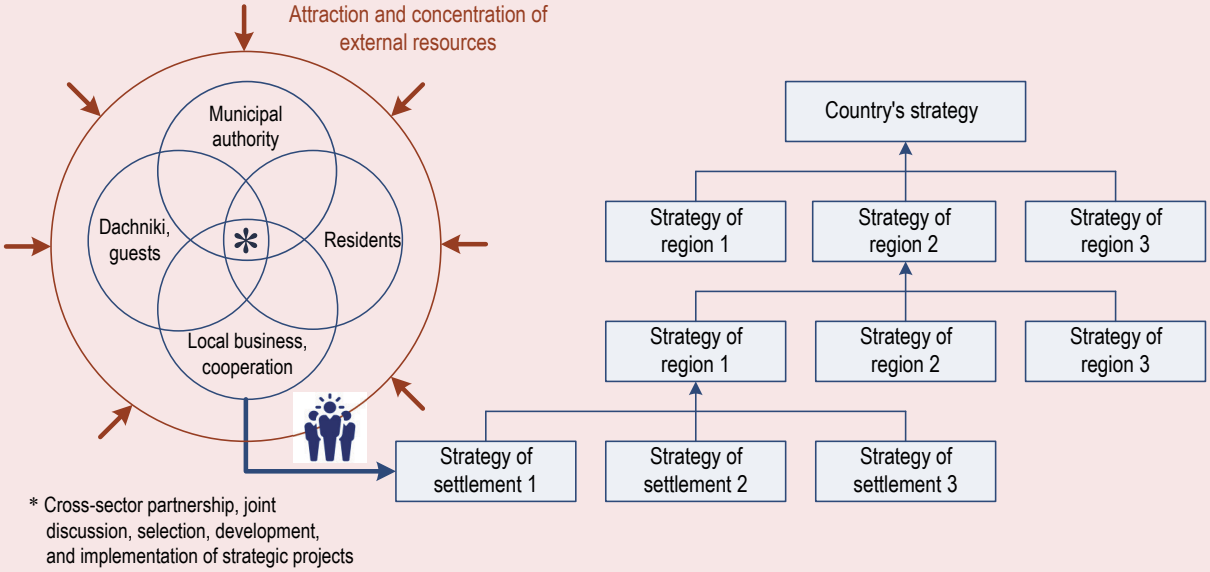
b) work on the functional principle is carried out simultaneously in many ministries and departments at the federal and regional levels, it is poorly coordinated;

c) since there is a constant lack of funds, officials use the policy of "plugging holes", or competitive selection of individual projects that are not related to each other, when making decisions;

[21] According to the Federal Law no. 473-FZ "On territories of advanced socio-economic development in the Russian Federation", dated December 29, 2014, a territory of advanced socio-economic development (TASED) is a part of a territory of a RF entity, including closed administrative-territorial formation, and (or) water areas, which, in accordance with the decision of the Government of the Russian Federation, establishes a special legal regime of entrepreneurial and other activities in order to create favorable conditions for attracting investments, ensuring accelerated socio-economic development, and creating favorable conditions for the viability of population.

[22] The recognition of this fact and the convenience of such accommodation implies a revision of many attitudes. For example, it makes sense to switch to a four-day work week and a seven-hour work day. It becomes obvious that there is a need to develop remote forms of work, distance education, review the procedure for participation of residents in the elections of heads of cities and rural settlements, etc. Approaches to development of social and engineering infrastructure change significantly.

Figure 2. Strategic administration with "bottom-up" principle



Source: own compilation.

d) there is no personal responsibility for incorrect choice of priorities and negative changes in a particular territory at all levels;

e) monitoring of ongoing processes in the territorial context is minimized.

Our main idea is an offer to supplement the existing system of public administration with a strategic approach based on the "bottom-up" principle *(Fig. 2)*.

Activities should start at the level of a specific rural settlement with the preparation of a comprehensive long-term strategy for its sustainable development, developed on a project basis[23]. Residents, entrepreneurs, and summer residents should actively participate in it [17]. It is possible to provide methodological assistance to them by actively involving the scientific community and employees of regional authorities, deputies. At the next stage, the strategy goes through the municipal district level. Regional strategy, generated from settlements' strategies, is protected at the regional level. If it is supported, the amount of budget resources, allocated to the implementation of district and specific settlement strategies, the amount of co-financing, and the implementation plan and forms of control are determined. By joining project teams, stakeholders concentrate available resources of a particular rural settlement [18] and have unlimited opportunities for attracting external resources based on development of the communication system.

It is important that, through development and implementation of settlement strategies, it is possible to ensure comprehensive sustainable development of all

[23] Example of such strategy is the Strategy of the Verkhovskoye rural settlement of Verkhovazhsky municipal district in the Vologda Oblast, developed by the authors until 2030, approved by the Resolution of the Administration of Verkhovskoye rural settlement no. 44a, dated July 1, 2019. Available at: http://admverhovskoe.ru/page.php?id_omsu=1&level=3&id_level_1=10&id_level_2=12&id_level_3=18 (accessed: May 7, 2020). It was among the finalists in the category "Best rural settlement strategy 2019" at the 6th municipal strategy competition 2019, organized by the Leontief Center, and it received a diploma "For creativity and practicality of strategy" from the Committee of the MSC-2019.

Table 2. Comparison of budgetary ("up-bottom") and strategic ("bottom-up") approaches

Budgetary	Strategic
Goal setting depends on the budget. If there is money, tasks are set and solved; if there is no money, nothing is done. The reactive approach is based on adapting to existing budget limits and requirements	Goal setting does not depend on the budget. First, tasks are set, and then the search for resources for its solution begins. If there is no money, there is planning and preparation. The proactive approach is based on self-reliance and actions
Emphasis on budget funds	Emphasis is placed on extra budgetary funds
Participation of local residents in the planning, distribution and disbursement of funds is minimal	Participation of local residents and all concerned in the processes off planning, allocation and usage of funds is maximum
Involvement of non-financial resources of the territory in the processes of its development is minimal	Attracting non-financial resources of the territory (energy, time, enthusiasm, intelligence of residents, etc.) to the processes of its development is maximum. Resources inside and outside rural settlements, its concentration
There are time limits. The terms of implementation of measures are linked to the duration of the program, budget, and election cycles. Planning horizon – 1–3 years	There is no time limit. The timing of the implementation of the measures can be arbitrary. Planning horizon is up to 100 years
Strict restrictions on a number of participating rural areas. You need to meet a lot of conditions, spend a lot of effort to get money, and report for them	There are no restrictions on a number of participating rural areas. All territories can participate at the same time
Consideration of the characteristics, potential, and problems of an individual settlement is minimal	Taking into account the characteristics, potential and problems of an individual settlement
Requirements for qualification and responsibility of regional and municipal officials are medium	Requirements for the qualification and responsibility of regional and municipal officials are high
Comprehensive development is provided only at the national level, partially at the regional level, and not at the municipal level	Complexity of development is ensured at the country level, at the regional level, and at the level of a specific rural territory
There are few opportunities for using cooperative and agglomeration links	Opportunities for using cooperative, agglomeration, foreign economic, interpersonal, and other relations are high
Source: own compilation.	

promising[24] rural areas of the country with a prospect of 70–100 years, improving the residents' quality of life by making the most efficient usage of budget funds, attracting extra-budgetary funds and other resources in order to solve this problem.

A comparison of budgetary and strategic approaches to rural development is presented in *Table 2*.

Thus, the usage of strategic planning and project approach [19], based on the above-mentioned ideological concepts, in addition to the currently used budget approach, may significantly improve the quality of management of sustainable rural development in Russia and the dynamics of positive changes. However, it will require a significant change of federal laws no. 131-FZ "General principles for the organization of local self-government", dated October 6, 2003, and no. 172-FZ "On strategic planning in the Russian Federation", dated June 28, 2014.

Legal restrictions and contradictions

The economy of rural areas in Russia has been developing in recent years mainly due to development of large-scale agricultural production [20] and extensive usage of natural resources, such as the forest fund. It creates a lot of risks inherent in single-industry towns. The environmental burden on nature grows. A separate issue concerns the humanity of keeping farm animals in large agricultural complexes. At the same time, the share of agriculture in the country's GDP decreased from 16.5 to 5.7%

[24] The prospects of a territory should be determined by local residents. At the same time, it is possible to build housing and live in "unpromising" territories. Prospects are solely related to the effectiveness of budget investments in infrastructure. The decision on the prospects of a particular territory can be reviewed based on the dynamics of its socio-economic development.

from 1990 to 2018. The volume of agricultural production in 2017 amounted to 5.7 trillion rubles. The share of people employed in agriculture is about 9% (2015). This dynamics indicate the need to increase labor productivity in rural areas, primarily using new technologies and equipment.

We believe that, considering the existing potential at the state level, we should set a goal to increase the quantitative indicators of production of all types of products in rural areas by 2–3 times in the next 7–10 years with a stable number of employees. Of course, rural areas should focus on development of agriculture, but, in addition, it is necessary to create conditions for the formation of a multi-layered local economy. In practice, there is a successful experience G. Sanzhapova[25] and G. Tyurin [21], who prove that sustainable development of rural areas can be provided not by large-scale agricultural production but by enterprising entrepreneurs. Then the countryside will be able to support itself and have opportunities to invest in its own development.

For many years, each ministry and agency has regulated its area of responsibility without assessing the complex impact of decisions on rural areas. A number of regulations grows, and it does not make any difference between large cities and villages (for example, in terms of fines). As the result, today, there is an alarming situation associated with legislative restrictions on development of rural territories: a) limited access of rural residents to local resources (forest, water, sand, arable land), gas, electricity, credit, and even roads; b) local government has virtually no powers, it does not have a real impact on the territorial situation and the behavior of people living there; c) cooperative movement in most territories is destroyed; d) initiative is often punishable.

To change the situation, we propose:

1. Appling the "regulatory guillotine" mechanism, suggested by Prime Minister D.A. Medvedev[26], to the sphere of legislative regulation of rural development. Land, administrative, and other types of law require changes and radical simplification.

2. Implementing legislative reform and considering introduction of different scales of administrative penalties for cities and rural areas.

3. Implementing administrative reform, moving away from the "two-headed" system of governance in rural areas. A head of a settlement must manage a territory entrusted to him, and local residents must have maximum rights to dispose of the land and other resources of their settlement.

4. Developing legislative mechanisms for introducing the most favorable living conditions in all rural areas (labor, pension, tax, and other types of law).

5. Extending the TASED regime[27] to all rural territories of our country: rural settlements should become territories with a special legal regime for conducting business, which, in the future, will allow achieving the following goals *(Tab. 3)*: a) create comfortable living conditions for people; b) ensure accelerated social and infrastructure development; c) promote investment.

[25] G. Sanzhapova says that it is possible to stop the countryside from dying in four steps: give people jobs, develop infrastructure, establish links between the manufacturer and the market, and connect people from cities with villagers. In addition, it is necessary to teach people to plan a business based on what they have.

[26] Plan of events ("roadmap") to implement the "regulatory guillotine" mechanism. Available at: http://static.government.ru/media/files/WBykdAuFAJNWZFyFBSx7DlGIcueZAEj4.pdf (accessed: March 30, 2020).

[27] This regime is regulated by the Federal Law no. 473-FZ "On territories of advanced socio-economic development in the Russian Federation", dated December 29, 2014.

Table 3. Measures proposed within the TASED regime for rural areas

Residents	Resources	Business
Preferential rural mortgage	Free access to natural resources (land, water, forest) for rural residents	Simplified procedure for registering enterprises of any industry in rural areas
Preferential retirement conditions for rural residents	Broadband Internet access	Exemption of enterprises from income, land, and property taxes for 15 years
Payment of lifting fees to specialists of any industry who moved to work in the countryside and signed a 7 year contract	Gasification of settlements	Exemption from supervisory checks and reports
Guaranteed free professional training at any technical school and university for young people who will return to work in the countryside	Special tariffs for housing and utilities services, fuel, and electricity prices	Preferential terms of lending and leasing, support for cooperation and export
Source: own compilation.		

Some of these measures are already being implemented, but these are not yet united by a common concept and strategy for creating the TASED regime in all rural areas of our country.

6. Giving everyone, not just large families, an opportunity to get a free land plot for housing construction and personal subsidiary farming and extending the "Far Eastern Hectare"[28] program to all rural territories of Russia.

The agricultural census of 2016 showed that a total area of unused farmland in Russia was 97.2 million hectares in 2015 – 44% of all agricultural land in the country.

In the Vologda Oblast, the program "Vologda Hectare"[29] is being implemented: according to it, everyone is offered to own plots for agriculture, farming, grazing, sowing, and construction of livestock complexes.

7. Giving all residents of the country an opportunity to take out a loan within the "Rural Mortgage" program and get wood for building a house[30]. The provision of ready-made housing kits for housing construction in rural areas is also a promising option.

According to the forecasts of the RSHB Center for Industry Expertise, current economic turmoil and the "Rural Mortgage" program with a preferential rate of up to 3% per year will lead to the RF de-urbanization. Relocation to rural settlements is still local, but, after the economic crisis caused by COVID-19[31], a trend for moving to rural areas may be established: according to forecasts, 2–3 million people may decide to permanently reside in rural areas.

8. Conducting a tax amnesty for agricultural enterprises for taxes accrued before 2015. This will allow accumulating capital in the direction of enhancing investment activities.

9. Providing agricultural enterprises and entrepreneurs, who want to open any production in rural areas, with preferential access to local resources and preferential long-term loans and leasing.

10. Creating comfortable conditions for development of cooperation and export.

[28] On the peculiarities of providing citizens with land plots, located in the state or municipal property and located on the territories of subjects The Russian Federation, which is part of the Far Eastern Federal District, and on making changes to individual legislative acts of the Russian Federation: Federal Law no. 119-FZ, dated May 1, 2016. Available at: http://base.garant.ru/71388648/95ef042b11da42ac166eeedeb998f688/#ixzz6KbUfxrD0 (accessed: April 20, 2020).

[29] On the peculiarities of providing land plots of Agricultural Land Redistribution Fund in the Vologda Oblast: Vologda Oblast Law no. 4476-OZ, dated December 28, 2018. Available at: https://dio.gov35.ru/upload/iblock/1b6/%D0%97%D0%B0%D0%BA%D0%BE%D0%BD%20%D0%BE%D1%82%2028.12.2019%204476-%D0%9E%D0%97.pdf (accessed: May 6, 2020).

[30] The Forest Code of the Russian Federation no. 200-FZ of December 4, 2006 (amend. on December 27, 2018 with amend. on March 21, 2020). Available at: http://www.consultant.ru/document/cons_doc_LAW_64299/ (accessed: 05.05.2020).

[31] Interest in dachas in large cities doubled. Available at: https://info.2gis.ru/ekaterinburg/company/news/interes-k-dacham-v-krupnyh-gorodah-vyros-v-2-raza (accessed: May 7, 2020).

Necessity to switch to a new technological order

The world rapidly moves to a new technological order, which is based on new energy and digitalization. It is stated in the report on the results of global digitalization trends monitoring of 2019, conducted by the "Rostelekom" group of companies that "over time, the study of global digitalization trends from a tool that solves local objectives has transformed into the decision support system for strategic planning, innovative development..."[32]. It is obvious that the 21st century is the age of transition to distributed energy. It is based on energy efficiency, electric transport, private generation, intelligent power storage and transmission management systems, and the usage of water, wind, and solar energy. The national project "Digital economy of the Russian Federation"[33] will create infrastructure basis for sustainable rural development based on digitalization. An opportunity for remote work and the growth of Internet coverage create prerequisites for living in rural areas. Development of online distance education will help to train specialists in the countryside itself.

Is it possible to carry out a new electrification of rural settlements today? Let us turn to the history of the Soviet period. In 1920, the decree "On Russia's electrification plan" was adopted – the government's plan for electrification of Soviet Russia GOELRO [22], the development plan for not just one energy sector but for the entire economy. It included the building of enterprises that provide construction sites with everything necessary and advanced development of the electric power industry. All this was tied to territories' development plans. A number of maintained agricultural settlements increased by 166 times in 1917–1927 (from 542 to 89.739[34]).

In the current situation, rural areas of Russia have a unique chance to stop being outsiders of the global technological development and become its leaders, since it has main resources for this – a universally developed (unlike gas and heating networks) centralized power grid and mostly private individual housing stock.

By emphasizing development of electric heating, not gasification, it is possible to significantly reduce time and cost of switching from firewood, coal, and fuel oil to comfortable, modern, warm, safe housing that does not harm the environment and, in the future, supplies electricity to the common network. The effect of this decision is huge, and the cost of implementing it is insignificant, because main networks and capacities were built, and electricity consumption in Russia per capita is significantly lower than in developed countries with a similar climate *(Fig. 3)*. As mentioned above, the share of rural areas in a total amount of electricity consumed does not exceed a few percent.

We see prospects for successful development of Russian rural areas through its electrification based on the principles of new energy, energy efficiency, energy conservation, digitalization ("smart grids"), as well as modern achievements of science and technology in these areas.

In order to ensure an accelerated transition of Russia and its rural territories to the new technological order, it is offered:

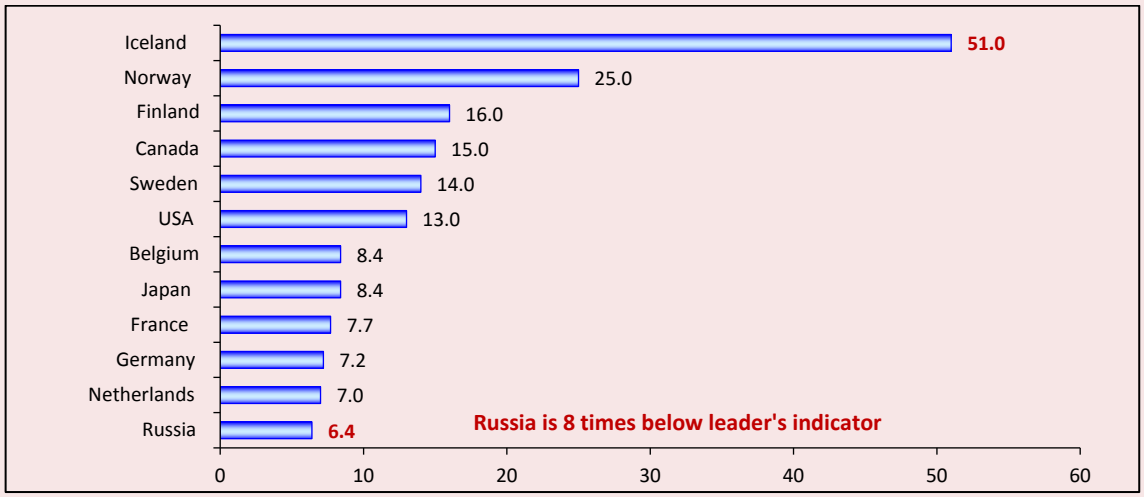
1. Dramatically (3–4 times) reduce electricity tariffs for enterprises, located in rural areas, and its residents.

[32] Report on the results of global digitalization trends monitoring of 2019, conducted by the "Rostelekom" group of companies. Available at: https://www.company.rt.ru/upload/iblock/a86/3009_Rostelecom_trends_2019.pdf (accessed: May 7, 2020).

[33] Passport of the national project "Digital economy of the Russian Federation", approved by The Presidential Council for Strategic Development and National Projects, protocol no.7, dated June 4, 2019 .

[34] *Soviet Union Information Bureau*. Available at: https://www.marxists.org/history/ussr/government/1928/sufds/ch10.htm (accessed: May 7, 2020).

Figure 3. Rating of countries by the level of electricity consumption, thousand kW/h per person.



Source: Analiticheskiy portal. Available at: https://gtmarket.ru/ratings/electric-power-consumption/info (accessed: May 7, 2020).

2. Ensure development and implementation of energy saving standards for new and existing administrative and residential buildings that are being built and reconstructed in rural areas.

3. Nullify import customs duties and other taxes and charges, which lead to higher prices for goods related to "new energy" (electric cars, batteries, solar panels, etc.), and create incentives for the opening of such systems production in our country. According to the Ministry of Transport, Russian regions are ready to cancel the transport tax on electric vehicles, and this benefit is already active in Moscow, St. Petersburg, Moscow, Kaluga, Tambov, and Tyumen regions. In 2020, the Eurasian Economic Commission decided to abolish import customs duties on certain types of motor vehicles with electric engines.

4. Develop regulations that allow rural residents to independently generate electricity and sell the surplus to the common grid.

5. Launch a separate program aimed at improving the energy efficiency of housing stock in rural areas.

Without it, Russia risks ending up on the backyard of global technological development!

Conclusions

Summing up the overview of elements of the new system of public administration of rural development in the Russian Federation, we may conclude that, today, the administration paradigm in the world changed: therefore, rural life and rural economy must be developed using completely new administration and organizational principles, in close connection with development of cities, and considering residents' aspirations, not separately. The "Russian village" needs to be structurally and functionally rethought and rebuilt using the best global experience and its own competitive advantages.

Targeted measures, individual programs, and the efforts of some ministries and regions will not solve the problem of the preservation and quality rapid development of rural areas. These are tasks for a special federal interdepartmental structure among the executive authorities, the State Duma committee as the legislative branch of the government,

coordinating structures at the regional level. As the result of the decision to change the system of public administration of rural development, the amount of budget funds involved will not increase significantly, but a total amount of funds, invested in the countryside, effort, energy, time, material resources, and intelligence will significantly grow. The efficiency of its usage will also noticeably increase, which will inevitably lead to prominent positive results across the country.

The main task of the proposed new administration system is to change the attitude to the countryside, which is now seen as an endangered and unpromising territory, remove existing barriers, and concentrate allocated funds around integrated development of specific rural areas through settlements and districts' strategies, adding residents, summer residents, and entrepreneurs' own funds. As the result, due to competent management decisions at the federal level, supplemented by "efforts from the bottom" and the introduction of new technologies, it is possible to radically improve the quality of life in rural areas, develop a multi-layered local economy and cooperation, and change negative demographic trends in the country [23].

The authors proposed an approach, the scientific novelty of which consists of proving the hypothesis that sustainable development of rural territories in Russia can be achieved only through qualitative modernization of its state administration system toward the implementation of strategic "bottom-up" planning, in addition to applied "up-bottom" budget planning, and design approach [24] at the expense of developing local and territorial social self-government, local mixed economy, cooperation, introduction of modern technologies, removal of legal restrictions, and introduction of the TASED regime *(Fig. 4)*.

First of all, it is necessary to change the existing ideology, since the increase of financial injections into rural territories without the formation of a new "rural ideology" will not be able to ensure sustainable development. Thus, without changing administration approaches, funding will be dispersed, and it will not allow achieving required comprehensive effects across Russia's vast rural territories.

Figure 4. Elements of a modernized administration system of rural territories' development

Source: own compilation.

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Received July 23, 2020.

DOI: 10.15838/esc.2020.4.70.9
UDC 338.43+330.356.7, LBC 65.054

Modeling the Impact of Resource Factors on Agricultural Output

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Abstract. The relevance of the research is justified by the need to find the sources of agricultural production growth due to the effective use of resource factors. The purpose of the work is to model the influence of the labor factor and the capital factor on the production of agricultural products. The research method consists in using the Cobb-Douglas production function to build a model of the influence of enlarged production factors on output. The novelty of the author's approach lies in using cost characteristics of labor and capital costs, which allows to obtain more reliable indicators of elasticity by presenting the resource costs in a single calculation. The data from international statistics presented in the development of the international research project World Input-Output Database (WIOD) is proposed to be use as indicators describing the costs of factors of production. Capital expenditure is characterized by the Capital compensation indicator; to estimate labor costs, it is more appropriate to use the Compensation of employees indicator, which reflects labor costs in the form of employees' total wages. Calculations of the production function for various time intervals allowed to estimate the elasticity of output of Russian agricultural production in terms of labor and capital costs in absolute and relative terms in retrospect. The author makes a conclusion about the priority influence of the labor factor on output in the agricultural sector, about the high labor intensity of agricultural production in Russia in the absolute measurement of labor costs. Based on the obtained parameters of the production function, using the data from Russian statistics, the researcher presents a three-variable forecast of gross agricultural production dynamics, depending on changes in labor productivity and capital return. The models built allow to make

For citation: Potapov A.P. Modeling the impact of resource factors on agricultural output. *Economic and Social Changes: Facts, Trends. Forecast*, 2020, vol. 13, no. 4, pp. 154–168. DOI: 10.15838/esc.2020.4.70.9

predictive assessments of the industry complexes development, and can also be used in the development and adjustment of the main directions of the state agricultural policy for the effective use of the resource potential.

Key words: resource potential, agricultural production, labor, capital, modeling, production function, forecasting.

Introduction

Improvement of the business entities' efficiency is an urgent task at the present development stage of the country's economy and its individual sectors. In relation to economic systems, efficiency is generally understood as the ratio of the product received to the resources spent on its production. Efficiency improvement is achieved by increasing the ratio between product and resources, which is the result of the growing return on a resource unit. Labor and capital are the key enlarged groups of resources needed to produce products in any sector of the economy. The influence of the labor factor and the capital output factor has its own characteristics depending on the industry, the level of productive forces development, the degree of innovative development, and the specific historical period which is analyzed in a particular study.

Agricultural production is one of the key areas of the national economy, as it forms the product necessary to meet people's life-sustaining needs for nutrition, to ensure country's food independence and security. Agricultural production in Russia accounts for 3.1% of GDP; it uses 2.0% of fixed assets, 6.1% of a number of employed, and 4.0% of investment in fixed assets[1]. In the agricultural sector, the impact of resource factors on output largely depends on the natural impact on production, biological and seasonal processes in crop and livestock production. Studying and assessing labor and capital factors' impact on the production of agricultural products will reveal the dependence of production results on the resources used, identify priorities for the formation of resource potential in order to increase output and economic efficiency, and predict the nature of production development and resource interactions in the most important sector of the national economy.

The solution of these problems requires economic and mathematical justification of the impact of the resources used on the volume and dynamics of production in order to implement the main tasks of the state agricultural policy and achieve its targets. To do this, it is necessary to build a model of agricultural production functioning in Russia, which allows identifying the degree of influence of main production factors – labor and capital – on the output of agricultural products.

The impact of resource factors on the final production results can be estimated using econometric models: the method of constructing the production function in particular. It is used to analyze the ratio of labor and capital factors at different levels of economy organization. Traditionally, the calculations of such ratios are carried out at the micro level, when the boundaries of an enterprise's production capabilities are investigated, depending on the structure of resource availability and technology. At the macroeconomic level, production functions are used for modeling and forecasting development of industry complexes and the country as a whole.

[1] *Agriculture in Russia. 2019: Stat. Coll.* Rosstat, M., 2019. Pp. 17–18.

The usage of the production function for calculating the impact of resource factors on the output of agricultural production is caused by the universal nature of this econometric method, which consists of the possibility of modeling on the basis of various economic indicators – natural and cost ones, presented in absolute, relative, or specific dimensions. This also allows taking into account the simultaneous impact of quantitative and qualitative indicators of resource availability and resource potential utilization on production results.

The influence of resources on the production in the sectors of the national economy has been studied in the works of domestic and foreign scientists. In Russian economics, we should highlight the work of G. Kleiner [1], in which the production function is presented as one of the methods of economic and mathematical modeling that characterizes the production process from the point of view of converting resources into products. Production processes in economic systems of any level – from an enterprise to national economy – can be a direct object for modeling. N. Fedorenko, A. Anchishkina, and Yu. Yaremenko [2] described the possibilities of the production function as one of the methods for predicting the structure of the economy. In some works, the authors touched upon the influence of production factors in relation to the conditions of the Russian economy at the macroeconomic level [3; 4; 5]. In the article by N. Orlova and S. Egieva [6], the method of constructing the production function is used to determine the level of the country's potential GDP and its growth rate, taking into account the full load of all factors. Thus, based on data on production factors, capital and labor, the potential annual growth of the Russian economy was estimated at 1.5–2.0%, which corresponded to the results of other scientists' research, including the foreign ones – D. Jorgenson, K. Vu, M. Kuboniwa [7; 8]. The production function is also used in integrated calculations as a method for evaluating the investments effectiveness, which allows calculating the impact of fixed assets input as the result of investment activities on the gross output increase using the financial flow matrix [9].

Regarding the agricultural sector, the calculations of the production function were carried out in the works of L.B. Vinnichek, B. Smagin [10; 11] and others. M. Vasilchenko [12] assessed the influence of technological factors on growth of milk production using the example of the livestock subcomplex. In the article by M. Ksenofontov et al. [13], in addition to production factors, the influence of consumption factors and export-import interactions on changes of gross output in Russian agriculture is studied.

In addition, we should also highlight the works of other foreign economists. R. Solow [14; 15] emphasizes the importance of technological factor in production output and provision of economic growth. In the works of E. Denison [16; 17], based on the calculations of the production function, the priority value of labor factor is justified, which is manifested in the fact that labor resources act as a carrier of knowledge obtained in the process of education, so labor factor determines the technological level of production and makes the greatest contribution to output.

Methodology

For the purpose of analyzing the impact of resource factors, the Cobb-Douglas two-factor production function was used, which shows the influence of labor and capital factors on output. In a general way, the classical Cobb-Douglas production function has the following form:

$$P = A \cdot L^{\alpha} \cdot K^{\beta}, \qquad (1)$$

where: P – is the volume of output,
L – labor costs,
K – capital expenditure,
A – technological coefficient,
α – labor elasticity coefficient,
β – capital elasticity coefficient.

Coefficient A shows total factor productivity and includes factors that are not quantifiable, including qualitative changes in the resources of production, changes in technological process, improving management, using knowledge, experience, etc. It reflects the impact on the output of scientific and technological progress, innovation, resource-saving technologies, and other unaccounted factors. Its value depends on the dimension of the initial indicators. If the initial indicators are denominated in different order units (for example, in millions and billions of rubles), or, if the calculation of the production function uses different-sized indicators (for example, absolute, relative, or specific), coefficient A will not show the real impact of factors, and it can be ignored when analyzing the parameters of the production function. For modeling purposes, the values of α coefficients (labor elasticity coefficient) and β coefficients (capital elasticity coefficient) are of the greatest interest.

Labor and capital factors determine the creation of gross value added in any sector of the economy. According to the System of National Accounts 2008 (SNA 2008), adopted by the United Nations, the European Commission, the Organization for Economic Cooperation and Development, the International Monetary Fund and the World Bank Group as the international statistical standard for national accounts, it is value added as a component of output that reflects the contribution to labor and capital production. After the part of the value added, received by the state administration in the form of other production taxes, is deducted from the value added and the value of subsidies is added, the sections showing compensation for labor and capital expenditures can be identified[2]. Indicators of labor compensation and capital compensation used in international statistics for macroeconomic calculations characterize the amount of value added that was created by the labor factor and the capital factor, respectively.

In the production function model, the economic content of labor and capital compensation indicators reflects what factors and in what volume and proportion the added value and final products of the industry, consisting of added value and intermediate consumption, were created. This makes it possible to extract those parts of the gross output value that were caused by the influence of labor and capital expenditures separately. This method of calculating the production function helps to eliminate methodological distortion in determining the efficiency of resource usage, when the entire volume of output is caused by the costs of each type of resource separately without correlation with the costs of other resources, the joint impact of several resources, and the synergistic effect of its usage in the production process.

To obtain reliable results related to the influence of production factors on the production of agricultural products, it is necessary to adjust the composition of the indicators used depending on their economic content. To calculate the parameters of the production function, it is proposed to use indicators that are widely used in international statistical studies and most accurately reflect the contribution of resource factors to the output of industrial complexes. So, if you need to use the Capital compensation indicator to estimate the annual cost of capital to create products, then

[2] *System of National Accounts 2008.* New York, 2012. P. 115.

it is more appropriate to use the indicator of compensation of employees, which reflects the total employees' remuneration, that is, labor costs.

Capital compensation indicator takes into account all producers' expenses incurred by the production output. Since capital transfers all or part of its value to the product produced, the total cost of capital fully covers the contribution of capital to the creation of the product and coincides with capital compensation indicator.

Labor compensation indicator also reflects the contribution of the labor factor to product creation, but it does not coincide with labor costs, since it is related to the value created by labor. To calculate the production function, it is the labor costs that are required, which are suggested to be calculated based on the employees' total remuneration, characterized by the indicator of employees' compensation.

Results

The indicators of compensation of employees and capital compensation are proposed to be taken as the initial data for calculating the Cobb-Douglas production function for the usage of labor and capital factors in agricultural production in Russia, respectively. The factual basis for calculating the production function is data of international statistics presented in developments of the international research project World Input-Output Database (WIOD) for individual countries of the world, including Russia. WIOD data were previously used in estimating the resource intensity of agricultural production [18].

Currently, two dynamic data series are available within economic sectors: for the periods of 1995–2009 and 2000–2014[3]. The following industries, reflecting the socio-economic processes taking place in the agricultural production, have been used: "Agriculture, hunting, forestry, and fishing" (for the data series of the 1995–2009 period), "Crop and animal production, hunting, and related service sectors", "Forestry and logging", "Fisheries and aquaculture sectors" (for the data series of the period of 2000–2014). Mathematical calculation of the production function was performed using Microsoft Excel software based on regression analysis, as well as using methodological developments for calculating the Cobb-Douglas production function [19].

The advantage of the indicators proposed by the author is, first, its content as a cost characteristic of labor and capital usage. In WIOD methodological developments, the usage of labor and capital is presented as the costs of relevant factors in the structure of value added and gross output of the industry, which allows us to directly assess the factors' contribution to the final results of the industry complexes functioning. In the classical production function, the usage of labor and capital factors is represented as their corresponding availability, reserves, or accumulation, which characterizes not just the influence of labor and capital on output but the return on these factors depending on their quantity, quality, and structure. Second, the indicators of compensation of employees and capital compensation are denominated in comparable units, unlike the calculations of the production function, where the usage of factors can be represented in cost and in-kind indicators. Thus, in the calculation of the classical production function, the capital indicator is characterized by a volume of fixed assets in monetary units, and labor indicator – by a number of employees in real terms.

[3] Socio Economic Accounts. Basic data on output and employment, released July 2014. Available at: http://www.wiod.org/new_site/database/seas.htm; Socio Economic Accounts. Basic data on output, prices, capital stocks and employment, released November 2016. Available at: http://www.wiod.org/database/seas16

As the result of calculations, we obtained two production functions for agricultural production in Russia, reflecting the dependence of gross output on labor and capital expenditures separately for the periods of 1995–2009 and 2000–2014. Calculation of production functions for two time periods (although overlapping) allows comparing the indicators of production functions and assess the trends in the processes of production factors influence on agricultural output.

