Section 4. Real Sector of the Economy

4.1. Dynamic and structure of GDP and investments[1]

4.1.1. Internal and external demand

Internal epidemiological restrictions and external shocks have had a significant impact on economic growth in Russia. Unfavorable changes in the global market environment increased the impact of external factors on economic dynamic: starting from 2019, the scale of exports in terms of value and physical volume decreased; the decline in the contribution of net exports to GDP dynamics was partially offset by an increase in domestic demand on the back of the outstripping growth of manufacturing industry and the segment of paid services to the population.

From the outset of the spread of coronavirus infection, there was a simultaneous reduction in demand and supply in the domestic market. The situation was complicated by a drop in demand and prices on the world market of hydrocarbons, which came amid a decline in the ruble exchange rate and an increase in the level of inflation. The negative effects of the uncertainty and potential risks of the pandemic affected the nature of business structures, consumer behavior, and led to changes in the structure of government spending, the corporate sector, households, and the demand for financial resources (*Table 1*).

In Q1 2020, the nature of economic processes was determined by the impact of the trends of the previous year, GDP dynamic remained within positive values. At GDP growth rate of 1.6% in Q1 2020, household consumption gained 1.4%, fixed capital investment gained 2.2% and exports dropped by 2.4% compared to the corresponding period of the previous year. It should be noted that a sharp increase in consumer demand seen at the end of Q1 2020 was determined by the influence of soared inflation expectations of the population and high demand in response to the anxiety of the epidemiological situation. At 2020 Q1-end, the retail sales turnover in both the food and non-food markets was at the highest level over the last five years.

1 This section was written by: *Izryadnova O.*, Leading Researcher, IAES RANEPA; Head of Structural Policy Department at the Gaidar Institute.

Table 1

Main factors of the development of the Russian economy in 2017–2020, in % to corresponding period of the previous year

	2017	2018	2019	2020	Quarters 2020			
					I	II	III	IV
GDP	101.8	102.8	102.0	96.9	101,4	92,2	96,5	98,2
External factors								
Foreign trade turnover (on balance of payments)	125.0	117.2	97.4	84.7	91.9	76.1	82.3	88.5
Export	125.3	125.8	94.6	79.0	87.0	69.5	76.0	83.1
Import	124.5	104.4	102.3	94.2	100.8	87.0	92.1	97.1
Balance	127.0	170.2	84.7	55.7	70.6	41.9	48.2	58.8
Oil prices, USD/bbl.	54.39	70.07	64.03	42.30	50.53	31.43	42.72	44.52
Official exchange rate (RUB/USD), at the period-end	57.60	69.47	61.91	7388	77.73	69.95	79.68	73.88
Internal factors								
Fixed capital investment	104.8	105.4	102.1	98.6	103.5	94.7	95.0	101.2
Consumer demand	103.7	104.3	103.2	91.4	103.3	77.8	91.6	98.4
Retail sales turnover	101.3	102.8	101.9	95.9	104.4	84.0	98.4	97.2
Paid services to the population	100.2	101.4	100.5	82.7	98.1	63.9	82.7	86.8
Output of goods and services by basic types of economic activity	103.6	103.6	102.0	97.3	102.8	91.5	97.0	98.2
Industry	103.7	103.5	103.4	97.1	102.6	93.3	95.2	97.5
Extraction of natural resources	102.1	104.1	103.4	93.0	101.0	91.0	88.5	91.6
Manufacturing industry	102.5	102.6	103.6	100.3	105.6	94.9	99.0	101.1
Production of electricity, gas and vapor; air conditioning	99.6	101.6	99.2	97.5	96.0	96.7	97.5	99.5
Agriculture	102.9	99.8	104.3	101.5	103.0	103.1	103.3	97.0
Construction	98.8	106.3	102.1	100.1	102.8	96.1	101.1	100.8
Transportation	105.6	102.7	100.7	95.1	96.1	91.8	94.7	97.8
Social parameters								
Real disposable income of the population	99.5	100.1	101.0	96.5	101.0	92.1	94.7	98.3
Real accrued wages	102.9	108.5	104.8	102.5	106.2	99.9	101.8	102.2
Real amount of assigned pensions	100.3	100.8	101.5	102.3	103.2	102.7	102.2	101.3
Share of the population with cash income below the subsistence level, in % to the total number of the population	12.9	12.6	12.3	n/a	12.6	13.2	13.3	n/a
Labor market								
Number of employed	99.7	100.3	99.2	98.1	99.8	97.9	97.4	97.5
Unemployment rate	5.2	4.8	4.6	5.8	4.6	6.0	6.3	6.1
Financial conditions								
Key rate (at period-end)	7.75	7.75	6.25		6.0	4.50	4.25	4.25
Consumer price index (to December of the previous year)	102.5	104.3	103.0	104.9	101.3	102.6	102.9	104.9

Source: Rosstat.

The spread of coronavirus infection in Q2 2020 required the imposition of stringent restrictive measures on economic and social activities, as well as put in place special relief measures to support the population and businesses. The shutdown in the segment of paid services to the population led to the deepest drop in the household private consumption over 25 years of observations – by 21.7% compared to Q2 2019. As a result of the contraction of domestic demand, the decline in GDP in Q2 2020 hit 7.8% compared to a year earlier. In Q3 2020, GDP dynamic emerged from the steep plunge of the previous quarter on the back of an easing of domestic demand and export constraints and a reduction in the pressure of epidemiological restrictions, and an increase in oil prices. In the last quarter of 2020, despite the return of partial lockdown measures, the economy seems to have adapted to the COVID-19 pandemic, which was also reflected in GDP dynamic (*Fig. 1*). Overall, real GDP fell by 3.1% in 2020.

The change in the structure of the formation and use of resources in 2019-2020 was driven the shift towards growing importance of the domestic market. The change in the share of imports in the resources of the domestic market with an increase in the imports of producer durable goods supported the domestic market and expanded opportunities for economic diversification (*Fig. 2*).

The concentration of activities in industries that displace the more expensive imports from domestic market, and the buildup of export potential for the development of niches in the foreign market that are emerge amid sanitary and epidemiological restrictions becomes the mechanism of adaptation of domestic producers to the simultaneous contraction in demand and supply and to the devaluation of the ruble. The increase in the share of intermediate demand

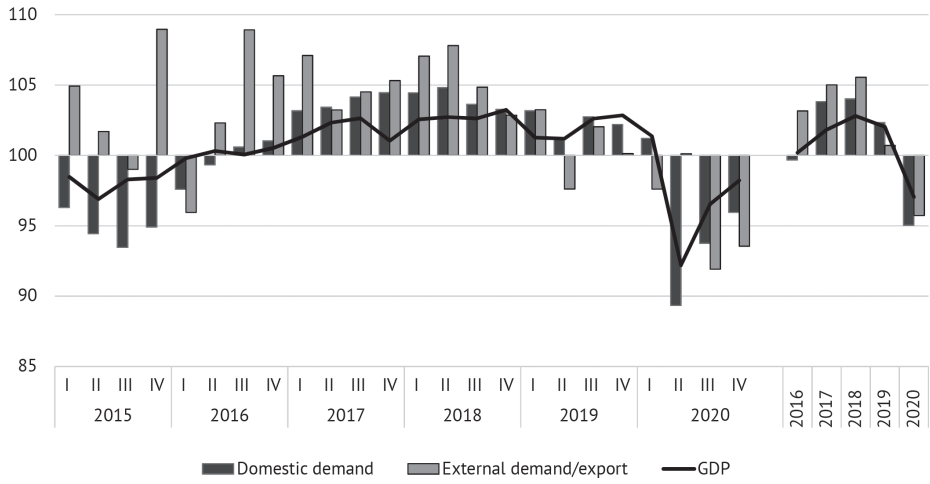


Fig. 1. GDP dynamic by components of domestic and international demand 2015–2020, in % on the corresponding period of the previous year

Source: Rosstat.

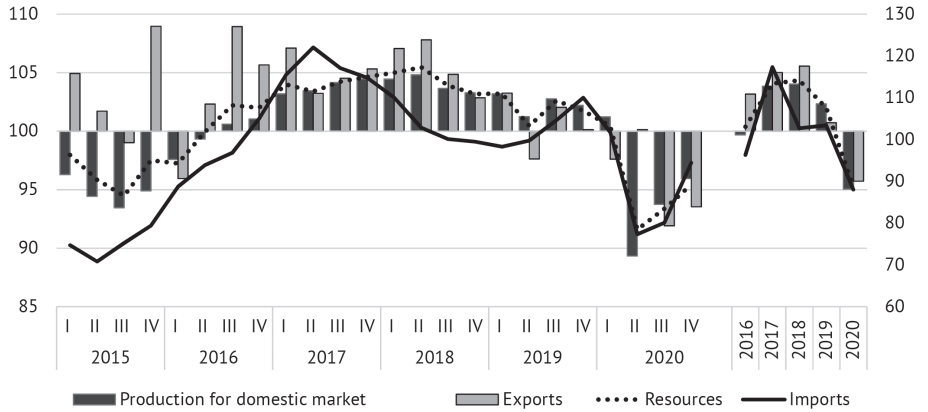


Fig. 2. Dynamic of formation and use of resources in 2015–2020, in % on the corresponding period of the previous year

Source: Rosstat.

goods in imports to values exceeding indexes of the last decade, supported the domestic output dynamic in 2018-2019. However, the tough conditions of competition in the world markets of goods and services, sanctions restrictions on the movement of capital and investment goods, changes in the ruble exchange rate relative to foreign currencies determined the weakness and instability of the export-oriented import substitution processes. Despite the fact that in 2019-2020, exports for the group of high-tech goods grew faster than imports, the Russian economy remained a net importer (*Table 2*). In 2020, the growth of non-primary exports by 17.8% and the acceleration of exports of high-tech goods to 116.2% against 107.3% a year earlier was a positive factor for the economic recovery after the 2015 crisis. In the wake of a general trend of a 5.8% drop in imports in 2020, imports of high-tech goods decreased by 5.0%, while investment goods stabilized at the level of the previous year.

Table 2

The pattern of imports by the functional use of goods and foreign trade of high-tech products in 2016–2020

	Pattern of imports by functional use of goods, in % to total			High-tech products			
				USD billions		Ration in total volume, %	
	Consumer	Investment	Intermediary	Export	Import	Export	Import
2016	35.6	26.5	37.9	36.0	118.8	12.8	67.0
2017	33.6	27.5	38.9	44.4	155.3	12.4	68.3
2018	33.2	25.4	41.4	49.3	160.2	11.0	67.2
2019	33.8	24.4	41.8	74.7	183.3	11.1	72.0
2020	32.8	25.3	41.9	86.7	174.1	26.1	72.6

Source: Rosstat.

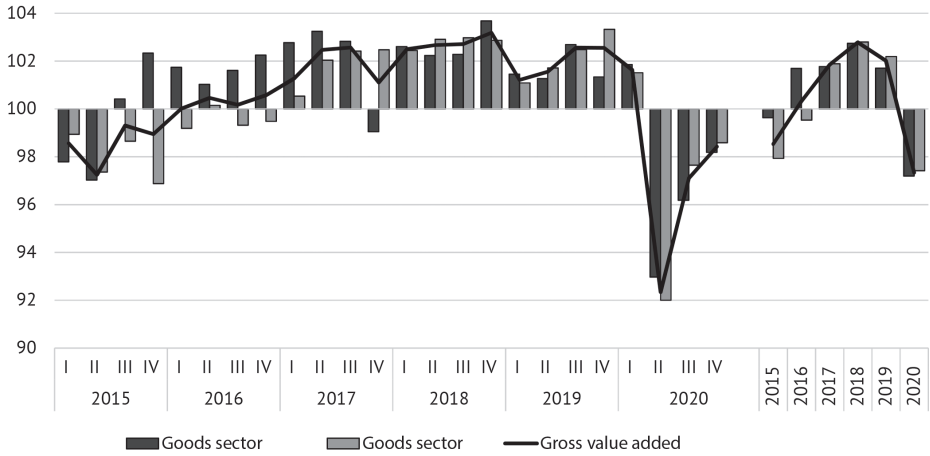


Fig. 3. Dynamic of goods and services sector in 2015–2020, in % on the previous year

Source: Rosstat.

Economic performance in the wake of the spread of the coronavirus pandemic in 2020 was marked by specific structural features. If the recovery of GDP upward trend in 2017-2019 with simultaneous growth in the goods and services sectors was supported by an increase in the latter's contribution, then the volume of the services sector declined considerably in 2020 (*Fig. 3*).

Against the background of the pandemic measures of social distancing and self-isolation were recorded in the segment of services focused on the household consumption. Retail sales turnover at end-2020 amounted to 95.9% compared to the previous year, including food products – 97.4% and non-food products – 94.8%, and regarding the Q2 dynamic (84.0%) was at the lowest level over 20 years of observations in the markets of both food (93.0%) and non-food (73.6%) products. Against the backdrop of the uncertainty of the economic development, strengthening of the downward trend in the household real incomes, changes in consumer behavior and a sharp drop in consumer spending, critically low performance indexes were recorded in the following sectors: passenger transportation, tourism, hospitality, sports and recreation, leisure and entertainment business, and household services. The situation was also aggravated by the fact that small and medium-sized businesses and individual entrepreneurs, whose economic activity has fallen sharply under the pressure of an unprecedented drop in public demand, prevail in the segment of consumer market services.

With the gradual easing of restrictive measures, the recovery in economic activity in Q3 2020 was extremely heterogeneous in terms of the types of services provided and consumer behavior. It should be noted that the dynamic of consumer activity and the partial recovery of the paid services sector were positively

affected by the increase in budget expenditures within the implementation of relief measures for the population and the economy, including small and medium-sized businesses. The lifting of administrative restrictions on the activities of non-food retail sales, hospitality business, and parts of the consumer services sector has led to a revival of supply and demand in those segments of the consumer market. An additional factor in the recovery of supply in the service sector was the opening of domestic tourist and resort destinations, which supported activity in related services, but activity indicators remained at a critically low level over the past decade. In Q4 2020, despite the strengthening of the requirements for social distancing, the use of gained experience in adapting to epidemiological rules helped to weaken the negative trends in the market of paid services. At end-2020, the volume of paid services rendered to the population amounted to 82.73%, including public catering – 79.32%, transportation services – 60.9%, tourism – 46.7%, hotel – 64.9%, culture – 46.7%, sports and recreation - 67.4% compared to the previous year (*Fig. 4*). The recovery of the market of paid services to the population in 2021-2022 following its large-scale decline in 2020 will be slow moreover given the restrained trends in changes in the household cash incomes.

The decline in Russian industrial production as a whole displayed a relatively restrained rate of decline – by 2.9% by 2019. The decline in the production of goods in 2020, in addition to the lockdown, was affected by the instability of the situation on the global hydrocarbon market, changes in the foreign trade environment associated with a reduction in the scale of trade in goods and services and the disruption of interaction in value chains. The longer than anticipated effect of internal and external sanitary and epidemiological restrictions at the

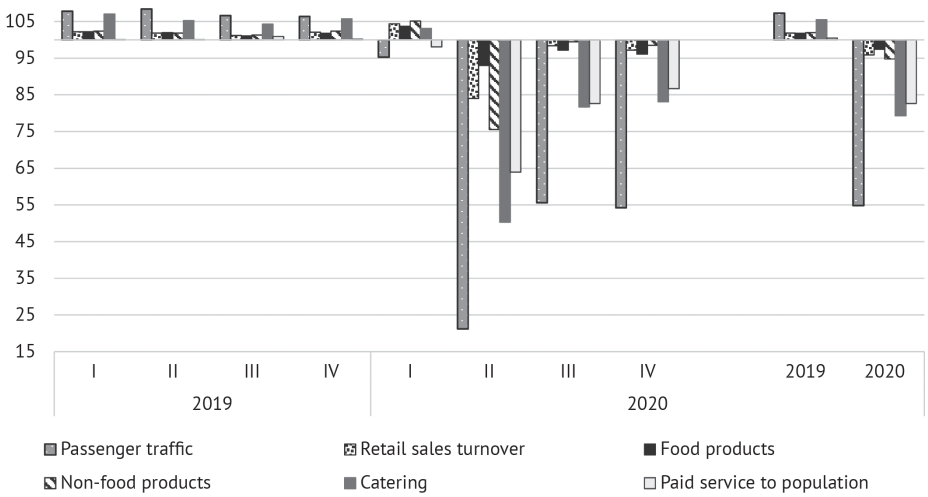


Fig. 4. Dynamic of consumer market of goods and services in 2019–2020, in % on the corresponding period of the previous year

Source: Rosstat.

initial stage of the pandemic has led to a decline in economic activity, with the extent of the decline greatly varying by type of activity.

The decline in production in extraction of mineral resources was noted for all types of observed aggregated positions. In Q2 2020, the volume of mineral extraction stood at 91.2%, in Q3 – 88.7% of the previous year. The main contribution to the reduction in extractive production output was made by the contraction in oil and natural gas production by 33.5% compared to January – September 2019, which was due to the fulfillment of commitments under the OPEC+ deal. Despite the fact that in Q4 2020 there was a slight recovery in the global mineral commodities market, at the year-end the decline in mineral production came to 7.0%, including 8.1% in oil and gas production, which was the highest drop since 1993 (*Fig. 5*).

In 2020, the manufacturing industry was marked by a more moderate reduction dynamic relative to extractive production. The main peak of the decline in manufacturing production occurred in Q2 2020, when production volumes were only 94.9% against the last year. The recovery of economic activity after the spring lockdown led to a gradual weakening of the rate of production decline, and at end-2020, the manufacturing output even exceeded the level of the previous year (100.3%). The structure of manufacturing production following a steep drop in output in April 2020 changed under the impact of an increase in the contribution of consumer goods production and intermediate demand.

Against the backdrop of weak upward trend of consumer-oriented industries, the proportion of domestic products in retail trade marketable resources in 2020 stood at the previous year level of 63%, which, amidst the demand compression, helped to mitigate the impact of a reduction in imports of consumer goods in the total volume of imports by 1.0 p.p. compared to the previous year.

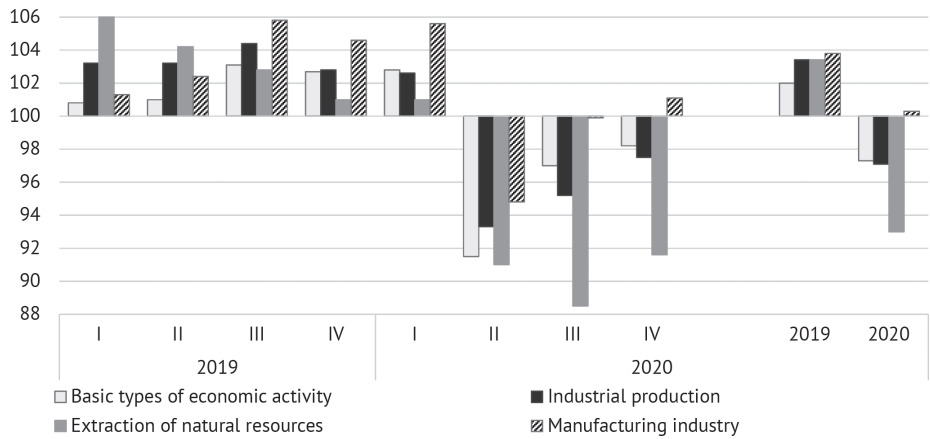


Fig. 5. Indexes of extraction of natural resources and manufacturing industry in 2019–2020, in % on the corresponding period of the previous year

Source: Rosstat.

The snowballing growth in the pandemic induced demand for medicines and sanitary materials gave a boost to a rise in the contribution of intermediate and final demand goods for medical use in the associated industries of machine-building and chemical industries, textile, clothing, and pulp and paper industries (*Table 3*).

Table 3

Dynamic of manufacturing industry by types of economic activity in 2019–2020, in % to corresponding period of previous year

	2019	2020	Quarters 2020			
			I	II	III	IV
Manufacturing	103.6	100.3	105.6	94.8	99.9	101.1
Including:						
Food production	104.1	103.5	109.2	103.6	101.5	100.6
Production of textile articles	101.8	108.9	108.2	104.3	110.0	112.4
Production of clothing	103.5	100.6	101.1	92.8	104.2	105.5
Production of leather and leather articles	98.4	87.6	100.2	71.3	89.8	91.3
Wood-processing and manufacturing of wood articles	106.2	100.2	101.3	91.8	102.5	105.2
Production of paper and paper articles	104.6	101.9	103.5	98.2	102.5	103.4
Production of charred coal and petrochemicals	101.6	97.0	105.8	96.3	93.8	92.5
Production of chemical products	103.4	107.2	108.2	103.4	107.1	109.9
Production of medicines and materials	127.4	123.0	112.0	123.5	121.1	134.2
Production of rubber and plastic articles	98.7	103.2	105.6	93.2	104.3	110.0
Production of other nonmetal mineral products	109.0	97.7	104.4	90.6	95.6	101.8
Metallurgical production	103.8	97.6	101.4	92.8	96.7	99.9
Manufacture of metal products	107.3	102.0	112.0	101.6	104.0	98.7
Manufacture of computers and electronic and optical products	110.6	98.4	116.0	80.4	107.9	100.0
Manufacture of electrical equipment	101.3	99.0	106.9	86.6	99.8	103.0
Manufacture of machinery and equipment	113.5	105.9	110.9	98.6	108.5	108.2
Manufacture of motor transportation vehicles	96.3	87.3	88.7	59.6	93.2	107.7
Manufacture of other means of transportation	99.0	98.9	97.1	84.9	97.8	108.2
Furniture making	102.1	103.7	104.0	86.1	111.5	109.8

Source: Rosstat.

The most difficult situation of all the manufacturing industries was in machine-building where the drop in output in Q2 2020 exceeded 25% compared to the corresponding index a year earlier. The manufacture of motor vehicles reacted in the most acute form to the irregularity of economic activity and the drop in demand down by 59.8% against Q2 2019, which amidst a developed system of manufacturing tides, had an extremely painful effect on the output dynamic of related machine-building enterprises, structural materials and components. At end-2020, the pace of manufacturing production stabilized at the level of the previous year.

In 2020, the output index of goods and services by basic types of economic activity stood at 97.3%. The dynamic of basic economic activities in 2020 was considerably affected by the contraction of demand for transportation and logistics services. The dynamic of cargo turnover and haulage of cargo since early 2020 compared to the previous year was in the region of negative values for almost all types of cargo transportation and amounted to 95.1% of the index a year earlier. Railway (97.8%) and pipeline (92.0%) types of transport that provide the dominant share of cargo turnover, as well as the haulage of goods by road (94.1%) responded most acutely to the change in the conditions of economic activity. If in Q1 2020, the demand for transportation and logistics services was supported by upward trend of wholesale and retail trade and industrial production, in Q2 the development of downward trends in these same types determined a sharp drop in the volume of activity of the transportation complex. Cargo turnover dynamic in Q2 2020 was determined by a reduction in the volume of transportation of export mineral commodities against the background of a significant increase in grain transportation by sea and rail.

In 2020, the volume of construction works stabilized at the level of the previous year, which is not typical for the crisis-led situations of the investment sector of the Russian economy. The output stabilization in this type of activity is associated, firstly, with mild sanitary-epidemiological and administrative restrictions in construction and, secondly, with pro-active government approach aimed at maintaining the potential of the construction complex as one of the conditions for economic recovery and the real estate market incentivization.

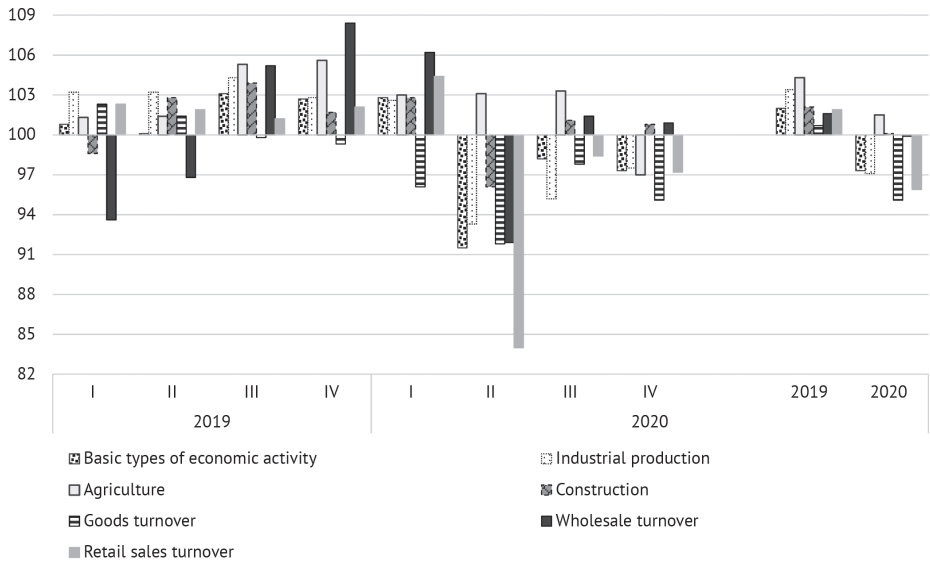


Fig. 6. Output indexes by basic types of economic activity in 2019–2020, in % on the corresponding period of the previous year

Undoubtedly, the trend of a steady increase in the contribution of agriculture to the dynamic of the domestic and foreign markets had a positive impact on the economic situation. Agricultural production generates resources for the sustainable growth of agro-industrial food production, for the market of final demand food products and the market of non-food agricultural products of intermediate demand. Under the difficult 2020 conditions, agriculture not only supported the domestic market, but also helped to scale up the volume of agricultural exports. In 2020, the position of agriculture in the world market has strengthened: exports of food products and agricultural raw materials gained 19.2%, while imports, on the contrary, decreased by 0.9% compared to a year earlier (*Fig. 6*).

4.1.2. Use of GDP: final household consumption

The analysis of GDP by end-use components enables us to identify the features of the crises of 2008-2009 and 2014-2015, as well as the specifics of 2020 in a critical medical and biological situation. A common feature of the three crises over the past 20 years has been a steeper drop in fixed capital investment relative to household final consumption expenditure. The investment crisis of 2009 was the most profound, but the implementation of the anti-crisis program to support the real and financial sectors of the economy determined the nature and dynamic of construction and investment activities. The active policy of supporting the household income and the recovery of household final consumption in 2010 at the pre-crisis level created an additional momentum to the growth of fixed capital investment, supported by the implementation of large-scale infrastructure and socially significant projects. With an annual lag, overcoming the investment downturn fallout in 2011 determined economic recovery to pre-crisis levels.

The distinguishing feature of the 2015 crisis was an unprecedented deep drop in the household final consumption, which forerunner was the decline in real incomes of the population observed a year earlier, as well as the resumption of the decline in the construction and investment complex. With the increasing effect of external factors, the investment and consumer crisis took on a protracted character, and the 2020 starting conditions were determined by the indexes of household final consumption at the level of 96.8% and in fixed capital investment at 99.2% of the pre-crisis index of 2013-2014.

The coronavirus pandemic has enhanced the impact of accumulated structural imbalances, but in contrast to previous critical situations, the 2020 crisis was marked by a restrained decline in household consumption and fixed capital investment, while implementing systemic measures to support the population and businesses by boosting government spending (*Fig. 7*).

The epidemiological crisis of 2020 and the response of political institutions to the introduction of measures to restrict economic activity have significantly changed the role of household consumption. If the cyclical downturn is marked by a relatively weak reaction of household consumption compared to other GDP end-use components, then in the crisis of 2020, the fall in private consumption in Q2 hit 21.7% compared to the corresponding period of the previous year, which was the deepest drop over 25-year span of observations.

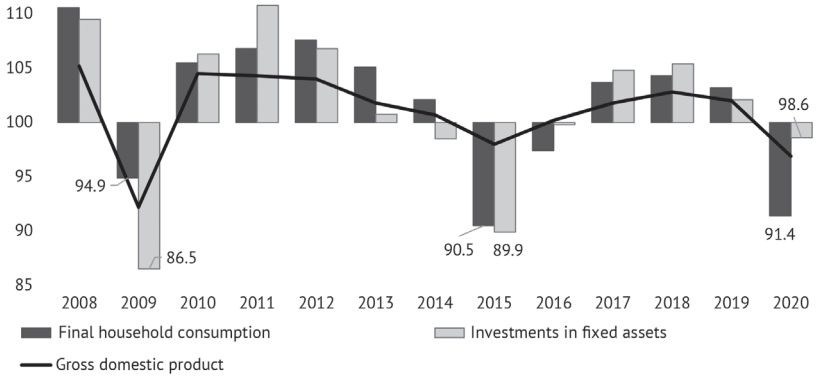


Fig. 7. Dynamic of domestic demand by the end-use components in 2008–2020, in % on the corresponding period of the previous year

Source: Rosstat.

In the wake of a sharp deterioration in the indexes of the sanitary and epidemiological situation and stringent restrictions on economic and social activities in April – May 2020, the government's measures to support the population, businesses and certain types of economic activities and enterprises reached their maximum values. During this period, the increase in government spending on final consumption played a key role in social support of the population, reducing tension in the labor market. Growth in the share of government spending on individual and public consumption in Q2 2020 up to 23.3% of GDP, with an average long-term value of this index at 18.2% of GDP, helped to mitigate the shock of falling labor incomes of the population and guarantee the fulfillment of social obligations (*Table 4*).