The production function for 1995–2009 is as follows:

$$P = 8{,}993 \cdot L^{0{,}743} \cdot K^{0{,}200}, \quad (2)$$

$$R^2 = 0.998;$$

p-values of α and β coefficients < 0.05

where:

P – gross agricultural output, million rubles,

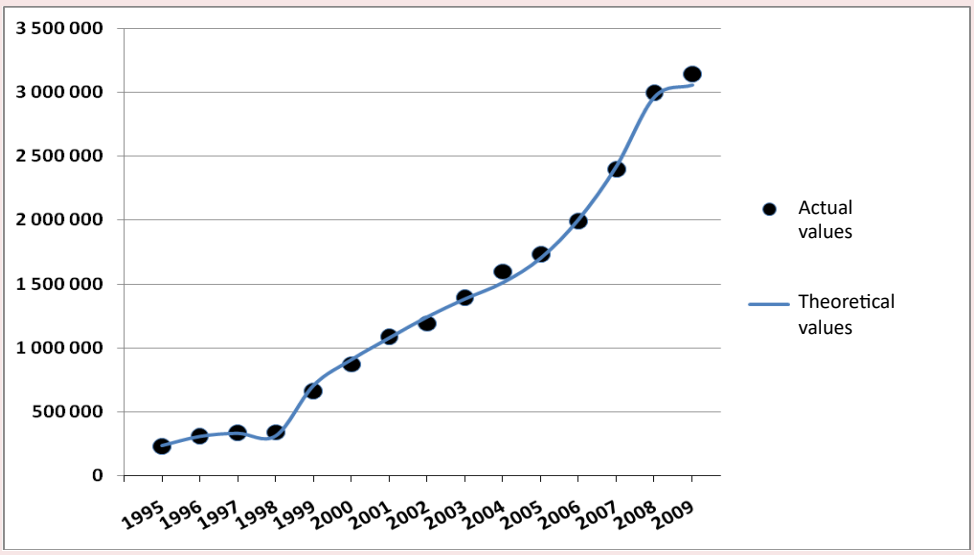
L – labor costs expressed in the total amount of compensation paid to employees, million rubles,

K – capital expenditure, reflecting the total amount of capital contribution to the creation of agricultural value added, million rubles.

During the specified period of time, the value of α degree for L shows that, when labor costs increase by 1%, the growth of gross agricultural output is 0.743%. The value of β degree for K shows that, when capital expenditures increase by 1%, the growth of gross agricultural output is 0.200%. In 1995–2009, the sum of the degree indicators (α+β) was 0.943, as the result, the increase of the availability of labor and capital resources by 1% led not to a proportional increase in production, but to a smaller one (0.943%), which indicates a decrease in the return on resources. This ratio characterizes the effect of quantitative changes in resource costs on the value of output. The overall 1% increase of resource expenditure in Russian agricultural production led to the increase of production by 0.943%, of which 0.743% is caused by the increase of labor costs, and 0.200% is caused by an increase of capital expenditures.

Actual values of the agricultural output indicator are close enough to the theoretical values calculated using the formula (2),

Fig. 1. Actual and theoretical values of the indicator of agricultural production output in Russia in 1995–2009, million rubles.



Source: author's calculations based on World Input-Output Database (WIOD) data.

therefore, the obtained parameters of the production function for the agricultural production conditions in Russia in 1995–2009 characterize the real impact of labor and capital factors on the volume and dynamics of output with maximum accuracy (*Fig. 1*).

The production function for the period of 2000–2014 is as follows:

$$P = 0{,}135 \cdot L^{0{,}995} \cdot K^{0{,}279} \qquad (3)$$

$$R^2 = 0.992;$$

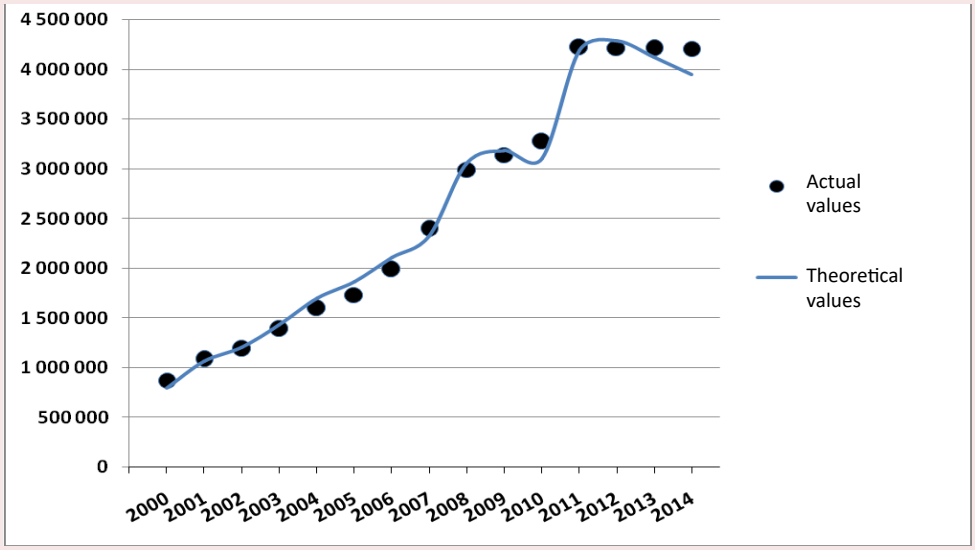
p-values of α and β coefficients < 0.05

In comparison with the period of 1995–2009, the influence of production factors on agricultural output in 2000–2014 increased. The output elasticity for labor costs was 0.995, for capital costs – 0.279. In 2000-2014, the sum of the degree indicators (α+β) was 1.274. The 1% increase in the availability of labor and capital resources led not to a proportional increase in production, but to a larger one (1.274%), which indicates the increase in the return on resources. Despite the decrease in the technological coefficient A, development of agricultural production in Russia in 2000–2014 was characterized by efficiency improvement, since efficiency was revealed as a factor taken into account in the growth of returns on labor and capital. The impact of qualitative changes in the structure of the resource potential of agricultural production is reflected in the increase of the return on resources.

The production function graph, constructed by formula (3), shows that the theoretical value of agricultural production output is as close to actual values as possible; hence, the parameters of the production function fully reflect the real contribution of labor and capital factors in agricultural product recovery (*Fig. 2*).

The analysis of the agricultural production functions in Russia in 1995–2009 and 2000–2014 may identify the trends of the established ratios and the dynamics of the factors usage, and also make the following conclusions:

Fig. 2. Actual and theoretical values of the indicator of agricultural production output in Russia in 2000–2014, million rubles.



Source: author's calculations based on World Input-Output Database (WIOD) data.

1. Agricultural production in Russia is primarily labor-intensive, not capital-intensive. The share of labor's contribution to the output of agricultural production is higher than the share of capital, which is justified by the presence of a significant sector of private farms that produced most of the country's agricultural products in the 1990s–early 2000s. The farms mainly use manual labor and small-scale mechanization, there are no opportunities to attract investment in technical and technological modernization, due to low production volumes per economic entity, the access to state support funds is limited. Currently, there is a gradual decline in the share of households in the structure of agricultural production (38.1% in 2014, 32.5% in 2016 and 31.0% in 2018). Private farms keep producing the largest share of potatoes (68.0% in the structure of production in all categories of farms), vegetables (55.1%), and also make up 38.7% of milk resources and 18.0% of meat resources[4].

2. In Russia's agricultural production, the potential for extensive growth decreases, since the quantitative growth of resources used does not lead to a proportional increase of production. Changes in the resource potential show the impact of qualitative changes on the results of agricultural production. The increase in the rate of production growth was achieved not by increasing the quantity of resources, but by improving their quality. This trend is caused by the impact of government support measures for the growth of resource availability of agricultural producers provided for in strategic and program documents (subsidies for updating technical capacity, investment loans for the construction of new capacities, reimbursement of part of capital expenditures for the modernization of production, compensation for the share of investments in development of the melioration system, implementation of scientific and technical policy in the agricultural sector).

3. The value of the labor elasticity coefficient shows that the labor factor had a greater influence on output than capital during the studied period. To ensure long-term sustainable growth of agricultural production, it is necessary to increase labor productivity and improve the structure of labor resources. This can be done through the introduction of innovative developments, resource-saving technologies, the usage of intellectual capital, organizational and managerial innovations that will improve labor productivity not only by increasing the volume of output but also by increasing the return on a labor unit.

4. The value of the sum of α and β elasticity coefficients greater than 1, and the low value of the technological coefficient indicate a continued overall high resource intensity of agricultural production, the potential of agricultural production growth due to resource factors. Russian agriculture has one of the lowest depreciation rates of fixed assets among all types of economic activity, 38.2% against 46.6% in the economy on average[5], which allows getting products in short and medium term by using the existing material and technical potential. In addition, Russia is one of the most affluent countries in the world in terms of available land resources, which are the main means of production in agriculture.

The results of calculating the production function as a whole for the generalized period of 1995–2014 have some conditionality, which

[4] *Agriculture in Russia. 2019: Stat. Coll.* Rosstat, M., 2019. Pp. 21, 28.

[5] *Russian Statistical Yearbook. 2019: Stat. Coll.* Rosstat. M., 2019. P. 327.

was caused by the following circumstances. First, there is a partial discrepancy in the source data for some years in the overlapping period of 2000–2009, caused by a discrepancy in the methodology for calculating the value added volume created by the labor factor and the capital factor separately. Second, over the past period, there were significant changes in the technological basis of agricultural production, as the result, the technical and technological characteristics of resources, used in agricultural production, differ significantly at the beginning and at the end of the studied period. Despite this, the parameters of the generalized production function for 1995–2014 characterize the general pattern of production factors influence on agricultural output.

The production function for 1995–2014 is as follows

$$P = 13{,}403 \cdot L^{0{,}834} \cdot K^{0{,}069} \qquad (4)$$

$$R^2 = 0.995;$$

p-values of α and β coefficients < 0.05

The presented function emphasizes the long-term trend of increased influence of the labor factor on the output of agricultural production.

The usage of the method of production functions construction allows determining the influence of not only enlarged production factors, such as labor and capital in its quantitative terms, but also assessing the impact of qualitative indicators of labor and capital usage results on agricultural production. The result of using the resource potential in terms of its quality is characterized by relative cost indicators of resource usage. Thus, the usage of labor resources is characterized by labor productivity, the usage of capital – by capital productivity.

To determine the impact of labor and capital productivity on agricultural output, we used data from Russian statistics for 2005–2018 in a comparable form[6]. After calculating the parameters of the production function, we have obtained the results that partially differ from those obtained on the basis of international statistics. The production function, according to data for 2005–2018, is as follows:

$$P = 20{,}814 \cdot L^{0{,}398} \cdot K^{0{,}510}, \qquad (5)$$

$$R^2 = 0.991;$$

p-values of α and β coefficients < 0.05

where: P – gross agricultural output, billion rubles,

L – labor productivity, rubles per 1 employee,

K – capital productivity, rubles per 1 rub. of fixed assets.

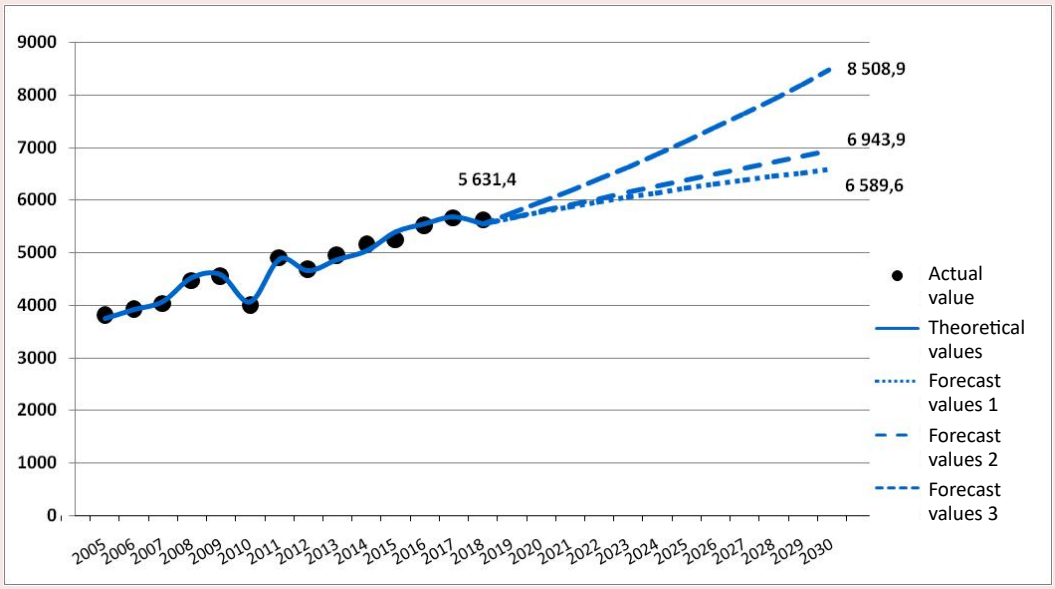
The indicator of labor output elasticity was 0.398, capital output elasticity – 0.510. The calculations, made on the basis of Russian statistics, generally also reflect the high influence of labor factor with the increasing influence of capital, expressed in the relative indicator of efficiency of its usage, i.e. capital productivity. The difference in proportions of the influence of labor and capital in formulas (2)–(4) from the parameters of the production function in formula (5) is caused by the different nature of the indicators used. In calculations, based on international statistics, absolute values of labor and capital expenditures on output were used, and the production function calculated on the basis of the Russian statistics showed the influence of specific values of labor and capital expenditures reflecting the efficiency of resource potential use. The exceedance of the

[6] Compiled and calculated by the author by: *Russian Statistical Yearbook. 2010: Stat. Coll.* Rosstat. M., 2010. Pp. 344, 345, 425; *Russian Statistical Yearbook. 2012: Stat. Coll.* Rosstat. M., 2012. Pp. 134, 425; *Russian Statistical Yearbook. 2016: Stat. Coll.* Rosstat. M., 2016. Pp. 109, 290, 291, 379; *Russian Statistical Yearbook. 2017: Stat. Coll.* Rosstat. M., 2017. Pp. 278, 358, 359; *Russian Statistical Yearbook. 2018: Stat. Coll.* Rosstat. M., 2018. Pp. 115, 301; *Russia in Figures. 2019: Brief Stat. Coll.* Rosstat. M., 2019. P. 309.

elasticity indicator of output by capital over the elasticity indicator by labor in relative values is caused by the fact that production is carried out using means of production, the quality of which affects productivity. Consequently, a lower relative level of labor utilization will be accompanied by a higher return on capital; a lower relative expenditure of capital on output growth will compensate for a relatively low return on labor. Thus, the calculation of the parameters of the production function in relative values reflects the impact of a resource unit usage on output, in which the return on resources is transformed in favor of capital, while the overall efficiency of using the resource potential remains unchanged.

Adjustment of the implemented agricultural policy and development of its new directions, taking into account the current and future changes in the national economy development, should be based on reliable forecasts of agricultural production development, taking into account various options for changes in the resource potential. The obtained parameters of the production function based on qualitative indicators of labor and capital use allow predicting the further development of agricultural production in Russia, assessing the dynamics and volumes of output depending on factor characteristics changes, and identifying priority areas of government support for the agricultural sector in order to increase the efficiency of using the resource potential. Based on formula (5), a three-variant forecast of agricultural output is made depending on changes of labor productivity and capital productivity in Russia for the period up to 2030 (*Fig. 3*).

Fig. 3. Actual (for 2005–2018), theoretical (based on the parameters of the production function) and forecast (until 2030) values of agricultural output depending on changes in capital productivity and labor productivity, billion rubles in comparable prices



Source: author's calculations based on Rosstat data.

Table 1. Main parameters of forecast scenarios for agricultural output in 2030

Forecast parameter	Forecast 1	Forecast 2	Forecast 3
Content	Growth rates of resource factors in 2013-2018	Growth rates of resource factors in 2005–2018	Growth rates of resource factors in accordance with the State program
Average annual increase in labor productivity, rub. / 1 employed	70959	48036	4% per year
Average annual increase in capital productivity, rub. / 1 rub. of fixed assets	-0.009	0.011	4% per year
Agricultural production output in 2030, billion rubles	6589.6	6943.9	8508.9
Total increase in agricultural production to the base year of 2018, %	17.0	23.3	51.1
Average annual growth of agricultural production, %	1.3	1.8	3.5
Note: All cost indicators are shown in comparable prices of 2016. Source: author's calculations based on Rosstat data.			

The first forecast scenario is based on the current average annual values of labor productivity and capital return in 2013–2018, which reflect the trends of recent years in the development of agricultural production in Russia (*Tab. 1*). This allowed to forecast agricultural production growth to 6589.6 billion rubles by 2030 (an increase by 958.2 billion rubles, or 17.0%). Production growth of 17.0% over the entire forecast period corresponds to an average annual growth rate of 1.3%.

The second forecast scenario is founded on the trends of average annual changes in labor productivity and capital productivity for the entire period of 2005–2018, based on which the production function parameters were calculated. According to this option, Russian agricultural output will have increased by 1312.5 billion rubles or 23.3%, making up 6943.9 billion rubles, by 2030. Production growth by 23.3% over the entire forecast period corresponds to an average annual growth rate by 1.8%.

The third forecast scenario is founded on the key parameters of the latest version of the State Program for the Development of Agriculture and Regulation of Agricultural Commodities Markets in 2013–2020. According to it, annual 4% increase of labor productivity is expected, which will cause a corresponding increase of capital productivity[7]. The production function shows that agricultural production is projected at the level of 8508.9 billion rubles (an increase of 2877.6 billion rubles, or 51.1%) in 2030. Production growth by 51.1% over the entire forecast period corresponds to an average annual growth rate by 3.5%.

Development of agricultural production according to the second forecast scenario, which assumes moderate growth efficiency rates of labor and capital usage, meeting the current technical and technological management conditions, seems to be the most realistic. This option takes into account long-term trends in the efficiency of production factors usage and the need to achieve the targets of the state agricultural policy, such as ensuring food independence and security, increasing exports of agri-food products to 45 billion dollars by 2024, which requires a significant increase of agricultural production at

[7] State Program for the Development of Agriculture and Regulation of Agricultural Commodities Markets in 2013–2020. *GARANT Legal Information Resource Complex*. Available at: http://ivo.garant.ru/#/document/70210644/paragraph/1:0

the expense of more efficient usage of resource potential. The third forecast scenario is more promising, since it takes into account the preservation of maximum achieved efficiency growth rates with the usage of resource factors throughout the forecast period. This will require full implementation and financing of the main directions of economic policy in the agricultural sector and the implementation of state support measures for agricultural producers.

Discussion

Despite the fact that the calculations of the production function parameters for the conditions of agricultural sector in Russia have shown a high degree of influence of the labor factor on output, in reality, the specific influence of factors are interrelated. Labor resources produce products using the means of production in which capital is embodied. The increase in output is not possible only with an increase in the quantity and quality of labor resources, it should be accompanied by appropriate technical and technological changes in the production sector. The influence of the capital factor on output is manifested directly in the form of returns on capital and indirectly through the increase of labor productivity. In economic calculations, the factors of "labor" and "capital" are used in a broad sense and are not limited only to the production and material form of their representation. For example, "labor" refers not only to the direct participation of labor resources in the production output, but also to its knowledge, qualifications, and experience. "Capital" implements the results of production, scientific, technical and innovative activities. Produced products are the result of the resources usage, taking into account their quantitative and qualitative characteristics.

The correspondence between labor resources and embodied capital is a necessary condition for realizing the potential of production growth at the expense of resource factors. Calculations show that Russia is 2.5–5 times behind developed countries in terms of labor productivity; for non-resource sectors of the economy, this lag of 33–39% is explained by a lower labor capital ratio and 58–65% lag – by a lower level of technology (the level of multi-factor productivity). The quality of human capital in Russia is slightly below the level of developed countries and, therefore, it explains only 2–4% of the gap of labor productivity [20, p. 67].

In Russia, there are reserves associated with increased productivity and intensity of labor, as, at least, a third of Russian employees are engaged in low-skilled and poorly organized labor. More than 20% of production capacities, including high-efficiency ones, put into operation in the last 5–7 years, are not loaded and may provide a rapid output increase. Even a partial transfer of Russia's labor resources to modern jobs will ensure the growth of production in the country by dozens of percent [21, p. 4].

The key direction that contributes to the growth of labor productivity, as a factor having a decisive impact on the agricultural production output, is a set of organizational and economic measures, and its implementation will help to increase the role of labor resources as an essential element of agricultural production resource potential. These measures include:

– creating favorable economic and social conditions for people engaged in agriculture. This area includes increasing the level of wages in agriculture, increasing the availability of social infrastructure, stimulating employment in rural areas, and securing personnel through the implementation of social policy measures in rural areas;

– increasing the innovative activity of agricultural employees. Main areas here are the increase of educational level, assistance in the

employment of people who received higher or secondary special education, creating incentives for professional development and education, training to work with new technological equipment, improving professional skills of employees, engaged in repair and maintenance of modern domestic and foreign equipment or directly working with it [22, p. 52].

Acceleration of labor productivity growth rates within the framework of an innovative strategy for agricultural sector development involves not only technological renewal of production but also the improvement of the quality characteristics of the agricultural organizations employees (their education, qualifications, health, motivation) [23, p. 317].

Conclusion

The calculation of the production function for agricultural sector in Russia revealed the need to move from extensive to intensive resources usage and to increase the resource potential on an innovative basis. The development of the Russian agro-industrial complex in modern economic conditions requires a wide application of innovative factors in order to achieve the sustainability of agricultural production and solve the most important state task, i.e. ensuring food independence and security of the country. The sustainability of domestic agricultural production is based on the efficient usage of all types of resources in the production process, on the formation of a balanced resource potential.

To improve the methodology for modeling the impact of resource factors on agricultural output, the following key areas should be implemented:

1. Specifying the composition of indicators that reflect the impact of factors of production on agricultural output. As factor features, it is proposed to use cost indicators that reflect the contribution of labor and capital to the output of agricultural production. In order to expand the methodological justification of resource factors influence on output, it is necessary to combine quantitative (absolute) and qualitative (relative) indicators of labor and capital usage.

2. Ensuring full comparability of indicators from different dynamic data series for calculating the parameters of the production function over a long period of time, which will allow taking into account the impact of long-term trends in the formation and usage of resource potential on development of agricultural production and avoid accidental impact on the output of factors that are not dependent on humans, such as weather conditions, which is especially important for agriculture.

3. Improving domestic statistics on determining the contribution of labor and capital to agricultural output, as well as ensuring comparability of indicators of domestic and foreign statistics to expand the modeling capabilities.

Thus, modeling the influence of resource factors on agricultural output for Russia's conditions allowed assessing the dependence of changes in gross agricultural output on the enlarged elements of resource potential, i.e. labor and capital. Based on the model of the two-factor production function, it was concluded that the labor factor has an increased influence on the production of final products in the industry, which determines the strategic priorities for the agricultural production development in Russia, based on the formation and usage of its resource potential. Efficient usage of labor resources will help solve important problems of modern development of the Russian agri-food complex: economic growth in certain sectors of the economy, the formation of the revenue part of budgets at all

levels, reducing social tension, ensuring food independence, and security. Modeling the influence of resource factors on output based on the method of constructing and calculating the parameters of the production function allows predictive assessments of agricultural production development, taking into account the influence of quantitative and qualitative changes in the usage of labor and capital.

The study contributes to the theoretical and methodological foundations of modeling the impact of resource factors on output by using cost characteristics of labor and capital expenditures, as well as through the integrated usage of statistical information about the object from different sources, which allows increasing the reliability of the predictive and analytical calculations. Applied significance of the results obtained in this article is caused by the universal nature of the modeling performed, which could be the base for similar calculations in relation to other sectors of the national economy.

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Received November 19, 2019.

PUBLIC FINANCE

DOI: 10.15838/esc.2020.4.70.10
UDC 316.334.2, LBC 60.561.2

Conceptual Approaches to Creating the Preconditions for Effective Financial Education of the Russian Population*

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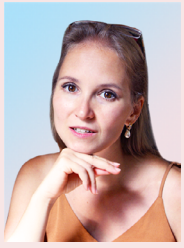

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* The article is prepared in the framework of the research project GZ-PI2 "Institutionalization of financial literacy of the population of the Russian Federation" at the Financial University under the Government of the Russian Federation.

For citation: Aleksandrova O.A., Alikperova N.V., Vinogradova K.V., Nenakhova Yu.S. Conceptual approaches to creating the preconditions for effective financial education of the Russian population. *Economic and Social Changes: Facts, Trends, Forecast,* 2020, vol. 13, no. 4, pp. 169–185. DOI: 10.15838/esc.2020.4.70.10

Abstract. The global financial crisis that broke out in 2008 highlighted the problem of low levels of financial literacy among the population of different countries, and the response to this was the creation of national financial education systems where international economic organizations played the guiding and coordinating role. Russia also launched a joint project of the Ministry of Finance of the Russian Federation and the world Bank in 2011, and then adopted a Strategy to improve financial literacy of the population. However, despite the efforts and money spent, the level of the Russians' financial literacy and their trust in financial institutions remains low. The article presents conceptual approaches to creating the preconditions for effective financial education of Russian residents and describes the structural and functional model within which this can be implemented. The information base of the research is the data from Russian and international studies on financial literacy of the population and works devoted to their comparative analysis; the guidelines and analytical materials of international organizations; the results of an expert survey conducted by the authors with the participation of 136 experts from 30 regions of Russia. It is shown that effective financial education is impossible without an effective income policy, when the population has free money, and the need to dispose this money generates a practical interest in improving financial literacy. The second fundamental condition is the implementation of the "trust policy", i.e. ensuring the operation of the state mechanism that does not allow the depreciation of citizens' savings and reliably protects their rights when interacting with financial institutions. Stability and predictability of economic development, refusal to impose excessive consumption standards on the population, physical accessibility of credit and financial institutions in small towns and villages, develop ment of information and communication infrastructure, and increasing the Russians' digital culture are important. The main components of financial education proper are described; the approaches to defining target groups for financial literacy training and selecting appropriate educational programs are proposed.

Key words: financial literacy, financial education, income, trust, infrastructure, consumer culture, digital culture.

Introduction

During the last decade, the issue of improving the financial literacy has become relevant in many countries, due to the poor level of the population's financial knowledge, their lack of understanding the financial instruments essence, distrust in financial market institutions, and so on. The problem of limited financial knowledge was clearly manifested at the time of the global financial crisis of 2008–2009, and it largely determined its course [1]. Nowadays it is aggravated, on the one hand, by expanding the range and complexity of the financial products offered to the customers [2], and on the other hand, by increasing the burden of responsibility for citizens' material welfare on the shoulders of population, which involves the expansion of people's interactions with the institutions of the financial market [3].

The problems, highlighted in the context of the financial crisis, led to the creation of national financial education systems designed to help people gain the ability to use the opportunities provided by financial instruments and not be deceived, where international and supranational organizations play the coordinating role: the Group of Twenty (G20), the Organization for Economic Cooperation and Development (OECD), and the World Bank. In 2011, Russia launched the joint project of the Ministry of Finance and the World Bank, "Enhancing financial literacy and developing financial education in the Russian

Federation"; in 2017, a Strategy for financial literacy in the Russian Federation for the period of 2017–2023 was adopted. Considerable organizational and technical efforts are being made to implement them: educational and methodological materials are being published; a system of training financial consultants and school and university teachers who will be able to improve the financial literacy of children and young people has been created; volunteers have been involved in the process of teaching financial literacy; numerous events are being held to promote financial literacy ("Financial Literacy Weeks", "All-Russian Savings Weeks", etc.); pilot regional programs aimed at improving financial literacy are being implemented in several regions of the Russian Federation. Considerable budgetary resources and World Bank loan funds are spent on this work. According to a Report, published in 2018 by the Accounting Chamber of the Russian Federation[1], the initial cost of the project was 113 million US dollars, including 88 million US dollars co-financed by Russia. Then, in 2016, the project and the loan agreement were extended for another 4.5 years; as the result, the cost of the project increased to 209.7 million US dollars (by 1.85 times), and Russia's co-financing to 184.7 million US dollars (by 2.1 times), which accounted for 88.1% of the total funds. However, despite the efforts and funds spent, the level of financial literacy of Russians remains very low, which is reflected on the scale of public debt to banks and microfinance organizations[2], which causes concern of the authorities, and the low level of savings and investment activity [4]. In this regard, within the framework of the project aimed at studying the processes of institutionalization of the Russian populations' financial literacy, the Ministry of Finance of the Russian Federation, the project originator, set a task to develop conceptual approaches contributing to improving the efficiency of financial education of Russian citizens.

Problem development

The relevance of the issues related to the population's financial literacy, the functioning of financial education national systems, etc., are discussed in a significant volume of scientific and practical literature, which reveals the conceptual and categorical apparatus associated with financial literacy [5; 6], analyzes the results of numerous research on financial literacy of population, including those in the framework of international comparisons, and assesses the dynamics of relevant indicators [7], identifies the relationship between the features of financial behavior with the income-property and socio-demographic characteristics of individuals and households, ethnic, and cultural traditions[3] [8; 9], describes the international experience of forming a system for improving financial

[1] Report of the Accounts Chamber of the Russian Federation on the results of the control event "Audit of the use of loans of the International Bank for Reconstruction and Development for implementation of the project no. 7983-RU "Enhancing financial literacy and developing financial education in the Russian Federation" from 2011 to 2017 and during 2018". Available at: http://www.ach.gov.ru/activities/bulleten/939/36353/ (accessed: November 11, 2019).

[2] For example:

Poor Russians take out more and more loans. The Central Bank is concerned. Available at: https://www.bbc.com/russian/news-47868541 (accessed: April 10, 2020);

Oreshkin predicted an "explosion" in the economy due to the population's creditworthiness. Available at: https://www.vedomosti.ru/economics/news/2019/07/21/806921-oreshkin (accessed: April 10, 2020);

Kholyavko A. Putin spoke about the risk of crediting the population for the first time. Available at: https://www.vedomosti.ru/economics/articles/2019/06/20/804700-putin-zakreditovannosti (accessed: April 10, 2020).

[3] Moiseeva D.V. *Financial Literacy of Population of the Russian Region: Economic and Sociological Analysis: diss. of a Cand. of Sci. (Sociology)*. Volgograd, 2017.

literacy [10–14], and analyzes the processes of formation of the financial education system in the Russian Federation[4] [15].

Information and methodological framework of the research

The development of the concept and structural and functional model of an effective system for improving the population's financial literacy was carried out by studying Russian strategic documents[5] and background papers of international and supranational organizations which served as the basis for it (memoranda, guides, manuals, etc.)[6] [1]; the results of numerous measurements of the level of financial literacy of Russian population, implemented by the National Agency for Financial Studies (NAFI), the Bank of Russia and other organizations, including data from the second round of a specialized long-term all-Russian survey on financial literacy, carried out on the basis of an international methodology [7]; analysis of data from the Russian Federal State Statistics Service. The latter, although not directly related to financial literacy, allows judging the current and potential financial activity of Russians, taking into account population's assessment of their current financial situation and future income, consumer and savings attitudes, the main directions of using monetary income, changes in the volume and forms of savings storage, the planning horizon for bank deposit holders, and so on.

In addition, the project included an empirical study conducted as an expert survey. Its respondents were 136 experts from 30 Russian regions, whose professional activities were related to public administration at the regional and federal levels, science and education, entrepreneurship, and work in the banking and financial sector directly. A significant number of experts have academic degrees (8% are doctors of science, 33.1% are candidates of science); more than three-quarters indicated that the issue of financial literacy is part of their professional interests; almost 90% of experts assessed their knowledge of the subject of expertise above average level. A specially developed form included 19 questions (open ones or those offering to express attitude to certain judgments using the Likert scale) concerning the assessment of financial literacy among the representatives of various target groups; the rationality of certain actions in the financial sphere; factors that have a positive or, on the contrary, a negative impact on the financial behavior of Russians; the efficiency of measures already taken to improve the population's financial literacy, as well as the experts' own recommendations in this area. Thus, the views and conceptual approaches formulated on its basis, resulting from the analysis of information in the framework of desk study, were correlated with the empirically identified systematic opinion of the expert community, which allowed increasing the level of conclusions and recommendations' validity.

Research results

According to Russian and foreign studies, information about financial instruments, which allows saving and increasing one's finances, is in demand by population when they have the means: when there are objective conditions for financial activity. In addition, to consolidate one's knowledge in the field of financial literacy, he or she should repeat the actions (financial operations) [1].

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[4] *Best Practices in Financial Education Sphere and Financial Literacy in Russia and Abroad.* Ministry of Finance of the Russian Federation; Volga State University. Volgograd, 2014. 67 p. Available at: https://www.minfin.ru/common/upload/files/Luchshie_praktiki.pdf (accessed: October 28, 2019).

[5] *Strategy for improving financial literacy in the Russian Federation for 2017–2023.* Available at: http://static.government.ru/media/files/uQZdLRrkPLAdEVdaBsQrk505szCcL4PA.pdf (accessed: October 25, 2019).

[6] *Recommendation on Principles and Good practices for Financial Education and Awareness.* OECD, 2005. Available at: https://www.oecd.org/daf/fin/financial-education/35108560.pdf

At the same time, official statistics show that the Russians' vision of their financial situation is depressing: the index of current personal financial situation is in the negative range for 20 years (although it ranges from -40 after the default in 1998 to -7 in 2014); the index of expected changes in personal financial situation changed the sign from negative to positive only once – in 2008–2010[7]. At the same time, the population's subjective estimates of their financial situation correspond to the real dynamics of disposable income. The structure of the population's income application indicate that about 70–75% of available funds are spent on the purchase of goods and services (and, as household surveys show, three-quarters of expenditures are on real needs – food, clothing, transport, communications, health, education, household items), and about 10–12% are spent on mandatory payments and contributions[8]. Thus, a significant part of the Russians simply do not have free funds, the disposal of which would require improving financial knowledge. On the contrary, the lack of money for real needs or for the purchase of goods stimulated by the permanent imposition of inflated standards of demonstrative consumption often pushes people to forced or reckless borrowing.

The models of financial behavior with available funds are determined by the level of trust in financial market institutions and the financial system as a whole. The situation in this area is not good. Thus, according to the Russian Federal State Statistics Service, Russians more often prefer keeping money in cash; the structure of individuals' deposits in rubles indicates short planning horizons: deposits are mainly opened for up to 1 year and for 1–3 years, and a volume of deposits for 1–3 years has significantly decreased in the last 5 years [9]. The financial behavior of population's high-income groups indicates that they trust banks with their savings only within the limits of the insured amounts, invest only in what they can keep under personal control (real estate, their own business), and show little interest in voluntary pension insurance [16]. Bank of Russia statistics also show an increase in distrust of the banking system: after a decrease in the level of distrust of banks from 24.1 to 8.1% in 2014–2016; in 2017, it rose again to 18.3% against the background of mass licenses revocation. Banks and other similar organizations are at the end of the rating of sources where the Russians would borrow funds in case of urgent need[10]. Distrust in financial institutions is also evident in the topics where Russians would like to improve their knowledge and skills on: financial fraud detection (39%), studying the rights of financial services consumers (29%), and risk assessment in the financial services market (29%)[11].

The issues of low income, distrust in financial institutions, short planning horizons, and other problems affecting financial literacy are also reflected in the results of our expert survey. Thus, while answering open question "What factors do you think most positively affect Russians' financial behavior?", the most popular response was "Decent incomes, confidence in the future" (indicated by 41.9% of experts), the following options ("Availability of information" and "Education of citizens") were mentioned by half of respondents. On the contrary, the leader among the factors, which

[7] *Federal State Statistics Service*. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/level/# (accessed: June 22, 2019).

[8] *Ibidem*.

[9] *Ibidem*.

[10] *Report on Financial Inclusion in the Russian Federation 2018*. Bank of Russia, Moscow, 2019. 70 p. Available at: https://cbr.ru/Collection/Collection/File/25684/review_24122019.pdf (accessed: November 2, 2019).

[11] 44% of Russians feel the need to improve their financial literacy. *NAFI: Research Center, 2018*. Available at: https://nafi.ru/analytics/44-rossiyan-ispytyvayut-potrebnost-v-povyshenii-finansovoy-gramotnosti/n (accessed: November 2, 2019).

have the most negative impact on Russians' financial behavior was "Low income", (mentioned by 31.6% of experts), which was followed by "Instability of the economy and financial system" (27.2% of respondents) and similar in meaning "Lack of consumer protection" and "Distrust of state and financial institutions" (mentioned by 23.5% of experts in total). The respondents themselves also demonstrate a very low level of confidence in financial institutions, and ultimately in the ability of the state to ensure proper regulation of both financial and law enforcement spheres, protecting the citizens' interests. Thus, only one out of five experts firmly believes that participation in accumulative pension and insurance schemes, as well as investing in stock market instruments, is a financially competent behavior in current conditions. And, on the contrary, 53.7% of experts believe that you should invest your funds only in what you can control yourself (real estate, your own business, etc.). 48.3% of respondents do not consider it financially competent behavior to apply for consumer and car loans (with different degree of confidence), 31.6% could not give a clear answer; 41.9 and 20.6% of experts, respectively, said so about using credit cards; 58.9 and 29.4% – about concluding a life annuity agreement for the sake of receiving an addition to a pension; 36.7 and 33.8% – about placing all their savings on bank deposits.

The low rating of measures related directly to the training of financial knowledge and skills confirms the priority of the fundamental nature of "income" and "trust" for improving financial literacy. Thus, every third expert in all professional groups is skeptical about the effectiveness of "financial education and information". The majority of those who completely deny the effectiveness of such a measure (chose the option "ineffective") are the experts from the financial sector (one in five), as well as experts-entrepreneurs (14.3%), that is, those who directly interact with the population in the sphere of consumption. Such a measure as "financial literacy training" is considered "rather inefficient" by 35–52% of respondents (the representatives of financial market institutions are leaders again); the representatives of financial, credit and similar institutions (almost one in five), as well as entrepreneurs (14.3%) noted it as completely ineffective.

At the same time, experts say that it is important to "ensure the availability of financial services". In this case, it meant infrastructure accessibility – the presence of the necessary number of branches of credit and financial institutions in territories with a small population, an accessible and stable Internet, etc.: in total, 71% of experts indicated this, and, importantly, this measure was most often noted by the representatives of financial institutions and entrepreneurs – 26 and 23%, respectively.

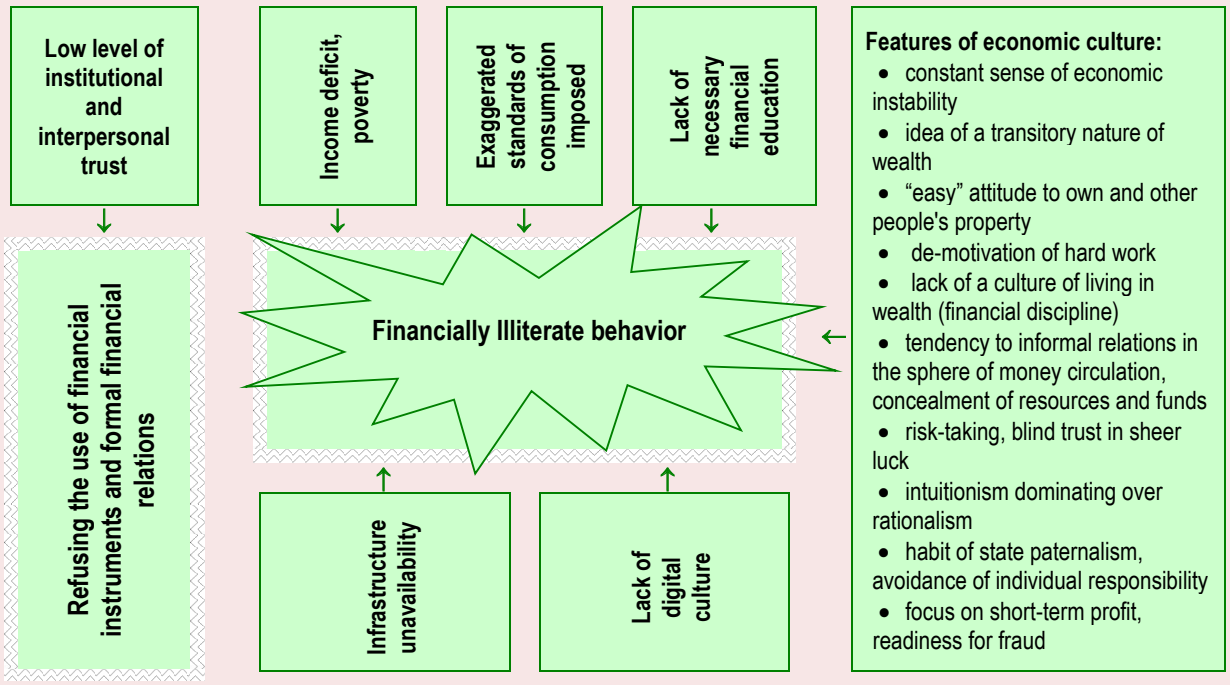
The analysis of the presented and other information, in particular, concerning the peculiarities of the economic culture of the Russian population [17–21], allowed us to put together main factors of population's financially illiterate behavior, or Russians' refusal to interact with financial market institutions (*Fig. 1*).

In turn, understanding the nature of financially illiterate behavior, or unwillingness to interact with the financial market, allowed developing the concept of an efficient system for improving population's financial literacy (*Fig. 2*).

The basis of the searched theoretical and methodological construction is presented by three "pillars":

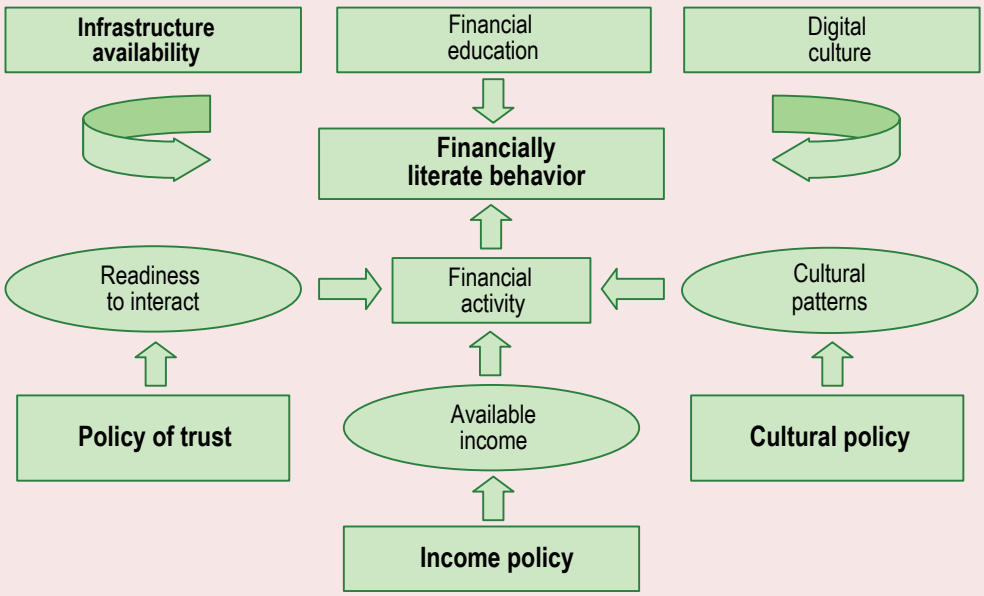
1. Efficient **income policy**, when population is supposed to have a sufficient amount of funds on hand, which creates an objectively determined, practical interest in financial training. Obviously, in this case, the assimilation of information will be more efficient. It is

Figure 1. Factors contributing to population's financially illiterate behavior and their refusal to interact with financial market institutions



Source: own compilation on the basis of the results of research project "Institutionalization of financial literacy of the population of the Russian Federation", 2019.

Figure 2. Key prerequisites for population's financially competent behavior



Source: compiled by the authors on the basis of the results of research project "Institutionalization of financial literacy of the population of the Russian Federation", 2019.

also important that, with having sufficient disposable income, borrowing becomes a well-thought-out way to meet high consumer demands, rather than a purely forced measure, when you no longer have to choose either the lender or the terms of loan obtaining.

Income policy (a topic that has been well developed, especially abroad) is a set of measures aimed at ensuring the appropriate level of the population's welfare from the socio-economic and socio-political points of view:

– government's establishment of an adequate level of wages in the public sector, which, among other things, is a reference point for the private sector. In Russia, the share of wages in GDP is significantly lower than in developed countries. It is necessary to markedly increase it, which requires significant changes in the field of wage regulation;

– creating conditions that determine an acceptable level of profitability in the real sector of the economy and, accordingly, the level of business income and wages in the commercial sector. In Russia, the level of profitability in the manufacturing sector remains very low; a positive change in the situation requires stricter regulation of pricing in the so-called natural monopolies, in the banking sector, reasonable protection of the domestic market, and so on.;

– government's establishment of an adequate amount of social benefits (pensions, etc.). Nowadays, in Russia, the replacement ratio of pensions does not even reach the minimum of 40% of the lost income which is recommended by the International Labor Organization, and child benefits are many times lower than in developed countries. Accordingly, there is a task to increase the amount of social transfers to an acceptable level. We should note that the government has funds for this [22].

Income policy also includes the state-defined tax burden borne by individuals and households. Today, the tax burden on the working Russians (personal income tax together with the so-called social charges, which the employer transfers to state extra-budgetary funds) is more than 40%. The task of increasing disposable income for a significant part of the Russians can be solved by switching to a progressive income tax scale using a complex progression and preferential taxation of low-income citizens.

Income policy also includes the following important components:

– government policy in the field of social security – the amount of free funds available to population depends on the availability of free education, health care, etc. It is obvious that an efficient income policy is incompatible with the radical commercialization of the social sphere that takes place today;

– antimonopoly policy designed to limit the "appetites" of so-called natural monopolies and other economic entities (retail chains, etc.) that have a significant impact on the level of prices for housing and utilities services, transport services, food and, consequently, on the amount of free funds remaining in the hands of citizens. In addition, effective antimonopoly policy is a tool for reducing cost inflation – a key factor that causes a low level of profitability in the real economy and, as the result, low wages.

2. Policy aimed at increasing the level of trust in the state, which, by analogy with the income policy, can be referred to as a **trust policy**. The purpose of this policy is to create an idea among the population that the state is able to:

– conduct a consistent, predictable financial and economic policy in the interests of the majority of citizens, which does not allow the withdrawal or depreciation of citizens' savings by the state;

– regulate activities of financial market institutions in such a way as to protect citizens, interacting with such, from the risks associated

with attempts to manipulate their minds and funds by commercial structures;

– timely and strictly prevent illegal financial activities of entities that implement unfair financial practices in relation to citizens;

– ensure the work of law enforcement agencies and the justice system in such a way that citizens would be absolutely confident in the ability to protect their legitimate rights and interests in case of their violation by certain participants in the financial market.

This kind of trust to the state and state-regulated fields is the result of a complex system of social institutions ranging from constitutional arrangement containing political guarantees of the government' fair activities, to the population's ability to implement democratic control over the government through their representative bodies (first of all the parliament), as well as the bodies of independent, external (relative to executive power) financial control, etc.

In Russia today, there are paradoxes of trust – a high level of trust in the head of the state, but a lack of trust in properly the state and its institutions, which is due to the lack of institutional conditions for rational trust. Accordingly, it is necessary to create a system of institutions that form the population's rational trust in the government and government-regulated areas, or fill the existing system with the original meaning [23].

3. The third fundamental "pillar" is the **policy in the sphere of public culture**, which is understood here as a broadcasting through all information channels (media, cinema, advertising, various forms of opinion leaders' life presentation) and, accordingly, as an imprinting of consumer behavior patterns, standards of consumption (primarily the prestigious ones), attitudes towards work and leisure, etc. into the mass consciousness. It seems that the emphasis in the cultural policy understood in this way should be shifted from excessive emphasis on consumption to the so-called "nation's industrial education", the term proposed by one of the founders of the historical economic school, F. List. This would help to rationalize consumer behavior and, above all, weaken the society's orientation to excessively high standards of demonstrative consumption, forcing the population to resort to borrowing without real need.

Let us move on to the description of other elements of the conceptual model. A certain amount of disposable income and a level of confidence gives an impetus to the population's **financial activity**, subject to these conditions – the voluntary one. The nature of financial activity, either voluntary or involuntary (if disposable income is not sufficient to finance the current needs of households or cover expenses caused by force majeure), is of serious importance, since it determines the choice of the object of financial training (social groups covered by training) and the focus of its content.

The condition for the implementation of the population's financial activity is the **availability of financial market infrastructure** (credit and insurance institutions, entities and instruments of the stock market, etc.) and **financial services** provided by it, primarily the price, and also the cognitive one (intelligibility of the service for the consumer). This concept element can be referred to as **infrastructure accessibility**. Since the financial market is mainly made up of commercial entities, the role of the government in ensuring infrastructure accessibility is to create incentives for expanding the supply of financial services (increasing the number of relevant institutions, expanding their branch network, etc.). It is obvious that the main incentive for the commercial sector is the efficient demand of the population when it is ready to interact with financial market institutions. As it was shown above, ensuring

both is a derivative of the government's policy – the income policy and the policy of trust.

Taking into account the virtualization of many financial transactions and the obvious prospects for further transfer of communications of citizens and financial institutions to the virtual space, an important factor contributing to the safe implementation of the population's financial activity is its **digital culture**, which includes both digital literacy (the necessary minimum of knowledge and skills in the field of information and communication technologies) and "digital hygiene", i.e. the knowledge of information security rules and the drive to their unconditional compliance. Obviously, the state in this case requires the citizens' digital culture development through appropriate training and ensuring technical conditions, i.e. necessary coverage of fixed and mobile Internet with the required traffic quality, mobile signal, etc.

Finally, it is proper **financial education** which is to make the population's financial activity (whether it is forced or voluntary) productive and safe. Let us discuss the conceptual and methodological approaches to financial education in more detail.

1. It seems that, in principle, it is necessary to clearly separate the two areas of financial education and place emphasis from the point of view of public participation correctly: 1) informing about opportunities related to the financial market; 2) informing about risks arising from the use of financial instruments, as well as those related to electronic services. This differentiation also exists in the public consciousness: as shown above, population clearly indicates that its primary interest is in learning how to recognize risks and avoid it[12].

It is hardly advisable to teach a single training course about opportunities: first, it is constantly updated, and, second, it is often aimed at different target groups; in addition, such information is brought to potential consumers by interested commercial structures without any special efforts from the government. At the same time, teaching financial literacy, which is, actually, is one of the components of life safety basis in the modern world, is an important task of the government. Historically, the role of the government, religion, and public morality involved creating a system of restrictions preventing the willingness to succumb to the temptation of some members of society and a desire of other society members to exploit other people's weaknesses. Mixing two completely different substances of financial literacy creates the danger of replacing the public need with what is the interest of commercial structures. It is no coincidence that foreign literature, including documents issued by the OECD structures, repeatedly contains a clause about the need to ensure the neutrality of information, to exclude situations of interest conflict for commercial structures offering their financial training services [1; 2]. By the way, population is aware of a possibility of such a conflict of interests: according to a NAFI poll, the Russians are more willing to trust government agencies, regulating the finance sector (37%), or universities (27%) with increasing their financial literacy than commercial institutions (banks, mutual funds, etc.), NPOs, or independent financial advisers (9 to 23%)[13].

2. The primary basis of financial literacy is education, and it is not special financial education, but a general one, introducing the

[12] 44% of Russians feel the need to improve their financial literacy. *NAFI: Research Center, 2018*. Available at: https://nafi.ru/analytics/44-rossiyan-ispytyvayut-potrebnost-v-povyshenii-finansovoy-gramotnosti/n (accessed: November 2, 2019).

[13] Imaeva G. Russia ranks 25th in terms of financial literacy in the world. *NAFI: Research Center, 2016*. Available at: https://nafi.ru/analytics/rossiya-zanimaet-25-e-mesto-po-urovnyu-finansovoy-gramotnosti-v-mire/ (accessed: November 2, 2019).

basics of reading (reading comprehension) and mathematics. Low indicators of financial literacy of population in terms of performing elementary operations (calculating percentages, etc.) evidence of the disastrous state of mathematical education at the secondary school level. To a large extent, this is a consequence of the current system of final certification, which admits that subjects, not required for admission to universities, may be studied "on a residual basis", and the requirements for basic mathematical knowledge necessary for obtaining a certificate are radically reduced. Accordingly, a fundamental component of financial education is **mathematical education within the framework of a unified school curriculum**, which forms skills of applying mathematical apparatus for calculating benefits and losses when using or refusing the usage of financial products and instruments.

The second, no less important component, is the **basis of economic knowledge** related to three areas – economic theory, economic history, and economic statistics, which should also be acquired in the course of training in comprehensive school and further – in the system of secondary vocational and higher education. Knowledge of main economic categories and their associated patterns; the basic tools of economic policy; psychological features of economic behavior, etc. allow forming the ideas about the economic situation in the context of which financial decisions need to be made, and possible trajectories of its development. Knowledge in the field of economic history complements the framework of the foundations of economic theory with information about the multivariance of economic strategies, as well as specific economic phenomena that took place in different countries and in different periods of time, in particular about the measures and results of the implementation of a particular economic policy, including the monetary one. The ability to work with statistics helps finding reliable, relevant data sources which allow getting an idea of the economic situation, including the situation on financial markets, and key trends based on unbiased economic indicators.

The third component is the **basis of legal knowledge** related to the financial sphere. They should also be taught in secondary school. In terms of financial literacy, it is advisable to focus on familiarity with the bank deposit agreement, the loan agreement, the procedure for satisfying the rights of different categories of depositors in the event of bank bankruptcy, the law on bankruptcy of individuals, the concept of transaction bondage, and so on.

Finally, the fourth component, which is advisable to implement within a primary subject, dedicated to the basics of life safety, is actually the **basics of financial literacy** as an ability to recognize and minimize risks associated with financial transactions and modern information transfer technologies.

3. Creating an ecosystem of efficient financial education involves the need to solve a number of tasks, in particular:

1) Determining the target groups of students, ways of involving them in the financial education system; selecting the students (it is advisable to conduct entrance tests for adults); choosing the format, forms and methods of training for them (single-time, regular, continuous; full-time, remote; consulting mode, etc.).

Population segmentation can be carried out for various reasons. In terms of age, these can be schoolchildren (grades 1–4, grades 5–8, grades 9–11); young people aged 16–24 both studying at the institutions of secondary vocational education and at universities, and those who are not included in the vocational education system; adults at the

most economically active age (25–55); pre-retirees and pensioners. Young people being the most mobile and "advanced" in the use of information and communication technologies (ICT) require a completely different format of training than older citizens with their peculiarities of perception of information, etc. In addition to age, there are several other factors influencing the attitude to the idea of studying financial literacy, the perception of the material, the readiness to apply the acquired knowledge in practice, etc. It includes ethno-cultural and confessional factors; standards of living, including permanent income; type of activity; family life cycle; physical availability of financial services (presence of credit and financial institutions, development of digital communications); practical experience of interaction with the financial market; emotional and psychological state, IQ and EQ level.

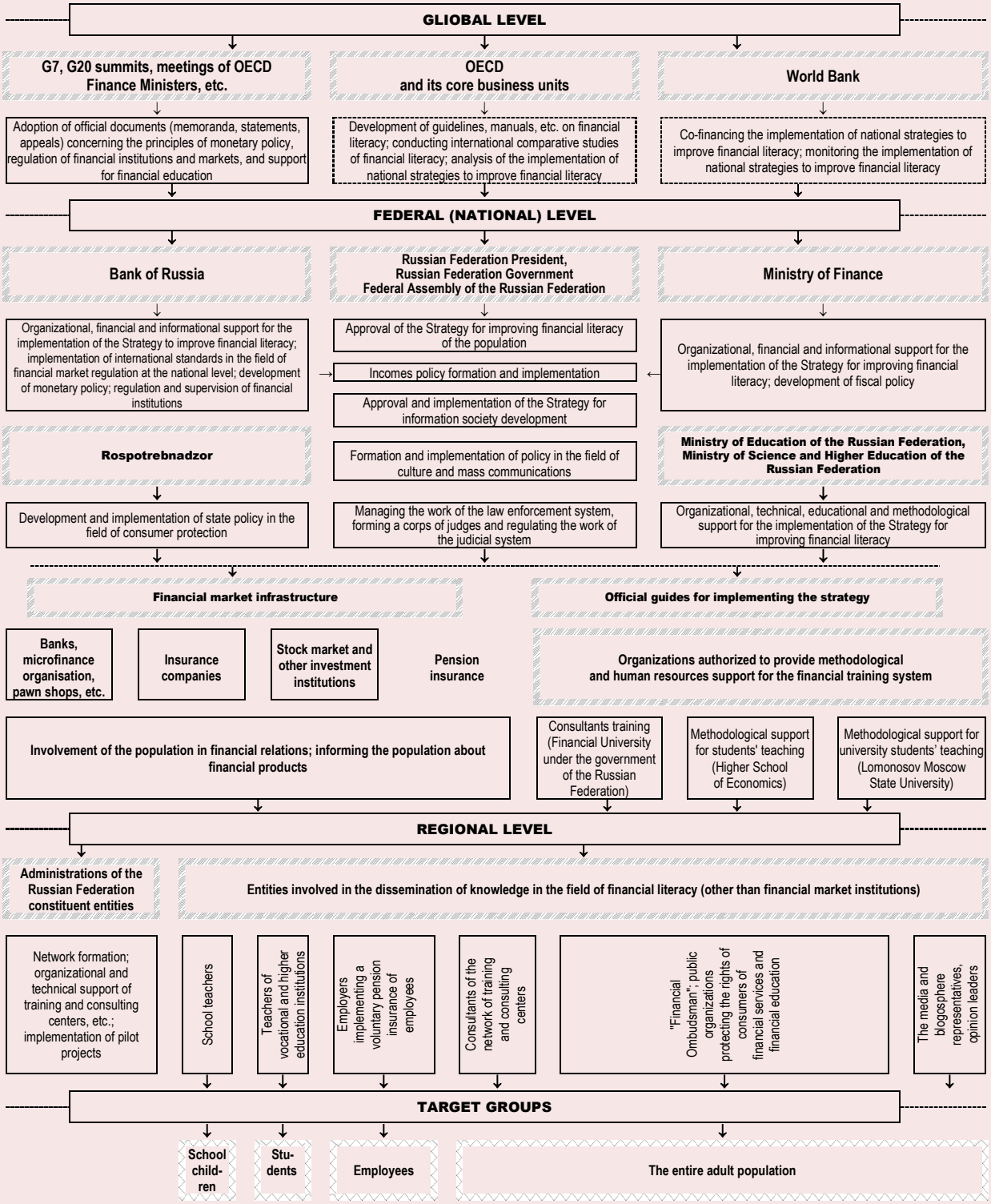
Depending on the expected activity in the financial sector, population may be divided into two categories: 1) individuals implementing active life strategies, for whom financially competent behavior is primarily an ability to mobilize personal and/or attracted financial and other resources to solve personal and economic problems, and financial literacy is an element of orientation in the space of opportunities, obvious and hidden threats; 2) individuals engaged in elementary survival, for one reason or another. Involvement of the first category in the system of financial education is possible mainly on the basis of the application principle (the exception is on-the-job training on the employer's initiative, which mainly concerns accumulative pension schemes). In this situation, it is important to choose efficient channels for informing about a possibility of improving financial literacy and ways to convey information eliciting a required response. From the point of view of the educational programs content, the focus should be on deepening knowledge and skills that increase the validity of financial decisions, primarily related to the consideration of existing and potential risks. In relation to the second group of citizens, training should be aimed at protecting them from being involved in bonded transactions and other unfair financial practices ("financial pyramids", etc.) due to credulity, mindlessness, excitement, and irresponsibility. To cover such risk groups with financial education, it is advisable to use the identification principle, as well as social advertising, i.e. printed products motivating to increase financial literacy distributed in social protection institutions, employment services, pension fund offices, and relevant surveys among their clients.

2) Establishing efficient interagency contacts (the Bank of Russia, Ministry of Finance, Ministry of Education, Ministry of Science and Higher Education, Rospotrebnadzor, government-established mass media, etc.), as well as the interaction of government structures and business community (associations of banks, insurers, etc.) to ensure consistent nature of financial education and the solution of issues related to its organization and funding.

3) Forming a pool of specialists in the field of financial education, which involves determining the institutions and methods of their training; competencies they should have, taking into account interests and needs of population and the government; excluding conflicts of interest in the form of non-advertised affiliation of such specialists with commercial structures providing financial services.

4) Monitoring educational process, including using feedback from citizens and measuring learning outcomes: directly through the assessment of knowledge and skills "at the exit", and, indirectly, through the dynamics of indicators characterizing the behavior of the

Figure 3. Structural and functional model of socio-economic context formation for an effective system of population's financial education



Source: own compilation on the basis of the results of research project "Institutionalization of financial literacy of the population of the Russian Federation", 2019.

population in the financial market, such as a number of victims of unfair financial practices, bankruptcy of individuals, diversification of savings, etc.

The implementation of conceptual approaches designed to improve the level of financial literacy and the impact of the population's financial education system is possible within the framework of the structural and functional model shown in *Fig. 3*. International and supranational organizations (G7, G20, OECD) set the global framework in their official documents (memoranda, statements, appeals), non-regulatory guidelines and manuals. This also includes international comparative studies carried out by the OECD and other organizations determining the general and special aspects of the population's financial literacy, and developing further recommendations on this basis. All this creates a momentum that is broadcasted further at the national level. In turn, this level is represented by the institutions of power legitimizing the measures aimed at financial education of population (development and approval of appropriate strategies, national programs, etc.), responsible for the implementation of income and trust policies, and cultural policies; agencies interested in strengthening the population's presence on financial markets (the Bank of Russia, Ministry of Finance of the Russian Federation); structures responsible for the general (Ministry of Education) and vocational (Ministry of Science and Higher Education) education; organizations officially guiding strategies, national programs, etc.: a) the Financial University under the Government of the Russian Federation is responsible for financial advisers training; National Research University Higher School of Economics and Lomonosov Moscow State University are responsible for the methodological support of financial education for school and university students respectively; b) administrations of the Russian Federation constituent entities, whose responsibility includes deployment of training centers on their territory and implementation of pilot projects; c) commercial structures (their employees) working in the financial sector and therefore indirectly increasing the level of financial literacy of the population in the process of providing services (subject to their integrity and social responsibility). The lower level consists of a variety of actors involved in the dissemination of relevant knowledge among the representatives of different target groups. These are primarily the teachers of comprehensive schools, institutions of vocational and higher education, specially trained consultants on financial literacy, as well as media employees, administrators of social groups, bloggers and other persons distributing information about financial products and services. In the latter case, it is important to have a system of restrictions imposed on the media and other mass communication channels in terms of advertising (both explicit and as "product placement") dubious financial products and services posing a significant risk to citizens and provoking their financially illiterate behavior.

Conclusion

The financial crises of recent decades, as well as the governments' increasing nudging of its citizens to individual strategies for improving well-being using financial instruments, make the task of conducting population's financial education more relevant. Like many other countries, Russia adopted a Strategy for improving financial literacy, and now it implements the project together with the World Bank. Since, despite the efforts and resources expended, people's financial literacy and confidence in financial market institutions leave much to be desired, it is necessary to develop proposals designed to improve the impact of

financial education. Analysis of financially illiterate behavior of a large part of Russians, on the one hand, and, on the other, mass refusal from using financial instruments show that it is required to develop the proposals and approaches not of a private, but of a systemic nature. The implemented project, which included theoretical and empirical research in the form of a rather representative expert survey, allowed us to propose conceptual approaches to the formation of prerequisites for improving the efficiency of financial education of Russian population. The novelty of the study consists of bringing factors, which are usually reviewed separately, into a single concept. Some factors, income policy in particular, are particularly emphasized, since it is usually not included in works dealing directly with financial literacy; other elements (consumer culture policies) are often not included in corresponding works. Besides, the authors propose an additional option of classification of potential objects of financial education/financial services' consumers, based on the nature of activity (voluntary or forced) when interacting with financial institutions and suggesting a difference in methods of involvement into the financial education system and the emphasis in training programs.

As shown by the analysis of the expert survey results, secondary data analysis of numerous Russian and foreign studies on the population's financial literacy level, a significant array of scientific literature, including literature published by international economic organizations supervising the process of financial education, a priority fundamental condition of improving the financial literacy of citizens is the carrying out of incomes policy, aimed at increasing the population's disposable income to an acceptable level, leaving the households with means to save and invest, and not forcing them to resort to unintended borrowing. The second most important condition of Russians' participation in institutionalized savings and investments is the provision of conditions for expanding population's planning horizons, as well as increasing the level of confidence in the government, financial and law enforcement systems regulated by it. It requires clear, consistent, and predictable socio-economic policies and efficient mechanisms ensuring the necessary level of institutional trust. It is also important to avoid imposing excessive consumption standards on population; provide physical accessibility of credit and financial institutions in small towns and villages, development of information and communication infrastructure, and increase of digital culture of Russians. Financial education, in its primary basis, should have high-quality basic knowledge (in mathematics, etc.), laid down in secondary school, supplemented with economic and legal information. Within financial literacy training, the emphasis should be placed according to the socio-economic and other characteristics of target groups, including a nature of activity in the financial sector. When the activity is based on the intention to mobilize financial and other resources to solve personal and economic problems, involvement in the financial education system is possible mainly through the application principle, and the emphasis in the training process should be placed on the validity of financial decisions, primarily from the position of taking into account existing and potential risks. In some cases, when an activity is primarily forced, financial education coverage should be based on the principle of identification, training should be aimed primarily at protecting against involvement in bonded transactions and other unfair financial practices.

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Received January 17, 2020.

DOI: 10.15838/esc.2020.4.70.11
UDC 93/94, LBC 63.3(2)6-2

Collective Capitalist Property in the Institutional Structure of Russia in the 1930s–1980s*

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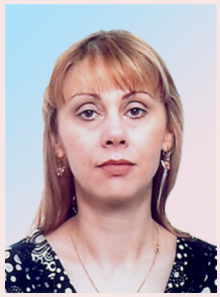

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Abstract. The article deals with a subject of the possibility of applying the institutional theory to the study of the economic structure of Soviet Russia and the use of its individual elements to solve the problems of improving the efficiency of public administration at the present development stage of this country. The purpose of the work is to consider the basic issues of the evolution of the country's socio-economic development at the stage of bifurcation. The novelty of the research is that it shows the evolutionary trends of the property institute and the political and ideological mechanisms of their ensuring in the 1930s–1980s. The emphasis is put on identifying the stages of property relations transformation: from the formation of collective capitalist ownership in the period of 1930s–1950s to the trends to its individualization in the 1960s-1980s. The turn of the 1990s is considered as a period of fundamental change of the collective capitalist property institute. According to the authors, the formation of a proto-bourgeois class of co-

* The article is supported by the Russian Science Foundation, project no. 19-18-00269.
For citation: Beznin M.A., Dimoni T.M. Collective capitalist property in the institutional structure of Russia in the 1930s–1980s. *Economic and Social Changes: Facts, Trends, Forecast,* 2020, vol. 13, no. 4, pp. 186–201. DOI: 10.15838/esc.2020.4.70.11

owners, which provided capitalist tendencies in the society's development, was of great importance in Soviet times. The article shows the ideological content of trends leading to the capitalist transformation of Russia, which consist in justifying the property rights concentration. The change in the social base of the ruling class formation, the inclusion of the representatives of the intellectuals' class and the intelligentsia in its composition were quite important in this process. It is noted that privatization in the course of market transformations broke the existing property relations in the Soviet period and led to an increase in social inequality. The authors emphasize the urgent need to restructure modern state policy in terms of taking into account the mentality of the "Russian life" and economic traditions that developed during the Soviet period.

Key words: Russia, USSR, state capitalism, institutions, institutional mechanisms, property, proto-bourgeoisie.

Introduction

The Soviet experiment enriched the field of scientific research. Unfortunately, many aspects of issues of socio-economic practice of those years have not been sufficiently studied yet: these include political, organizational, and ideological issues. One of these issues, for example, is the issue of property, which was raised to the rank of the "cornerstone" of political economy in the Soviet era, and now it has become relevant again due to the popularity of the institutional approach. Meanwhile, in modern Russia, the question of the evolution of relations and forms of property remains extremely important. On the one hand, approaches of Soviet economic research have not yet been outlived, on the other hand, rather painful consequences of privatization in the 1990s and early 2000s still have an impact. In the course of denationalization, carried out in difficult political and economic conditions, super forced, accompanied by numerous violations of the legislation created at the same time, a significant share of state property passed into private hands. From 1992 to 2006, more than 100 thousand enterprises were privatized, and a group of large private owners (bourgeois), who concentrated more than 90% of the country's income in their hands, emerged. Russian population regards the results of privatization as unfair and predatory.