Table 4

Dynamic and structure of final consumption expenditure in 2015–2020

	2015	2016	2017	2018	2019	2020	Quarters 2020			
							I	II	III	IV
% on previous year/quarter										
Gross domestic product	98.0	100.2	101.8	102.8	102.0	96.9	101,4	92,2	96,5	98,7
Final consumption expenditure	92.0	98.5	103.4	103.5	103.9	94.8	102,6	85,4	94,4	96,8
- households	90.5	97.4	103.7	104.3	103.2	91.4	102,2	78,3	90,9	94,3
- public administration	96.4	101.4	102.5	101.3	102.4	104.0	103,6	104,1	104,2	104,1
% to total, in current prices										
Gross domestic product	100	100	100	100	100		100	100	100	100
Final consumption expenditure	70.4	71.7	71.1	68.1	69.6	70.4	76,9	69,8	69,5	65,5
- households	52.3	52.8	52.5	50.0	50.8	49.1	54,5	46,1	48,9	46,9
- public administration	17.8	18.5	18.2	17.7	18.4	20.8	21,9	23,3	20,1	18,2

Source: Rosstat.

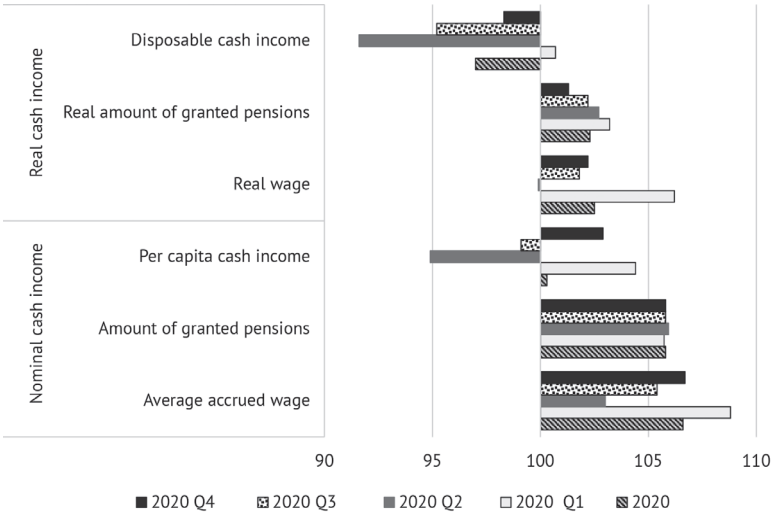


Fig. 8. Dynamic of real and nominal incomes of the population in January-September 2020, in % on the corresponding period of the previous year

Source: Rosstat.

On the back of the recovery in economic activity, wage growth accelerated in H2 2020, which helped to slow down the downward trend of nominal cash and real disposable incomes (*Fig. 8*). Nevertheless, in 2020 the real disposable cash incomes shed 3.5% compared to the previous year.

The response of the population to changes in the level of income during 2020 was extremely heterogeneous.

If in Q1 2020, consumers responded to the uncertainty of the epidemiological situation with a surge in activity in the goods market amidst increased inflation expectations, then in Q2, spending on the purchase of goods decreased by 26.7% and on payment for services – by 31.4% compared to a year earlier, and their proportion in total household spending at the period-end corresponded to the lowest level during observations since 2013.

Stringent administrative measures to regulate activities in the market of paid services to the population, retail sales, and passenger transportation have led to a change in the model of private consumption with the dominant share of spending on essential goods and services. Given the uncertainty of the development of the economic situation, changes in consumer expectations and a reduction in irregular incomes, the volume of retail sales in Q2 2020 constituted 83.4% compared to a year earlier (for food products – 92.9%, for non–food products – 74.5%), the volume of paid services – 63.9%, public catering - 50.3% and stood at the lowest level over a period of 20-year observation.

The opening of non-food retail, hospitality business, domestic tourism and resort destinations in May-September 2020 and the implementation of the

announced government measures to support consumers led to a revival in demand and an increase in spending on goods and services.

In Q3 2020, amid the easing of epidemiological restrictions, opportunities for the realization of pent up demand for non-food products, recreational and leisure services went up. The growth in demand for the services of the tourist and recreational complex was supported by both the accumulated funds of the population and the government's measures to partially reimburse the costs of tourist packages. The economy displayed a recovery in retail, hospitality business, public catering and passenger transportation. At 2020 Q3-end, structure of the total income of the population demonstrated expenditures on the purchase of goods to go up to 63.35% (+9.3 p.p. relative to Q2) and services - to 16.3% (+3.5 p.p.) (*Table 5*).

Table 5

Structure of the use of household income for current expenses and savings 2015–2020, %

	2015	2016	2017	2018	2019	2020	Quarters 2020			
							I	II	III	IV
Revenue, total	100	100	100	100	100	100	100	100	100	100
Current expenses	77.2	77.5	79.1	80.7	80.8	76.1	87.1	67.4	80.4	71.0
Purchase of goods					59.8	59.0	65.3	54.0	63.3	54.7
Payment for services					18.0	15.9	19.6	12.8	16.3	15.1
Mandatory payments and contributions	13.7	13.8	14.1	15.1	15.3	15.5	15.5	14.5	16.4	15.6
Savings	9.1	8.7	6.8	4.3	3.9	8.4	-2.6	18.1	3.2	13.4
Deposits, securities, purchase of real estate, change in debt on loans and on accounts of individual entrepreneurs	10.1	6.6	4.6	1.8	3.4	4.0	-4.8	10.3	-1.2	10.0
Cash in hands	-1.0	2.1	2.2	2.5	0.5	4.4	2.2	7.8	4.4	3.4

Source: Rosstat.

Throughout 2020, the savings behavior of the population changed. Changes in the level of household consumption were reflected in the indicator of the population's propensity to save. The decrease in savings in Q1 was replaced by their increase in the following periods - firstly, due to forced savings/savings amidst the supply curtailing in the domestic market, and secondly, due to increased credit activity of the population, boosted by financial and monetary policy.

Given the uncertainty of the development of the situation and lowered expectations regarding labor income the accumulated monetary resources of households fueled consumer confidence in selection of the current consumption model (in Q3), but at the same time expanded the investment potential of the population (in Q4) and boosted activity in the real estate market on the back of the implementation of the government's package of measures on mortgage lending.

The peculiarity of generation of reserved funds in 2020 was determined by the increase in the share of cash in hands to the highest values over the past 7 years, which probably reflected the preservation of unspent income in cash due to the precautionary motive in the face of growing uncertainty and fear of new risks (*Table 6*).

Table 6

Investment potential and investment activity of the population in 2015–2020

	2015	2016	2017	2018	2919	2020
% of GDP						
Retail deposits	27.9	28.3	28.3	27.4	28.0	30.8
Retail loans	12.9	12.6	13.3	14.3	16.2	18.8
Including housing mortgage loans	1.41	1.73	2.21	2.91	2.62	4.03
% on cash incomes of the population						
Retail deposits	43.7	44.5	46.2	48.7	49.2	52.7
Retail loans	10.94	13.71	16.66	20.25	16.21	21.43
Including housing mortgage loans	2.20	2.73	3.61	5.16	4.61	6.90
% on banking sector assets						
Retail deposits	30.0	32.7	33.3	33.0	34.4	31.6
Retail loans	13.8	14.6	15.6	17.3	19.9	19.3
Including housing mortgage loans	1.51	2.00	2.60	3.50	3.22	4.14
For reference:						
Weighted average interest rate	12.89	11.56	9.79	9.66	9.00	7.36
Share of outstanding debt on IHC to total debt on IHC, %	1.66	1.57	1.33	1.14	0.97	0.78
Housing market price index, in % on the previous year						
Primary housing market	99.7	99.6	101.0	106.3	108.0	112.0
Secondary housing market	96.8	97.0	98.4	104.1	103.8	109.5

Source: Rosstat.

In 2020, the nature of consumer behavior was shaped on the back of the household high credit activity. In 2020, the share of bank loans originated to households hit the maximum value for the period of ten-year observations and came to 18.8% of GDP and 32.2% of cash incomes of the population.

4.1.3. GDP formation by sources of income: wages and labor productivity

The government relief measures aimed at retention of jobs and wages while reducing the tax burden have significantly reduced the impact of quarantine restrictions on the economic activity and on the level of nominal wages, which ultimately led to higher labor costs and lower production profitability. The share of wages in Q2 2020 at 54.6% of GDP was the highest since 2013. The redistribution of income between the population and business has avoided labor market shocks and social discontent (*Table 7*).

Table 7

GDP formation by sources of income in 2015–2020, % to total

	2015	2016	2017	2018	2019	2020	Quarters 2020			
							I	II	III	IV
Gross domestic product	100	100	100	100	100	100	100	100	100	100
Including:										
Earnings of employees (including latent)	47.8	48.2	47.8	45.3	46.3	49.5	51.9	54.6	46.1	46.7
Net taxes on production and import	11.1	11.0	10.9	11.7	11.3	10.8	11.3	11.0	10.0	11.1
Gross profit of economy and gross mixed income	41.1	40.8	41.3	43.0	42.4	39.7	36.8	34.4	43.9	42.1

Source: Rosstat.

In 2020, the change in the structure of cash income of the population was defined by a simultaneous growth in the share of labor income to 58.9.8% (+1.2 p.p. compared to 2019) and social benefits to 21.0% (+2.1 p.p.). The growth rate of average monthly wages in the past year was quite significantly differentiated, but the ratio of wages by type of economic activity remained in the range of long-observed values. In 2020, wages in such sectors as public health and social services (114.5% compared to 2019), information and communications (109.6%), public administration (106.7%), finance and insurance (107.8%), education (106.2%), agriculture (107.0%), and mining (106.5%) grew at a rate exceeding the national index. Manufacturing industries as a whole exhibited a restrained dynamic in this respect (104.4%): the acceleration of the rate of labor remuneration compared to the same period of the previous year was observed in the production of medicines and materials used for medical purposes (110.9%), in the production of medical textiles (108.3%) and came amid an increase in government orders. In the segment of machine-building industries, the rate of change in wages was lower than the combined indexes for manufacturing and the economy as a whole.

In the transport and logistics complex, nominal wages gained 3.6% compared to the 2019 index with a positive dynamic of wages in the freight transportation segment. Despite the measures taken to support the transport sector, the decrease in wages was recorded in the types of activities with a high level of passenger traffic – in railroad transportation (98.2%) and air service (90.0%).

Measures to support the labor market and retain jobs in the event of a decline in business activity resulted in an increase in business costs. The share of the gross profit of economy in GDP in 2020 dropped to 39.7% (-1.4 p.p. compared to 2019), and in Q2 stood at a minimum level (34.4%) for the period of ten-year observations, the financial results of the economy as a whole constituted 77.9% of the 2019 index. The high differentiation of the profitability level by type of economic activity was driven by the structure of domestic prices, the movement of the ruble exchange rate, the redistribution of production factors between types of economic activity, domestic and international demand. Profitability in the economy as a whole in January – September constituted 8.9% and shed 2.4 p.p. compared to a year earlier (*Table 8*). The decline in financial results in extractive

industry was determined by the combined impact of the factors of changes in world prices for fuel and energy products and the reduction in their production volumes. An extremely difficult financial situation was observed in hospitality business and tourist and leisure complex, in the passenger transportation segment of the transport complex. At the same time, it should be noted that the vigorous activity of government agencies in implementing measures to support mortgage lending has led to an increase in the efficacy of the financial, credit and insurance markets as well as real estate operations.

Table 8

Profitability of goods, works, and services sold by types of economic activity in 2017–2020, %

	2017	2018	2019	2020
Total in the economy	7.5	12.3	11,4	9,9
Agriculture, hunting and forestry	17.3	20.2	18,6	22,9
Extraction of natural resources	24.6	33.6	29,6	23,0
Manufacturing	10.9	12.8	12,1	12,2
Electricity, gas and vapor production, air-conditioning	8.3	8.8	9,2	8,4
Construction	3.8	6.1	7,0	8,1
Wholesale and retail trade	4.1	7.3	6,4	5,1
Hotels and catering	7.0	7.1	5,9	-0,9
Transportation and storage	3.4	8.8	8,7	3,4
Information and communications	12.0	14.6	16,0	12,8
Finance and insurance	0.8	11.2	11,8	34,7
Real estate operations	18.5	15.9	13,7	24,3
Public administration and military security; social security	-1.5	2.4	15,2	19,3
Education	2.7	4.2	6,7	9,5
Public health and social services provision	7.0	10.4	9,8	9,9

Source: Rosstat.

The decline in business profitability has become a factor limiting the pace of the economic recovery from the pandemic crisis. The movement of financial results was formed amid the temporary suspension of economic activity and the retention of wage commitments in compliance with government decisions on social support for those employed in the economy. The economic recovery is likely to require a change in the structure of the use of production factors, with the possible option of a painful restructuring of the labor market and cutting labor costs.

4.1.4. Investment in the wake of the pandemic

In 2020, changes in financial and credit regulation indexes markedly affected the nature of investment activity. Compared to 2019, the terms for financing investment activities were determined by a reduction in the key rate from 7.5% to 5.5% (June 19, 2020) and to 4.25% (September 3, 2020). The threat was the increase in the scale of private net capital outflow to $47.8 bn against $22.6 bn

in 2019, while the volume of foreign direct investment in the Russian economy and abroad decreased.

In 2020, the proportion of gross fixed capital formation in GDP remained close to the previous year's figure, and the share of fixed capital investment in GDP in 2020 increased to the maximum over the last five-year index of 18.9% (*Table 9*).

Table 9

Investment activity in 2014–2020: dynamic, conditions, factors

Index	2014	2015	2016	2017	2018	2019	2020
Dynamic of construction and investment activity, in % on the previous year							
GDP	100.7	98.0	100.3	101.8	102.8	102.0	96.9
Fixed capital investment	98.5	89.9	99.8	104.8	105.4	102.1	98.6
Volume of construction works	97.7	96.1	97.9	98.8	106.3	102.1	100.1
Share of construction and investment complex in GDP, %							
Fixed capital investment	17.6	16.7	17.2	17.5	17.1	17.7	18.9
Construction	6.8	6.3	6.4	6.0	5.6	5.5	5.7
Real estate operations	10.6	10.2	10.2	10.0	9.5	9.8	10.4
Financial conditions							
Key rate (at period-end), %	17.0	11.0	10.0	7.75	7.75	6.25	4.25
International reserves of the Russian Federation (at year-end), USD bn	385.5	368.0	376.3	432.1	468.5	549.8.	597.4
Price indexes on December of previous year, %:							
Consumer	111.4	112.9	105.4	102.5	104.3	103.0	104.9
Industrial producer	106.3	112.1	107.5	108.4	111.7	95.7	103.6
Investment purpose products Including:	107.2	110.3	103.2	103.1	107.3	105.1	104.8
Construction products	104.6	104.1	106.6	104.9	106.5	105.0	102.9
Purchase of machinery and equipment	112.3	120.1	97.8	101.1	108.9	107.1	109.3
Official exchange rate USD/RUB (at year-end)	56.26	72.88	60.66	57.60	69.47	61.91	73.88

Sources: Rosstat, Bank of Russia.