In this sense, the Soviet distributional relations based on the form of ownership, which was called nationwide in the Soviet Constitution, are perceived by a significant part of the public as fair, since it allowed avoiding hypertrophied appropriation of the social labor results by a separate social group. It is no accident that modern social sciences more often ask a question about how did this "unusual" form of property function, did it have a specific subject? This article attempts to find answers to these questions.

In 2020, Russia adopted some amendments to the Constitution of 1993 related to increasing social justice, including the minimum wage not lower than the subsistence minimum, the annual indexation of pensions, etc. However, the issue of property and the role of government regulation in it, including the ability to limit oligarchic claims, has not yet received a proper legislative response, while such a public request exists. The experience of the Soviet system in limiting private capitalist opportunities to exercise property rights shows the government's ability to support the Russian society's mental image of an equitable society. In addition to discussing the government's role in the economy, it is also important to speak about the national elite. The political elite of society

should be dominated by people who support public and government interests and do not seek personal enrichment. How to create such a managerial capacity, what mechanisms and levers should be used by the government are relevant problems of political process study.

Institutionalism as a method of studying socio-economic processes

Institutionalism is the result of economic research development, and it was established in economics long ago. Since the 1970s, neo-institutionalism became greatly active, and historical institutionalism was one of its branches. The classic works of neo-institutionalists are considered to include the monographs by D. North (and his co-author R. Thomas) and R. Fogel, who received the Nobel Prize [1; 2]. According to D. North's definition, which we adhere to, institutions are formal and informal rules and norms that organize social, political, and economic relations [3]. They create the "rules of the game" for everyday life, provide a relatively predictable system of interaction between population and organizations, influence people's incentives and behavior (but do not always determine it). Most scientists working in the field of neo-institutional research tend to classify the institutions of society into formal and informal. Formal institutions include laws, official state power structures; the informal ones include social norms (usually unwritten), customs, or traditions shaping thought and behavior. In practice, formal and informal institutions can both complement each other and compete with each other.

Today, researchers use the institutional approach as a method for analyzing the dynamics of social, political, and economic changes in society over long periods of historical time. As one of the founders of the application of institutional theory in history, Charles Tilly wrote that this approach can be used while studying "big structures, large processes, huge comparisons" [4].

The results of the work of institutionalists and neo-institutionalists generated a variety of response, including quite serious criticism of their concepts. For example, R.I. Kapelyushnikov criticizes "pan-institutionalism" for the absolute priority given to the role of formal institutions, which are described as the main and often the only driving force of the historical process [5]. According to R.I. Kapelyushnikov, it is necessary to take more complete account of other factors in development of socio-economic systems, such as geographical conditions, culture, force majeure events (epidemics, catastrophes, etc.). The scientist draws attention to the underestimation of the role of ideas arising or dominating in society, to the institutionalists' lack of attention to customs (in the broad sense of the word, including the established norms of customary law, mental attitudes, deep religious beliefs, etc.).

The central institution, analyzed by the leaders of neo-institutional theory, is the institution of property, more precisely, the protection of private property rights. They are convinced that private property contributes to the rapid establishment of advanced social forms and enhances economic dynamics. Institutionalism followers consider the government and its functions as a guarantor to be the most important actor protecting property rights. For example, according to D. North, the emergence of political institutions that determine "efficient" property rights inevitably affect development of economic institutions that promote market exchange [3]. At the same time, critics of this approach emphasize that private property is an extremely non-inclusive form of ownership, and it can, on the contrary, hinder development. In their opinion, public and cooperative forms of

ownership are much more efficient. Studying the dynamics of property relations, changes in the legal registration of property rights, and the implementation of property rights is, in our opinion, one of the main issues of the study of economic and social transformation of society. Our research on the economy of the USSR shows that the property relations, formed and implemented in society, contributed to the formation of the original system of the Soviet state capitalism. Being a kind of a capitalist system, it was characterized by the lack of localization of full ownership of the means of production in the individuals' hands, the division of this right between the social classes with the concentration of the basic rights of ownership, disposal, and usage by the upper class, in fact, the proto-bourgeoisie. At the same time, the secondary features of the capitalist system (mechanisms of commodification, forecast-planning levers, balancing methods, financial and credit levers, etc.) significantly differed from the classical individualized capitalism [6; 7; 8]. It should also be noted that there was an informal niche in the implementation of property relations in the USSR, especially since the 1960s – so-called shadow economy. The relations of ordinary (unwritten) law, which sometimes were quite close to the model of classical market relations, operated here to a greater extent.

One of the main concepts used by historical institutionalists is the "path dependence" (or "historical track"). T. Skocpol and P. Pierson write that the "path dependence" does not yet have a clear definition. In general, in this context, we can say that the results of development trigger feedback mechanisms at a critical moment (positive and negative), which strengthens the repetition of certain processes in the future [9]. This aspect of historical institutionalism is likely to be particularly important for Russian history. In a country with a huge peasant population, which prevailed until the mid-20th century, with a special "survival ethic", based on the ideas of collectivism, authorities' paternalistic actions largely determined the specific type of the country's capitalization. The "historical track" during the period of forced initial capital accumulation (1930s–1950s) predetermined the routine of the authorities' harsh actions, the formation of a system of duties (labor, natural-food, monetary), and the "tacit" approval of the highly modest way of life familiar to millions [10].

The concept of "historical track" makes us take a closer look at another problem discussed by neo-institutionalists – the question of institutional mechanisms. Neo-institutionalists understand institutional mechanisms as the transfer of rules adopted in structures [11; 12]. According to D. North, "there are no solutions other than using institutional mechanisms to set the rules of the game, and using organizations to ensure the compliance of these rules" [13]. Thus, institutions carry out their activities through organizations. Organizations, in turn, implement institutional requirements, regulate the rules and norms of interaction between the agents of economic management, and establish certain rules of behavior that strengthen the institutions [14]. This type of organization includes a fairly large set of economic, political, professional and other structures that existed in the USSR. These are the central and regional divisions of the Communist Party of the Soviet Union committees that developed political and ideological views on the strategic movement; ministries and departments, state committees that played a major role in the economic institutions' activities; banks that formed the financial mechanisms of the economic system; structures of law enforcement agencies, etc. Informal mechanisms of economic interaction (from such archaic ones as "nepotism" to a

rather highly organized market underground) should not be discounted. According to V.M. Polterovich, the attractiveness of the latter was due to low transaction costs during the transformation of the economic mechanism [12].

We should also mention the definition of "social institutions", which is widely used in modern sociology. Sociologists generally use this term to refer to complex social forms that reproduce themselves, such as governments, families, human languages, universities, hospitals, business corporations, and legal systems. One of the most accepted explanations was offered by D. Turner, who defined *social institutions* as "a set of statuses, roles, norms, and values expressed in specific types of social structures and organizations, relatively stable standards of human activity in relation to the fundamental problems of producing vital resources to support life, human reproduction, and maintaining vital social structures within a given environment" [15]. In our opinion, in studying social institutions, the key of which are social classes, it is important to study the social relations that arose between the classes about ownership of the means of production and the entire subsequent chain (economic and legal relations); relations between the classes about government power and government administration (political relations); relations between the classes about the creation and consumption of ideological and spiritual values.

In terms of applying institutionalism to historical processes, it is particularly important to analyze the institution of property; political and ideological support for economic trends; to study market and non-market forms of marketability in Soviet Russia; monetary and non-monetary regulatory mechanisms in the Soviet economic system; to study the institutions of planning, supply, and other ways to replace market mechanisms. Another separate and a very interesting problem is the evolution of everyday economic life and the mental revolution in Soviet society. The article examines the first two positions of the institutional features of the Soviet economic system mentioned above: collective capitalist property and some political and ideological characteristics of the promotion of state capitalist economic trends.

It is necessary to mention the complex of attracted sources, which has certain specifics. First of all, these are legislative acts: from the key ones (the Soviet Period Constitution of the RSFSR and the USSR) to normative documents accompanying socio-economic development. Publications of statistical data are of great importance, in particular, in this work we rely on the data of the statistical collection "Socialist construction of the USSR (1933–1938)", published in 1939 and summarizing the country's development during the Soviet period. To study the evolution of ideological and political attitudes, the documents from the Russian State Archive of Socio-Political History (V.M. Molotov fund) and the Russian State Archive of Contemporary History were used. For example, the report "The Soviet Political Elite: Some Aspects of Political and Economic Development in the Soviet Union" by F.J. Fleron, a researcher from the University of Kentucky, obtained in the late 1960s by KGB of the USSR, was found in the latter's funds.

The evolution of the institution of property in Soviet Russia

During the Soviet period, the first noticeable change in property rights was already formalized by the Decrees of the Soviet government in 1917 and the Constitution of the RSFSR in 1918. According to them, land (in the broad sense of the word) and banks were withdrawn from private property, and the rights of the industrial enterprises owners were significantly

restricted[1]. The stage of experiments in the 1920s showed the inevitability of the transition to forced initial accumulation, known as collectivization in the history of Russia. Its content is much broader and covers the seizure of property not only in agriculture, but also in industry (mainly handicraft), trade, food, transport, etc. The Constitution of the USSR of 1936 fixed the redistribution of property, which proclaimed the "abolition of private property" as "a means of exploitation of man by man"; the approval of "socialist property" in the forms of "state property (public property)", "cooperative-collective farm property (property of individual collective farms, cooperative associations)" and personal property (residential buildings, productive livestock, poultry, small inventory, personal savings, etc.)[2].

Let us consider the redistribution of capital by the forms of property based on data published in the late 1930s (*Tab. 1*).

State property turned out to be the main form of ownership of production capital (including land) in the USSR in 1928. In 1936, its share in the total mass of property reached 98.7%. During the same period, the share of cooperative and collective farm ownership increased from 1.3 to 8.7% of the total mass of fixed production capital, while the share of small and capitalist private property decreased from 22 to 0.2%. This redistribution of the main objects of property, i.e. production capital, its withdrawal from small owners (producers) and concentration mainly in the hands of the state was an indicator of the forced process of initial accumulation.

Attention should be paid to the special institutional mechanism used by the Soviet government – the cultivation of multi-layered economic systems [10]. This was not an accident. If you track the formatting of property objects, it is easy to notice that the state

Table 1. Distribution of the USSR production assets* by the forms of property, % of total

Forms of property	1928			1936		
	Industry	Agriculture	Public economy	Industry	Agriculture	Public economy
Two types of socialist property	97.9	63.6	77.8	99.95	96.3	98.7
A) public (state)	96.6	62.6	76.5	97.35	76	90
B) cooperative-collective farm	1.3	1.0	1.3	2.6	20.3	8.7
Personal property of collective farmers	-	0.1	-	-	3.1	1.1
Small private property of an individual farmer and craftsman	2.0	31.9	19.6	0.05	0.6	0.2
Capitalist private property	0.1	4.4	2.6	-	-	-
Total	100	100	100	100	100	100

* Production assets include: agricultural land, used forests, buildings, structures and buildings for production purposes, machinery, equipment, production and transport inventory, livestock, fertilizers, raw materials, fuel, materials and products used for production supply, seeds and feed.
Compiled according to: *Socialist Construction of the USSR (1933–1938): Stat. Coll.* M.-L.: Gosplanizdat, 1939. P. 17.

[1] *Constitution of the RSFSR.* M., 1918, 31 p.

[2] *Constitution of the USSR* (1936). Moscow, 1947, 26 p. This Constitution also allowed small-scale private farming of individual farmers and craftsmen, but, in fact, it was identical with the citizens' personal property. The Constitution of the USSR of 1977 also contained provisions close to the Constitution of 1936 in relation to property.

concentrated in its hands the ownership of land and the most advanced capital – machines and mechanisms (machine and tractor stations in case of agriculture in 1928–1958). Land became an object allowing the government to receive rent. This is particularly evident in the history of collective farms, where land was assigned to the farm for free and indefinite use, and the collective farm, in turn, had the right to sublet part of the land (for personal plots of collective farmers). The implementation of property rights allowed the government to form taxed duties for land users in the 1930s–1950s. Rent for the usage of land property from collective farms and farm households was collected by the government in kind and in cash. The in-kind form included mandatory deliveries of agricultural products to the government, in-kind payments to MTS (from the share of gross product); the cash form included agricultural tax. The collective farm household had obligations to the collective farm. The main one was the performance of labor service in the public economy of the agricultural artel with the performance of a mandatory minimum of workdays [10]. Another characteristic feature of land ownership relations in the 1930s and 1950s is the unique combination of land and agricultural capital. Until 1958, the sale of large-scale agricultural machinery to collective farms was prohibited, it remained in the possession of the government. State-owned enterprises, machine and tractor stations, provided collective farms with equipment rental services and received in-kind rent (MTS payment in kind). The government's title of the owner made it possible to rule over an individual: this purpose was served by the passport system of 1932, which "attached" a farmer to the land, numerous acts that predetermined the disposal of a worker (through a system of organizational recruitment, relocation, attraction to various non-agricultural duties, etc.).

Despite the apparent absence of a specific owner of government property in Soviet society, many politicians, and later researchers, noted that, since the beginning of the 1930s, the dominant class has formed (L.D. Trotsky, A.G. Avtorkhanov, M. Djilas, M.S. Voslensky, etc.) [16-19]. In different representation systems it was called the nomenclature, the partocracy, the communist bourgeoisie, etc. In our opinion, the upper class of Soviet society was experiencing its genesis and could not fully form into the class of owners for political and economic reasons, so we introduced the term of "proto-bourgeoisie" into the historiography of Soviet society, reflecting the incompleteness of class registration [8].

One of the most important features of Soviet state capitalism was the lack of localization of full ownership of the means of production in the hands of individuals, the "division" of this right between the groups of the highest social class. The uniqueness of the system made it possible to form a specific cohort of managers, inherent for Soviet Russia, who "divided" the rights of co-owners between groups of politicians, business managers, financiers, planners, and others, primarily in relation to production capital (in Soviet terminology, fixed assets of production). This, in turn, led to a historical situation where the "divided" property management did not allow consolidating the upper class and formalize it fully and completely. The combination of "state" property predominance and the collective co-owner in the form of a proto-bourgeois class led to the formation of a special institution, collective capitalist property. Its features on a historical scale have yet to be explored, but we may already assume that it played a crucial role in the period of initial capital accumulation, allowing for full-scale regulation of the transformation of an agrarian society into a capitalized one.

As the period of forced initial accumulation ended (it mostly happened in the late 1950s), the property institution in Soviet Russia experienced new qualitative changes. Its largest transformations were related to the decisions on commodification of such property as means of production. This was launched by the law on the reorganization of machine and tractor stations in 1958, and, as the result, the holders of non-state ownership (collective farms) entered the capital market. At this stage, the system of property relations became more "free", land users were released from tax obligations. Since 1958, mandatory state deliveries of agricultural products by collective farms, collective farm households, workers' and employees' households, as well as the collective farms' in-kind payments for the work of MTS were canceled [20].

The next important step towards the consolidation of the divided property rights took place during the so-called Kosygin reform (which began in 1965). Managers of state-owned enterprises were given greater rights to determine the product range, and most importantly, to dispose a significant share of enterprise profits, which, among other things, were accumulated in the incentive funds. As a result, the field of potential individualization of the property institution has sharply increased. For example, in 1970, 39% of profits were left at the disposal of enterprises and economic organizations subordinate to the Council of Ministers of the RSFSR, in 1980 the figure amounted to 44%, in 1985 – 48%[3].

The most powerful mechanism for transforming the institution of collective capitalist property in the 1960s and 1980s was so-called shadow economy. Informal organizations and institutions operated here, they worked out the possibilities of denationalization of property and elimination of the state-capitalist system in the USSR [21].

Another actor in the field of transformations of the institution of collective capitalist property was the USSR citizens who were engaged in production and in the non-production component of the economy. Their inherent feature was the defense of a niche in the right to implement property relations [22]. However, it is not just about personal property that is allowed by law. The conducted research allows us to speak about the growth of bourgeois tendencies and interests in the entire class pyramid of the country. In particular, the problem of property "abuse" is being quite seriously developed in the modern Russian historiography. These include a diverse range of actions: theft of food, so-called "squandering", dissipation of resources, "self-supply", use of equipment, other property or land for personal needs, etc. However, researchers practically do not ask the question about the nature of these actions and their underlying causes, which, in our opinion, is connected with global changes in the economic system of Russia – the rooting of state capitalism in Soviet social and economic institutions. The fact that these phenomena were quite common in Soviet everyday life indicates the systemic embeddedness of the informal implementation of property rights. The "extra-legal" exercise of property rights was considered by the "higher" and "middle" classes as a kind of payment for a position. The "lower" classes – the working aristocracy and the proletariat – exercised their property rights in secret, which was most often regarded by the state and the proto-bourgeoisie as "theft" aimed at infringing on the title form of property and the co-owners.

[3] *National economy of the RSFSR in 1985: Stat. Yearbook*. Moscow: Statistika, 1986. 655 p., p. 369.

The revolution of the property institution in the USSR ended with formal changes in legislation. The law "On property in the USSR" (1990) expanded the list of property objects to include land. The forms of ownership were equated in importance, and therefore mixed forms of ownership appeared, including the state, legal entities, citizens, and foreign agents. State property was divided into all-union, republican, municipal and state enterprises[4]. While state-owned enterprises were assigned property "on the right of full economic management", i.e. they could own, use and dispose "the specified property at their discretion". In fact, the set of laws of 1989–1990 (including the laws of the USSR "On enterprises in the USSR", "Primary legislation of the USSR and Union republics about rent", "On amendments in the Law of the USSR "On cooperation in the USSR"") destroyed the institution of collective capitalist ownership and created prerequisites for registration of private capitalist property. The class for implementing the last institution has already been created.

Features of political and ideological support for capitalizing economic trends

For a country like Russia, the ideological shell of all processes played a crucial role, as it legitimized the actions of the supreme power and inspired confidence in the population about the correct trajectory of the government's development. The guiding ideas at different times were "Moscow is the third Rome", the triad "Orthodoxy – Autocracy – Nationality", "Russian communism" as the essence (in Berdyaev's interpretation, "the Russian idea"), and in Soviet period – the program of building socialism, and then communism, laid out in the Constitution of the USSR, a number of documents of the All-Union Communist Party of Bolsheviks – the Communist Party of the Soviet Union (AUCPB – CPSU) and politicians' works.

The USSR political system was created as a result of trial and error as a fairly flexible entity that allowed making decisions in the spirit of the agenda of the time. At certain points, this feature supported radically opposite vectors of the country's development (from war communism to NEP) and was able to take into account different opinions at the stage of decision-making (although some people believe that it was inclined not to seek compromises, but to exterminate the "dissidents"). The political system was based on balancing between the "party", "economic" and "power" lines; the role of the latter political force, however, has almost never been traced in historiography as a political factor. The relations between the "party" (primarily represented by the central and regional bodies of the AUCPB – CPSU) and the "economic" (the government, the system of Soviets and their executive committees) branches of the political system in terms of power-sharing were not easy. Initially, it was assumed that the party structures would develop a political strategy, be engaged in its ideological design and propaganda. The Soviet branch should have been directly responsible for the economic life of the country. However, this principle was never fully implemented, so, in 1938, the Central Committee of the AUCPB adopted a Resolution "On the nomination of non-party specialists for Soviet and economic work"[5], which stated that "local party bodies nominate non-party workers, as a rule, only to secondary positions... although these non-party workers were quite capable of independently leading Soviet and economic organizations in

[4] *On property in the USSR: Law of the USSR.* M., 1990, 128 p.

[5] Russian State Archive of Socio-Political History, f. 17, s. 120, c. 322, ll. 12–13.

terms of their political and business qualities, practical experience, and education". This problem attracted even more attention of the party elite during the extreme period of wartime. Several interesting documents preserved in V.M. Molotov fund (Russian State Archive of Socio-Political History, f. 82). In 1944, for example, a draft Resolution of the Plenum of the Central Committee of the AUCPB "On strengthening state bodies in the field" was prepared. The project was developed by V.M. Molotov, G.M. Malenkov, and N.S. Khrushchev. It noted that "local party bodies have largely taken over the operational work of managing economic institutions, which inevitably leads to a mix of functions of party and state bodies..., to the undermining of their activities and increases bureaucratization... From an organizational point of view, these shortcomings ... led to an incorrect distribution of managerial work between them. The most authoritative and experienced leaders are concentrated in the party bodies"[6]. Immediately after the Great Patriotic War, an attempt to establish a certain hierarchy in the division of "political" and "economic" powers was made again. In V.M. Molotov fund, there is another draft Resolution of the Plenum of the Central Committee of the AUCPB "On raising the role and the improving the councils of people's commissars of union and autonomous republics, executive committees of krais, regional executive committees, city executive committees and district executive committees". The document once again emphasized that during the war years "the party bodies took over the operational work on the management of the economy, began to directly perform administrative and economic functions, which ... leads ... to the depersonalization of Soviet bodies by party bodies"[7]. The party bodies were proposed to "lead a sharp turn in the direction of significant strengthening of the authority of local Soviet bodies and increasing their role in the management of economic and cultural construction"[8]. The document proposed quite an original way out: the first Secretary of the Communist Party of a Union Republic, Krai Committee, Regional Committee, City Committee, District Committee of the Communist Party must be simultaneously the Chairman the Councils of People's Commissarsm (CPC) of the Union or Autonomous Republic, Krai (Regional, City, District) Executive Committee of the Council of Workers' Deputies. His first Deputy, in turn, was to be the "current" Chairman of the CPC, and the second Deputy was to be the "current" second Secretary of the Communist Party of a Union Republic, of Krai Committee, Regional Committee, City Committee, District Committee[7]. The main goal of the changes was to establish "unity in management". Despite the fact that the decision was not made at that time, the movement towards the unification of the Party and Soviet lines of power proved to be an important indicator. In our opinion, this attempt indicated a desire to consolidate the class of co-owners which had been fully formed by the beginning of the 1950s [8].

Further developments in the relations of the most important branches of government indicated the strengthening of the "economic" bloc, especially in connection with N.S. Khrushchev's reforms. In 1957, the Councils of National Economy became the main body

[6] Russian State Archive of Socio-Political History, f. 82, s. 2, c. 147, ll. 64–65.

[7] Russian State Archive of Socio-Political History, f. 82, s. 2, c. 147, l. 79.

[8] Russian State Archive of Socio-Political History, f. 82, s. 2, c. 147, l. 82.

[9] Russian State Archive of Socio-Political History, f. 82, s. 2, c. 147, l. 84.

in territories' management[10]. This step, in turn, made the local economic elites a key link in the management system: the entry of heads of the largest regional enterprises and construction projects into the Councils of National Economy was regulated, but local party leaders were not included into them[11].

In the future, the role of the "party" co-owners weakened the division of party organizations in 1962 by production type (into industrial and agricultural), some party structures, such as rural district committees of the CPSU, were eliminated[12].

A shift in the country's unbalanced political system occurred in 1965, when the Kosygin reforms increased the role of business leaders in the co-ownership system[13]. The party-political branch of government probably anticipated the gradual loss of supremacy in the political system, which, in particular, was reflected in a certain revenge of the 1970s: article 6 of the Constitution of the USSR of 1977 introduced the provision that the CPSU was "the core of the political system of Soviet society".

This evolution of the country's political system inevitably influenced the evolution of the ideological component. Turning to this question, it is necessary to note the most important feature of Soviet ideology – this was an ideology that took part of the origins not only in Marxism, but also and mainly in the peasant worldview. In this regard, the ideals of social justice, equality, contempt for wealth, respect for labor (mostly physical), approval of a strong government and its harsh actions against the population quite successfully coincided with the ideological system proposed by the Bolsheviks.

A.D. Chernev's research [23] shows that most of the Soviet "leaders", at least until the end of the 1970s, were of peasant origin, which means that they were the carriers of peasant views archetypally (*Tab. 2*).

So, 50% of the party elite in the 1940s were people from peasants, in the 1950s, this figure made up 44%, in the 1960s – 47%, in the 1970s – 64%, in the 1980s – 28%. Being the representatives of the "peasant" part of the Russian society, they put forward quite a lot mimicry features of the Soviet ideology (those camouflaging the true state capitalist institutions and mechanisms), that were clear to the bulk of the population. These first of all included the indications on the public character of ownership, the lack of human exploitation, equality in class, national, gender, work ethic values (which was especially vividly expressed in the organization of socialist competition). The need to restrain the wants was promoted (it was directly correlated with the "moral economy"), etc.

The main milestones in the formation of the official political and ideological line are well known: since the beginning of the 1920s, the main goals were considered to be the transfer of the country's economy to industrial rails, achieving the level of developed countries of

[10] On further improvement of the organization of industrial and construction management: Law, adopted by the Supreme Soviet of the USSR, dated May 10, 1957. Decisions of the party and government on economic issues (1917–1967). Vol. 4, 1953–1964. M.: Politizdat, 1968. pp. 343–347.

[11] Questions of the Councils of National Economy: Resolution of the Council of Ministers of the USSR no. 460, dated April 28, 1960. Available at: http://www.consultant.ru/cons/cgi/online.cgi?req=doc&base=ESU&n=35861#08255320476827717 (accessed: July 7, 2020).

[12] On the development of the economy of the USSR and the restructuring of the party leadership of the national economy: Resolution of the Plenum of the Central Committee of the CPSU on the report of N.S. Khrushchev, adopted on November 23, 1962. M., 1962, 15 p.

[13] On improving planning and strengthening economic incentives for industrial production: Resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR, dated October 4, 1965. Decisions of the party and government on economic issues (1917–1967), vol. 5, 1962–1965. M.: Politizdat, 1968. Pp. 658–685; Regulations on the socialist state production enterprise: approved by the Council of Ministers of the USSR on October 4, 1965. M., 1965, 30 p.; On measures to further improve lending and accounts in the national economy and increase the role of credit in stimulating production. M., 1967, 9 p.

Table 2. Social origin of the party elite* of the Russian Communist Party of Bolsheviks, All-Union Communist Party of Bolsheviks, Communist Party of the Soviet Union, 1940–1989, %

Social origin	1940–1949	1950–1959	1960–1969	1970–1979	1980–1989
Total including:	100	100	100	100	100
workers	14	35	22	18	31
peasants	50	44	47	64	28
artisans	-	9	-	-	-
employees	22	9	22	18	6
no information available	14	3	9	-	35

* The party elite refers to the members of the Politburo, Orgburo, and Secretariat of the Central Committee of the RCPB, AUCPB, CPSU. Compiled according to: Vishnevsky A. The highest elite of the RCPB, AUCPB, CPSU (1917-1989): A bit of statistics. *World of Russia*, 1997, no. 4 (b), p. 40.

the world. In other words, the main economic task was the formation of an industrial society with all its inherent features (structural changes, urbanization, demographic features, etc.). The way and stages of its solution are described in a number of works [7; 8]. The main thing is that this segment of tasks was solved through the implementation of the initial accumulation and capitalization of the Soviet economy. The policy of the co-owners class formation, the proto-bourgeoisie, which regulated and carried out this movement, was of great importance.

However, it is incorrect to be limited to the official ideology when describing the ideological foundations of Soviet society. Soviet ideology was a complex multi-level system and included the interests of all classes and strata of Soviet society, as well as significant fragments of ideas and beliefs formed by the informal social culture. The society was significantly influenced by folklore, such as creative chastushkas (two-line or four-line rhymed poems or ditties on some topical or humorous theme) and Soviet anecdotes; in terms of cultural messages, propaganda art (movies, posters, paintings, etc.) and fiction should be mentioned.

In addition to the party and the Soviet part of the proto-bourgeois class, the greatest impact on the political and ideological component of social development, was, of course, exerted by the representatives of the intellectual class. Many Sovietologists noted their ideological and real progress to the top of power in the 1950s and 1960s. One of the studies was conducted by F.J. Fleron, the researcher from the University of Kentucky. His report "The Soviet political elite: some aspects of political and economic development in the Soviet Union" (prepared for the annual meeting of the American Political Science Association in 1968, Washington), which was not published in the USSR, was submitted in a copy to the Central Committee of the CPSU by the state security Committee and deposited in the archives of the Central Committee[14]. F.J. Fleron studied how the "political elite" of the USSR tried to adapt to the changing conditions of the industrial trend and recruit "elite specialists" to the top of power (the notion of specialists included, first of all, scientific, economic, cultural and technical intelligentsia). He considered the 1950s and early 1960s to be the most important period in this regard (*Tab. 3*).

As can be seen from the data given by F. Fleron, representatives of the intellectual class (our terminology; F. Fleuron calls this class specialists, technocrats, or intelligentsia) made up a large proportion of delegates to party congresses (from 16 to 40%). There were less of them at the twentieth Congress, which was dominated by the "leading cadres". The Central

[14] Russian State Archive of Contemporary History, f. 5, s. 61, c. 558, l. 59–91.

Committee of the Communist party at the time of the 19th (1952) and 20th (1956) Congresses had a relatively small share of representatives of the intellectual class – about 1/5 of the Central Committee. However, in 1961 (the 21st Congress), there was a serious (up to a third) increase in the share of the "technocrats" class in the Central Committee of the CPSU. In the composition of the Politburo of the Central Committee, the share of the "new" class representatives changed slightly, amounting to 25% in 1952 and 18% in 1956. In 1961, there were no representatives of this class at the Politburo (as F. Fleron notes, they joined the "leading cadres").

The scientist concludes these interesting observations with arguments about the mechanisms of formation of the USSR political elite, namely about "co-opting" and "recruiting". In his opinion, the mechanisms of "recruitment" (joining the political elite at an early stage of activity) were replaced in the 1960s by the mechanism of "co-opting" (joining the political elite at the middle or final stage of activity, while the main stage of activity is associated with non-political work). This situation made it possible to fill up the upper class with representatives of other class groups, while the "recruited" representatives had already achieved success in their field.

The Sovietologist's arguments seem to be quite significant in terms of studying the change in the ideological vectors of the USSR state economic policy in the second half of the 20th century. During this period, there was a serious revision of the viewpoint of "socialism" as a non-commodity and non-market society. The main theoretical role in these discussions was played by the representatives of the intellectual class, primarily the economists. Among the significant milestones, it is necessary to point out the discussion of 1951 in the letters of the employees of the Institute of Economics of the USSR Academy of Sciences A.V. Sanina and V.G. Venzher, in which I.V. Stalin participated directly. The discussion

Table 3. Leading cadres, intelligentsia, workers, and peasants at party congresses, in the Central Committee and in the Politburo (1952–1961)

Dates of congresses of the AUCPB – CPSU	Category	Party congress		Central Committee		Politburo	
		absolute	%	absolute	%	absolute	%
October 1952	LC*	359	30.16	94	75.2	24	66.7
	SECTI**	484	40.6	19	15.2	9	25
	W&P***	349	29.3	0	-	0	-
	Total	1192	100	125	90.4	36	91.7
February 1956	LC*	702	51.8	103	77.4	11	64.7
	SECTI**	215	15.9	19	14.3	3	17.8
	W&P***	438	32.3	0	-	0	-
	Total	1355	100	133	91.7	17	82.5
October 1961	LC *	1728	39.2	126	72	16	100
	SECTI **	1614	34.6	31	17.7	0	-
	W&P ***	983	22.3	4	2.3	0	-
	Total	4408	96.1	175	92	16	100

*LC – leading cadres.
**SECTI – scientific, economic, cultural and technical intelligentsia.
***W&P – workers and peasants.
The "total" line shows the percentage of these three categories in each structure, and the numbers show the quantitative composition of the structures. The discrepancies are explained by the fact that the calculations did not take into account the military.
Compiled according to: Russian State Archive of Contemporary History, f. 5, s. 61, c. 558, l. 90.

focused on the possibility of fixed capital commoditization (economists recommended starting the sale of large-scale equipment to collective farms) [24; 25]. In 1962, an equally important reference point for ideological changes was the article "Plan, Profit, Prize" by Professor E.G. Liberman of the Kharkov Engineering and Economic Institute, published in the main organ of the CPSU Central Committee, the "Pravda" newspaper. In fact, after these discussions, the issues of ideological readjustment in relation to the country's economic course toward market reforms were resolved.

Conclusion

Thus, the institutional approach to the study of the economic system helps to identify major structural problems requiring close historical analysis. The correlation of institutions' research, organizations' functions, and features of the historical process agents will allow presenting the history of the Soviet period in the spirit of modern world trends in social sciences. In particular, when applying the institutional approach, it has been revealed that the institution of property in Soviet Russia in the 1930s and 1980s experienced a number of major transformations. The first was associated with the formation of collective capitalist property, covering the 1930s and 1950s. Major institutional changes occurred in the 1930s. The most important component of this stage was the formation of the class of co-owners. The second stage covered the period of the 1960s and 1980s. It can be called the high noon of the state capitalism system and contradictions accumulation. There was a gradual liberalization of institutions that regulated property relations, a new legislation aimed at expanding the individualization of rights of disposal and use was created, the mechanisms for commodification of the objects that were considered the main capital and were previously subject to non-commodity state regulation appeared. By the end of this period, the co-owners class was fully formed and burdened by the boundaries of state capitalist regulation. It operated quite open already within the shadow economy. The ideological work, done in Soviet society in the 1950s and 1980s by the representatives of different classes, class ideologies, and worldview systems (including dissident ones and those implanted from the West), requires serious study in order to understand the stages and mechanisms of reconfiguring the Soviet ideological system to justify and comprehend the state-capitalist development path. It is clear that a significant role in this scheme was played by the struggle of the main branches of political power (party and Soviet-economic) and the resulting ideological attitudes transformed from non-market to market ones. The end of the property institution transformation goes far beyond the Soviet times, but the first steps were taken during this period, i.e. the implicit destruction of collective capitalist property, its hidden institutionalization as a personified one, which facilitated privatization and the private property institution development.

In the early 1990s, there was a transition to private capitalism, which was accompanied by the destruction of production capital, a massive outflow of financial resources abroad, and the loss of human resources and intellectual capital. It is no accident that, since the beginning of the 21st century, Russia has been trying to restore the potential lost in the 1990s.

A reasonable question arises: is it possible to use the mechanisms and institutions that existed under Soviet state capitalism in modern conditions? Would its further operation be effective taking into account that it worked well at the stage of industrial modernization of the country and looked fairly parity on the world stage until the mid-1980s? World practice shows

that such a path of development is generally possible, the growing Chinese economy being an example. However, as the result of the ideological rejection of many values of the Soviet era by the modern political elite, the important experience of state capitalist property administration in the 1930s and 1980s has not yet been used.

Modern Russian economists suggest a number of ways to improve the country's economic system. In particular, Academician of the Russian Academy of Sciences S.Yu. Glazyev writes about the need to form a new world economic system (the path in this direction was paved by the Soviet Union), which involves the reanimation of national interests, a combination of economic systems, where the government will act as a harmonizer [26]. Researchers of the Institute of Economics of the Russian Academy of Sciences, such as M.I. Voeykov, A.E. Gorodetskii, R.S. Grinberg, emphasize the increasing role of the state in the economic life of society and put forward a position on the transformation of the modern state from a subject of the market space to its organizer (playmaker) [27].

The staff of the Vologda Research Center of RAS pay great attention to improving state management of economic and social processes in Russia. In a recent monograph by V.A. Ilyin, M.V. Morev, and A.I. Povarova, the authors conclude that Russia is far from the criteria for building a social state. So far, the main beneficiary of its domestic public policy is large private capital, not the general population. The system of "capitalism for the elite", which is ingrained in public administration, causes many years of unresolved acute problems: social inequality, social justice needs, low levels of institutional and interpersonal trust, etc. [28]. The authors believe that Russia's appeal to civilizational self-determination may be a way out of this situation. The role of the government should include the formation of a strategic goal-setting that will give society a clear cultural and value development vector based on historically established norms of morality and values in Russia [29]. We cannot disagree with these conclusions.

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Received June 04, 2020.

DOI: 10.15838/esc.2020.4.70.12
UDC 316.4.063, LBC 65.49

Problems and Prospects of Distance Learning in the Estimates Provided by Teachers and Schoolchildren's Parents

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For citation: Leonidova G.V., Valiakhmetov R.M., Baimurzina G.R., Babich L.V. Problems and prospects of distance learning in the estimates provided by teachers and schoolchildren's parents. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 202–219. DOI: 10.15838/esc.2020.4.70.12

Abstract. Appealing to the problem of distance learning at schools is caused by the urgent transfer of the educational process to a digital format against the background of the pandemic announced in March 2020 due to the spread of a new coronavirus infection (COVID-19) in the world. Almost all national education systems in developed countries have been converted to online format. Despite the available experience and a certain readiness of the educational sphere to use distance learning, such a comprehensive mass transition to the "remote mode" could not but cause a number of problems both for the teaching corps and for students and their parents. The purpose of the research is to analyze the first results of distance learning at school in conditions of self-isolation due to the need to contain the spread of coronavirus infection in the country. Information base of the research are online surveys of teachers of the Vologda Oblast and school students' parents of the Republic of Bashkortostan, conducted in April-May 2020 by the Vologda Research Center of the Russian Academy of Sciences and the Bashkir Branch of the Federal Center of Theoretical and Applied Sociology of the Russian Academy of Sciences. The problems of distance learning are identified in a number of aspects: technical (lack of necessary equipment in households, quality of the Internet, reliability of educational platforms), organizational (lack of a unified methodology for online learning; increased workload for teachers; difficulties in conducting some creative and laboratory classes) and socio-cultural (reduced educational motivation of school children; high risks of children's health deterioration). The novelty of the research lies in a comprehensive assessment of the situation related to the processes of remote learning of a mass social group of schoolchildren in the context of a pandemic by two key actors of the education system – the teaching corps and parents, as well as in identifying the problems caused by the emergency transition to online learning. The practical significance of the study is in the formation of a knowledge base and grounds for making balanced and adequate management decisions both in the event of such emergency situations, and in the course of further implementation of the national development goals of the Russian Federation until 2030: digital transformation, achieving "digital maturity" of key sectors of the economy and social sphere, including education.

Key words: distance learning, online learning, comprehensive school, teacher, parents, schoolchildren, coronavirus infection, pandemic.

Introduction

Nowadays, digital technologies deeper penetrate into all spheres of social and economic life. The sphere of education is also included in the new technological (digital) revolution of global meaning. It [the revolution] "poses new challenges for education ... and provides digital technologies helping to solve it" [1, p. 13].

The issues of introducing digital technologies into the Russian education system were raised and resolved in several stages.

The beginning of the general process of school informatization was laid by the Decree of the Central Committee of the Communist Party of the USSR and the Council of Ministers of the USSR no. 271 "On measures to ensure computer literacy of students and the widespread introduction of electronic computing in the educational process", dated March 28, 1985. The above-mentioned task was carried out from the mid-80s to the end of the 90s of the 20th century[1]. A new subject "Basics of information and computer science" was introduced into the teaching practice of educational institutions. As the result of taken measures, "more than a quarter of educational organizations" were provided with equipped computer rooms [1, p. 13]. More ambitious tasks were being solved in the process of implementing the target integrated program "Informatization of national education"

[1] *Program of education informatization of the Russian Federation for the period of 1994–1995.* Moscow: Ministry of Education of the Russian Federation, 1993. 34 p.

(1994–1995) such as development and justification of the theory and methodology of education informatization, methods, and means of its practical application. The introduction of information technologies was considered a mechanism for ensuring comprehensive education and development of a person, preparing him or her for full-fledged activity within society informatization [2, p.57]. Since the late 90s of the 20th century, regional and local education informatization programs have been developed and implemented with the shift of responsibility for processes in the education system from the federal level to the regional one.

At the second stage (2000–2010), information and communication technologies began to be widely introduced into the educational process. In 2001, the federal target program "Development of a unified educational information environment"[2] addressed the problem of "creating conditions for a gradual transition to a new level of education based on information technologies". A number of schools equipped with personal computers by the end of the Program increased by more than 10 times [3, p. 17]. Further implementation of information technologies in the educational process was carried out within the National Priority Project "Education" (PNPE), adopted for the period of 2005–2010. It was implemented in accordance with a new educational ideology "aimed at development of a new society focused on the realization of the potential of a human personality" [4, p. 12]. Among 14 target areas, PNPO included school internetization, which was completed quite successfully. By the 2007/08 academic year, 74.3% of state and municipal full-time educational institutions had Internet connection as fast as 128 Kbit/s[3].

Promotion of IT in the practice of the educational sphere has become the main focus of the National Education Initiative "Our new school" (2010–2015) as part of a task of digital equipment of schools with multimedia devices and interactive whiteboards. By the 2013/14 academic year, when implementing the third stage of education informatization, the share of schools with Internet access increased to 95%[4]. The implementation of the program targets laid the foundation for the subsequent wider application of digital technologies in the educational process.

In 2017, speaking at the St. Petersburg International Economic Forum (SPIEF-2017), Russian President Vladimir Putin set the task of "multiplying the output of specialists in the field of digital economy", thereby defining the strategic goal of ensuring "universal digital literacy". To do this, he said, the education system should be "seriously improved at all levels – from schools to institutions of higher education"[5]. Already in 2018, in accordance with the decree of the President of the Russian Federation no. 204 "On national goals and strategic objectives of the Russian Federation through to 2024", dated May 7, 2018, the national program "Digital economy of the Russian Federation" was adopted. Its introduction indicated the beginning of the fourth stage of informatization of the educational sphere with the transition to

[2] On the federal target program "Development of a unified educational information environment (2001–2005)": Decree of the Government of the Russian Federation no. 630, dated August 28, 2001. *Garant*. Available at: https://base.garant.ru/1586371/ (accessed: August 3,2020).

[3] *Education in the Russian Federation: 2010: Stat. Coll.* M.: GU-VSHE, 2010. 492 p.

[4] *Education in the Russian Federation: 2014: Stat. Coll.* M.: NIU "Vysshaya shkola ekonomiki", 2014. 464 p.

[5] St Petersburg International Economic Forum plenary meeting. Available at: http://www.kremlin.ru/events/president/news/54667 (accessed: June 4, 2020).

its digitalization. This was facilitated by the national project "Education", which was adopted in 2019 among other 12 projects. The project's main objectives include ensuring the global competitiveness of Russian education, making Russia one of the top ten countries in the world in terms of comprehensive education quality, and forming a well-integrated and socially responsible personality[6]. Within these global challenges, a key problem remains acute – ensuring the educational process by means of new information technologies: the Internet, information and communication technologies, digital educational resources, etc.

The pandemic of a new coronavirus infection (COVID-19), announced by the World Health Organization in March 2020, has dramatically changed planned and progressive implementation of the national project. Nearly all national education systems in developed countries, as well as in Russia, were forced to switch to online form of education on short notice.

In an emergency, the Russian education system, in fact, conducted a massive test of reliability of existing digital technologies and readiness of educational institutions to work with it. The RF Ministry of Education issued a "Temporary order on support for the implementation of educational programs of primary general, basic general, secondary general education, educational programs of secondary vocational education and additional general educational programs using e-learning and distance educational technologies" (app. by order of the Ministry of Education of the Russian Federation no. 103, dated March 17, 2020). In accordance with the order, educational organizations of all levels switched to e-learning based on the usage of remote educational technologies in the educational process.

The accelerated transfer of educational processes to a distance format objectively caused a number of problems that affected teachers, students, and parents. There were a lot of discussions on problematic situations in the media.

When the Temporary order was introduced, no one knew how long we would have to live and work remotely. This period has not ended yet, but most students and schoolchildren went on summer vacation, and the education system was able to sum up some results. We shall also summarize it on the basis of empirical materials obtained from the surveys of representatives of the teaching community and schoolchildren's parents on primary results of implementing distance education in epidemiological conditions.

Distance learning: history, some approaches, and theories

Computer technologies emergence is associated with information [3] or communication[7] revolutions in society's development. Among the milestones, noted by researchers, we would like to highlight the invention of writing and the creation of postal communication, the emergence of printing with the ability to transmit knowledge in time and space; electricity and following innovations like a telegraph and development of international connections; the emergence of voice communication (telephone, television), which added speed and clarity to the process of transmitting information[8], and, finally, the Internet which rapidly penetrated all aspects of human life.

[6] The National project "Education". Available at: https://strategy24.ru/rf/projects/project/view?slug=natsionalnyy-proyekt-obrazovaniye&category=education (accessed: June 4, 2020).

[7] Len'kov R.V., et al. *Sociology of Youth: Textbook for Universities*. 2nd edition, revised and enlarged. M.: Yurait, 2020. 356 p. P. 187.

[8] *Ibidem*, p. 188.

Rapid development of technologies also led to the spread of information educational practices and distance education in particular [5]. The history of distance (at first called "correspondent") education is associated with Caleb Phillips, who recruited students to study shorthand "anywhere in the country by exchanging letters" in the 1720s [5], and Isaac Pitman, who sent letters with his lessons to everyone interested by mail in the mid-19th century. Ch. Toussaint and G. Langenscheidt trained students by means of mailing in their correspondence institute (Berlin, 1856). A few years later, first correspondence schools were established in the United States (Anna E. Ticknor, Isaac Pitman), where students were also taught by mail.

Today, certain elements of distance learning are present in the education systems of almost all countries of the world and increasingly attract researchers' attention, especially in the field of studying its specifics, laws of development, and determining methodological guidelines. Various theories and concepts were developed in the domestic and foreign scientific literature (B. Holmberg's theory of distance learning based on empathy; M. Moore's theory of transactional distance and student's autonomy [6]; and O. Peters's concept of industrialization [7], who justified the emergence of distance education as "the result of the influence of the industrialization process on various spheres of society" [8, p. 108], etc.). In the Russian scientific community, a model of distance learning was developed in the 1990s [9]; the model considers distance learning an information and educational environment with modern technical means of data acquisition[9].

B. Holmberg's theory of distance education is based on an "empathy approach" [10, p.37], in which "the ability to perceive the inner world of another person with the preservation of emotional and semantic shades, completely excluding the experience of one's own feelings" is important [11]. According to B. Holmberg, the implementation of this approach involves focusing on the concept of "guided educational conversation" [11, p. 43]. Despite the simulated nature of such a conversation, it is "embedded in the content" of educational (written, coursework) materials, through the study of which a person is "feeling personal relations ..., intellectual pleasure, (and) educational motivation" [12].

O. Peters (1994) considered educational communication in distance learning artificial. In his opinion, a teacher becomes more of a "manager of the educational process" in such conditions [13].

According to M. Moore, transactional distance is pedagogical but not geographical, which requires "special training organization and procedures, i.e., "structure" (individualization) and "dialogue" [14].

In L.S. Vygotsky's socio-cultural theory, it is stated that cognition development is based primarily on human interaction. Its main postulates are the ideas about higher mental functions, language development and speech functions, the zone of proximal development and auxiliary structures (guided assistance). All higher functions appear as actual relations between individuals[10]. Vygotsky's theory posits that learning potential is limited by the "zone of proximal development" (ZPD), i.e. the student's "cognitive readiness" area, and full and comprehensive development requires assistance and social interaction.

[9] For more information about the Russian scientists' experience of distance learning research see: Vardanyan N.A. *Development of distance learning in secondary schools: Dis. ... Cand. of Sci. (Pedagogics)*. Moscow: Institute of General Education of the Ministry of Education of the Russian Federation, 2004. 211 p.

[10] Vygotskiy L.S. *Pedagogical Psychology*. M.: Pedagogika-press, 1999. 536 p. P. 57.

The introduction of distance learning in Russia is officially related to the 2012 Federal Law no. 273-FZ "On education in the Russian Federation".

Insurance of the availability of distance education in Russian regions leads researchers to conclusions about increasing educational inequality in society and even, according to scientists from the Higher School of Economics, on the concept of "educational poverty", that is "a situation of restriction and/or complete deprivation of children of obtaining education and developing skills necessary for social life" [15, p.18]. Some approaches to the problem of educational opportunities equality are discussed in the works of A.R. Bessudnov, V.M. Malik [16], D.L. Konstantinovsky [17], I.D. Frumin [18], etc.

The spread of distance forms in education currently causes a growing interest in the study of the essence of distance education. Its interpretations by the domestic researchers include the following keywords: means, form, technology, organizational process, geographical distance, service, correspondence education[11][19].

Distance education is a part of a universal education digitalization, which is currently being implemented there and within the framework of the national project "Education" as well. The public (researchers, teachers, and parents) are concerned about the results of this process, which, on the one hand, gives wider access to educational and information resources and knowledge in general, and, on the other hand, threatens with many negative consequences. The greatest concern is caused by the process of turning a teacher into some kind of a "dispatcher turning the programs on", who is practically excluded from the educational process[12], and the deterioration of the quality of education, since digitalization a) provides only a standardized transfer of material [20] and b) cultivates the idea of the Internet as a source of absolute knowledge [21, p.21]. The problems of distance learning are also highly relevant in the context of "the expected launch of an experiment on the implementation of the target model of the digital educational environment (DEE) in a number of regions of the Russian Federation on September 1, 2020"[13]. However, in this study, the authors did not aim at considering dangers and challenges of education digitalization but tried to analyze the three-month experience of distance learning implemented in Russia and its regions through information and communication technologies as a response to the global and systemic challenge posed to the world by coronavirus infection.

The impetus for writing the article was the participation of the Vologda and Bashkir researchers in the discussion of demographic problems and family policy within the all-Russian expert webinar, held in May 2020 in the Public Chamber of the Russian Federation. The acuteness of the discussion of socio-cultural problems of Russian families in the current epidemiological conditions, and the unanimous response to the study of distance education problems prompted the decision of co-publishing.

Research methods and methodology

The study was based on the results of the sociological survey of the pedagogical

[11] Polat E.S., Bukharkina M.Yu., Moiseeva M.V., et al. *Theory and Practice of Distance Learning*. Moscow: Akademiya, 2004. 416 p.

[12] Klyachko T. Digitalization of education – hopes and risks. *Vesti obrazovaniya*. Available at: https://vogazeta.ru/articles/2018/2/26/blog/2148-tsifrovizatsiya_obrazovaniya_nadezhdy_i_riski (accessed: 30.07.2020).

[13] Trushin A. "To deschool the school". Distance learning is replacing classwork. *Kommersant*. Available at: https://www.kommersant.ru/doc/4397027 (accessed: July 28, 2020).

community of the Vologda Oblast conducted by the Vologda Research Center of the Russian Academy of Sciences in April–May 2020 through questionnaire online forms on the Google platform. The questionnaire was answered by 272 respondents (general sample – 8.6 thousand people[14]): 94% of them are women, and 6% are men; 55% live and work at Vologda schools; 30% – in Cherepovets; 15% – in district centers and rural settlements (the sample included the Vologda, Gryazovets, Veliky Ustyug, Nyuksenitsa, Kich-Gorodok, Harovsk, Babushkino, Vytegra, and Totma districts). 12% of all respondents have less than 3 years of a total work experience, 38% – from 3 to 20 years, 50% – more than 20 years; 74% work at regular comprehensive schools, 1% – at correctional schools and schools with inclusive education, 25% – in educational centers, lyceums, gymnasiums and schools with advanced study of subjects. The confidence interval of the sample was 5%.

The opinion of schoolchildren's parents is presented by the data of an online sociological survey in the Republic of Bashkortostan, conducted by the Bashkir Branch of the Federal Center of Theoretical and Applied Sociology of the Russian Academy of Sciences in April 2020. 1.765 people took part in the survey. The sample has approximately the same distribution of schoolchildren's parents of different grades (8–10% each). For objective reasons the smallest share was made by the parents of 10–11 grades students: their combined share in the total sample size is 11.3%. 25% of the respondents are Ufa residents, 16% are the residents of other towns, 24% are the representatives of regional centers, and 35% are from rural settlements of the municipalities of the Republic. Women were more active in the online survey (91%). The respondents were divided approximately equally by their age: 54% were the parents aged under 39, 45% – aged from 40 to 59.

Results and its discussion

The pandemic announced by the World Health Organization in March 2020, associated with the spread of a new coronavirus infection (COVID-19), and subsequent quarantine measures, self-isolation, economic downturn, etc. significantly affected the mood of comprehensive school teachers (*Tab. 1*). Almost two-thirds of the respondents (65%) noted its deterioration.

Against the background of mood deterioration, the patience of the socio-professional group of teachers has significantly decreased compared to the responses of the region's residents as a whole. The majority of them (52%) said that they felt "tension and irritation". This is twice as much as among the population of the Vologda Oblast (27%)[15]. This difference of teachers' social mood is caused not only by the situation associated with the spread of a dangerous virus but also by mass transfer of schools to distance education. According to the research results, the majority of teachers (98%) say that the emergency switch of the educational process to a remote form was accompanied by various problems for the participants of educational relations (*Fig. 1*).

According to the online survey of school-children's parents in the Republic of Bash-kortostan, 71% of respondents had concerns about the transition of children to distance education during the period of self-isolation.

Force majeure circumstances of the transition to the remote education format affected, according to teachers' estimates, all

[14] According to Rosstat.

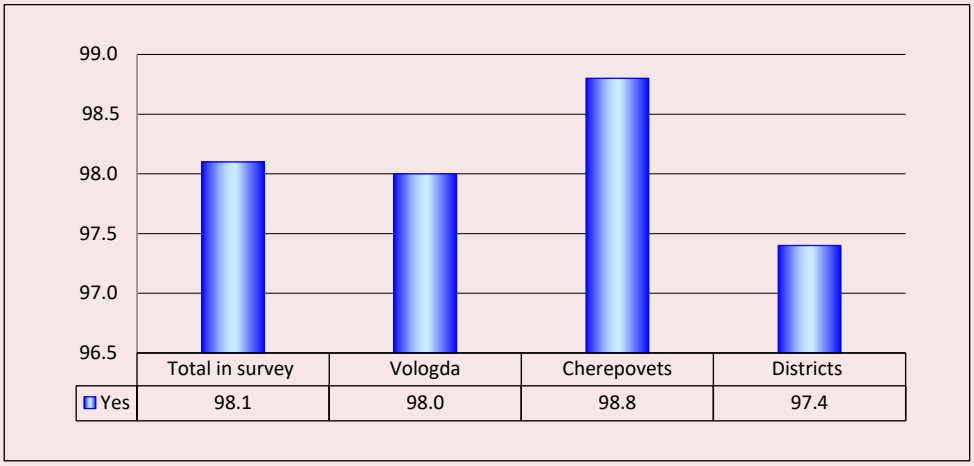
[15] Survey of the Vologda Research Center of the Russian Academy of Sciences "Coronavirus and society". Available at: http://www.vscc.ac.ru/uploads/activity_files/2020/04/13597.pdf (accessed: May 21, 2020).

Table 1. Distribution of responses provided by school teachers of the Vologda Oblast to the question "How did the situation with the spread of a new coronavirus infection (COVID-19) affect your mood?", % of a number of respondents

Answer choice "My mood..."	Total in survey	By the territory			By work experience, years		
		Vologda	Cherepovets	Districts	up to 3	3–20	More than 20
Improved	1.8	3.4	0.0	0.0	3.1	3.9	0.0
Deteriorated	65.1	66.4	62.7	65.0	53.1	68.0	65.7
Unchanged	26.8	23.5	32.5	27.5	34.4	24.3	27.0
I cannot answer	6.3	6.7	4.8	7.5	9.4	3.9	7.3

Source: online survey of school teachers in the Vologda Oblast (VolRC RAS, N = 272).

Figure 1. Distribution of responses provided by school teachers of the Vologda Oblast to the question "Was the transition to distance learning accompanied by problems for the participants of educational relations?" (sum of the "Yes" and "Rather yes" responses), % of the number of respondents



Source: online survey of school teachers in the Vologda Oblast (VolRC RAS, N = 272).

participants of the educational process at school, but the presence of problems was most urgently felt by schoolchildren and students (93%) and their parents (97%; *Tab. 2*).

The problem of families' insufficient provision with equipment necessary for online communication (tablets, laptops, computers, microphones, Webcams, etc.; *Tab. 3*) was mentioned as the most urgent by the teachers. This response position came out on top in both urban and rural areas. Moreover, in rural areas, the problem of providing families with the necessary computer equipment was especially acute – it was noted by 60% of teachers from rural settlements (municipal districts). In the Republic of Bashkortostan, a quarter of parents surveyed reported a lack of devices for organizing the educational process online.

It should be noted that the issue related to the shortage of equipment and software in the field of education during the transition to distance learning has become particularly acute not only in the Vologda Oblast. In early April, the staff of the Higher School of Economics together with experts from the All-Russia People's Front (ARPF) interviewed 29.000 teachers in all regions of the Russian Federation via an Internet platform. This study showed

Table 2. Distribution of responses provided by school teachers of the Vologda Oblast to the question " What participants in educational relations are affected by the problems associated with the transition of schools to distance education?" (sum of "Yes" and "Rather yes" responses), % of a number of respondents

Response option	Total by the survey	By the territory		
		Vologda	Cherepovets	Districts
Schoolchildren's parents	96.3	98.6	96.8	92.5
Schoolchildren	93.1	96.0	89.2	90.0
Teachers	84.6	89.9	74.7	84.6
Schools' administrations	73.9	79.8	62.6	75.0
Other school employees	50.3	49.7	51.8	40.0

Note: when answering a question, more than one response option was allowed.
Source: online survey of school teachers in the Vologda Oblast (VoIRC RAS, N = 272).

Table 3. Distribution of responses provided by school teachers of the Vologda Oblast to the question "What are the problems associated with the transition of schools to distance learning?", % of the number of respondents

Response option	Total by the survey		Vologda		Cherepovets		Districts	
	%	Rank	%	Rank	%	Rank	%	Rank
Insufficient provision with necessary computer equipment in schoolchildren's families	49.3	1	46.3	1	49.4	1	60.0	1
Insufficient provision with necessary technical devices of teachers	34.2	2	36.9	3	22.9	4	47.5	4
Low motivation, students' indiscipline, lack of ability to study remotely	33.8	3	28.9	5	42.2	2	35.0	2
Some classes are very difficult to be conducted remotely	32.0	4	32.9	4	36.1	3	20.0	3
Teachers' lack of such experience	29.0	5	37.6	2	20.5	6	15.0	6
It is psychologically difficult to work in a remote format	22.4	6	24.2	6	22.9	5	15.0	5
Some students do not have Internet access at home	18.0	7	15.4	8	20.5	7	22.5	7
Teachers' lack of the necessary IT skills	15.1	8	18.1	7	12.0	11	10.0	11
Outdated equipment	13.2	9	13.4	9	14.5	8	10.0	8
Lack of administrative and methodological support (low quality of open materials)	12.9	10	12.1	10	13.3	10	15.0	10
Poor quality of Internet connection at school	11.8	11	9.4	12	9.6	12	25.0	12
Lack of additional material incentives	11.0	12	10.1	11	14.5	9	7.5	9
Poor communication with parents	2.9	13	3.4	13	2.4	13	2.5	13
There were no problems	1.5		2.0		1.2		0.0	
Other	0.4		0.0		0.0		2.5	

Note: when answering a question, more than one response option was allowed.
Ranked by the "Total by the survey" column.
Source: online survey of school teachers in the Vologda Oblast (VoIRC RAS, N = 272).

that almost 80% of respondents faced the same problems (20% of "Rather agree" responses, 58% – "Agree")[16].

The problem of technical equipment of households was immediately pointed out by society, and regional authorities started providing poor families with necessary equipment. The mechanisms for this decision were different in regions. In some cases, students were given computers and routers for the period of distance education[17], in others,

[16] Research: teachers faced problems of distance learning. *RIA-Novosti*. Available at: https://ria.ru/20200407/1569666546.html (accessed: June 5, 2020).

[17] Students in need were offered computers and routers for the period of distance learning. *Komsomolskaya Pravda*. Available at: https://www.kp.ru/online/news/3807823/ (accessed: June 25, 2020).

Table 4. Problems in conducting remote classes, %

Response option	Saratov Oblast	Krasnodar Krai	Zabaykalsky Krai	Murmansk Oblast	Republic of Sakha (Yakutia)	Omsk Oblast
Interruptions in the video platform operation the due to the line overload	45	39	42	58	51	47
Slow internet connection makes it difficult to give classes	40	43	35	22	38	31
It is difficult to connect all children to the video feed	44	43	42	42	45	43
Some children can't cope with connecting to a video feed	36	36	34	47	45	38
I have to constantly interrupt classes because someone of the children "crashes"	14	14	12	17	23	14
Other	10	11	13	12	9	15

Source: Saprykina D.I., Volokhovich A.A. *Problems of transition to distance education in the Russian Federation as viewed by teachers*. M.: NIU VSHE, 2020. 32 p.

low-income families were given tablets by the municipal authorities with the participation of sponsors[18].

Similar actions were observed in a number of states [12, p. 18]. Thus, in Canadian schools, laptops and tablets were issued to students at home, and the country launched a program of "technology lending"[19] as well. In the state of California (USA), more than 70 thousand schoolchildren in need were provided with laptops[20].

About 18% of respondents in the Vologda Oblast as a whole (more than 22% in rural areas) paid attention to the problem of the Internet access. In a study by the Higher School of Economics, this figure is higher: 50% of teachers noted that "some students do not have access to the Internet at home" [17]. This situation correlates with statistical data showing that, for example, only 76% of households in the Russian Federation had access to the Internet in 2017 (*Fig. 2*).

The share of households that have access to the Internet, as evidenced by data from the sample federal statistical survey on the usage of information technologies and information and telecommunications networks by the population (*Fig. 3*), differs in federal districts of the Russian Federation. Although the difference is not very large (within 5 p.p.), it nevertheless shows that much more needs to be done in this direction to eliminate problems of distance education in the future.

The current situation is also largely related to such technical problems as low Internet speed (*Tab. 4*), communication channel stability, and equipment ensuring work with video.

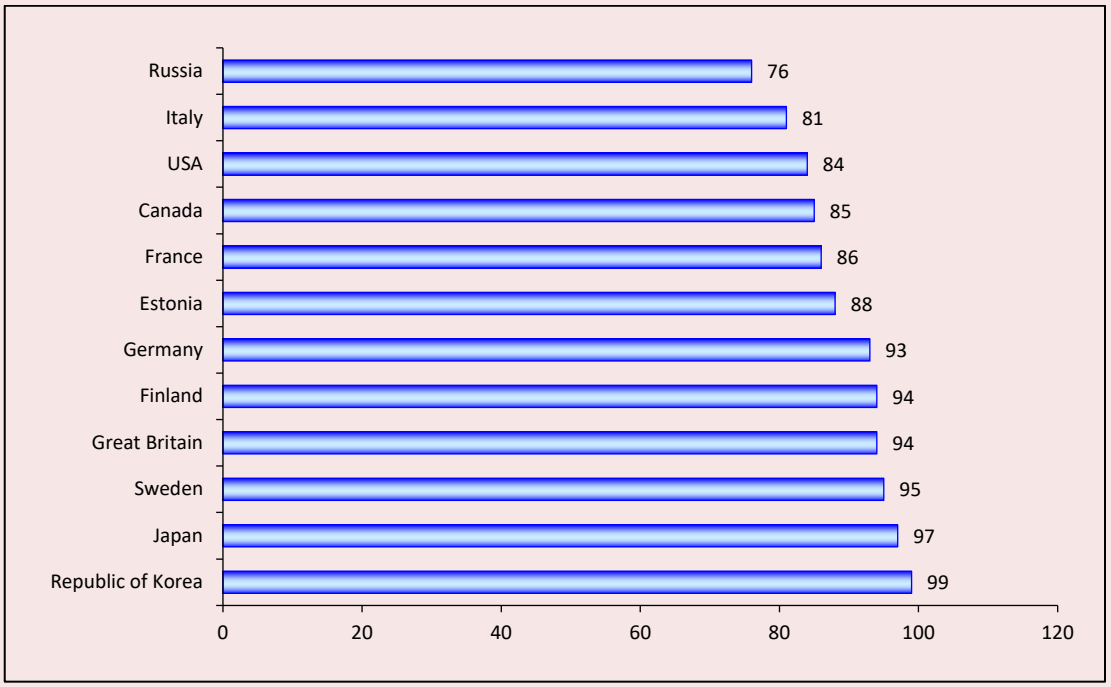
Teachers of the Vologda Oblast also noted the problem of Internet connection, but the share of such responses is low: 11% of cases are caused by poor quality of the Internet connection at school, 18% – by the lack of the

[18] Vologda schoolchildren from low-income families were given the first tablets for distance learning. *Vologda region*. Available at: http://vologdaregion.ru/news/2020/4/16/vologodskim-shkol-nikam-iz-maloobespechennyh-semey-podarili-pervye-planshety-dlya-distancionnogo-obucheniya (accessed: June 25, 2020).

[19] Ferguson E. COVID-19: Schools distribute laptops, paper materials for at-home learning. *Calgary Herald*. Available at: https://calgaryherald.com/news/covid-19-schools-distribute-laptops-paper-materials-for-at-home-learning/ (accessed: June 25, 2020).

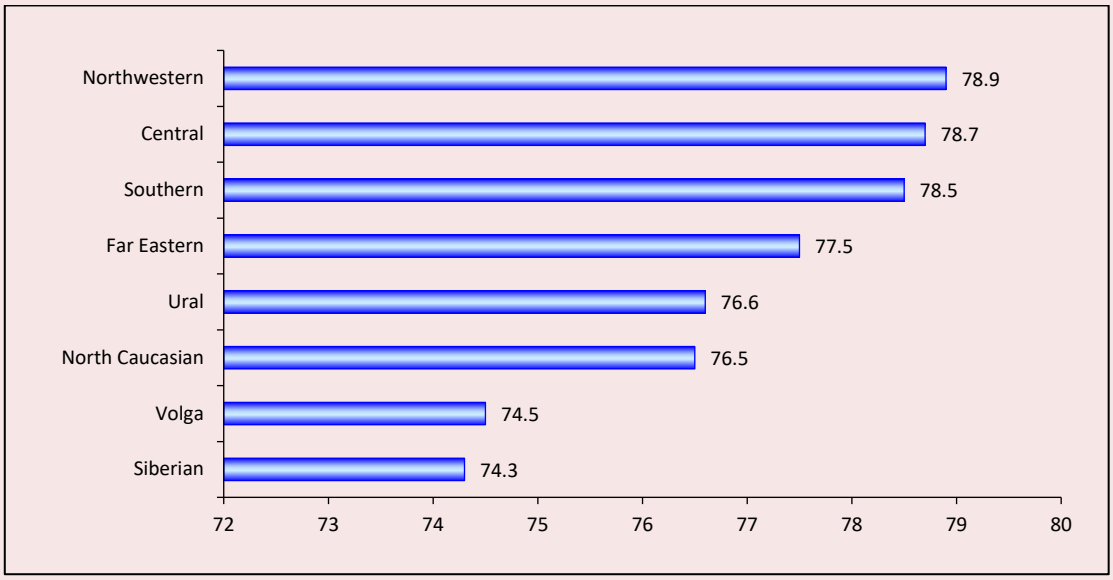
[20] As CA schools remain closed, 70.000 students in need will receive laptops, tablets. Available at: https://ktla.com/news/california/gov-newsom-to-provide-latest-on-covid-19-response-in-california/ (accessed June 25, 2020).

Figure 2. Internet access in households broken down by countries, 2017, % of total households



Source: Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M., et al. *Digital Economy: 2019: Short Stat. Coll.* National Research University Higher School of Economics, Moscow: NIU VSHE, 2019. 96 p.