The growth of budget expenditures on investment programs to 2.7% of GDP had a positive impact on the level of investment activity in 2020 (*Table 10*). Furthermore, the activity of the corporate sector and households in the monetary market has increased. Corporate and retail deposits in 2020 moved up to 62.8% of GDP (+9.0 p.p. compared to 2019) and corporate loans and retail loans, including outstanding debt – to 60.7% of GDP (+8.9 p.p.).

Table 10

Key features of investment sources in 2015–2020, in % of GDP

	2015	2016	2017	2018	2019	2020
% of GDP						
Gross savings	24.6	24.2	26.6	33.2	31.2	31.6
Gross capital formation in main funds	20.6	21.9	22.0	20.7	21.1	21.4
Gross profit and other mixed income	41.1	40.8	41.3	43.0	42.4	39.7
Consolidated budget revenue	32.3	32.9	33.8	35.8	36.2	35.5

	2015	2016	2017	2018	2019	2020
National Wealth Fund	6.1	4.7	3.6	3.7	6.8	11.7
Budgetary investment funds	2.3	2.2	2.2	2.0	2.2	2.7
Of which federal budget funds	1.4	1.2	1.1	1.0	1.0	1.2
Loans issued to:						
Corporate clients	42.1	38.4	36.8	36.6	35.7	42.0
Individuals	12.9	12.6	13.3	14.3	16.2	18.8
Deposits:						
Corporate	32.6	28.4	27.0	27.0	25.8	32.0
Retail	27.8	27.9	28.3	27.4	28.0	30.8
USD bn						
Direct investment in Russian economy	6.9	32.5	28.6	8.8	32.0	3.4*
Direct Russian investment abroad	22.1	22.3	36.8	31.4	21.9	1.0*
Private sector financial operations (net lending (+)/borrowing (-))	57.1	18.5	24.1	65.5	22.6	47.8

* January - September.
Sources: Rosstat, bank of Russia.

An unfavorable combination of economic performance factors in 2020 – such as the contraction of the domestic market, the drop in the ruble exchange rate, and the financing of emergency measures in the public health sector and related economic activities - had a considerable impact on the dynamic and structure of investment. In 2020, in fixed capital investment dropped by 1.4% in real terms. As a result of the impact of quarantine restrictions, in fixed capital investment fell by 5.3% in Q2, but these indexes did not decline to the lowest values over the last decade (2009 and 2015). A feature of 2020 was the relatively restrained reaction

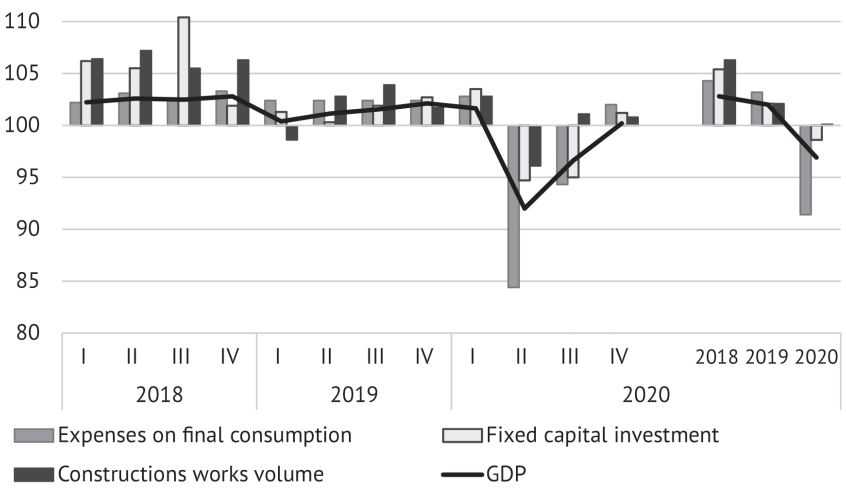


Fig. 9. Dynamic of GDP, fixed capital investment and household final consumption in 2018–2020, in % on the corresponding period of the previous year

Source: Rosstat.

of the investment and construction complex in comparison with the compression of consumer demand and the dynamic of production of goods and net exports, which is due to the faster exit of the construction complex from quarantine restrictions (*Fig.* 9).

The formation of investment resources retained the dominant role of the own funds of enterprises and organizations. In 2020, the share of investments made from organizations' own funds reached the maximum level of 56.7% of the total fixed capital investment over the period of 20-year observations. It should be noted that the increase in the share of own funds of enterprises and organizations in the sources of financing in 2020 came amid a decrease in the share of profit and other mixed income to 39.7% of GDP, financial performance of the economy as a whole – by 23.5% year-on-year, and the level of profitability – to 8.9%.

The participation of the banking sector in the financing of investment activities in January–September 2020 was marked by an increase in the share of loans by 0.3 p.p. compared to the previous year. In the structure of financing sources of fixed capital investment, the volume and share of loans from foreign banks decreased to 2.0% (-0.8 p.p. compared to 2019), while the share of foreign investments remained at 0.4%. Loans from Russian banks in the amount of investment resources fully compensated for the absolute reduction in the volume of foreign loans and the flow of foreign investment.

The scale of budget financing of investment programs has gone up. The share of budget funds in the total volume of investment resources in 2020 increased to 18.7% (+2.5 p.p. compared to the previous year) with a change in the proportions across budgeting levels. Investment financing from the budgets of the federal subjects and local budgets has increased the most relative to the investment expenditures of the federal budget. In 2020, the increase in the share of budget funds in the structure of financing sources of fixed capital investments was recorded in most federal districts, but with a high level of differentiation by territory. Budget financing of investments was focused on expanding the capacity of healthcare institutions, updating technologies for providing educational and cultural services, and supporting the technological base of information and communication services (*Table 11*).

Table 11

Structure of fixed capital investment by financing sources in 2015–2020, in % to total (less small businesses and informal activity parameters)

	2015	2016	2017	2018	2019	2020
Fixed capital investment	100	100	100	100	100	100
Own funds	50.2	51.0	51.3	53.0	55.0	56.7
Raised funds	49.8	49.0	48.7	47.0	45.0	43.3
Including: Bank loans	8.1	10.4	11.2	11.2	9.8	9.5
Of which: Foreign banks loans	1.7	2.9	5.4	4.4	2.0	2.0
Russian banks loans	6.4	7.5	5.8	6.8	7.8	7.5

	2015	2016	2017	2018	2019	2020
Borrowed funds of other organizations	6.7	6.0	5.4	4.3	4.8	4.6
Foreign investments	1.1	0.8	0.8	0.6	0.4	0.4
Budget funds	18.3	16.4	16.3	15.3	16.2	18.7
Of which: Federal budget	11.3	9.3	8.5	7.6	7.6	8.4
Budgets of subjects of the Russian Federation	5.7	6.0	6.7	6.6	7.4	9.1
Local budgets	1.3	1.1	1.1	1.1	1.2	1.2
Funds of extrabudgetary funds	0.3	0.2	0.2	0.2	0.2	0.2
Funds raised for shared equity construction (organizations and population)	3.2	3.0	3.3	3.5	4.3	3.0
Including funds of the population	2.4	2.3	2.5	2.5	3.2	2.5
Other	12.1	12.2	11.5	11.9	9.3	7.0

Source: Rosstat.

In 2017-2020, the role of the state as a subject of the investment process increased, and the share of state-owned investments in 2020 rose to 22.5%, mainly on the back of a decrease in the share of private Russian and foreign property (*Table 12*).

Table 12

Structure of fixed capital investments by forms of ownership in 2016–2020, in %, in current prices

	For a full range of businesses				Less small businesses and informal activity parameters	
	2016	2017	2018	2019	2019	2020
Fixed capital investment, total	100	100	100	100	100	100
Including by forms of ownership						
Russian	83.1	83.8	85.1	85.6	82.7	84.2
State	15.2	14.4	14.8	15.6	20.0	22.5
Municipal	2.7	2.5	2.3	2.7	3.4	3.8
Private	55.9	58.1	58.9	59.9	50.3	50.0
Mixed Russian	7.8	7.5	7.9	6.4	7.7	6.8
State corporations	1.4	1.2	1.2	1.0	1.2	1.0
Foreign	7.4	7.4	6.6	7.0	8.0	6.9
Joint Russian and foreign	9.5	8.8	8.3	7.4	9.3	8.9

Source: Rosstat.

4.1.5. Fixed capital investment by types of activity

Fixed capital Investments of large businesses, which form 4/5 of investments in the national economy, in 2020 amounted to 98.9% of the previous year.

Extractive industry reacted most acutely to the change in the macroeconomic conditions of investment activity – a decrease of 3.1% compared to 2019. In the extractive industry, investments in crude oil and natural gas production increased

in 2020 to 102.0% compared to the previous year, while investment activity in coal production decreased to 66.1%.

In manufacturing, fixed capital investment gained 1.7% in 2020, compared to a 0.4% increase a year earlier.

The leader in investment activity in 2020 was the production of medicines and medical supplies: the growth rate of 183.3 % compared to a year earlier, the share in the total volume of in fixed investments in the economy increased to 0.6% (+0.3 p.p.).

As in 2019, the upward trend in construction and investment activity remained in the oil refining complex (115.0% against 2019). The growth of fixed investment of the metallurgical complex in 2020 came amid a change in the proportions between metallurgical production and the production of finished metal products. Capital investments in the machine-building complex and in the production of construction materials declined. In the machine-building complex, the drop in fixed capital investment in manufacture of motor vehicles by 21.8%, and electrical equipment by 30.0% results in curbing the processes of technical and technological update of these industries. The decline in investment in manufacture of computers and electronic-optical products is also alarming – by 3.9%, in the wake of growing demand for these types of products (*Fig. 10*).

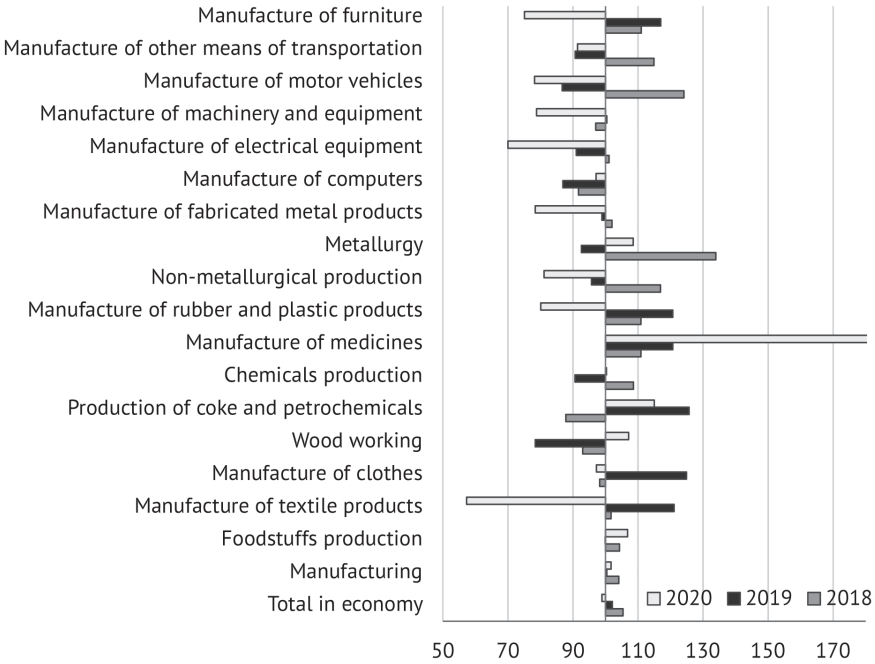


Fig. 10. Fixed investment dynamic in manufacturing industry in 2018–2020, in % to the previous year

In the service sector, in 2020, there was an acceleration in the growth of fixed investments in education, public health, and tourism. It should also be noted such positive aspects as the outstripping growth of investments in information technology, in professional and scientific and technical activities (*Fig. 11*). At the same time, investments in the development of transportation and logistics and trade and sales services declined, which is especially important in the context of the implementation of plans for modernization and expansion of trunk infrastructure (*Fig. 12*).

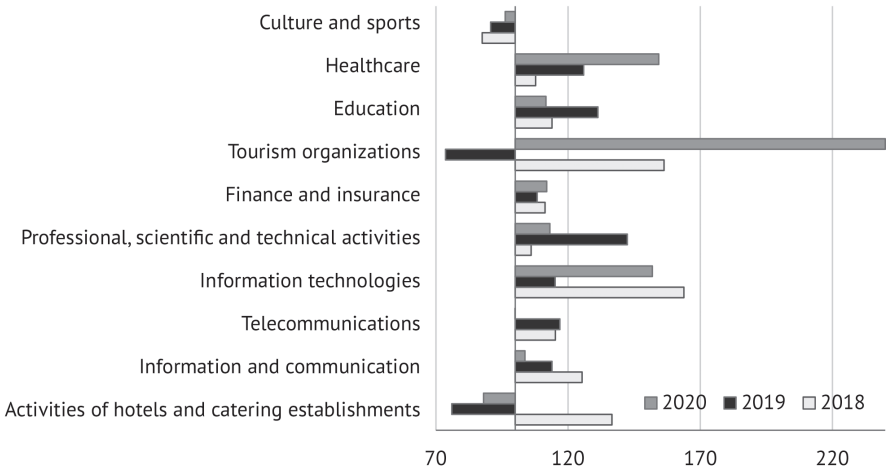


Fig. 11. Fixed investments in service sector in 2018–2020, in % to the previous year

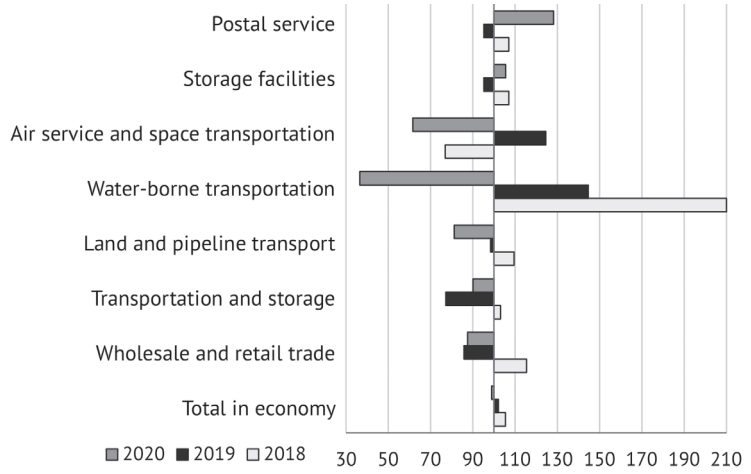


Fig. 12. Fixed investments in transportation and marketing complex in 2018–2020, in % to the previous year

The pandemic induced decline in freight and passenger traffic had a negative impact on the financial results of the transportation complex and raised difficulties with the maintenance of infrastructure, rolling stock and wages. In this regard, in 2020, the industry was granted direct subsidies for the payroll fund and the maintenance of property complexes, subsidizing rates under credit agreements, including small and medium-sized enterprises. Priority measures to support transportation companies relate to the settlement of current lease payments: for suburban passenger companies - Rb3,240 mn; for cruise river and marine companies - Rb320 mn (federal budget); for leasing contracts for buses, trams, and trolleybuses – Rb5.8 bn (budgets of the federal subjects).