Figure 3. Share of households with Internet access by federal districts of the Russian Federation (data from the federal statistical survey on the usage of information technologies by the population), %



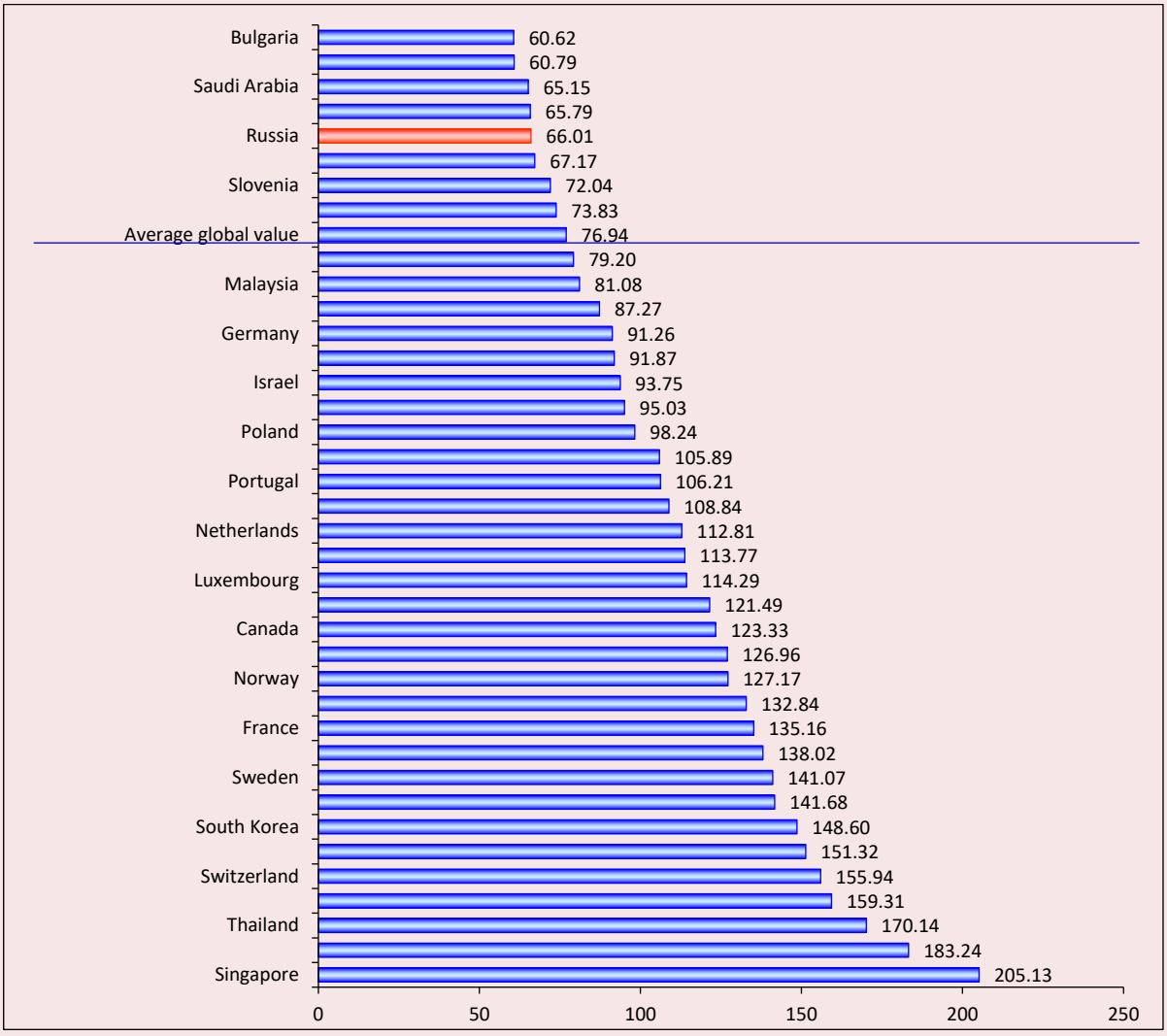
Source: Mendel A.V. *Transition of secondary comprehensive schools to distance learning in the context of the coronavirus pandemic: technological, organizational and pedagogical aspects.* Available at: https://ioe.hse.ru/data/2020/06/09/1605478836/ФО-Практика%20ДО.pdf

Internet connection at home. Schoolchildren's parents in the Republic of Bashkortostan pointed to the lack of stable high-speed Internet in 37% of cases.

According to a teacher living in the country, "speed of home Wi-Fi is less than 10 MB/s. The level of income does not allow paying for a more expensive tariff" [17].

Data from the OOKLA system (Global Internet speed index) shows that the speed of fixed Internet connection in Russia is lower than the global average. In May 2020, it was 66 Mbit/s (*Fig. 4*). It is more than a 3 times lag behind the leader (in Singapore, speed is 205 Mgbit/s). Russia is the 46th in the ranking of 173 countries.

Figure 4. Average speed of fixed Internet connection in countries[21], Mbit/s, May 2020



Source: Global Speedtest index: monthly comparisons of Internet speeds from around the world (OOKLA). Available at: https://www.speedtest.net/global-index (accessed: June 25, 2020).

[21] Up to January 1, 2019, the countries were compared based on 333 unique user results for fixed broadband link, since January 1, 2019, the countries must have at least 300 unique user results to be ranked. The results for the previous month are updated in the middle of the month.

The results of a sample survey of household budgets in Russia for 2019 showed that households spend from 2.2% (Sevastopol) to 5.2% (Chukotka AO) of their funds on fixed Internet connections [18, p.13].

Another problem related to the remote mode was the schoolchildren's decreasing motivation to study. This socio-cultural factor ranked second among the problems by the Cherepovets teachers and the teachers of region's rural schools. It is typical that students' parents also noted that children's motivation to study decreased in general (46%). At the same time, one-third of Bashkir parents (37%) believe that motivation has not changed, and it even increased in 17% of cases. However, the response was primarily chosen by parents with one child in a family (*Fig. 5*).

Top 5 problems of distance education also include the difficulty of conducting some lessons remotely (32% of teachers said that). Among other difficulties, respondents noted the lack of educational materials on online platforms for classes in music, art, subjects of additional education, as well as adapted manuals for children with disabilities[22]. Parents' assessment of the efficiency of distance education in terms of developing children's creativity, abilities for independent work, ability to learn and consolidate new topics in general, also indicate that there are gaps in the system – 72% expressed dissatisfaction with this situation.

A fairly large proportion of teachers (29%) named teachers' lack of distance learning experience a problem. According to a study by the Higher School of Economics, 64% of teachers had experience of using online educational platforms before April 2020 but mostly "in case of a need to work out complex topics in their subject and to complete homework" [17, p. 7]. Nearly half of respondents noted that they sometimes used various online resources in school lessons earlier. Vologda teachers more often used the Internet for professional communication with colleagues and participation in conferences (42%), organization of extracurricular activities (41%). In the first case, the predominant group included older teachers with more than 20 years of experience (47%), in the second one – young teachers with up to 3 years of experience (31%).

Figure 5. Distribution of responses of Bashkir schoolchildren's parents to the question "Has your child's motivation to study changed in the new learning environment?", % of respondents

	Child 1 (the eldest)	Child 2	Child 3	Child 4	Child 5	Child 6 (the youngest)	Total
In general, decreased	31.3	11.8	2.2	0.3	0.2	0.1	46.0
Did not change	25.8	9.2	1.8	0.5	0.0	0.0	37.0
In general, increased	11.3	4.4	0.9	0.2	0.1	0.0	17.0
Total	68.4	25.4	4.9	1.0	0.3	0.1	100.0

Source: data from the parents' sociological survey, Bashkir Branch of the Federal Research Centre of the Russian Academy of Sciences, 2020 (N = 1765).

[22] The teacher shared her opinion about remote learning at school. Available at: https://iz.ru/997400/2020-04-08/pedagog-podelilsia-mneniem-ob-udalennom-obuchenii-v-shkole (accessed: April 28, 2020).

Table 5. Estimates of teachers in the Vologda Oblast regarding the usage of educational online resources in their professional activities in the future, % of the number of respondents

Response option	Total in survey	By the territory			By work experience, years		
		Vologda	Cherepovets	Districts	up to 3	3–20	More than 20
Yes, and more likely yes than no	67.3	66.5	73.5	57.5	71.9	68.9	64.9
No, and more likely no than yes	20.2	18.2	20.5	27.5	16.5	16.5	25.6
This will depend on the position of the school's management	8.8	10.1	6.0	10.0	11.7	11.7	5.8
I cannot answer	3.7	5.4	0.0	5.0	6.3	2.9	3.6
Source: online survey of school teachers in the Vologda Oblast (VoIRC RAS, N = 272).							

Schoolchildren's parents believe that the problems of distance education are not only related to technical and organizational difficulties but also to the inability to maintain good health ("eyesight is going poor", "eyesight, posture, health in general, because with such a load kids do not breathe fresh air", "real undermining of health", "children spend a lot of the time in front of computers, it will affect their health"), education quality ("children will get used to the Internet, they won't be willing to get knowledge themselves", "children become antisocial, ceasing to communicate with each other and teachers. The best education model is "student-teacher live communication")[23].

However, despite identified problems related to the transition to distance education, 36% of Russian population is satisfied with the organization of remote education[24]. The responses of Bashkir parents to the question "Have your children easily adapted to the new learning environment?" were mainly positive: 36% of schoolchildren's parents considered that "a child generally coped, although it took some effort", 21% admitted that "a child easily adapted to the new conditions". And only 5% of responses were negative. The transition to new teaching practices has affected teachers' further planning to use digital educational technologies in their job. For example, the majority of respondents (67%) stated that, even after stabilizing the situation with a new coronavirus infection (COVID-19) spread, they will keep using digital technologies in their classes regardless of their direct management's instructions (*Tab. 5*).

Such intentions are typical for young (72%) and experienced teachers (69%). In rural areas, unlike towns, a desire to extend the digital experience is already shown by a little more than half of teachers (58%). Positive planning for the usage of digital content in professional activities of the teaching staff is caused by the fact that majority of respondents (59%) of different ages generally have a positive attitude to digital innovations in education.

The respondents-teachers' opinion about schools' readiness to work in the new digital environment was less optimistic, which is especially evident in the example of schools at different levels (*Tab. 6*). In rural areas a level of readiness for challenges of educational digitalization is critical (only 18%), according to the responses. According to teachers, "elite" schools (digital schools, gymnasiums, lyceums, schools with advanced study of individual subjects, etc.) are more ready for this. As it is

[23] Open responses of parents of the Republic of Bashkortostan, online survey of the Bashkir Branch of the Federal Research Centre of the Russian Academy of Sciences 2020.

[24] The teacher shared her opinion about remote learning at school. Available at: https://iz.ru/997400/2020-04-08/pedagog-podelilsia-mneniem-ob-udalennom-obuchenii-v-shkole (accessed April 28, 2020).

Table 6. Opinion of teachers of the Vologda Oblast on readiness of organizations of general education for distance learning, % of a number of respondents

Response option	Total in survey	By the territory			By the place of work		
		Vologda	Cherepovets	Districts	Regular secondary comprehensive schools	Elite schools (gymnasiums, lyceums, etc.)	Special schools and schools with inclusive education
Quite ready; rather ready	52.3	57.1	61.2	17.5	46.2	65.9	33.4
Rather not ready; not ready at all	44.8	42.2	33.8	77.5	51.3	31.1	66.6
Rather not ready; not ready at all	2.9	0.7	6.0	5.0	2.5	3.0	0.0
Source: online survey of school teachers in the Vologda Oblast (VoIRC RAS, N = 272).							

known, such educational organizations are innovative platforms for the introduction of digital technologies in the learning process. At the same time, more than half (51%) of teachers, working in regular schools, and more than two-thirds of teachers from special schools (67%) stated that their organizations were not ready for such work format.

45% of schoolchildren's parents did not notice any positive effects from the distance education format but still indicated some of its advantages. For example, one-third of parents mentioned the fact that "a child learns to use new technologies, programs and applications" as a positive consequence of the distance experience (30%), a quarter of respondents considered this experience to be a lesson of "independence and responsibility for children" (28%), and a fifth of them believe that "familiarity with educational programs has taught children to spend time on the Internet profitably" (12%). For many parents, it was a revelation to know "how their child learns, behaves during a lesson, and his or her true level of knowledge".

Conclusions

The conducted research indicated possible difficulties of the distance education format while maintaining the identified complex of various factors, technical, organizational, and socio-cultural ones. All participants in educational relations (households, school employees, schoolchildren and students) were equally unprepared for this situation. It was proved by the following moments:

– technical problems: lack of necessary equipment and Internet connection in some households (which means that teachers had to give and check tasks over the phone via SMS messages). In some cases, teachers also lacked equipment (especially in rural areas);

– methodological problems: lack of digital experience and opportunities for conducting online classes in some subjects; lack of unified requirements, theory and methodology;

– socio-cultural problems: reduction of schoolchildren's educational motivation during remote "home education". According to respondents' statements in their responses to open-ended questions, "it is absolutely impossible to teach remotely, and there is no way for a teacher to determine whether a student learned things that he or she would learn during full-time classes; while giving a formally correct answer, the student's way of thinking may be incorrect" "there is [in the new format] a problem of [widespread] cheating", "it is impossible to obtain high-quality education (especially a school one) [remotely]; children need live communication".

The epidemiological situation had a negative impact on social empathy of teachers (some estimates are lower than the regional average values). However, it only partially affected teachers' professional behavior and organizational culture; for example, a certain decrease of the school staff's desire to use innovative technologies in their regular work, which served as a reaction to the "failure" of distance education.

At the same time, the forced transition to distance education at schools has also shown the prospects for its usage in the future work of educational institutions.

First, the mass implementation of the distance education format made it possible to gain such experience for those who did not use it, or was afraid to use it, during professional activities until April 2020 and to consolidate advantages of such education forms for those who actively used it in their work before the pandemic.

Second, students and schoolchildren gained experience of working independently with electronic materials and learned, or expanded, their knowledge on educational platforms' opportunities. It is going to be a significant help in their further studies.

Third, the teaching community has an opportunity to test their own developments and their colleagues' e-learning materials, to assess its quality, practical usefulness, effectiveness, and inevitable competition in its further development.

Fourth, students' and schoolchildren's parents, in their opinion, were able to see firsthand "how their kid learns, behaves during a lesson and a true level of his or her knowledge".

Fifth, teaching corpus as a whole showed a loyal attitude to digital transformation in education, understanding the prospects of its development. According to teachers, the lack of readiness of the educational network and infra-structure for appropriate innovations may become a constraint during the implementation of national development goals of the Russian Federation.

Taking into account mentioned problems, education authorities need to work out the following problems in the near future:

– select platforms for online learning more carefully, and do it according to class parallels, regions, or other criteria in order to avoid network resource freezing and eliminate a strong dispersion of teachers and students' attention between different courses and methods;

– collect information on availability of necessary equipment in students' families before switching to distance learning;

– foresee rehabilitation measures for children in the new academic year in order for children to resume studies in schools without problems (sparing study schedules, repeat of topics of the 4th quarter of the previous academic year, etc.);

– introduce a planned system for developing distance education for a more efficient transition to it in corresponding conditions.

The results of practical implementation of distance education at schools as an alternative form of organizing the educational process in force majeure environment also revealed some fundamental problems, and without its solution, in our opinion, a mass transition to remote forms of education may lead to irreparable social consequences which include:

– need to re-evaluate the role and participation of a "live" teacher (a teacher who knows peculiarities of age psychology) in the educational process, children's socialization, the formation and upbringing of a person;

– update and integration of studies on socio-psychological needs and patterns of human development in accordance with latest educational methods, approaches, and technologies;

– search for mechanisms excluding the impact of socio-economic status and digital inequality on opportunities for obtaining quality education (as a basic constitutional right of a citizen of the Russian Federation).

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Received July 10, 2020.

DOI: 10.15838/esc.2020.4.70.13
UDC 332.1, LBC 60.52+60.54

Generation Y in Russia: Social Stratification, Position in the Labor Market and Problems of Political Socialization*

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Abstract. The article analyzes the youth's problems affecting their life and social well-being (social stratification of society; the position and behavior of youth in the labor market; changes in the youth's value orientations and models of socio-cultural behavior). The article describes the social status of the youth population in Russia, their integration into the labor market and the emotional component of political socialization. The authors analyze the age groups assigned to generation Y in accordance with the gradation of V. Strauss and N. Hau. The young people's material standard of living, education and place of residence are the indicators that differentiate the Russian youth, creating a kind of stratification youth pyramid. Currently, the place of young people in the labor market is decreasing, while the share of the employed aged 55–72 is growing, which negatively affects the innovative development of the economy. Services have become the dominant industry for youth employment. The socialization of modern youth is contradictory, which is due to deep social differentiation, unstable position in the labor market, the impact of global information processes, the opposition of a tolerant attitude to otherness and independence and intransigence to other points of view and behaviors that differ from traditional ideas and values within the society. The political socialization of young people is characterized by a low level of interest in politics, a more critical attitude to the democratic status of the country when the respondents grow up with an increased positive emotional component in relation to the Motherland. When comparing some of the

* The research is supported by the Russian Foundation for Basic Research, project no. 20-011-00285 "Social stratification and socialization of Russian youth in the post-Soviet period".

For citation: Belyaeva L.A. Generation Y in Russia: social stratification, position in the labor market and problems of political socialization. *Economic and Social Changes: Facts, Trends. Forecast,* 2020, vol. 13, no. 4, pp. 220–237. DOI: 10.15838/esc.2020.4.70.13

characteristics of these generations in the Russian Federation with the characteristics of the youth in European countries at different levels of development, Poland, the Czech Republic, Spain, Germany, and Sweden, their uniqueness is revealed, due to the severity of many problems of economic and democratic development in Russia. The data from Rosstat, the author's empirical research, and the European social research (ESS) were used in the study.

Key words: social stratification of youth, labor market, political socialization, education, values.

Introduction

At the late 20th – the early 21st century, the problems of youth and, more broadly, the problems of generations, their change, transfer of value experience, and continuity of social practices became some of the most important aspects for preserving the integrity of society as a system and the dynamism of its development. In recent years, several monographs, which address the current and new problems of young generations just entering this world and those who became quite familiar with it and begin to influence society, even if members of these groups deny it trying to stay "non-adults"[1] for as long as possible, have been published [1; 2]. A range of research problems of young people is quite extensive [3–5]. For example, the Generation Research Center, established in the UK, studies generations' living standards, opportunities that young people have for their own development, and the implementation of family and social contract between generations – support for older age groups[2]. Scientists in different countries unanimously recognize significant differences between young people and older age groups, find common features that are determined by the immersion of young people in virtual reality with the formation of a new system of values [6; 7].

The article focuses on several problems of young people that affect their life and social well-being. First, it is the problem of social stratification of entire society, in which generations of young people occupy their dynamically changing differentiated place, forming a hierarchical youth pyramid; second, young people's position and behavior on the labor market due to its contradictory changes and the emergence of new forms of employment; third, the transformation of value orientations, models of socio-cultural behavior of young people, which do not apply to the entire cohort and indicate the absence of a single value system among young people and in society as a whole, which continues to differentiate according to various reasons, including age and generation characteristics.

Theoretical basis for the study of youth groups

Next, we will focus on the highlighted issues, but, first, we need to define the term "youth". The most commonly used characteristic of youth through its social functions is presented by K. Manheim. "The problem is that, although there is always a new generation and youth age groups, however, the question of their usage depends on the nature and social structure of given society. Youth is among hidden resources that exist in every society, and its viability depends on these resources' mobilization ... A special function of youth is that it is an enlivening intermediary, a reserve that comes to the fore when such revival becomes necessary to adapt to rapidly changing or qualitatively new

[1] *New Generational Contract: The final repot of the Intergenerational Commission*. May 8, 2018. Available at: https://www.resolutionfoundation.org/advanced/a-new-generational-contract (accessed: March 13, 2020).

[2] *Ibidem*.

circumstances" [8, p. 571–572]. The function of youth as an engine of society's innovative development, noted by Manheim, does not contain any references of age characteristics, age boundaries, which is not important in this definition, especially since these boundaries are mobile and limited depending on historical stages lived by society.

The most common definition in Soviet, and now in modern Russian, sociology is the one from I. Kon: "Youth is a socio-demographic group distinguished on the basis of a combination of age characteristics, features of social status, and socio-psychological properties caused by both. Youth as a certain phase, or stage of a life cycle, is biologically universal, but its specific age limits, associated social status, and socio-psychological features have a socio-historical nature and depend on the social system, culture, and socialization patterns inherent in this society" [9, p.85]. According to the socio-cultural approach, young people may be considered a socio-demographic group with a common system of values, worldview, behavior standards, and subculture. However, in modern Russian conditions, we can talk about the multiplicity of its socio-cultural forms, which are formed under the influence of society and youth's differentiation processes.

The upper age limit for young people is now 30 years. It is when most young people finally determine their professional path, end their education, and start their own families. At the same time, there are tendencies toward the expansion of this boundary, as many youth roles continue to be performed at a later age. Previously, with a shorter training period, the upper limit of young age was lower. The lower age limit is also agile and varies among different researchers in the range of 14–18 years. However, there is a research practice when young people are divided into internal age groups, for example: 14–18 years old teenagers, 18–24 years old young people, 25–29 years old "young adults", and other gradations, including ones reaching the upper limits of 35 years.

The systematization of generations, following development of American scientists V. Strauss and N. Howe, became popular [10]. The selection of young people generations is currently associated with significant events in the world of digital technologies and development of computer networks. For young people, there are large groups, such as Millennials, or generation Y (born between the early 1980s and the late 1990s; at the beginning of 2018, they were about 18–35 years old [2]), and younger groups, such as the "digital generation" (generation Z) born after 2000. These gradations are important not only for studies on young people's social characteristics, but these also have a commercial meaning for manufacturers of certain products, especially related to fashion and IT spheres.

However, it should be recognized that the nuances of age classification are not fundamentally important; it is more like the subject of researchers' agreement who are focused either on different stages of young people's life path (growing up, professional self-determination and beginning of work, search for their place in the socio-professional structure of society, and performance of family functions), or certain significant events in development of a particular society, and who would like to be able to compare the results of their work. The logic of differentiation of young people is present in Rosstat's traditions: its studies currently identify age groups of 15–19, 20–24, 26–29, 30–34 years; in other gradations, the range of 30–39 years is used instead of the last group[3]. In other words, there are many options

[3] *Russian Statistical Yearbook. 2019.* Available at: https://rosstat.gov.ru/folder/210/document/12994; *Labor and Employment in Russia. 2017.* Available at: http://www.gks.ru/bgd/regl/b17_36/Main.htm

for young people's age classifications, and, for the purposes of specific analysis, it is possible to abandon a standard solution for performing research tasks.

Research methods and methodology

Data of ESS (European Social Survey) is used in this article: it has been conducted in most European countries since 2002, including Russia (since 2006). In Russia, the research is carried out by CESSI (Institute for Comparative Social Research).

Information is collected during a personal interview at home with 15-year-old, or older, respondents on a random probabilistic sample. The sample size was 2.430 respondents in 2016. In the article, countries are selected for comparison of data depending on the duration of their presence on the market economy system, the development level of economies, and the stability of democracy.

Two generational gradations were used for the analysis presented below. The first is based on Rosstat-selected groups of youth in the range of 15–29 years (divided into groups of 15–19, 20–24, 25–29 years), the second-generation Y (18–34) years divided into two cohorts: 18–24 and 25–34 years.

Results and discussion

Based on two fundamental definitions – youth as an engine of society's innovative development and youth as a carrier of social and psychological characteristics that depend on age – we will overview aforementioned current contexts related to the position of young people in Russian society.

First, we would like to note some alarming quantitative trends that characterize a changing position of young people in Russian society. In 2017, according to Rosstat, the share of young people, aged 14–30, in Russia was 29.4 million people, or 20% of the country's population. At the same time, in just 4 years – from 2013 to 2017 – its population decreased by almost 5 million people, or 5 p. p.. Majority of young people live in towns (75.6%), 24.4% – in rural areas (2016). Russian regions significantly differ in the share of young people among population, and this situation, according to Rosstat forecasts, will remain in the near future. According to an average version of the forecast for 2025, a minimum share of youth among population will be observed in Moscow – 14.42% and St. Petersburg – 14.92%, a maximum share – in the Chechen Republic, the Republic of Dagestan, and Ingushetia – 26.72, 23.87 and 23.26%, respectively. Currently, these regions have more than 30% of young people[4] among population and one of the highest rates of youth unemployment. It is obvious that, in order to prevent negative social events in these regions, it is necessary to provide more employment for young people.

Such unfavorable trends, related to a number of young people, determine a possible alarming level of demographic burden in the future. By 2035, according to Rosstat's average forecast, there will be 834 disabled people per one thousand people of working age, including 287 children, aged under 14, and 547 people who are over working age. In the Kurgan region, a demographic load of more than one thousand disabled people per one thousand able-bodied people is predicted[5]. It makes us more and more apprehensive about the future; in particular, analysis of a current position of young people in Russia, trends of their socialization, involvement in the educational system, participation in social production, and the impact on the society's value-normative system, which will increasingly be determined by the generations that currently belong to the youth cohort.

[4] Demographic forecast on population of the Russian Federation until 2031 (medium version), adjusted according to the results of the All-Russian Population Census of 2010. Available at: https://fadm.gov.ru/activity/statistic (accessed: May 15, 2019).

[5] Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/demography/#

Young people in the system of social stratification

There are three major criteria that determine the position of a young person at the current stage of Russian society development: material level of life, education, and place of residence. All three criteria not just differentiate young people themselves but also project the stratification of families and regional communities, where a young person lived or lives, on them. The hereditary factor more and more influence a place in society. Relative social homogeneity during socialism was replaced by deep stratification, which definitely affected young people's social status.

According to some researchers, in Soviet Russia, finances were not the most significant indicator of status, but now it is one of the most important indicators. A new system of social coordinates emerged, corresponding to new economic and political relations. In this regard, the system of criteria or status indicators, which determine a position of an individual or a group in the social hierarchy, became more complex [11]. Material differentiation and social status of adult population affected material and social status of young people from different income and social strata and opened up different channels of social mobility for them. The problem is aggravated by deep differences between regions [12].

How do young people assess a financial situation in their families? According to ESS, young people are more optimistic than adults in the Russian Federation. Only 7 and 10% of young people, aged 15–24 and 25–34, respectively, believe that it is very difficult to live on their family income, while 26 and 32% find it quite difficult. For adults, aged 45–59 and 60+, these estimates are more alarming (*Tab. 1*).

In order to more objectively assess the level of financial provision among young people in Russia, we may compare the estimates given by Russian young people and their peers from several countries of the former socialist camp (Poland, Czech Republic), Southern (Spain), Central (Germany) and Northern (Sweden) Europe. While 60% of Russian young people, aged 15–24, responded that their families can live on received income without experiencing financial difficulties, or that this income is basically enough, then, in Poland, 90% of this age group members provided this assessment of income, in the Czech Republic – 68%, in Spain – 77%, in Germany and Sweden – 91%. In the group of 25–35-year-olds among listed European countries, there were similar estimates of financial well-being, with the exception of Spain, where 10% fewer young people of this age rated their family income as sufficient or not causing any financial difficulties. In Russia, there is also 7% decrease of this age group size with such estimates of family income compared to the group of 15–24-year-olds. It should be noted that

Table 1. Which statement most accurately describes your family's income level?, %

	Russia, age (years)				
	15–24	25–34	35–44	45–59	60+
We live on this income without experiencing financial difficulties	8	8	6	7	5
This income is basically enough for us	52	45	45	39	35
It is quite difficult to live on such income	26	32	33	35	39
It is very difficult to live on such income	7	10	11	15	20
Hesitate to answer	7	5	5	4	1
Total	100	100	100	100	100
Source: ESS-2016 data. Available at: http://www.ess-ru.ru					

insufficient income has a negative impact not just on the level and quality of life but also on prospects for obtaining a good education in the group of 15–24-year-olds, as well as on life activities of young people, aged 25–35, especially if they already have children.

According to ESS and other studies, the largest share of people without financial difficulties in Russia is entrepreneurs. It is safe to assume that this group of people has the best financial opportunities to provide children with a good quality education, abroad too. The same is relevant for the managerial and cultural elite. However, it needs to be pointed out that the group of small and medium-sized entrepreneurs, as well as a group of self-employed people, is very narrow in Russia, and unfavorable trends of its development remain. Each year, experts note "unpredictability and aggressiveness" of government policy, "constantly tightening business rules, its constant change, and strengthening of punishing policy of all regulatory authorities", "constant appearance of new requirements". The "high level of bureaucracy" and "cronyism of official apparatus" also do not contribute to improving the business climate in Russia[6]. The government's efforts to liberalize conditions for entrepreneurship and self-employed people are aimed at simplifying business development, but it is too early to draw any conclusions. Despite existing difficulties, many entrepreneurs are ready to transfer their business to children, if they are interested in it, and intend to prepare kids for this: in particular, by providing them with good education[7].

Those who have parents with higher education are more likely to become specialists, while young people from working families usually receive secondary vocational education and take jobs on the labor market. Almost all children of managers graduate from universities [13]. There is a steady trend of transition to the middle class of young people whose parents were also "middle class". This is how the social stratification of Russian young generations develops. The influence of family's socio-economic status on the choice of educational and professional strategy by a young person is very significant and primarily consists of personal support for a desire to achieve a certain status and advantages – financial and social – that the family has to implement such a choice. In this case, it is possible to note a decisive positive influence of cultural capital, accumulated by generations of parents during the Soviet period, on the formation of young people's cultural capital. The prestige of education did not decrease a desire of families to provide children with higher education even in the post-Soviet decades of a sharp decline of specialists' living standards and the reduction of intellectual labor market, although the quality of university education declined throughout this period, and university years were often seen as a young person's stage of socialization, not the acquisition of in-demand profession. As the result of the educational "boom", 24.7% of employed people had higher education in 2000, and 34.2% – in 2017[8]. We do not take into account the quality of training and note only quantitative changes.

There is a strong correlation between living standards, a place of residence in different types of localities, and distance from capitals and large towns. As shown in the monograph

[6] *National R*eport. *Global Entrepreneurship Monitor. Russia 2018/2019*. Available at: https://gsom.spbu.ru/files/folder_17/otchet_fin_rgb.pdf (accessed: June 26, 2019).

[7] "No need to hang your business on children". Entrepreneurs on whether to transfer business to a child or not. Available at: https://rb.ru/opinion/preemniki-biznesa/ (accessed: June 25, 2019).

[8] *Russian Statistical Yearbook. 2018*. Moscow, 2018. P. 119.

"Income Stratification Model of Russian Society: Dynamics, Factors, Cross-country comparisons", in 2017, in Russian capitals – Moscow and St. Petersburg – high-income population groups made up 51% of population, in capitals of entities of the Russian Federation – 7%, in regional capitals – 4%, in villages and urban settlements – 2%. There are opposite proportions for the share of low-income population groups: in the capitals – 1%, in capitals of entities – 22%, in regional capitals – 35%, in villages and urban settlements – 45%. Smaller but still significant differences exist in proportions of average income and median income groups [14]. Family's financial living standards directly affect financial and social position of young people when they live in a parents' family, and indirectly – when a young person lives separately from a parents' family or has own family and children. Regional differentiation of living standards currently determines the receiving of quality education and occupation of a central, or peripheral, place on the labor market by young people.

If we assess factors that affect the financial situation of young people and the distribution across social strata, then the first place should be given to the dependence on financial and social status of parents, their educational baggage, when a young person inherits certain material and social resources from them; relatively speaking, economic, social, and cultural capital. The second place, according to our estimates, is occupied by the localization of a place of residence, its proximity to development centers, where there are educational institutions that provide in-demand professions and qualifications, and high-quality jobs are offered. The third group of factors is the level of education received by a young person, quality of his/her socialization, an ability to adapt to social environment, become an innovator in his work area and a socially active person while choosing development directions. This group of factors depends on social and cultural capital of a young individual, his environment, personal socio-psychological characteristics, and internal motivation.

It is possible to talk about the multiplicity of the latter group of factors, which makes its unambiguous interpretation controversial in modern conditions. Now Russian young people have a variety of experiences, motivations for building a life path, and a whole range of opportunities to achieve personal and social goals. However, at the same time, for most young people, it is especially important to achieve a higher place in the social hierarchy and a good financial situation, which is considered an achievement of personal social success. According to the cultural-anthropological approach, it is determined by socio-cultural factors, the success of an individual is understood as the implementation of a life strategy, formed in the system of certain cultural norms, ideas, and ideals. We would like to note that the concept of social success has a multi-faceted nature. Although, now, it is often reduced to getting a higher position in the social stratification, and it involves participation in competition, adverseness, overcoming, and winning [15]. Some Russian young people see their life path not in moving up the hierarchy but rather devote their energy to creativity, search for themselves in mastering new cultural practices, new localities, and a new lifestyle. However, for the majority of young people, the problem of integration into the modern labor market has been actualized in order to take a place in it that allows vertical social mobility.

Position of young people on the labor market

Employment, career development, and placement in a socially stratified society are largely determined by the position of young people on the labor market, and how this position relates to the position of adults and

Table 2. Structure of employed people by age group, %

Year	Total	including age, years										
		15–19	20–24	25–29	**Youth 15–29**	30–39	40–44	45–49	50–54	55–59	60–64	65–72
2005	100	2.1	9.6	12.7	**24.4**	24.0	14.5	14.6	12.1	6.7	2.0	1.8
2010	100	1.0	9.4	13.6	**24.0**	25.3	11.5	13.7	13.0	8.3	3.0	1.2
2014	100	0.6	7.8	14.5	**22.9**	26.3	12.0	11.8	13.3	9.0	3.7	1.2
2015	100	0.6	7.0	14.5	**22.1**	26.9	12.2	11.4	13.0	9.3	3.9	1.2
2016	100	0.6	6.4	14.5	**21.5**	27.4	12.5	11.2	12.7	9.4	4.0	1.3

Source: *Labor and Employment in Russia. 2018: Stat. Coll.* Available at: http://www.gks.ru/bgd/regl/b17_36/Main.htm

older age groups. The aforementioned trends of reducing number of young people will negatively affect the age structure of employed population, as the result, in 15–20 years into the future, there will be fewer opportunities for labor productivity growth. What can the labor market provide for young people now?

The state of the labor market in Russia in 2000–2015 is analyzed in a report prepared by specialists of the Higher School of Economics [16]. Using the results of this analysis as a "framework", we will review the problems of integrating young people into the modern Russian labor market, especially since this aspect is presented only in fragments in the report. To do this, based on official statistics, we will highlight the main characteristics of the labor market in Russia that affect the position of young people on it and in the economy as a whole. At the same time, we use the age grouping, adopted in statistical collections, where the youth group includes people aged from 15 to 29.

Statistics show that the increase of a number of older workers in the economy changes the proportions among the employed. The result of it is the decrease of the share of young people in a total number of employed (*Tab. 2*).

The share of young people in the economy decreased by almost 3% in 2005–2016. At the same time, the share of employed people aged 55–72 increased by 4.2%. The decrease of the share of young people in the economy certainly has a negative impact on innovative development, since young people tend to have better modern training and receptivity to new things, in particular to the introduction of digital technologies.

There have also been significant changes within age groups of young people over the last 10 years. In the group of 15–24-year-olds, the share of people, employed in the economy, decreased by about 5% due to the increase of the share of school and university students. At the same time, the share of employees in the senior youth group – 25–29 years – increased by 2.4%. Such structural changes indicate that there are more opportunities for young people to continue their education (at different levels) and only then start working.

In 2000–2018, while the primary (agriculture and fishing – from 13.4% to 6.9%) and secondary (industry and construction – from 30.4% to 27.9%) sectors decreased in terms of total employment, the service sector became the dominant sector in terms of workers' number (its share increased from 56.2% to 65.3%)[9]. It has been the main place of work for young people in recent years: young people are actively engaged in trade, financial intermediation, real estate operations, and hotel and restaurant business.

[9] *Labor and Employment in Russia. 2003: Stat. Coll.* Moscow: Goskomstat Rossii, 2003. P. 190; *Labor and Employment in Russia. 2019: Stat. Coll.* Moscow: Goskomstat Rossii, 2019. P. 62.