In 2020, the volume of construction work almost remained at the level of the previous year. With a general trend to weaken the financing of construction works and services, their structure by type of capital stock showed a trend to stabilize the proportion of expenditures on machinery, equipment, and vehicles. The increased demand for new equipment in most cases is due to active measures to provide health facilities and related types of activities. The increase in the share of investments in information, computer and telecommunications equipment was also positive, which provided conditions for the rapid resolution of issues in the social sphere and acceleration of the introduction of digital technologies.

Table 13

Structure of fixed investments by types of capital stock in 2017–2020, in % to total

	For a full range of businesses			Less small businesses	
	2017	2018	2019	2019	2020
Fixed investment, total	100	100	100	100	100
Including:					
Residential buildings and structures	13.6	13.1	14.4	6.5	5.5
Buildings (minus residential) and facilities	43.8	42.4	38.4	43.7	43.4
Expenses on land reclamation				0.1	0.1
Machinery, equipment, means of transport	33.7	35.3	37.0	38.1	38.6
Of which information, computer and telecommunications (ICT) equipment				4.2	4.4
Intellectual property items	2.8	3.1	3.3	4.2	5.3
Other	6.1	6.1	6.9	7.4	7.1

Source: Rosstat.

In 2020, the overall share of investment in residential and non-residential buildings continued to decline (*Table 13*). In 2020, the decline in residential construction by 1.8% compared to a year earlier is particularly alarming for regions where the housing construction dynamic was around negative rates in the previous year.

The redistribution of investment funds by type of capital stock in 2020 happened on the back of an increase in the share of raised funds of the population in shared-equity construction. With the general trend towards a decrease in

current expenditures and an increase in the savings rate, the investment activity of the population was significantly affected by an increase in demand for housing and mortgage loans.

The development of housing construction and housing services in government and program documents is defined as a priority direction for improving the quality of life and a condition for the modernization of the social sphere and the economy. Given the current level and structure of income and expenditure of the population, the implementation of mortgage programs for individual social groups is the main problem in housing construction.

Both growing demand of the population and the need to reduce the share of dilapidated and hazardous housing affect the dynamic and structure of housing construction costs. This set of issues drew the attention of the Russian Government to the issues of the performance of the construction complex and housing construction in the context of the post-pandemic recovery of economic activity.

Business activity in housing construction this year will be supported by such measures as the implementation of the program of subsidizing the interest rate on loans for the purchase of housing in newly constructed buildings, the program of preferential mortgages.

The unstable recovery of the investment complex, while maintaining the downward trend in domestic and external demand, leads to a revision of investment plans. In this regard, the combination of measures taken by the government to support the economy with the instruments of fiscal and monetary policy is of particular importance. In the same direction operate new financial instruments for investment support, the implementation of a system for supporting regional investment projects and the provisions of the agreement on the protection and promotion of capital investments.

4.2. The industrial production dynamic in 2020[1]

The imposition of the restrictive measures to contain the spread of the coronavirus infection (self-isolation regime, shutdown of public facilities, etc.) adversely affected the dynamic of Russian industrial sectors in H1 2020. The manufacturing industries that produce consumer durable goods, which sales most strongly depend on changes in the income of the population, suffered the most. The collapse of the OPEC+ deal and its subsequent renewal on tougher conditions for daily oil production adversely affected the extracting sector dynamic. The decomposition analysis has demonstrated that the Russian economic recession was relatively small, the ownership structure of major industrial enterprises, the weak integration of Russian industrial sectors into global value added chains and a significant share of industrial production in the economy played a positive role.

1 This section was written by *Kaukin A.*, Candidate of Economic Sciences, Head of Sectoral Market and Infrastructure Department, Gaidar Institute, Center for Real Sector, Gaidar Institute; Head of Sectoral Market System Analysis Department, IORI RANEPA; *Miller E.*, Senior Researcher, Sectoral Market System Analysis Department, IORI RANEPA. The authors express their gratitude to *M. Turuntseva* and *T. Gorshkova* for their help in conducting statistical analysis.

To correctly interpret trends in certain industries, it is necessary to perform decomposition of their output into components: calendar variations, seasonal variations, irregular movements and trend. The interpretation of the latter is of particular interest, that is why the Gaidar Institute experts cleared the series of indexes of all industrial production sectors for 2014-2020 from the seasonal and calendar components and filtered out the trend component[1] by using the latest statistical data released by Rosstat across production indexes in industrial sectors of the economy.

The results of time series analysis for the industrial production index on the whole are presented in *Fig. 13*. *Fig. 14* exhibits the results of the aggregate indexes

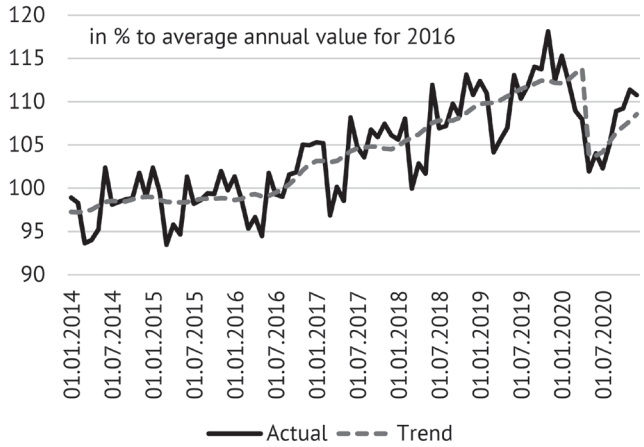
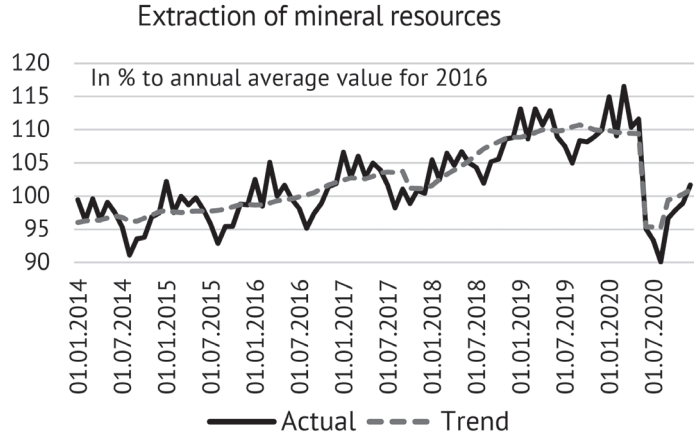


Fig. 13. Industrial production index dynamic in 2014–2020 (actual data and the trend component), in % to annual average value 2016

Sources: Rosstat, own calculations.



1 The trend component was filtered out by applying Demetra packet and procedure X12-ARIMA.

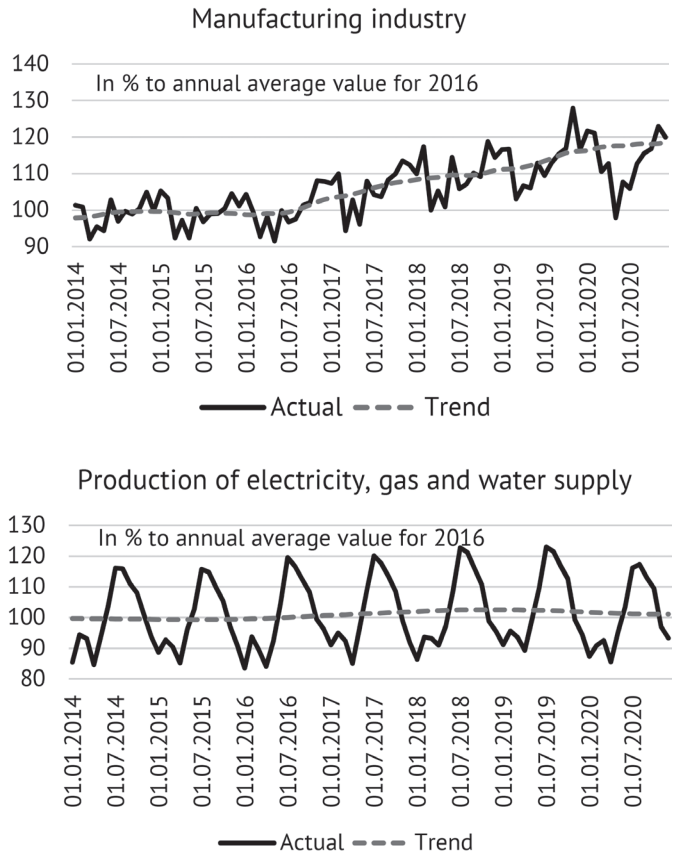


Fig. 14. Production index dynamic in extractive industries and industrial manufacture, production of electricity, gas and water supply in 2014–2020 (actual data and the trend component), in % to annual average value for 2016

Sources: Rosstat, own calculations.

of the extracting sector, the manufacture sector, and the production and supply of electricity, gas, and water. In case of other time series, the decomposition results are represented in *Fig. 15* as well as in *Table 14*.

4.2.1. The industrial production index dynamic in Q1[1]

In Q1 2020, the industry producing fuel and energy resources continued to be affected by the factors of 2019: sluggish demand for energy resources from the main consumer countries due to the policy of reducing solid fuel consumption and switching to renewable energy sources (RES), warm weather conditions, and

1 *Zhemkova A.M., Kaukin A.S., Miller E.M.* Chapter 5.6. Industry, transport, construction: crisis and support // Society and Pandemic: experience and lessons of facing COVID-19 in Russia. – Moscow: 2020.–744 p.

high occupancy of gas storage facilities in Europe. Suspension of the three-year OPEC+ deal to adjust downwards crude oil production[1] which resulted in further unbalance of the crude oil market due to price war between Saudi Arabia and Russia. The OPEC and non-OPEC oil producers signed a new deal in early April on tougher terms for all oil producers, which translated into a reduction by 9.7mb/d [2] against 3.2 mb/d cut until the end of 2020 proposed at OPEC+ meeting in early March.

The following industries of the manufacturing sector (including results of Q1 2020) exhibited growth trend, in particular:

- production of food and beverages owing to stable growth in the production of agricultural raw materials and increasing export shipments;
- chemical engineering, including due to the growing demand in the CIS countries for domestic generics (antibiotics, antimicrobial drugs);
- metallurgical production and production of fabricated metal products due to the growth in production of pipes, profiles, structures and aluminum parts, as well as gold mining.

Reduction in production volumes was recorded in wood processing and woodwork due to slump in timber prices, introduction of new phytosanitary requirements and border closure with major consumer – China.

The slow growth in retail sales was due to panic buying of foodstuffs and essential goods, and in wholesale trade due to the growth in the production of chemical and pharmaceutical products against the backdrop of the situation with the coronavirus. The decrease in the provision of paid services to the population is a decrease in its activity owing to the imposition of restrictive measures: self-isolation regime on arrival from foreign countries (the measure was effective on a voluntary basis from early March 2020), shutdown of public facilities (schools, sports and cultural venues, restaurants, etc.) from mid-March 2020, and imposition of "regime of non-work days" from end of March 2020.

Thus, at Q1-end 2020, the industries did not exhibit any signs of a crisis resulting from the introduction of "regime of non-work days", since the commencement of the reduction in domestic and external demand fell at the end of the period under review, and the deployment of available industrial inputs allowed to offset the pressure of rising prices for imported components.

4.2.2. Index dynamic in Q2[3]

The "non-work days" regime was effective from March 30 until May 8, 2020[4], followed by easing of measures to contain the spread of the coronavirus infection:

1 *Bobylev Yu, Kaukin A., Miller E*. Current state and prospects of the global oil market // Monitoring of Russia's Economic Outlook: trend and challenges of socio-economic development. 2020. No. 7 (109), pp. 28–34.

2 The 10th (Extraordinary) OPEC and non-OPEC Ministerial Meeting concludes// OPEC. 12.04.2020. URL: https://www.opec.org/opec_web/en/press_room/5891.htm

3 *Zhemkova A.M., Kaukin A.S., Miller E.M.* Chapter 5.6. Industry, transport, construction: crisis and support // Society and pandemic: experience and lessons of facing COVID-19 in Russia. – Moscow. 2020. –744 p.

4 Executive Order of the President of the Russian Federation No. 206 published on March 25, 2020 imposed non-work days with full wages from March 30 until April 3, 2020. Later, Executive order

the resumption of work of industrial enterprises, the reopening of organizations operating in services business, non-food shops, etc. The timing and list of measures depended on the epidemiological situation, vacant beds available and testing rollout in each specific region of Russia.[1]

The extractive industries continued demonstrating a downward trend in Q2. Russia strictly adhered to its commitments on cutting crude oil production in June (production decline amounted to 2.47 mb/d, and according to the OPEC+ deal, the reduction had to be 2.53 mb/d). The reduction in of external demand affected decline in gas and coal production.

Industrial production was not evenly hit by the spread of coronavirus infection: the production of durable consumer goods (household appliances, furniture, jewelry, leather products) was the most affected due to the hypersensitivity of these sectors to changes in household incomes.

As many enterprises during the pandemic began to review their investment programs and cut costs related to modernization and technological re-equipment in order to reduce costs, the machine-building industry, in particular, railway, road construction, and oil and gas engineering, was hit the hardest.

Among the slightly less affected industries was the production of materials and components. The industry has managed to move sales online and to courier delivery.

The pharmaceutical industry and the manufacture of medical equipment and instruments were virtually unaffected, and in some ways even benefited from the pandemic. The chemical and food industries suffered little, and the demand for their products also moved up during the "regime of non-work days."

The positive dynamic in retail sales remained on the back of the easing of the self-isolation regime and the reopening of non-food stores in certain Russian regions from mid-May 2020, as well as the surge in the online consumer goods market. The recession went on in the transportation sector due to a reduction in international and interregional operations, as well as in logistics operations in trade.

Thus, in Q2 2020, the industries that make the largest contribution to GDP (metallurgy, chemistry, energy and food industry) were either not affected by the crisis triggered by the spread of the coronavirus infection, or had a small adverse impact. The main concern at the end of H1 2020 was a further development of the unfavorable situation in the fuel and energy industry, as a sharp reduction in demand for the main export products - oil and gas - combined with a collapse in prices for them and increased competition with other producers on the shrinking market began to lead to a reduction in export revenues (both budget revenues and free cash flow of companies), investments and orders from the fuel and energy sector, respectively, to a notable contraction of the country's GDP.

of the President No. 239 dated April 2, 2020 extended non-work days regime for the period from April 4 to 30 and by Executive Order No. 294 dated April 28, 2020 for the period from May 6 to 8.

1 Roadmap for exit from self-isolation // Стопкоронавирус.рф. August 7, 2020. URL: https://стопкоронавирус.рф/information/.

4.2.3. Dynamic in Q3[1]

In September 2020, Rosstat recalculated the production indexes for 2019-2020, which was owing to the receipt of updated information from respondents.[2]

The trend component of the extractive sector continued to exhibit close to zero growth rates in Q3 2020, the reasons remained the same: almost complete compliance with the terms of the OPEC+ deal to adjust downward daily oil production, a reduction in global energy demand, including stemmed from the spread of the coronavirus infection.

At end-Q3, the manufacturing sector saw a rise in the trend component. A significant contribution to the current dynamic was made by: chemical production on the back of the demand growth for medicines and materials for medical purposes, chemical and mineral fertilizers (mineral fertilizers were included in the list of goods whose railway transportation is subsidizet;[3] the introduction of a preferential tariff for routes to the Far East increased the export rates of phosphorus fertilizers from Russia to China); metallurgical production driven by export volumes to South-east Asia that recovered faster from the "first wave" of the pandemic, as well as owing to the depreciated ruble that allowed Russian companies to ramp up shipments of galvanized steel to Europe; manufacture of electrical equipment due to an increase in production of radio-location and radio navigational devices and medical equipment; manufacture of means of transport on the back of railroad passenger cars rollout growth (in particular, for the renewal of the fleet in suburban areas in Russian regions), automobiles and minibuses due to pent-up demand and expansion of state support.[4]

The manufacture of machinery and equipment exhibited a downward trend in Q3 2020. That was sparked by a contraction in the investment programs aimed at the modernization and technological re-equipment of production facilities, as well as to losses incurred in H1 2020 stemming from the imposition of restrictive measures.

---

1 *Kaukin A.S., Miller E.M.* Dynamic of Industrial Production in Q3 2020. // Russian Economic Developments. 2020. Vol. 27. No. 11 pp. 28–32.

2 Revision was conducted on the following grounds:
- Preferential treatment of the provision of statistical information for certain producers, because of which, the calculation of the production volumes of these categories of producers were traditionally conducted on the latest available data. Such enterprises comprise: micro businesses that report once a year; non-small enterprises that have an average number of employees of no more than 15 persons in the previous 2 years, and an annual turnover of no more than Rb 800 mn, which report once a quarter;
- switchover from the beginning of 2020 to the new base year-2018. As a result, the recalculation of the retrospective indexes for 2019 was conducted on the basis of the production data available at the time;
- provision of operational reports by large and medium-sized enterprises on the 4th working day (often an estimate value) and their update in subsequent periods;
- in September 2020, Rosstat received annual reports from respondents (large and medium-sized organizations, micro businesses, and small enterprises) that update previously provided operational data on the production and shipment of goods, works, and services.

3 RF Government Decree dated May 21, 2020. No. 715 "On Amendments to the Decree of the Government of the Russian Federation dated April 6, 2019. No. 406."

4 *Vladimir Putin* unveiled relief measures for automobile sector // Kommersant. April 24, 2020. URL: https://www.kommersant.ru/doc/4331699.

According to Rosstat, real incomes of the population went on falling in Q3 2020, which took a toll on the retention of negative dynamic in other sectors of Russian economy - in retail sales and paid services to the population. The drop in freight turnover was due to a decrease in crude exports in the wake of global trends of falling demand for energy resources. The growth was demonstrated by such industries as construction on the back of the extension of subsidized mortgages and construction of new roads and crossroads; wholesale commerce driven by deliveries of grains, medicines, and chemical fertilizers.

Consequently, the analysis of trend components in Q3 2020 did not allow to talk about a notable industrial recovery after a plunge induced by the spread of the coronavirus infection and the implementation of restrictive measures. At the moment, one of the main risks of ongoing decline in industrial output was the further aggravation of the epidemiological situation, the potential tightening of containment measures in certain industries or regions, and the formation of corresponding adverse expectations among businesses and the population.

4.2.4. Q4

In Q4 2020, the negative impact of factors related to the implementation of the terms of the OPEC+ deal to cut daily crude oil production continued, which adversely affected the dynamic of the trend component of the mining sector.[1] The growth of external demand for Russian coal from China and Europe had a positive effect on the sector. In the first case, growth was driven by the ban on the import of Australian coal from November 2020,[2] in the second, it was due to a hike in prices on natural gas and decrease in domestic production volumes.

According to the results of the fourth quarter of 2020, the substitution of imported products, including due to the shift in consumer demand to a lower price segment, had a positive impact on a number of industries in the manufacturing sector, including: production of medical equipment; food industry, tech-style and clothing production, furniture production.

The drop in demand for leather from external and domestic markets reinforced the negative dynamic of the trend component of the production of leather, leather products and footwear in Q4 2020. Export volumes feel owing to restrictive measures to counter the spread of the coronavirus infection and the shutdown of production facilities in the countries that consumer Russian leather products. The domestic demand sank following lower incomes of consumers, who reduced their spending on goods related to the leather industry (production of cars and furniture) and switched over to a lower price segment (products made of artificial materials).

1 *Kaukin A.S., Miller E.M.* Crude Oil Market in Late 2020. // Russian Economic Developments. 2021. No. 1 (28), pp. 7–10.

2 On November 6, the Chinese authorities announced the suspension of coal imports from Australia: in November 2020, the order was made orally to large traders, the embargo officially began to take effect on December 14, 2020. The conflict between the countries started in August 2018 because of the obstacles to the introduction of Chinese-made 5G technology in the Australian market: the ban on the use of Huawei and ZTE telecommunication solutions. The escalation of the conflict took place, among other things, after Australia accused China of spreading the coronavirus infection.

The reason for maintaining the negative dynamics of the trend component of pulp-and-paper industry in Q4 2020 can be a reduction in packaging consumption amid the suspension of manufacturing processes in a number of industrial sectors and in the services sector, as well as a reduction in demand for writing and printing types of paper due to the transition of the main consumers to a remote format of work and, consequently, to electronic document flow.

The retail sales and paid services to households exhibited the negative dynamics because of a drop in households' real disposable incomes. After being negative, the trend component of cargo turnover picked up a little following an increase in exports of coal and fertilizers. The wholesale trade showed a slight uptick in Q4 2020 owing to sales of grain, medicine and chemical fertilizers.

The analysis of decomposition findings and identification of the trend component has revealed that despite the slump caused by the coronavirus pandemic, the decline in the Russian industry was relatively small (*Table 14*). Among the possible causes of this effect, the following factors can be mentioned:

- large industry-forming and strategically important enterprises are directly related with the state either through the state-guaranteed order system or by virtue of their ownership pattern; consequently, the problem of falling consumer demand for such enterprises is not an acute problem for independent small and medium-sized enterprises;
- the weak involvement of Russian industries in global value-added chains (except for the extraction of fuel and energy commodities) during global recession has a positive effect (however, in the longer-term this factor may slow down development during the global economic recovery);
- in the structure of Russian economy, a notable proportion is occupied by industry, whose enterprises operate in a continues mode, which means that they cannot be stopped even if epidemiological restrictions are imposed on other companies.

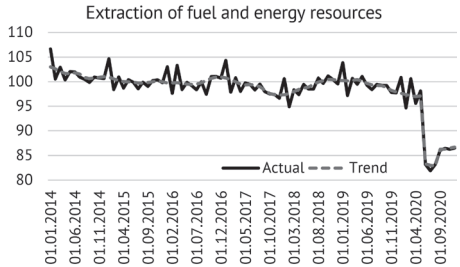
Table 14

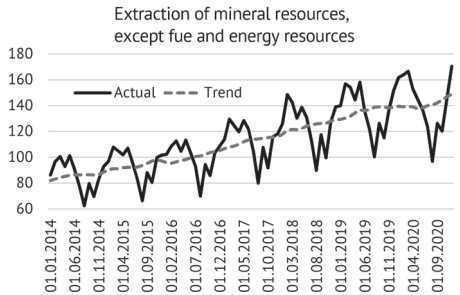
Change in the output index across industrial production, %

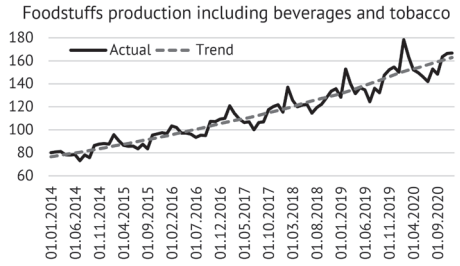
Sector	Share in industrial production index, %	December 2020 to June 2020, %	December 2020 to December 2019, %	Last months' change
The industrial production index		104.63	96.77	Growth
Extraction of natural resources	34.54	105.85	91.89	Growth
Manufacturing, including:	54.91	100.79	102.09	Stagnation
Food production, including beverages, and tobacco	16.34			Growth
Textile and sewing industry	1.14	104.93	110.21	Growth
Manufacture of leather, leather products, and footwear	0.27	108.05	118.70	Recession
Wood-working and wood products manufacture	2.02	95.05	95.60	Stagnation
Pulp and paper industry	3,35	103,44	108,78	Recession

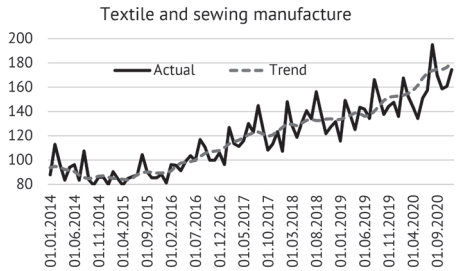
Sector	Share in industrial production index, %	December 2020 to June 2020, %	December 2020 to December 2019, %	Last months' change
Coke and petroleum products production	17.25	89.27	77.40	Slow growth
Chemical industry	7.56	102.03	92.70	Growth
Manufacture of rubber and plastic products	2.14	106.75	120.56	Growth
Manufacture of other non-metallic mineral products	4.02	107.42	110.59	Stagnation
Manufacture of primary metals and fabricated metal products	17.42	100.94	102.73	Growth
Manufacture of machinery and equipment	6.97	109.25	121.80	Growth
Manufacture of electric, electronic and optic equipment	6.27	106.55	109.47	Stagnation
Manufacture of transport means and equipment	6.75	100.66	103.05	Growth
Other industries	2.42	109.12	111.22	Stagnation
Electricity, gas, and water	13.51	118.79	112.57	Stagnation
Wholesale trade		101.93	102.06	Slow growth
Retail sales		97.02	100.67	Recession
Goods turnover		101.32	96.95	Slow growth
Construction		100.04	99.68	Stagnation
Paid services to population		99.66	92.53	Slow growth

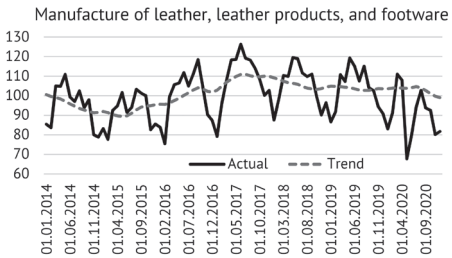
Sources: Rosstat, own calculations.