Table 3. Structure of employees by age and occupation groups*, 2016, %

	Total	including age, years					
		15–19	20–29	30–39	40–49	50–59	60–72
Employed – total	100	0.6	20.9	27.4	23.7	22.1	5.3
Directors	100	0.0	10.3	26.5	29.4	27.7	6.1
Specialists with the highest qualification	100	0.0	23.0	30.4	23.5	18.7	4.4
Specialists with middle level qualification	100	0.4	23.7	27.1	23.6	20.9	4.2
Employees engaged in the preparation and execution of documentation, accounting, and maintenance	100	0.4	23.9	27.2	22.4	21.4	4.7
Employees of the service and trade sector, protection of citizens and property	100	0.8	25.2	29.0	22.8	18.5	3.7
Skilled workers in agriculture, forestry, fish farming, and fishing	100	4.2	13.6	16.8	19.2	25.5	20.7
Skilled workers in industry, construction, transport, and related occupations	100	0.3	20.5	28.0	23.6	23.3	4.3
Production plant and machine operators, assemblers, and drivers	100	0.2	17.5	26.3	25.6	26.4	3.9
Unqualified workers	100	2.2	18.8	22.7	21.3	26.1	9.0

* In accordance with the All-Russian Classifier of Occupations (OK 010-2014).
Source: *Labor and Employment in Russia. 2018: Stat. Coll*. Available at: http://www.gks.ru/bgd/regl/b17_36/Main.htm

In addition, young people are quite active in creating their own independent business. In 2016, 16.7% of self-employed workers were young people under 30. At the same time, young people with only secondary education dominate in this group. It is obvious that, for them, especially in rural areas and small towns, there are not enough jobs with good salaries, so they start working independently as builders, drivers, small traders, and producers of various services.

In accordance with industry and status changes, the qualification composition of employees in Russia has changed: the share of managers, highly- and medium-qualified specialists, and service workers has increased, but a number of qualified and especially unskilled workers and agricultural workers have decreased. As the result of these changes, it is not physical labor that has become the dominant economic activity of young people and all Russians in general. Jobs that require a lot of physical effort were mostly reserved for migrant workers.

Young people under the age of 30 are more represented in occupations that require higher or intermediate qualifications, in the service and trade sectors than among agricultural workers, skilled and unskilled workers, as well as plant and machine operators (*Tab. 3*).

The last four groups of employees, shown in the table, are not as popular among young people as the first four, if you do not take into account managers. Meanwhile, according to the Ministry of Economic Development, during 2018, the most limited supply of personnel with required qualifications was observed among working staff, and the ratio of CVs submitted to vacancies was the smallest. Young people prefer non-working professions. As the result, currently about one-third of all employees in the hotel business and financial sector are represented by young people under 30 years of age, 26% – in trade and consumer services.

The integration of young people into the labor market is controversial. Deindustrialization and slow modernization of the economy led to an outflow of young people from material production and employment in trade and services, including financial intermediation. Today, the service sector makes a significant contribution to Russia's GDP and provides a wide range of offers for

the population. At the same time, those sectors of the economy that formed the material base of the country's economic development remain undeveloped, but did not turn out to be a priority for youth employment. The situation may change with the introduction of digital technologies in production.

Internet development and globalization created a new type of employment that is very attractive for young people – freelance. It is estimated that 20% of all activities in the IT sector are performed by freelancers, such as website creation, text processing, design and art, programming, outsourcing, copywriting, etc. In addition, freelancers receive orders for various types of engineering-production of drawings, diagrams, structures, and so on. Domestic and international freelance exchanges have emerged, the remote labor market has become international in nature, and it is becoming increasingly popular for young people who have training in digital and Internet technologies. It is attractive for the freedom of work self-organization, an opportunity to live anywhere in the world when performing custom-made work, but at the same time it carries the threat of insufficient social security.

In recent years, the informal sector of employment has become available to Russian youth with a low level of education, mainly in trade, construction, household and personal services. Seasonal work actively develops: it is work for a relatively long time outside of a permanent place of residence. Total employment grows due to the informal employment sector, and demand for services is being met. According to various estimates, informal employment in Russia is 20–25%. In Russian conditions, formal and informal sectors do not exist in isolation but actively interact with each other. The negative effect of participation in informal employment is the lack of social guarantees – payment of sick leave, pension formation, etc., as well as, as a rule, opportunities for professional development and social status. It is known that involvement in training and retraining depends on the place of work and level of education. The informal sector has become a haven primarily for young people with low educational levels, and additional training is often not necessary to work in this area.

Thus, Russian youth on the modern labor market actively occupy places in the informal sector of the economy (professionals – in the IT sector, young people with low levels of education, without professional training – in trade, construction and services). Despite the higher salary for young people, there is practically no social protection today, and in the future – at the onset of retirement age. The most far-sighted young people create a kind of "safety cushion" for such cases.

This group is small, but it is very difficult for its representatives to overcome their marginal position, as well as to find a good job or get a quality education. Among these young people, there are many rural residents, people with health problems and people with disabilities. The solution proposed by the authors of the report "Russian Labor Market: Trends, Institutions, and Structural Changes", which cannot be disagreed with, is as follows: only encouragement of NEET youth representatives to obtain and improve their skills and retraining within the framework of active job search programs that would have a clear link with the requirements of the labor market, as well as creating jobs in rural areas, can lead to a reduction in the number of this group. However, over time, it can also be supplemented by graduates of low-quality universities. Their professional path is likely to be associated with low-prestige and low-skilled jobs [16]. Their main professional advantages are provided by going through socialization in a university with the acquisition of social and behavioral skills and competencies that become necessary in order to take a place on the labor market.

Table 4. Structure of unemployed young people by age group, %

	Unemployed of all ages – total	Age (years)			
		15–19	20–24	25–29	Total 15–29 year old young people
2000	100	9.6	17.2	12.5	39.3
2010	100	5.6	20.8	15.0	41.7
2015	100	4.7	19.8	16.1	40.6
2016	100	4.2	19.1	16.5	39.8
2017	100	3.8	17.9	16.5	38.2

Source: *Russian Statistical Yearbook 2018*. Moscow: Rosstat, 2018. P. 124.

Most of current Russian youth face unemployment. Over the last 17 years, unemployment in Russia has decreased to the lowest levels, now it covers only 5.2% of working-age population, or 4.2 million people[10]. At the same time, the share of unemployed young people under 30 fluctuated in these years around 40%, amounting to 38.3% in 2017 (*Tab. 4*).

Unemployment among young people is specific. From 2005 to 2018, the share of university graduates increased from 13.1% to 20.7% among total unemployed; unemployment remained at the level of 19–20% among workers and employees who received secondary vocational education[11]. Unemployment among people with other educational levels has been gradually decreasing in these years. It is obvious that, among the unemployed people who have not had any work before (26% of them), the majority are young people. How can we assess these trends of youth unemployment? The answer lies, perhaps, in the regional features of the structure of the labor market in Russia, its asymmetric state.

The lowest unemployment level is observed in the Central Federal District, the highest – in the North Caucasian FD. While young people, aged 20–29, usually have vocational education, a total number of unemployed was 34.5% in 2018 in Russia, and in such Russian regions like Moscow, Saint-Petersburg, where there are a large number of educational institutions, the share of unemployed young people among all unemployed is higher than in most other regions (38.2 and 44.1%, respectively), approaching the "leaders" of these indicators – the Chechen Republic (57.9%), Stavropol Krai (51.4%), Ingushetia (50.8%), Krasnodar Krai (50.4%). Oversaturation of educational institutions, the attractiveness of megalopolises for young people, and the reluctance to leave for the provinces, which lack jobs with decent salaries, create a situation where young people strive to stay in the capitals in all possible ways, and, it should be noted, these cities provide such an opportunity. After searching for a job for a certain period of time (Moscow and St. Petersburg have some of the lowest average job search terms for unemployed people (4.6 and 5.1 months, respectively)[12]), young professionals usually find it, but often it does not correspond to their specialty obtained in an educational institution. As the result, Moscow and St. Petersburg have the lowest percentage of unemployed youth, aged 20–29, among all Russian regions. In other regions with high unemployment, an average time to find a job may be twice as long.

Marked regional differences in the level of youth unemployment reflect several important contradictions between regional labor markets and the education system. Educational institu-

[10] *Russian Statistical Yearbook. 2018.* Moscow: Rosstat, 2018. P. 109, 110.

[11] *Labor and Employment in Russia. 2017: Stat. Coll.* Moscow, 2017. P. 80; *Labor and Employment in Russia. 2019: Stat. Coll.* Moscow, 2019. P. 43.

[12] *Regions of Russia. Socio-economic Indicators.* Moscow, 2019. Pp. 168–169.

tions in regions often do not meet the needs of the regional economy, the level of employment, the availability of vacancies, the scale of informal employment, and unemployment. Young people are not satisfied with the amount of wages and distance from development centers, especially large towns and capitals. In rural areas and small towns, where job places are limited, youth unemployment is more common than in medium-sized and large towns.

Thus, the Russian labor market and education system differentiate modern Russian youth, providing them with unequal opportunities of receiving quality education that meets, on the one hand, needs of young people for the quality of work, and on the other, the uneven distribution of well-paid promising jobs across regions. The planned reduction of budget places in Russian universities, mainly regional ones, will have a negative impact on the situation with young people on labor markets. As stated in the government's report to the Federal Assembly on education policy, dated July 2019, by 2024, a number of budget places will be reduced by 17% compared to 2019, while a number of applicants will increase by 15%. It will primarily affect regional universities in regions where the regional budget deficit will not be able to support them. In such circumstances, subsidies from the federal budget are needed to increase free places in regional universities. Perhaps this will help to avoid a large outflow of young people to Moscow, St. Petersburg, and other major centers, and keep capable young people for development of peripheral and depressed regions.

Political socialization of youth: Role of the emotional component

Socialization is the process of integrating an individual into the social system, entering into the social environment through mastering its social norms, rules and values, knowledge, and skills. According to the peculiarities of their political culture, Russian youth is in an intermediate state, or, as P. Chaadaev said about the position of Russia between the West and the East, not clear state. The transition from a traditional society with declared socialist principles of collectivism and equalization in consumption to a modern market society with a high level of individualism and a focus on material well-being and self-realization fully affected the socialization of young people. Let us look at the example of political socialization of young people with an emphasis on its emotional component.

Today, political socialization in its most general form is one of the directions of socialization of young people, the process of their assimilation of political values and norms, which are not only transmitted from a family and government institutions but also taken from public environment and environment of direct personal and virtual communication. In Russia, as in other modernizing countries, vertical transmission of political knowledge, norms, and values of traditional society were replaced by horizontal communication. In it, the object of political socialization starts a mental, or real, dialogue with many carriers of norms, values, forms of political consciousness and behavior. It is not only a consumer of political values and attitudes, but it also influences the formation of these qualities in other people, including the older generation.

Modern Russian society is characterized by a state of transition, uncertainty in elaboration and development of political values and norms. It is manifested in the instability of citizens' political self-identification, doubts about their influence on authorities' actions – higher and local – and an ability to exercise their political rights. Young people's attitude toward politics is of marginal importance, it is especially important that personal experiences and

everyday reality of life lead to a sense of their own insignificance in the socio-political space and belief in the meaninglessness of political participation [17]. Just like for other age groups, young people are characterized by a high level of distrust in the authorities (with the exception of the President), political parties, and public organizations created with the assistance of government structures.

It is possible to distinguish two vectors of young people's political socialization: *positive* and *negative*. The first one is based on a rational and emotional attitude to one's country, its fate, its citizens, large-scale events, and critical situations; it can be the basis for political socialization and involvement of young people in public affairs and social movements. Today, this vector is implemented by young people in volunteering, self-organizing for the solution of environmental problems, in activities of non-profit organizations, in the organization of support funds, in social entrepreneurship, etc. It is possible to say that it is a basic political activity, in which the political function of self-organization and self-government is implemented. Sometimes citizens' grassroots organizations can change the general direction of politics, influence the fate of individual politicians, municipal authorities, and managers.

The second vector – the negative one – includes political detachment, a sense of powerlessness, inability to change a situation in politics and the country as a whole, and unwillingness to show any public activity. This is what might be called the "apolitical nature" of the majority of young people, their self-exclusion from activity in public affairs, formally organized events, movements; it is manifested in a negative attitude to initiatives of government institutions, participation in activities of local authorities. Both vectors may exist in the consciousness and activities of one actor.

Our studies show that the emotional image of the country, which is recorded in population surveys, among young people in particular, may be an important component of political socialization of young people. It is primarily formed as a positive attitude to the homeland (but not the government): its nature and natural resources, concern for the ecological state and future of a territory of residence; respect for the country's history, pride in historical figures' activities; appreciation of the richness of cultural heritage, its place, and recognition in the world; a positive attitude to people's qualities like responsiveness to other people's misfortunes and a sense of justice. These meaningful and emotional assessments show dominant interpretations of the patriotism by modern young people [18], and it may be seen as the emotional basis of their political socialization.

The current contradictory stage of social development has an impact on political socialization of various groups of young people. If we turn to two age cohorts of youth –15–24 and 25–34 years – you can see marked differences that occur due to not only age peculiarities (members of the first cohort are usually busy with education and training and live in parents' households, and members of the second one started working and creating their own families) but also to the impact of general and the nearest social environment, as well as the impact of the information field.

To understand these differences, it is advisable to review some aspects of socialization of the youth of the Russian Federation in comparison with young people from other countries. To compare, the analysis includes a group of adults who have already gone through socialization (45–59 years).

First of all, let us turn to the question of how young people in some European countries – Poland, the Czech Republic, Spain, Germany,

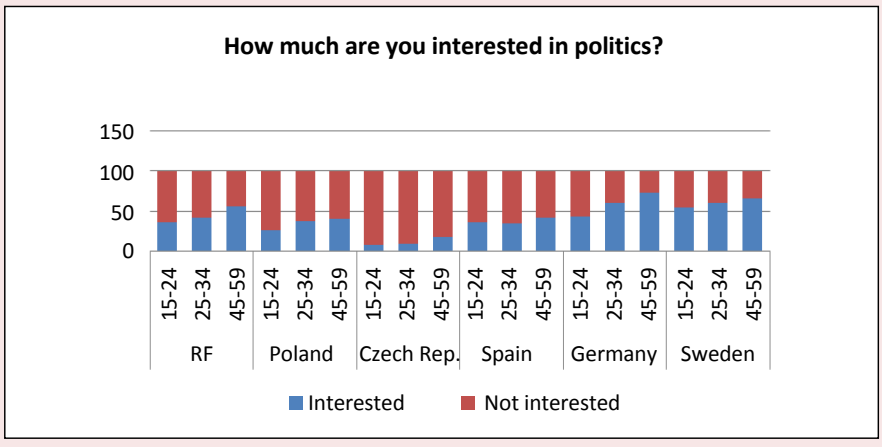
and Sweden – relate to politics and perceive the political situation in their country in comparison with Russia. These countries were selected according to the term of their existence in the market economy system, the level of economic development, and stability of democracy. Acquired responses to the question on a degree of interest in politics (very interested, somewhat interested, little interested, not interested at all) were grouped according to positions "interested" and "not interested" (*Fig. 1*).

In each state, interest in politics grows with respondents' age, but, in former socialist countries (especially the Czech Republic) and Spain, all age groups show less interest than corresponding groups of more economically developed countries – Germany and Sweden.

While assessing satisfaction with the way democracy works in their country, ratings on the contrary, decrease with increasing respondents' age in all studied countries except Spain (*Tab. 5*). In Russia and the Czech Republic, the decline is maximum which shows ageing respondents' frustration with these countries' democratic development. We would like to note that the minimum gap in the assessments of democracy between groups of young people and adults is observed in Poland, which may indicate a greater political consolidation of age cohorts, which is absent in Russia, where the difference between various respondents, aged 45–59, 15–24, and 25–34, is very significant – more than 1 point on a 10-point scale.

In Germany and Sweden, young people's assessment of democracy in their countries is higher than in Russia by, approximately, 1–2 points, but it decreases less rapidly with increasing age of respondents (by 0.5 and 0.6 points, respectively). Thus, assessments of

Figure 1. Interest in politics in groups including young and adult respondents, % from a number of respondents in a group



Source: ESS-2016 data. Available at: http://www.ess-ru.ru

Table 5. How satisfied are You with the way democracy works in the country? (average score on a 10-point scale)

Age (years)	RF	Poland	Czech Republic	Spain	Germany	Sweden
15–24	5.1	5.0	5.8	4.2	6.4	7.1
25–34	4.3	4.5	5.5	4.2	6.1	6.4
45–59	4.1	4.7	4.8	4.5	5.9	6.5
Source: ESS-2016 data. Available at: http://www.ess-ru.ru						

countries' democracy correlate with the level of economic development and confidence in the political institutions of society. According to numerous international studies, including ESS, the level of trust in political institutions in Germany and Sweden is among the highest in Europe, while these estimates has been low in Russia throughout the whole post-Soviet period.

The socialization of young people in Russia is influenced by ambiguous processes of the country's political development. Until now, the conflicts that arose during the redistribution of state property have not been overcome, property and power have merged, the majority of population has been removed from the disposal of society's resources, and there has been a deep material and social differentiation of population.

Features of political socialization of young people, their undeveloped political culture are expressed in the political passivity of young people, the lack of solidarity in the political sphere. For a significant part of Russian young people, private life, personal success, and material well-being have become more important. At the same time, young people are easily manipulated and involved in protest actions, believing that democratic procedures are only a formality in Russia.

The attitude to one's country on an emotional level, shown by different age groups in European countries, including Russia, is indicative (*Tab. 6*).

In all states, the emotional connection with a country increases with ageing, but, in the older youth group in Russia, it is still weaker, as well as in the adult group of 45–59 year olds. The leader in this indicator in all age groups is Poland. Only 15% of population, aged 15–24, experience a very strong emotional connection (maximum 10 points on the scale) in Russia: 17% – 25–34 years, 27% – 45–59 years (*Tab. 7*).

There is the above-mentioned pattern: with ageing, the emotional connection with a homeland increases, but the group of young people, in all countries, especially in Germany and Sweden, has a quite weak emotional attachment to it. These characteristics of two age groups of young people in comparison with the older part of population suggest that, along with other indicators, these are specific features of younger and older age groups. These features reflect their value orientations caused by world globalization, the spread of the Internet, mobile network connections, and relationships which more often replace real personal communication, including closest environment, and identification with a country.

Table 7. I feel a very strong emotional attachment to my country (10 points on a 10-point scale), %

Age (years)	RF	Poland	Czech Republic	Spain	Germany	Sweden
15–24	15	17	15	14	6	6
25–34	17	30	21	22	11	19
45–59	27	48	25	32	19	28
Source: ESS-2016 data. Available at: http://www.ess-ru.ru						

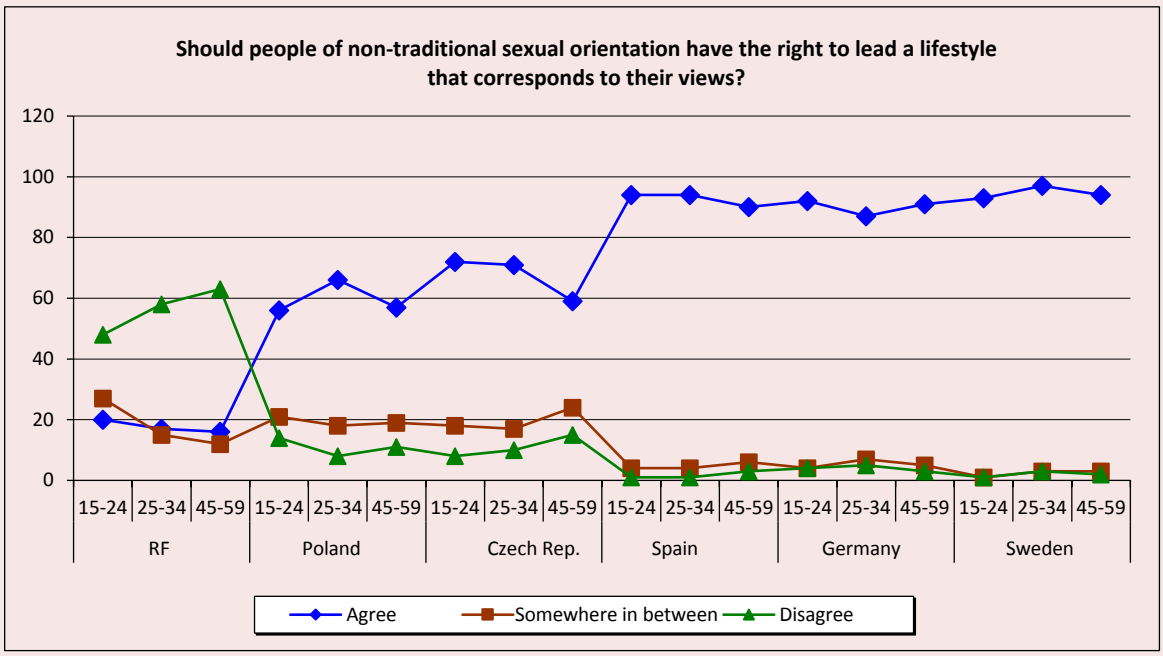
Table 6. How much are you emotionally attached to your country? (average score on a 10-point scale)

Age (years)	RF	Poland	Czech Republic	Spain	Germany	Sweden
15–24	6.6	7.4	7.2	6.7	6.3	6.2
25–34	6.8	7.9	7.6	7.3	6.9	7.5
45–59	7.4	8.7	7.8	7.8	7.6	8.2
Source: ESS-2016 data. Available at: http://www.ess-ru.ru						

Socialization of young people in modern environment in Russia is dramatic and controversial. Surveys show that entire society, including young people, is being tested for tolerance toward members of other ethnic groups and religions, labor migrants, people with physical disabilities, children with disabilities, people with non-traditional sexual orientation, etc. Young people are particularly aware of the problems of relations between people who differ in appearance, language, convictions, customs and beliefs. The socialization of young people takes place in an environment which is similar to a struggle within the whole society between fostering a tolerant attitude to otherness and intransigence to other points of view and behaviors that differ from traditional ideas and values. One of the clear examples of differences between Russian youth and young people in other European countries is the attitude toward people with non-traditional sexual orientation. *Figure 2* presents data from combined responses: "completely agree" and "agree", as well as "disagree" and "completely disagree"; in addition, the group that occupies an intermediate position between these two extreme opinions is highlighted.

In Russia, a tolerant attitude toward people of non-traditional sexual orientation (agreement with the right for their lifestyle or neutral position) among the youngest youth cohort is 47%, in the group of 25–34 years – 32%, among adult Russians 45–59 years –28%. As far as we see in other studies (Levada Center, Public Opinion Foundation), the level of tolerance toward people of non-traditional orientation in Russian society gradually increases and, at the same time, it strongly depends on the information impact[13]. If we compare data for Russia and other countries,

Figure 2. Attitude to persons of non-traditional sexual orientation, % from a number of respondents in the group



Source: ESS-2016 data. Available at: http://www.ess-ru.ru

[13] Dergachev V. Nearly half of Russians supported equal rights for gays. Available at: https://www.rbc.ru/politics/23/05/2019/5ce530039a7947172f79405d (accessed: March 12, 2020).

the difference will be very significant. Tolerant attitude of respondents from all countries ranges from 76 (Poland, 45–59-year-olds) to 97% (Sweden, 15–24-year-olds). Growing tolerance of young people to "others" in the Russian Federation shows that there is a growing respect for the diversity of behavioral practices. It is a demonstration of a different perception of the world by young people in comparison with adult population of the country.

Conclusions

The study allows drawing three short, but important, conclusions. In Russia, there is a social stratification of Russian young people, some kind of a youth social pyramid. Young people took their own place on the labor market, which is different from adult generations. Young people, aged 15–34, show a more critical attitude toward the country's political system, a more tolerant perception of other opinions and lifestyles, which is different from traditional ideas and value orientations of older age cohorts.

Many researchers note that the algorithm for the change of generations' values is common for different countries, and it is determined by key events in the world (today, it is the emergence of the Internet, the spread of mobile communications, and IT). Generational change in countries with similar levels of development takes place in almost the same mode. However, generations of young people in various countries are different depending on the stage of society development, which is well demonstrated by ESS data, discussed above. In this regard, the theory of generations by William Strauss and Neil Howe, which received a wide response in the scientific community, requires modification for Russian conditions taking into account significant events in the country's recent history, the level of the economy, previous features of development, and processes of intergenerational changes. Special attention should be paid to the characteristics and value orientations of modern youth (Y an Z generations), for which it is necessary to use relevant empirical material obtained in representative studies. Unfortunately, nowadays, such works are rarely carried out. Russian sociologists limit themselves by presenting the theory of V. Strauss and N. Howe and constructing their theoretical structures regarding generations in Russia. More attention is paid to the generation of 35–56-year-olds, or generation X [7, 19–21]. However, it is possible to say that generation Y, those who began an active phase of life (18–35 years), and the generation Z, those who come into adulthood (up to 18 years), even now having different socialization experiences, which will remain in the future, will form ideas about well-being, happiness, and their place in society. We may expect that they will claim to change the current situation in the economy, social sphere, and politics, because they will be main carriers of intangible capital in the near future [22]. This is why scientists and society should know more about these generations.

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Received March 03, 2020.

ACADEMIC LIFE

DOI: 10.15838/esc.2020.4.70.14

A Russian Man in the Hinterland or Regional Sociology

On May 28, 2020, the 10th anniversary Grushinsky conference "To Live in Russia. To live in Peace. Daily Sociology" began. It opened with a session of the section "A Russian Man in the Hinterland or Regional Sociology" which is traditionally conducted with the participation of the Vologda Research Center of the Russian Academy of Sciences. Before the beginning, the participants were congratulated by the chairman of the conference program committee, general director of VCIOM Valery Fedorov who expressed an opinion that it is possible to overcome the perception of remoteness due to modern digital technology – actual and in our minds. The Russian hinterland ceases to be such.

The section of the Grushinsky conference is held in the remote format for the fifth time. A.A. Shabunova – Director of VolRC RAS, Doctor of Sciences (Economics) – congratulated all the participants on this event. Wishing everyone good health in pandemic times, she noted that, in the Russian hinterland, where more than half of the country's population lives, traditions are preserved, the meanings of people's life and strategies for everyday life practices are being developed. There is a great opportunity for development of Russian regions sociology, and this will provide the increase of fundamental science and wealth of applied studies.

The purpose of the section is to introduce the scientific world to studies conducted on regional topics and in regions. That is how it was planned to be five years ago. It was one of the first experiences of conducting a section in remote format. The geography of its participants constantly expanded. The first session was attended only by employees of VolRC RAS and Cherepovets State University, but the fifth section became international and brought together scientists from Armenia and Belarus, Moscow, Tyumen, Saransk (Mordovia).

During the session, it was proposed to discuss general and specific features of regional communities, the factors that can be called determining and ones that determine the uniqueness of our existence in certain territories. This is important for understanding how a person's life develops in a small homeland, why a person stays and builds a life there, or why a person leaves this place. Main thematic areas were about issues related to identity, civic engagement, health in the system of human values and goals, and the practice of measuring social capital in the regional community.

For citation: Guzhavina T.A. A Russian man in the hinterland or regional sociology // *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 4, pp. 238–241. DOI: 10.15838/esc.2020.4.70.14

Scientists of VolRC RAS revealed the results of studies carried out within projects supported by RFBR. In the report "Deputy Head Teacher on Healthcare – Fantasy or Reality", A.A. Shabunova raised serious questions about children losing their health and some parents' inadequate idea about their children's health state. The systemic reason for this situation was shown: at schools and clinics, parents and students themselves do not have a full attitude toward health-saving behavior. Healthy people are poorly supported. Perhaps, the health-saving function can be organized at school by a specialist – "deputy head teacher on health".

It is extremely important, as G.V. Leonidova (Candidate of Sciences (Economics), Leading Researcher, Head of the Laboratory for Research on the Development of Labor Potential of RAS) stated in her speech, to pay attention to job satisfaction and the quality of working life itself, especially now – during a crisis. All of this affects the implementation of the national project "Labor Productivity and Employment Support". Job satisfaction significantly affects productivity. The situation, generated by digitalization, will put new emphasis in the "employee-employer" relationship. It applies to new working conditions, wages, and rationing. It is necessary to supplement the labor legislation. The quality of working life has a significant impact on the civic activity of population. Yu.V. Ukhanova (Candidate of Sciences (History), Senior Researcher at VolRC RAS) devoted her speech to its study in the form of charity. The specifics of civil activity of the region's population consist of the choice of mostly non-political forms. One of it was charity, which allows implementing altruistic aspirations of a person. People with a higher level of education, more often women, participate in charity. According to the researcher, in order to increase its efficiency and attract more citizens to such activities, it is necessary to improve the institutional conditions for the work of charitable organizations and to increase trust in it by spreading information about positive examples. Another step may be the spread of civic education in society.

The problem of the older generation was raised in the reports of three participants of the section. V.N. Barsukov (Researcher at VolRC RAS) spoke about the barriers and opportunities for implementing the resource potential of the older generation. He identified institutional and individual barriers which make it possible to have a targeted impact on it. Scientists from Tyumen – E.V. Andrianova (Candidate of Sciences (Sociology), Head of the Department of General and Economic Sociology at the University of Tyumen) and M.V. Khudyakova (Candidate of Sciences (Sociology), Associate Professor at the Department of General and Economic Sociology at the University of Tyumen) – presented the results of the study on different types of social activity of modern pensioners, existing opportunities and obstacles for the implementation of a certain form of activities among older people. As the result, it was revealed that the latter should include not only economic barriers, low motivation of people of retirement age but also a low level of expectations from them from younger people and poor demand for pensioners' activities.

In recent years, researchers became increasingly interested in various aspects of population's life in small Russian towns. Small towns make up almost 70% of all towns in the country. It is not only the economic side of its life and opportunities of residents that matter but also emerging social relations that are accumulated in social capital. T.A. Guzhavina (Candidate of Sciences (Philosophy), Leading

Researcher at VolRC RAS) studied the state of Vologda residents' social capital who live in small towns of the region. The study, conducted on the basis of the methodology developed earlier with the author's participation, which allows assessing the state of the social capital of the settlement community, showed the existence of problems but did not reveal trends of a destructive nature. The level of accumulated social capital in small towns of the Vologda Oblast is lower than in large ones, but there are reserves for its growth. Small towns are the centers of municipalities and its resources extend to surrounding rural areas, so special attention should be paid to preserving and accumulating its social capital.

It is also interesting how such towns are represented in the local media. A study, conducted in Mordovia by I.A. Pakshina and E.S. Ruskina (Saransk, Research Center for Socio-Economic Monitoring), using content analysis methods, revealed a rather contradictory picture that is created by print media, associated with authorities and publics of local Internet-communities. The former presents positive information, and publics are full of criticism, dissatisfaction with the solution of urgent problems. In this regard, there are disagreements between a real image of a small town and an image created by the media.

The themes of the conference reports were quite diverse. Scientists noted the impact of digitalization processes on development of regions. G.F. Romashkina (Doctor of Sciences (Sociology), Professor at TSU) believes that people will be more attached to regions in the future, but their lives will largely depend on global trends, which may increase inequality. A feature of modern Russian society is uneven development of regions. According to V.V. Komleva (Doctor of Sciences (Sociology), Head of the Department of International Regional Studies and Regional Management of RANEPA), one of the reasons for this situation is the methodology, used by the Center, to assess existing problems and the conclusions based on it. During the discussion, it was noted that a completely unacceptable and inherently false attitude of parents toward pushing children out of provincial towns to capitals was formed. It is possible to overcome this trend by taking into account social and cultural needs of population living in small towns and rural areas.

This year, foreign researchers from Armenia and Belarus were among the participants of the section. Scientists from Yerevan pay special attention to the consideration of such a complex phenomenon as identity. A.R. Vardanyan (Candidate of Sciences (Sociology), lecturer at the Department of Applied sociology of Yerevan State University) focused on the ethno-national mode of Armenian identity, noting that the ethnic factor plays a great role in the formation of identity for Armenian people. Ethnic characteristics are intertwined with religious aspects. The researcher also highlighted the role of the territorial factor in the formation of identity.

Speech of G.K. Tumanyan (Masters Degree in Sociology, Assistant at the Department of Theory and History of Sociology of YSU) was also devoted to identity: he studied aspects of identity in the discourse of modern Armenian citizenship. A.R. Vermishyan (Candidate of Sciences (Sociology), Associate Professor, Head of the Department of Theory and History of Sociology of YSU) and L.A. Babayan (Masters Degree in Sociology, Junior Researcher at the Faculty of Sociology of YSU) focused their attention on the crisis of rural lifestyle in post-Soviet Armenia. For the Republic, disappearance of villages, the reduction of the share of rural residents in the population structure, and increased migration to towns

and outside the country are relevant issues. The trend of the transition from local to global was discovered, the decrease of identity with a place of residence, a native village takes place. E.R. Vardanyan touched upon the issue of crisis in development of local self-government in Armenian communities, largely associated with the strong dependence of LSGs on the government, population's low readiness for self-organization, a drop of the social capital level in rural areas. A.V. Rublevsky (Belarus, Lecturer at the Department of Economics of Polotsk State University) presented to the participants of the section his methodology for assessing the social capital of an organization. He noted the fact that a drop in the level of social capital in an organization leads to its decline in society. This is largely caused by the trust of employees in management and vice versa.

The work of the section showed a wide range of problems that researchers deal with in the regions. The experience of the remote format has been accumulated over five years of the section organization, but, this time, a discussion was held in the conference chat, where the problem of internal migration of population of various post-Soviet countries was discussed: it is observed in Armenia, Belarus, and Russia (in the context of small towns, population outflow, rural lifestyle crisis, unevenness of regions' development). The discussion may not always run parallel to the main line at a face-to-face meeting. Everyone can see the chat, anyone can ask a question or answer. The work of the section was held in a friendly and lively atmosphere.

The remote format provides another advantage – the increase of a number of participants. According to the organizing committee of the conference, 368 people expressed their intention to attend the work of the section, and 168 people watched the meeting. Views will continue. Presentations and the video broadcast itself are available on the websites of VCIOM and VolRC RAS.

The format of the section was developed during the session, and its main priority was the focus on regional topics and the presentation of studies conducted in the regions.

The article was prepared by **T.A. Guzhavina**,
Candidate of Sciences (Philosophy),
Leading Researcher at FSBIS VolRC RAS,
Section Moderator

Public Opinion Monitoring of the State of the Russian Society

As in the previous issues, we publish the results of the monitoring of public opinion concerning the state of the Russian society conducted by VolRC RAS in the Vologda Oblast [1].

The following tables show the dynamics of a number of parameters of social well-being and socio-political moods of the region's population based on the results of the last "wave" of monitoring (August 2020), as well as for the period from April 2019 to August 2020.

We compare the results of the surveys with the data for 2007 (the last year of V. Putin's second presidential term, when the assessment of the President's work was the highest), 2011 (the last year of Dmitry Medvedev's presidency) and 2012 (the first year of V. Putin's third presidential term).

We also provide yearly dynamics of the data for 2017–2019.

In February – August 2020[2], the level of approval of the work of the President of the Russian Federation changed insignificantly (by 2 p. p., form 54 to 52%); the share of negative assessments increased by 3 p. p. (from 31 to 34%).

For reference:

According to VCIOM, the level of approval of the work of the President of the Russian Federation in February – August 2020 decreased by 5 p. p. (from 65 to 60%), according to Levada-Center – by 9 p. p. (from 69 to 60%)[3].

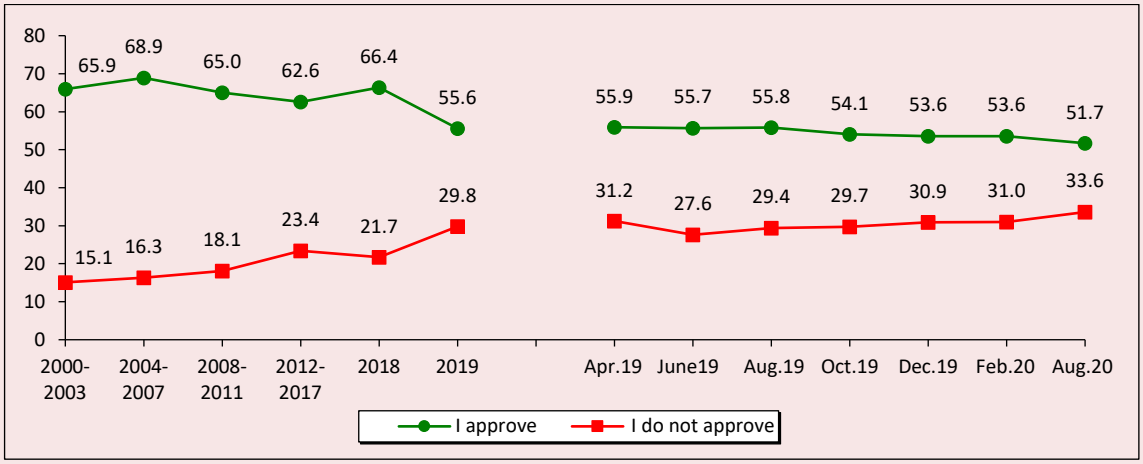
[1] The polls are held six times a year in Vologda, Cherepovets, and in eight districts of the oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky District). The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1,500 people 18 years of age and older. The sample is purposeful and quoted. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the Oblast's adult population. Sampling error does not exceed 3%.

More information on the results of VolRC RAS polls is available at: http:// www.vscc.ac.ru/.

[2] Due to quarantine measures carried out in the Vologda Oblast in order to prevent the spread of coronavirus infection, no population surveys were conducted in April and June 2020.

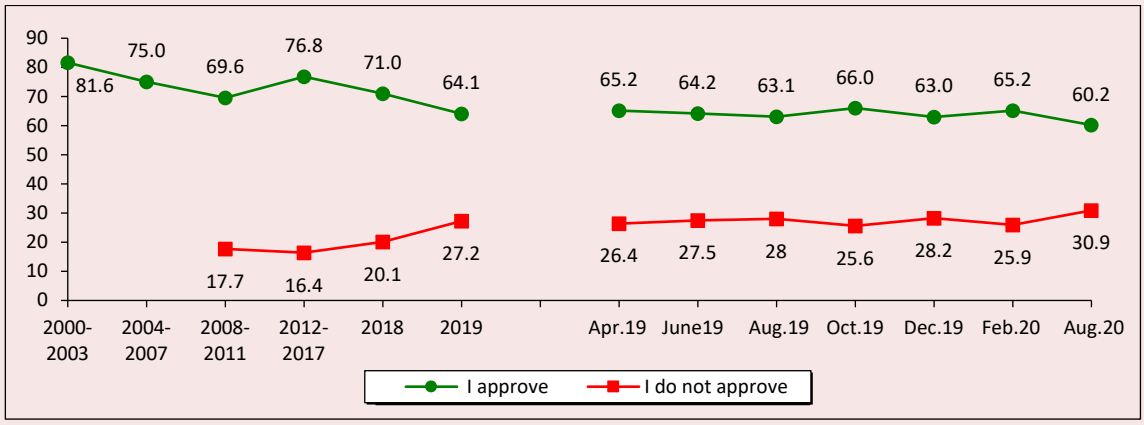
[3] Different methodological approaches, applied by VCIOM, Levada-Center, and VolRC RAS, do not allow comparing the results with each other. Nevertheless, the collected information makes it possible to analyze the overall dynamics of social attitudes that exist in Russian society, which are recorded by three different research centers (two Russian and one regional).

In general, do you approve or disapprove of the work of the President of Russia? (% of respondents)



Source: FSBIS VolRC RAS data.

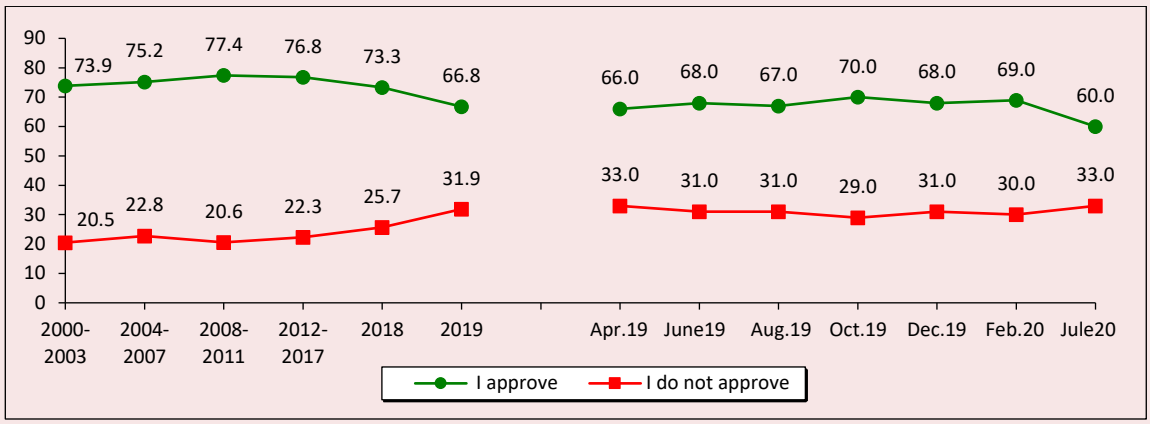
In general, do you approve or disapprove of the work of the President of the Russian Federation? (% of respondents)



Source: VCIOM data. Available at: https://wciom.ru/

There is no data on the level of disapproval of the President's work for 2000-2007. Data for August 2020 – the average value for two surveys: August 2, 2020 and August 9, 2020.

In general, do you approve or disapprove of the work of the President of Russia? (% of respondents)



Source: Levada-Center data.

How do you assess the current performance of..? (% of respondents)

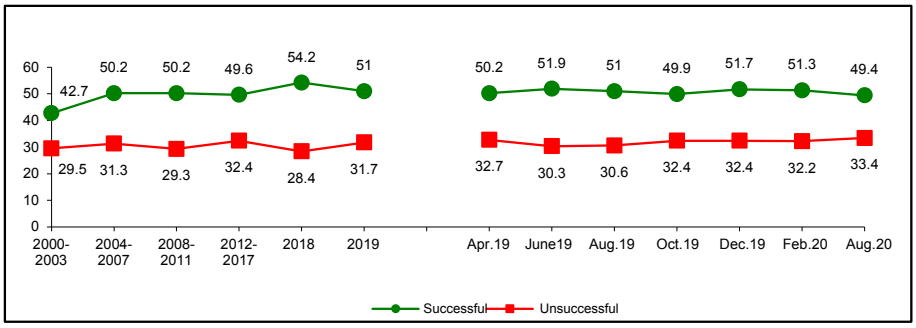
Answer	2007	2011	2012	2017	2018	2019	Apr. 2019	June 2019	Aug. 2019	Oct. 2019	Dec. 2019	Feb. 2020	Aug. 2020	Dynamics (+/-) Aug. 20 to…	
														Feb.20	Aug.19
RF President															
I approve	75.3	58.7	51.7	67.3	66.4	55.6	55.9	55.7	55.8	54.1	53.6	53.6	51.7	-2	-4
I don't approve	11.5	25.5	32.6	20.0	21.7	29.8	31.2	27.6	29.4	29.7	30.9	31.0	33.6	+3	+4
Former Chairman of the RF Government*															
I approve	-*	59.3	49.6	49.5	48.0	41.1	38.8	40.9	43.1	41.1	41.1	37.9	38.9	+1	-4
I don't approve	-	24.7	33.3	31.1	31.6	38.4	40.2	38.0	36.3	37.5	38.9	40.9	40.9	0	+5
Governor															
I approve	55.8	45.7	41.9	39.8	38.4	35.7	34.7	35.4	36.1	35.6	35.6	36.2	35.2	-1	-1
I don't approve	22.2	30.5	33.3	39.3	37.6	40.2	41.4	38.6	38.5	40.1	40.8	41.8	41.9	0	+3

Over the past five months (March – July 2020) there have been no significant changes in the assessment of the success with which the President solves the country's key problems:

- ✓ 49–51% of residents of the Vologda Oblast positively assess the work of the head of state aimed at strengthening Russia's international positions;
- ✓ 43–44% positively assess the President's efforts aimed at restoring order in the country;
- ✓ 35% positively assess the President's efforts aimed at protecting democracy and strengthening the freedoms of citizens (at the same time, 46–47% share the opposite point of view);
- ✓ the share of those who positively assess his efforts aimed at boosting the economy and increasing the welfare of the population is 25–27%, which is three times lower than the share of those who support the opposite point of view.

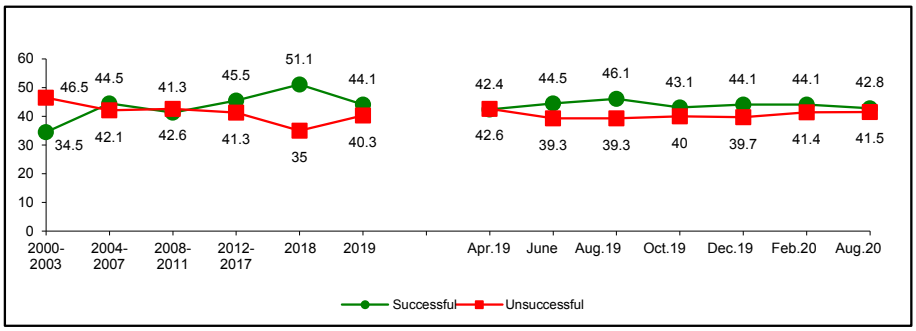
In your opinion, how successful is the RF President in coping with challenging issues?*
(% of respondents)

Strengthening Russia's international standing



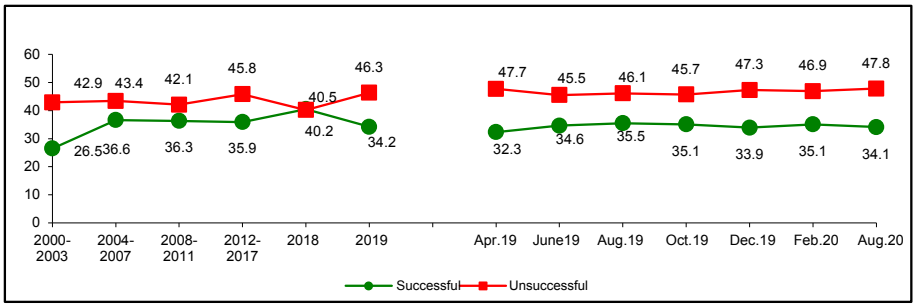
Dynamics (+/-), Aug. 2020 compared to…		
Answer	Feb. 20	Aug. 19
Successful	-2	-2
Unsuccessful	+1	+3

Imposing order in the country



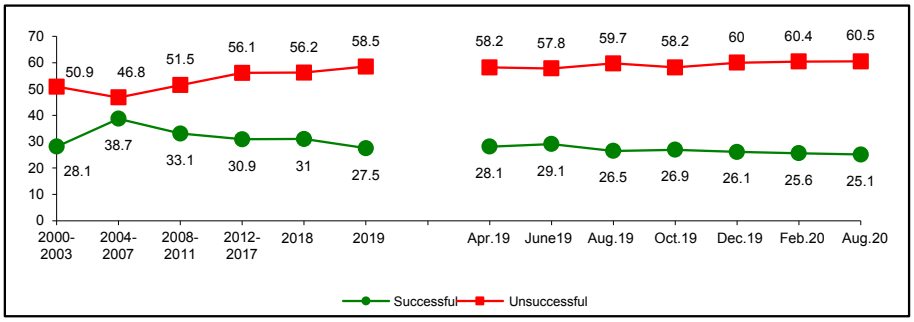
Dynamics (+/-), Aug. 2020 compared to…		
Answer	Feb. 20	Aug. 19
Successful	-1	-3
Unsuccessful	0	+2

Protecting democracy and strengthening citizens' freedoms



Dynamics (+/-), Aug. 2020 compared to…		
Answer	Feb. 20	Aug. 19
Successful	-1	-1
Unsuccessful	+1	+2

Economic recovery and increase in citizens' welfare



Dynamics (+/-), Aug. 2020 compared to…		
Answer	Feb. 20	Aug. 19
Successful	-1	-1
Unsuccessful	0	+1

In February – August 2020, the structure of people's political preferences has not significantly changed.

The level of support for the United Russia party is 31–33%, LDPR and KPRF – 8–9%, the Just Russia party – 5%.

It should be noticed that, over the last few months (as well as on average in 2019), a significant part of the oblast's population (34%) believes that none of the political forces represented in Parliament express their interests. It is much higher than in 2016–2018 (29%).

Which party expresses your interests? (% of respondents)

Party	2007	2011	Election to the RF State Duma 2011, fact	2012	2016	Election to the RF State Duma 2016, fact	2017	2018	2019	Apr. 2019	June 2019	Aug. 2019	Oct. 2019	Dec. 2019	Feb. 2020	Aug. 2020	Dynamics (+/-) Aug. 20 to…	
																	Feb.20	Aug. 19
United Russia	30.2	31.1	33.4	29.1	35.4	38.0	34.7	37.9	33.8	33.3	34.8	33.5	32.8	33.7	33.2	30.9	-2	-3
KPRF	7.0	10.3	16.8	10.6	8.3	14.2	7.6	9.2	8.8	8.0	8.5	8.7	9.1	9.2	8.9	8.6	0	0
LDPR	7.5	7.8	15.4	7.8	10.4	21.9	11.0	9.6	9.1	8.2	9.1	10.5	8.3	9.4	9.9	9.3	-1	-1
Just Russia	7.8	5.6	27.2	6.6	4.2	10.8	4.8	2.9	3.4	2.9	2.5	3.9	4.2	4.0	4.7	4.8	0	+1
Other	1.8	1.9	–	2.1	0.3	–	0.5	0.7	0.3	0.3	0.3	0.4	0.1	0.1	0.6	0.4	0	0
None	17.8	29.4	–	31.3	29.4	–	29.2	28.5	33.7	34.7	32.3	32.1	34.3	34.3	34.0	33.6	0	+2
It's difficult to answer	21.2	13.2	–	11.7	12.0	–	12.2	11.2	11.0	12.6	12.4	10.9	11.2	9.3	8.7	12.4	+4	+2

The estimates of social well-being of the population significantly decreased over the last five months (March – July 2020):

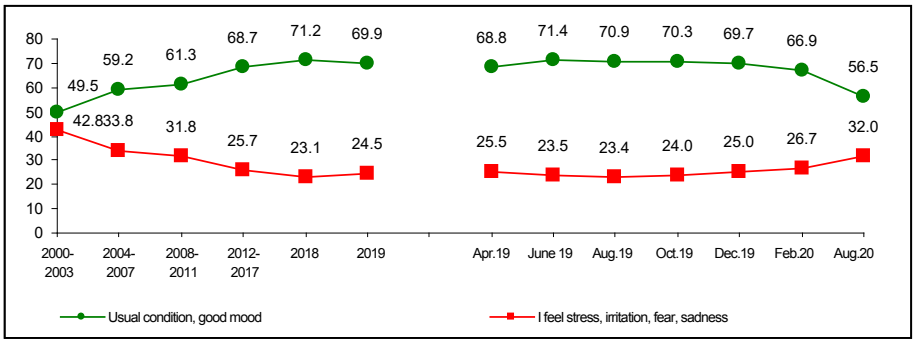
- ✓ the share of those who positively assess their daily emotional state decreased by 10 p.p. (from 66 to 56%);
- ✓ the share of those who think that "everything is no so bad and we can live; it's difficult to live, but it's possible to stand it" decreased by 2 p.p. (from 75 to 73%).

In the dynamics of social self-identification, since June 2019, there is an ongoing trend of the increase of the share of people who subjectively refer to themselves as "poor and extremely poor" (in general, the share of "poor and extremely poor" increased by 4 p.p., from 46 to 50%). At the same time, the proportion of residents of the Oblast who subjectively refer to themselves as "middle-class" citizens decreased by 43 to 39% (by 4 p.p.) since June 2018 to August 2020.

There are even more alarming changes in the dynamics of Consumer Sentiment Index (CSI) which shows people's ideas on the future of the Russian economy and their personal financial situation. In February – August 2020, CSI decreased by 5 p.p. (from 91 to 86 p.p.) in the Vologda Oblast, in the country in general (according to Levada-Center data for January – March 2020) – by 16 p.p. (from 84 to 68 p.p). At the same time, it should be noted that any CSI value less than 100 points means that negative ratings prevail over positive ones.

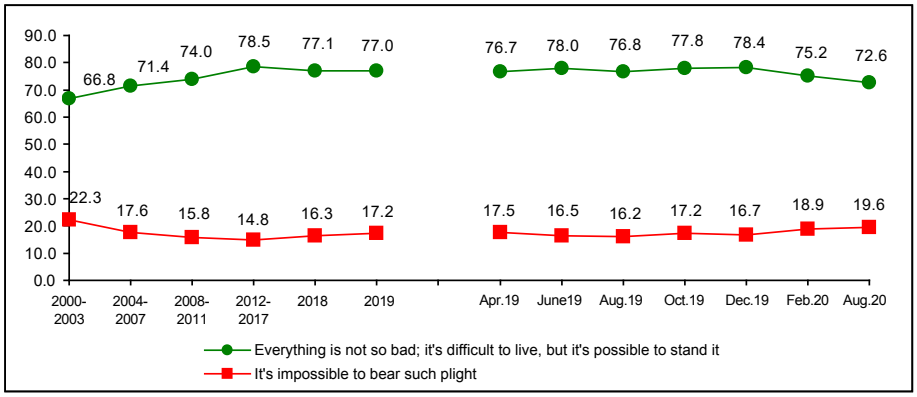
Estimation of social condition *(% of respondents)*

Social mood



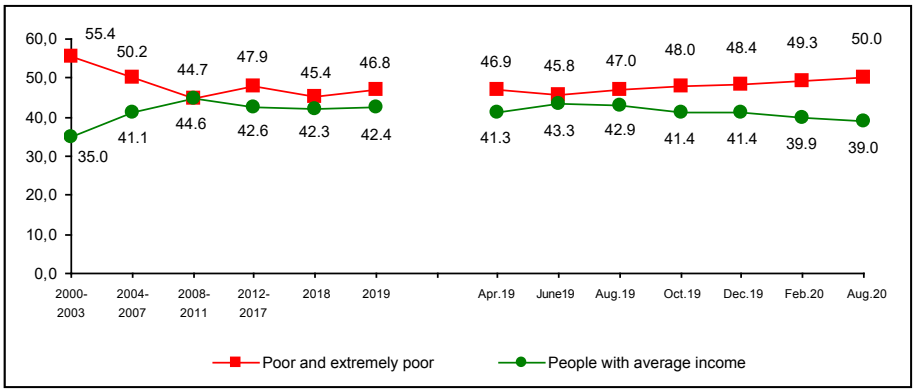
Dynamics (+/-), Aug. 2020 compared to…		
Answer	Feb. 20	Aug. 19
Usual condition, good mood	-10	-14
I feel stress, irritation, fear sadness	+5	+9

Stock of patience



Dynamics (+/-), Aug. 2020 compared to…		
Answer	Feb. 20	Aug. 19
Everything is not so bad; it's difficult to live, but it's possible to stand it	-2	-4
It's impossible to bear such plight	+1	+3

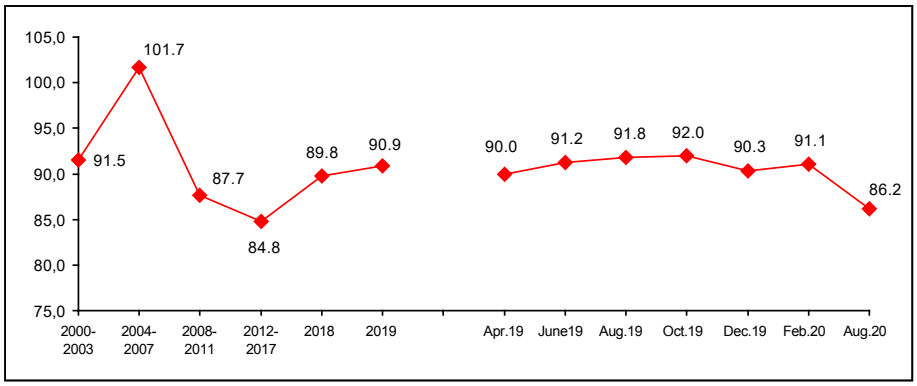
Social self-identification*



Dynamics (+/-), Aug. 2020 compared to…		
Answer	Feb. 20	Aug. 19
Share of people who consider their income average	-1	-4
Share of people who consider themselves poor and extremely poor	+1	+3

* Question: "Which category do You belong to, in your opinion?"

Consumer Sentiment Index (CSI; FSBIS VolRC RAS data for the Vologda Oblast)



Dynamics (+/-), Aug. 2020 compared to…		
CSI	Feb. 20	Aug. 19
Index value, points	-5	-6

A significant deterioration of social mood estimates for February – August 2020 is observed in all major population's socio-demographic categories, primarily among residents of Cherepovets (by 13 p.p., from 67 to 54%), people over 55 years of age (by 12 p.p., from 64 to 52%) and the oblast's residents who, according to their self-assessment of income, belong to the group of 60% of middle-class citizens (by 12 p.p., from 68 to 56%). Although it should be noted that in almost all groups (with the exception of people under the age of 30 and 20% of the most affluent people), the share of those who positively characterize their mood decreased by 8–12 p.p.

Social mood in different social groups (answer: "Good mood, normal condition", % of respondents)

Population group	2007	2011	2012	2017	2018	2019	Apr. 2019	June 2019	Aug. 2019	Oct. 2019	Dec. 2019	Feb. 2020	Aug. 2020	Dynamics (+/-) Aug. 20 to…	
														Feb. 20	Aug. 19
Sex															
Men	65.9	64.5	69.1	70.6	72.8	70.1	68.6	72.1	71.8	69.2	69.0	67.0	55.6	-11	-16
Women	61.7	62.0	65.8	70.2	69.8	69.6	69.0	70.8	70.1	71.2	70.3	66.9	57.3	-10	-13
Age															
Under 30	71.3	70.0	72.3	78.1	80.0	81.1	81.2	82.9	85.2	79.9	81.3	71.7	69.0	-3	-16
30-55	64.8	62.5	67.9	71.5	72.6	71.2	71.5	70.5	74.0	71.1	71.9	67.5	56.2	-11	-18
Over 55	54.8	58.3	62.1	64.9	65.2	63.3	59.8	67.4	60.7	65.1	62.6	64.3	51.9	-12	-9
Education															
Secondary and incomplete secondary	58.4	57.4	57.2	63.6	64.8	63.2	60.4	64.4	65.6	63.4	64.0	63.1	51.7	-11	-14
Secondary vocational	64.6	63.6	66.7	72.0	72.2	72.7	73.0	77.3	72.8	73.9	70.4	69.0	59.1	-10	-14
Higher and incomplete higher	68.6	68.3	77.0	75.8	76.8	73.4	73.3	72.1	73.9	72.6	74.7	68.6	58.6	-10	-15
Income groups															
Bottom 20%	51.6	45.3	51.5	52.9	57.3	53.2	56.1	54.9	53.2	54.1	50.2	48.4	40.4	-8	-13
Middle 60%	62.9	65.3	68.7	72.0	71.9	71.4	69.9	74.1	72.1	72.6	72.6	68.4	56.6	-12	-16
Top 20%	74.9	75.3	81.1	83.7	82.9	81.8	81.0	81.0	81.4	80.5	80.5	79.1	76.4	-3	-5
Territories															
Vologda	63.1	67.1	73.6	72.6	71.0	68.6	68.5	70.3	68.0	70.8	68.6	66.9	57.0	-10	-11
Cherepovets	68.1	71.2	76.2	75.7	75.8	71.2	67.8	72.1	74.4	72.0	69.9	67.3	54.4	-13	+20
Districts	61.6	57.1	59.8	66.1	68.7	69.8	69.6	71.7	70.5	69.0	70.3	66.8	57.5	-9	-13
Oblast	63.6	63.1	67.3	70.4	71.2	69.9	68.8	71.4	70.9	70.3	69.7	66.9	56.5	-10	-14

CONCLUSIONS

Analyzing the dynamics of public opinion for the period from February to August 2020, we cannot ignore the fact that this time was the most acute moment of the epidemiological crisis associated with the spread of coronavirus infection. At the same time, the alarming state of people was caused not just by the risk of infection but by two other factors – lifestyle changes (in particular, professional conditions, limited vacation opportunities, etc.) and the deterioration of the economic

situation in the country due to the forced need to introduce strict restrictive measures. Neither Russia nor most of the world's countries have actually ever experienced such a situation, and it has certainly contributed to a high degree of uncertainty and anxiety in the nature of public moods.

At the same time, there were also positive factors that could have a positive impact on the dynamics of public opinion. First, on July 1, 2020, one of the main political events of recent years took place – the all-Russian vote on amendments to the Constitution of the Russian Federation. In the country as a whole, 78% of Russian voters (almost 58 million people) supported the amendments to the Constitution with a turnout of 68% (74 million people). By supporting changes to the text of the Basic Law, society not only voted for strengthening national values and moving Russia toward a social state but also placed its trust in the President personally, who initiated the reform to change the Constitution on January 15, 2020 in the Address to the Federal Assembly of the Russian Federation.

Second, Russian studies show that, during the entire period of the acute epidemiological crisis, Russians had a fairly positive assessment of the activities of the authorities to prevent the spread of the infection. Thus, according to VCIOM data, 53–57% of Russians say that the Russian authorities take sufficient measures to prevent the coronavirus epidemic, 71% note significant assistance from volunteers[4].

Based on the analysis of the factors that determine the nature of public mood in 2020, it would be logical to assume that, against the background of a deteriorating (for obvious reasons) mood, self-assessment of own financial situation, and growing anxiety about the future of the Russian economy, positive changes will be observed in the dynamics of assessments of government activities. However, as the dynamics of public opinion shows, this is not the case. However, as the dynamics of public opinion shows, this is not the case. The level of approval of the President's activities in the Vologda Oblast and in the country as a whole has significantly decreased (by 3–9 p.p.); there are no positive changes in the assessments of the success of the President in solving the country's key problems (including the economic recovery and the growth of citizens' welfare); as in 2019, a third of population (34%) believes that none of the political parties, represented in the State Duma, express their interests (this is even higher than the level of support for United Russia – 31%).

The current situation suggests that, for now, factors, negatively affecting the psychological well-being of society (the ongoing threat of the coronavirus pandemic, the state of uncertainty due to the possibility of job loss, deterioration of the financial situation), "outweigh" the efforts of the authorities to support the socio-economic situation in the country and general population's living standards.

It should be noted that the new decree on national development goals, signed by the President on July 21, 2020, actually postpones the implementation of national projects from 2024 to 2030, which also does not inspire optimism in people who still wait for "a decisive breakthrough in saving people", which was promised by the President in 2018[5].

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[4] Coronavirus: The fight continues! VCIOM analytical review no. 4237, dated May 18, 2020. Available at: https://wciom.ru/index.php?id=236&uid=10282

[5] The Presidential Address to the Federal Assembly on March 1, 2018. *The Russian President's official website*. Available at: http://www.kremlin.ru/events/president/news/56957

However, by voting for the amendments to the Constitution on July 1, 2020, society once again gave the government a vote of confidence, although with difficulties, and, as some experts note, "it was not possible to consolidate society around the amendments to the Constitution. The result is high, but there is no monolithic support"[6]. In most Russian regions (47 out of 56), its oblast centers, and large industrial cities, the share of Russians who voted against amendments to the Basic Law was higher than the national average number (21.27%). It means that, even after supporting the amendments, society doubts that it will be implemented without significant changes in the system of public administration.

Whether this will be done or not is an open question, but it will determine the dynamics of public mood in the following months and overall prospects for the country's socio-economic development until 2024, when the next Presidential elections will be held.

For now, the future remains unclear, and everything depends on the President's decisions.

The materials were prepared by M.V. Morev, E.E. Leonidova, I.M. Bahvalova

[6] *Ibidem*.

AUTHOR GUIDELINES
for Submission of Manuscripts to the Editor of the Scientific Journal
Economic and Social Changes: Facts, Trends, Forecast

The Journal publishes original theoretical and experimental articles that fall within the scope of the journal. The manuscript should be of no less than 16 pages (30,000 characters with spaces). The maximum length of the paper submitted to publication is 25 pages (approximately 50,000 characters with spaces). Book reviews, information on scientific conferences, scientific chronicles are also submitted to publication. The papers should contain research findings of completed and methodologically proper works.

The decision for publication is made by the Journal's Editorial Staff on the basis of the reviewer's report. The novelty, scientific importance and relevance of submitted material are also taken into consideration. Articles rejected by the Editorial Staff will not be reconsidered.

Requirements to the package of materials submitted

The following materials are submitted to the editorial office in electronic form:

1. A file containing the article in a Microsoft Word document, format .docx. The name of the file is typed in the Roman characters and reflects the author's last name (e.g.: Ivanova.docx).
2. Full information about the author on a separate page: full name, academic degree and title, place of work and position, contact information (postal address, telephone, e-mail – if available), ORCID, Researcher ID. The information should be arranged in a table.
3. Scanned copy of the commitment of the author not to publish the article in other publications.
4. A color photo of the author in the .jpeg / .jpg format of no less than 1 MB.

The package of materials is to be sent to the editor's email address: esc@volnc.ru.

Text design requirements

1. Margins

Right – 1 cm, others – 2 cm.

2. Font

Font size of the article's text – 14, type – Times New Roman (in case a special type font is needed, when typing Greek, Arab, etc. words, Windows default fonts are to be used). In case the paper contains seldom used fonts, they (font family) are to be submitted along with the file. Line interval – 1,5.

3. Indent – 1.25. Made automatically in MS Word.

4. Numbering

Page numbers are placed in the lower right corner of the page automatically with the use of MS Word tools.

5. First page of the article

In the upper right corner, the UDC is placed, under it, after the 1.5 spacing – the LBC, then – the symbol ©, indent (spacing), and the name and initials of the author in semi-bold. After the 2-spacing indent, the title of the article is given. Central alignment is used for the title of the article given in semi-bold. The abstract and key words are given below, after the 2-spacing indent, without a paragraph indent, in italics and aligned by width. Then, after the 2-spacing indent, the text of the article is placed.

6. Abstract

The abstract contains from 200 to 250 words. The abstract states the purpose of the research, points out its undoubted scientific novelty and its differences from similar works of other scientists; contains the methods used by the author and the main results of the work performed; identifies areas of application of the results of the study; briefly formulates the prospects for further research in this area.

Examples of good abstracts for different types of articles (reviews, scientific articles, conceptual articles, application articles) are available at: http://www.emeraldinsight.com/authors/guides/write/abstracts.htm?part=2&PHPSESSID=hdac5rtkb73ae013ofk4g8nrv1.

7. Key words

There should be not more than eight words or word combinations. Key words should reflect the content of the manuscript to the fullest extent. The number of words within a phrase should not exceed three.

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The caption of the table and its number (if present) are given in normal font, without highlighting. The caption runs in bold and is center aligned.

Tables are inserted; drawing tools and AutoShapes are not allowed; column and cell alignment using spaces or tabs is not allowed. MS WORD table editor is used for tables. Each piece of data of the stub and head of the table correspond to discrete cell. Only editor standard tools are applied for creating and formatting tables, no pilcrows, spaces and extra blank lines for semantic breakdown and line adjustment are allowed.

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Write: either "Source", or "Compiled with the use of", or "Calculated with the use of", etc., after that – information about the source.

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The word "References" is given after a 1.5 spacing after the body of the article in lower-case letters, semi-bold italics, center alignment. Then, the list of references is given after the 1.5 spacing.

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[1] Information about the modified Harvard standard is given in the book: Kirillova O.V. *Redaktsionnaya podgotovka nauchnykh zhurnalov po mezhdunarodnym standartam: rekomendatsii eksperta BD Scopus* [Editorial Preparation of Scientific Journals according to International Standards: Recommendations of a Scopus Expert]. Moscow, 2013. Part 1. 90 p.

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Make-up page T.V. Popova
Translators and Proof-readers N.Ye. Yentus,
N.N. Boytsova

Passed for printing October 01, 2020.
Date of publication October 06, 2020.
Format 60×84 1/8. Digital recording.
Con. pr. sheets 29.9. Number of copies 500. Order No. 166.
Price is open.

The journal is registered with the Federal Service
for Supervision of Telecom and Mass Communications (Roskomnadzor).
Certificate of registration PI FS77-71361 dated October 26, 2017.

Founder: Federal State Budgetary Institution of Science
"Vologda Research Center of the Russian Academy of Sciences" (VolRC RAS)

Address of the Publisher and Editorial Office:
56A, Gorky St., Vologda, 160014, Russia
phone (8172) 59-78-03, fax (8172) 59-78-02, e-mail: common@volnc.ru