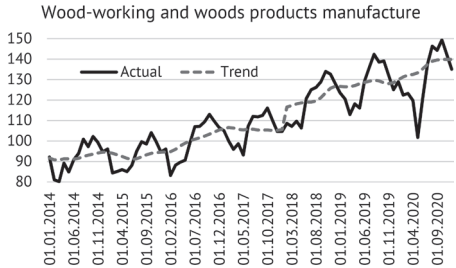


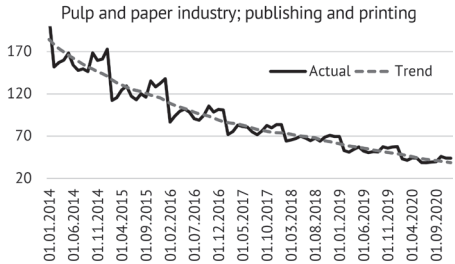


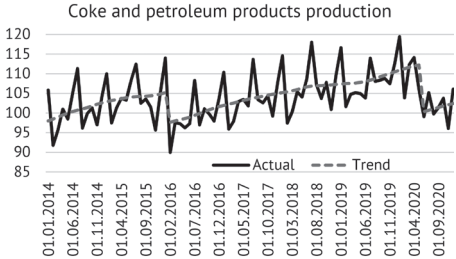


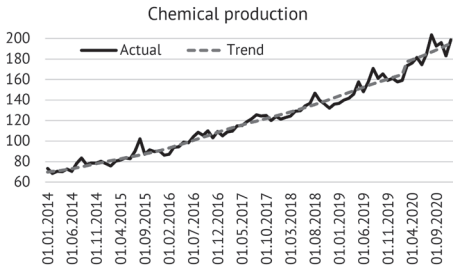


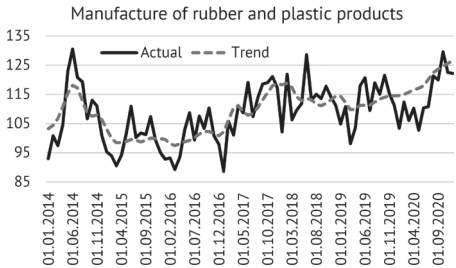

Manufacture of leather, leather products, and footware
Actual
Trend

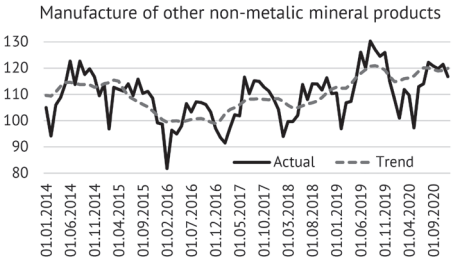

Wood-working and woods products manufacture
Actual
Trend

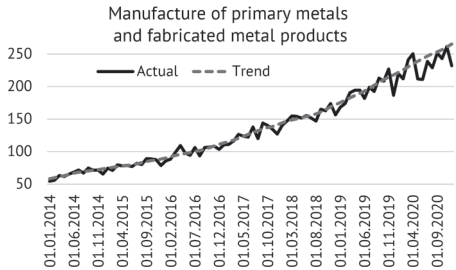

Pulp and paper industry; publishing and printing
Actual
Trend

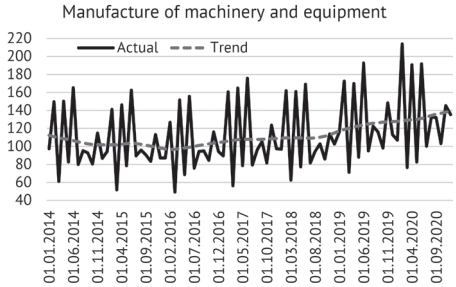

Coke and petroleum products production
Actual
Trend

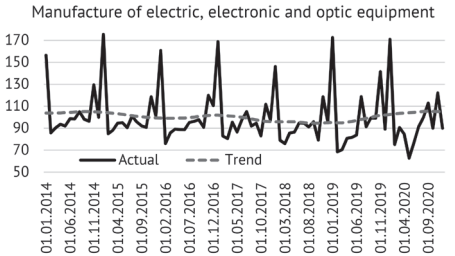

Chemical production
Actual
Trend

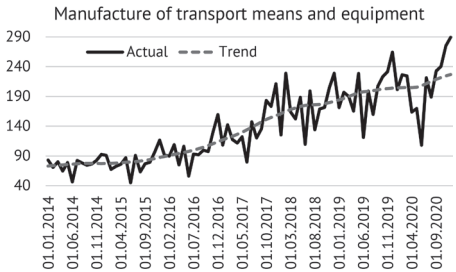

Manufacture of rubber and plastic products
Actual
Trend

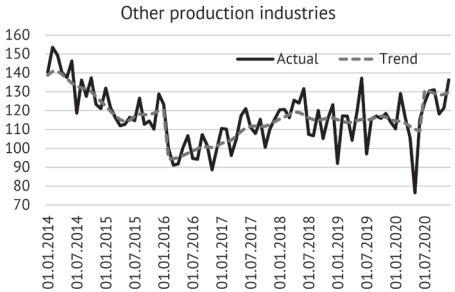

Manufacture of other non-metalic mineral products
Actual
Trend

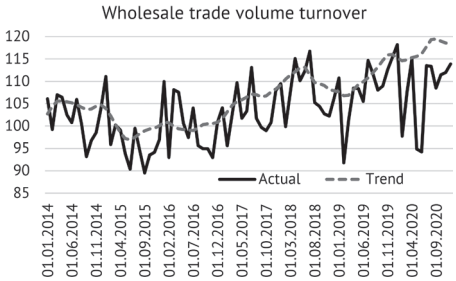

Manufacture of primary metals
and fabricated metal products
Actual
Trend


Manufacture of machinery and equipment
Actual
Trend

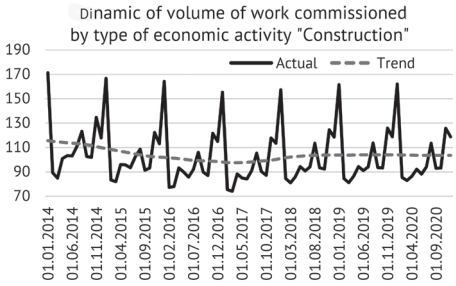

Manufacture of electric, electronic and optic equipment
Actual
Trend

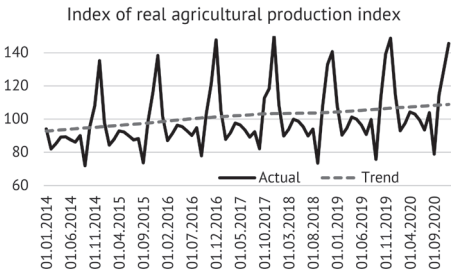

Manufacture of transport means and equipment
Actual
Trend


Other production industries
Actual
Trend


Wholesale trade volume turnover
Actual
Trend


Retail sales volume turnover
Actual
Trend


Dinamic of volume of work commissioned
by type of economic activity "Construction"
Actual
Trend


Index of real agricultural production index
Actual
Trend

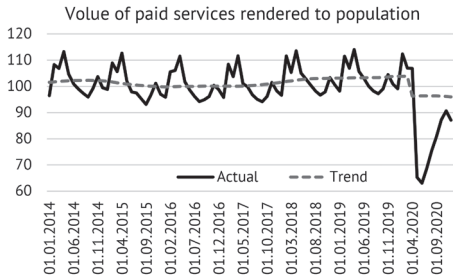


Fig. 15. Industrial production indexes dynamic in 2014–2020 (fact and trend component), in % to average annual value in 2016

Sources: Rosstat, own calculations.

4.3. Russian industrial sector in 2020[1]
(based on business survey findings)

This Chapter has been prepared on the findings of business surveys of industrial enterprises, which have been conducted by the Gaidar Institute using a European harmonized method in monthly cycles since September 1992.

Business survey questionnaire contains a limited number of questions (not more than 15-20). The original composition of questions of the IEP questionnaire was developed in 1992 on the basis of recommendations from the Organization of Economic Cooperation and Development that monitor business surveys in all countries of the world. Present IEP business questionnaire numbers not only the minimum set of questions recommended by OECD but includes other questions developed on the many years' experience of monitoring the state of the Russian economy and allowing to better understand the features of the dynamic and state of the industry. It became especially important in recent years.

The questions in the business survey questionnaire deal with actual and projected changes in the key indexes of enterprises performance as well as with assessment of the current state. Enterprises are offered to give responses across scale "go up", "no changes", "go down" or "above normal", "normal", and "below normal." We use specific derived index, which we call balance, for the analysis of business surveys' findings. Balances are calculated as difference between the percent of those who answered "go up" (or "above normal") and percent of those who answered "go down" (or "below normal"). The obtained difference allows us to present responses to each question by one number with "+" or "- ". Business survey questionnaires practically lack classic quantitative questions (customary for economists).

A simple construction of questions and responses gives the respondents the chance to fill out questionnaires quickly and without turning to consult documentation. It is paramount that the respondent at each enterprise be a

1 This section was written by: *Tsukhlo S.*, Candidate of Economic Sciences, Head of Business Surveys Laboratory, Gaidar Institute.

manager of the highest rank having complete idea about the state of affairs at the enterprises and be directly involved in the administration.

4.3.1. First quarter. Waiting for a crisis

The slow slowdown in demand that commenced in late 2019 forced the industrial sector to hold back output growth in early 2020. Furthermore, in January, the expectations (plans) and forecasts of enterprises maintained a stable level of optimism. And the shortage of personnel forced businessmen to make every effort to retain workers and to plan to expand hiring.

In January 2020, the negative trends in the demand dynamic for industrial products that formed at the end of 2019 remained – the balance of sales changes continued declining. However, it is extremely slow and difficult to catch: if this indicator lost 3.5 points in the 12 months of 2019, then in January it added another 0.4 points. Sales forecasts, which displayed an amazing stability in the range of +3..+4 points during the 11 months of 2019, still symbolically fell to +2 points in December and remained there in January 2020.

In January 2020, the industry managed to cope with the December jump in excess inventory of finished goods. Then the balance of estimates rose immediately by 5 points and hit a 28-month high. At the beginning of the new year, the index returned to its previous levels. Having said that, the absolute majority of enterprises considered their stocks of finished goods "normal". In January 2020, such responses were received from 76% of the surveyed enterprises, which was another all-time (1992-2020) maximum of this index – the share of normal stock estimates.

The slowdown in output was quite a natural reaction of the industrial sector to the nominal deterioration in demand dynamic and the December increase in the surplus of stocks of finished goods. In January, the balance (or in the usual terms for economists – the growth rate) of actual output lost another half-point (this accuracy has to be used to describe the then Russian stagnation) and shifted slightly "in the negative".

However, since July 2019 production expectations (plans) have remained remarkably stable (being in the range of +11..+12 points) and remarkably optimistic. The latter was indicated by the excess of the balance of expectations over the balance of actual changes in output. In early 2020, it reached 12 points, despite the fact that the maximum gap between the expectations and the actual dynamic was 15 points and was registered in 2015.

In Q1 2020, the recruitment policy of the Russian industrial sector continued to be formed amid a shortage of personnel, even with relatively modest business forecasts of the demand. Since July 2019, the share of "not enough" responses in assessing the headcount has consistently exceeded the share of "more than enough" responses. In this context, the industrial sector tried to retain workers and achieved some success in this endeavor: the actual headcount dynamic at the end of 2019 did not look as gloomy as at the end of 2018, and January 2020 even demonstrated an increase in the headcount. The second consequence of the

shortage of personnel seen at the beginning of 2020 was an unusually high for recent years desire of enterprises to recruit new workers.

If the enterprises were short of workers, then the industrial sector was boasting surplus of provision of capacities. The capacity shortage for all 29 years of our surveys was registered only in 2007-2008. With the onset of the 2008–2009 crisis, the shortage instantly disappeared (it was logically replaced by a significant overhang of excess capacity) and did not appear until 2020. It should be noted that the official crisis of 2015-2016 did not cause a drastic change in enterprises' assessments of their existing capacities. The scale of redundancy in 2015 remained the same, "pre-crisis". In January 2020, surveys have registered an unusually sharp shift in capacity estimates by businesses over the past three years. The share of "more than enough" responses increased by 11 points on the back of the same decrease in the share of "enough" responses. As a result, the balance of capacity estimates reached a 15-quarter high of surplus headcount.

This aspect was one of the reasons for the sharp and negative revision of investment expectations by enterprises. The balance of these intentions at the beginning of 2020 lost 8 points and went "into the negative", which was abnormal for the beginning of the calendar year.

In February, a slight uptick in demand dynamics provided an equally symbolic improvement in output dynamic and helped the industrial sector to finally cope with the surge in excess inventory of finished goods. However, the sales forecasts and output expectations of the enterprises continued to lose optimism. The balance of the industry's investment expectations remained close to zero mark.

The positive demand dynamic helped the industrial sector to exhibit better production movement than before. In February, the balance (growth rate) of output nominally (which then was the norm of Russian stagnation) went up. However, the output expectations subsequent to the demand forecasts and that is very logical, continued to lose optimism. In February, they fell by another 3 points, although they remained "in the black", i.e. there were still more expectations for output growth than expectations for its decline. However, the February balance of these 2020 expectations was a 25-month low.

After the traditional for the Russian economy January jump in prices, the industrial sector straightaway moved to an absolute price reduction in February. Note that the January increase in selling prices in 2020 was extremely modest and amounted to only +4 balance points. Smaller values of this index over the past 20 years were recorded only during January 2009 crisis. Then the balance was -4 points. Price forecasts for the end of 2019 and the beginning of 2020 were also moderate. In December 2019, they rose only to +18 points (a 10-year low in December), and in February they already fell to +5 points

In the face of a continuing shortage of workers reported for three consecutive quarters, the industrial sector has made efforts to retain staff. In late 2019 – early 2020, the usual decline in the headcount number was not so large-scale (intensive) as in previous years. As a result, the balance of changes in the number of headcount in January-February demonstrated an increase that has not been seen since the end of 2010. The optimism of forecasts of changes in the headcount

number also reached a multiyear high. However, in February, the optimism of forecasts stopped growing, which was probably due to a negative adjustment in demand forecasts.

Enterprises stubbornly adhered to the balance of investment expectations close to zero mark. This situation has been observed for 6 months in a row, and if we exclude the one-time (and, apparently, accidental) August rise in investment optimism, then it has been observed since March 2019. During this period, the balance of investment expectations for 11 months out of 12 was in the range of -4..+4 points.

In the pre-crisis March of 2020, the Russian industrial sector reported a slight deterioration in the dynamic of demand for manufactured products: the balance fell by a token 2 points in the lieu of the upcoming "events". However, the achieved sales volumes in the context of the impending plague of the XXI century and the possible complete shutdown of the entire economy were highly appreciated by the industry – 60% of its enterprises considered them "normal".

In March, the balance of estimates of stocks of finished goods deteriorated and reached +13 points. Such a high level of surplus has not been recorded by surveys since 2013. The March balance sheet value (and the enterprises' view of the near future) most likely did not reflect all the features of the upcoming months.

A moderate deterioration in demand dynamic and an increase in excess inventory of finished goods logically triggered a negative trend in output dynamic, which was a relatively small one. The balance of real production changes decreased by only 2 points in March. Slightly larger changes were registered in the production expectations of the enterprises. In March, the balance of these expectations shed 3 points, and the final decline for the first 3 months of the year came to 8 points. As a result, the index fell to the worst values of the previous full-fledged crisis of 2008-2009.

The personnel shortage forced the industrial sector to recruit workers even in March. The rate (balance) of the increase in the number of workers reached +10 points. Such a high value of this index in March has not been recorded since 2011. But the industry seemed unlikely to maintain such a recruitment policy in April-May. The balance of expected changes in the number of workers in March collapsed by 11 points and stood at zero mark.

In March, the industrial sector was able to keep its investment expectations within the previous, near-zero corridor formed 12 months earlier. Moreover, the balance of investment expectations increased by 8 points and moved from the negative closeness to zero to the positive trend. Perhaps the viral shutdown of the Chinese "workshop of the world" gave hope to Russian enterprises to replace its products with domestic analogues.

4.3.2. Second quarter. Crisis and rebound from the bottom of the crisis

The result of the first crisis month for the industry was quite predictable according to the traditional set of indicators. And it is specific for a number of other indicators. The logical and expected decline in demand surpassed the "fallout"

of 2008-2009 and entailed an equally strong decline in output. However, the forced shutdown of production saved the industry from the problem of excessive stocks of finished goods and the long-standing shortage of personnel. The logical curtailment of investments in the face of real uncertainty did not spark a shortage of capacities - the estimates of their sufficiency did not change in April. As well as the rate on ruble loans offered to the industry. However, forecasts of demand, output and financial standing witnessed to the expectations of exacerbation of crisis in the months following April.

In April, the industrial sector fully felt the arrival of the virus crisis and the consequences of the anti-epidemic measures taken by the authorities. Demand for industrial products collapsed on a scale comparable to the events of late 2008. And maybe even more. Then, in 2008, the decline in demand commenced in September and reached 60 points at the crisis peak according to the benchmark data, and solely in April 2020 the decline constituted 45 points. That said, in January-March 2020, surveys did not register any crisis decline in sales. Demand forecasts for the first crisis month of 2020 shed 30 points according to the initial data.

The anti-epidemic (full or partial) shutdown of production allowed the Russian industrial sector to cope with the surge in surplus stocks of finished goods registered by surveys in March. In the first crisis month of 2020, the balance of their estimates ("above normal" – "below normal") decreased by 5 points, which is unusual for the beginning of the classic overproduction crisis. Such a classic crisis surge in inventory surplus was registered in early 2009, and nothing like this happened in early 2015. Now the situation is also unusual: stocks of finished goods in the context of forced production stoppage can be a valuable resource for businesses, and not a burden.

A sharp decline in demand on the back of the anti-epidemic measures introduced by the authorities led to a sharp drop in output in April 2020. The initial balance (growth rate) lost 50 points in the first month of the crisis. In November 2008, this index decreased "solely" by 39 points, but then the reduction in the balance sheet commenced in September, and the total amount of decline by November stood at 60 points.

In April, the industry moved to a large-scale reduction of headcount. The balance (rate) of change in the actual number of workers fell to 30 points after +10 points in March. Our surveys have not yet registered such a sharp decline in the indicator in one month. At the end of 2008, it took 6 months to achieve a comparable change in the industrial balance. Forecasts of changes in the number of workers in April fell only to -12 points. The industry, therefore, was ready to reduce the scale of layoffs in May-June after their April spike. Meanwhile, the full-blast staff reduction did not trigger a shortage of personnel at the enterprises. Rather, the opposite is true. In industry, for the first time since the 2008-2009 crisis, a significant overhang of excess "due to the expected demand constraints" of the number of headcount was formed. The balance of estimates of the headcount after demonstrating -4 points in January rose to +9 points in April, i.e. the shortage of personnel was replaced by their surplus. At the same time, solely

6% of enterprises reported a shortage of personnel in April – the minimum since the default of 1998.

The investment expectations of the Russian industrial sector responded duly to the crisis only in April. Over a month, the balance of investment expectations dipped by 40 points and exceeded the nadir of the 2015-2016 crisis. Then, to note, the decline in investment optimism commenced after Russia entered the war of sanctions. Changes in this index in January-February 2015 (i.e. after the official announcement of the crisis outbreak) only slightly "aggravated" the situation – the balance for two months decreased by 13 points.

In April 2020, the industrial sector managed to maintain the previous, pre-crisis structure of assessments of its financial and economic situation with predominantly "good" and "satisfactory" responses over "bad" and "extremely bad" ones. The balance of these estimates remained positive. This situation has been recorded by surveys since 2017 – from the exit out of prolonged 2012-2016 stagnation. However, business forecasts regarding financial condition suffered an unprecedented collapse in April 2020. After quite favorable January expectations for recent years (with a balance of +11 points), in April the index plunged to -33 points. Neither such a drop, nor such a survey findings have been recorded since 1993.

However, in May, the Russian industrial sector weathered the shock of the first crisis month. The real changes in demand, output, and employment demonstrated unmistakably positive dynamic (for the crisis). And the forecasts and expectations of enterprises highlighted the readiness to restore the former business activity. In May, the industry's investment expectations began making a U-turn. However, the lending conditions offered by banks continued to tighten.

Following a sharp April decline in the rate of change in demand, this index gained 11 points in May. According to enterprises' estimates, the first (April) impact of the coronavirus crisis on the industrial sector was comparable in terms of sales plunge to the 2008-2009 crisis. Business demand forecasts also began to recover in May: the balance of these expectations rose by 18 points and almost reached its pre-crisis March values.

The 2020 crisis outbreak in April was coupled for the Russian industrial sector with a strange, at first glance, decrease in the surplus inventory of finished goods. This index exhibited its local maximum in March 2020, when the industry was bracing for a classical recession, traditionally triggered by a decline in oil prices. However, the partial or total shutdown of production to face the pandemic and logistics issues forced enterprises to rethink the role (and not just reevaluate the volume) of stocks of finished goods in such extraordinary conditions. As a result, by May, the surplus of finished goods stocks had already decreased by 8 points.

Positive changes in demand dynamic helped enterprises to adjust likewise their actual output. In May, the balance of changes in production volumes also improved by 10 points. Enterprises made even more significant changes in their production expectations. After April's 30-point dip, the May survey recorded an unprecedented 31-point increase in the balance. As a result, all April losses of

optimism were recouped – the industry was ready to restore its former production activity.

The next planned (quarterly) question related to the limits of output growth, which we have been asking since 1993, fell for April 2020, which was the peak of the current crisis (or its first wave). At least – for the industrial sector. As a result, we received the assessment of views of industrial enterprises about the obstacles to the output growth in the context of a unique crisis.

The 2020 crisis has brought to the fore such obstacle as "the uncertainty of the current situation and its prospects". In Q2 2020, this obstacle was mentioned by 72% of respondents following 30% of such responses recorded in January 2020. The previous local maximum of responses of ambiguity was recorded in January 2016 – nowhere near the beginning of the 2015-2016 crisis, as it should have been. In April 2020, demand constraints took a back seat in the industrial sector. Sixty-six percent of enterprises pointed to insufficient domestic demand (plus a modest 12 percentage points compared to January), to low export demand – 31% (+3 points).

The weak ruble and non-payments share the fourth place with 25% of responses. The latest ruble's devaluation increased its negative impact on Russian industrial growth from 6% of responses in January to 25% in April 2020. However, the same factor reduced the negative impact of competition with imports by 10 points – from 28% of responses to 18% (rated 6th on the list). And it brought the issue of the "expensive ruble" to the nadir of the negative impact on industrial growth – up to 2% (last, rated 17th).

In April, non-payments as a constraint of industrial growth were quite dramatically spread in the Russian industrial sector. True – only by the standards of not quite the 2015-2016 crisis and came a modest 25%. In 2009, the negative impact of this factor hit 41%, and in the 90s of the twentieth century - 75%. Non-payments have not yet led to issues with working capital. In the wake of state support, only 11% of businesses indicate the shortage of the latter in April 2020, which is the absolute minimum for the entire period of our surveys. The lack of a negative impact of lending on ensuring the current volume of industrial production is a logical addition to the previous thesis. Solely 5% of respondents mentioned this factor in April 2020

In May, enterprises weathered the April shock of recruitment policy. Then, the industry reported such large-scale layoffs that the initial balance values (growth – decline) were the worst since the beginning of the 2008-2009 crisis, and seasonally adjusted index demonstrated compatibility of headcount cuts in January 2009 and April 2020. But in May, the scale of layoffs in the industry decreased by 3-fold, and the balance of expectations to change the workforce number came to zero mark.

In May, the investment expectations of the Russian industrial sector also began to make a U-turn. Following the April plunge by 40 points (from a nominal optimism of +2 points to a full-fledged crisis pessimism of -38 points), in May the balance of these expectations rose to -29 points.

Bank lending terms and conditions offered to industry continued to tighten. In May, only 46% of businesses rated the availability of loans as normal. Although in February, 73% of enterprises adhered to such estimates. The decline in the optimism of forecasts of changes in financial and economic condition of enterprises adversely affected the options of producers to service existing loans. In Q2, this index shed 10 points and stood at 83%, although in Q1 2020 it reached an all-time high of 93% of the number of enterprises with loans.

In June, the industrial sector continued to recover from the 2020 coronavirus crisis. The recovery in actual sales and improved demand forecasts, with a modest surplus in finished goods stocks, paved the way for further deceleration in output decline. And in the following months, the industry was ready to raise production volumes. The recovery and investment expectations of enterprises continued getting momentum, but in May-June they managed to "win back" only 10 points out of 40 lost in April.

In June, according to enterprises' estimates, the recovery in demand continued after the April collapse. Then the balance (rate) of change in demand plunged by 44 points after seasonal adjustment. In May-June, the index gained 36 points, thus recouping a significant part of the April losses. The forecasts attested to the hopes of enterprises for further recovery in sales: in June, the balance of demand forecasts increased by another 10 points.

The coronavirus induced 2020 crisis, which in case of the industrial sector commenced in April, still did not entail a crisis increase in the excess inventory of finished goods. Rather, the opposite is true. In April, the share of surplus inventory estimates dipped to 15% and stood at this level in May, and in June dropped to 12%. Thus, the crisis maximum of this index fell on the pre-crisis March of 2020 and came to a modest 21% and very quickly was gone. Moreover, in June 2020, the absolute (1992-2020) maximum of normal estimates of stocks of finished goods was reported: 78% of enterprises estimated their stocks as "normal".

The recovery in demand and the modest level of surplus stocks of finished goods have created conditions for further slowing down the decline in industrial output. If in May the balance (rate) of production decline increased from the peak for this crisis -38 points to -28 points, then in June the index already went up to -6 points. Thus, the decline in output continued in June, but less rapidly. In June, the production expectations of enterprises already came out "in plus" – the industry was set for an output growth in the following months.

The recruitment policy of enterprises bears out the robust industrial recovery. In June, the rate of layoffs decreased by another 9 points and almost stood at zero mark. And the balance (rate) of expected changes in the number of workers negotiated the crisis-related downturn of personnel forecasts.

Investment expectations of the industrial sector following the crisis-led collapse in June continued to recover. However, they were able to "win back" solely 10 points in May-June out of 40 point lost in April. In June, the balance of these expectations remained markedly negative (-28 points) - i.e., the industry demonstrated intentions to reduce investment activity in Q3 2020 compared to the same period in 2019. And even in the context of a logical decrease in satisfaction

with investments in Q2 down to 45%, when 60% of enterprises considered the investments as sufficient in Q1 2020.

In June, the availability of credit for the industrial sector stopped declining and increased by 4 percentage points. As a result, by mid-2020, 50% of enterprises considered availability of credit as normal. Thus, during the current crisis the minimum of this index occurred in May 2020 and constituted 46%. In the previous 2015-2016 crisis, the normal estimates of availability of loans decreased to 34%, and in the 2008-2009 crisis – to 19%.

4.3.3. Third quarter. Weathering the crisis

At the beginning of Q3, a representative set of survey statistics displayed positive trends in the Russian industrial sector to remain after the April collapse. Demand and output continued to rebound, with stocks of finished goods showing minimal surplus. The newly recorded shortage of workers could be easily neutralized in the context of maintaining "normal" wages in industry. However, forecasts and expectations have stopped gaining optimism, which indicates an adjustment in the perception of enterprises regarding the speed of recovery from the coronavirus induced crisis in 2020.

In July, according to enterprises' estimates, the dynamic of demand continued to recover from the April plunge. Seasonal adjustment displayed an increase by 27 points in the balance (rate) of actual change in sales in May-July. However, the recovery of demand forecasts has slowed. In July, the balance of this index gained only 2 points on an increase of 11 points in June and 14 points in May.

Already 49% of enterprises considered the sales volumes restored by July as normal. The April collapse of this estimated figure ("above normal", "normal", "below normal") was the all-time high during the entire history of 343 business surveys and hit 23 points. At the beginning of the previous 2015-2016 crisis, the decline in the share of "normal" responses in the estimate of demand came to 1 (one!) percentage point in January 2015, and the nadir of the crisis was in January 2016, when the frustrated industry degraded the level of normal demand estimates by 11 points to 39%. In the 2008-2009 crisis the index fell by a maximum of 17 points in one month, in the 90s of the XX century the maximum one-month decline in demand satisfaction was 13 points.

The balance of estimates of stocks of finished goods ("above normal" – "below normal") fell in July to +3 points, and thus continuing to signal the firm business control over the supply-demand ratio. This situation is developing for the second crisis in a row: the previous crisis of 2015-2016 was met by the industrial sector even with a lack of finished goods inventory, and the worst balance figure was obtained in February 2016 and demonstrated a modest +9 points. In the 90s of the twentieth century, the balance of estimates of finished goods inventory rose to +55 points

The July business estimates of output dynamic exhibited an increase in industrial production compared to June 2020: the seasonally adjusted balance (rate) of output change reached +5 points. However, the output expectations have stopped gaining optimism. The industry has made adjustments to its understanding of the

speed and trajectory of the exit from the coronavirus crisis in 2020. In May-June, the balance of output expectations gained 45 points after losing only 30 points in April. Such a leap of optimism, apparently, seemed excessive to enterprises.

In July, enterprises maintained the lowest rate of layoffs recorded in June. Hiring expectations fell by 3 points and as a result stayed at near zero mark for 3 consecutive months – the industry was still not ready to resume hiring workers, which it planned in early 2020.

Meanwhile, a cautious recruitment policy is coupled with the expected shortage of personnel, which surveys again recorded in July 2020. At the beginning of Q3, the balance of estimates of the current workforce number again turned negative "due to expected changes in demand" – there were again more responses "less than enough" against "more than enough" responses. However, the most of the industrial sector (84% in July 2020) had a sufficient supply of personnel.

However, the Russian industrial sector can easily do away with the deficit of workforce in the face of rising unemployment and declining real household incomes by maintaining an acceptable level of wages in times of crisis. In mid-2020, 86% of enterprises rated their workers' salaries as normal. This result was the maximum of the 13-year monitoring of our estimated index. Thus, there was no crisis-led collapse (relative, of course) in the compensation rate in the industrial sector. Although in April 2020, there were forecasts of a reduction in wages. Then the balance of expected changes in real wages shed 34 points and fell to a historic (though only 2014-2020) low. But already in Q3, the salary expectations of the industry "won back" 23 points.

While output expectations, demand and employment forecasts stopped growing in July, investment expectations in July showed the highest increase since the April dip. As a result, for the first 3 post-crisis months, the index gained 23 points (10 of which were in July), but still remained in the red. The industry maintained its logical investment caution in the face of an unpredictable crisis.

In July, the industrial sector reported a significant increase in the normal availability of loans. During the month, the index gained 14 points and hit 64% – this is the percentage of enterprises that considered their access to bank lending normal at that time. This led to the fact that at the beginning of Q3 2020, only 2% (two!!!) of enterprises considered the lack of credit as a hindrance to their output growth.

In August, the Russian industrial sector decelerated its exit from the 2020 coronavirus crisis. Ensuring the gains in growth rates of demand under the nadir of the surplus of finished goods inventory and an increase in the optimism of sales forecasts helped the industrial sector to maintain positive production dynamic and contributed to maintaining high optimism of output expectations. According to enterprises, the recovery of the pre-crisis structure of restrictions on industrial growth has begun. By August, the availability of loans for industry reached its pre-crisis level.

In August 2020, the industrial sector reported retaining the previous July (and very good by the standards of previous stagnant years) growth rates of demand.

And the balance of sales forecasts gained 10 points in August and reached the pre-crisis level.

Such dynamic of actual and expected changes in demand led to an improvement in satisfaction with sales volumes up to 60%. Business surveys recorded similar value of this index in March 2020, when the industrial sector was just bracing for the onset of the coronavirus crisis, watching from the outside the decisive actions in China.

In the context of growing optimism of sales forecasts, enterprises reduced the share of "surplus" estimates of finished goods inventory to the all-time (!) low for all 339 previously conducted business surveys, and the share of "normal" estimates of inventory raised to the all-time high. In still crisis August 2020, business surveys reported 9% of the former estimates and 78% of the latter ones. The share of "insufficient" estimates of finished goods inventory accounted for 10% (3% of enterprises found it difficult to answer this question). As a result, the balance ("above normal" minus "below normal") ceased to be positive – in the fifth month of the crisis, the industrial sector got rid of a modest surplus of inventory, which, among other things, fell on the formally pre-crisis March 2020.

The current crisis, as well as the previous one in 2015-2016, did not cause problems with the provision of industrial inputs to the Russian industrial sector. Quarterly monitoring of enterprises' estimates of industrial inputs exhibited a nominal decrease in the share of "normal" responses in the crisis-related May by 4 points following an all-time high reported in February 2020, and an equally nominal increase by 3 points against August. As a result, in Q3 2020, 84% of enterprises had sufficient provision of industrial inputs.

Good (by crisis standards!) sales volumes, the lack of surplus of finished goods inventory and continued growth of optimism in demand projections helped the industrial sector to maintain an upward trend in output. In August, according to surveys, the industry again managed to produce more goods than in the previous month. For the first time (after the April collapse), this ratio was recorded in July. However, a sharp rise in the optimism of output expectations seen in May-June seemed excessive to enterprises, and the industry decided not to further increase its output projections. Throughout the summer months, the balance of the index remained at the same level – the best since April 2019 and surprisingly stable.

By August 2020, industrial enterprises, together with the Russian banking system, under the leadership of the Central Bank of Russia, restored the normal availability of loans for the industrial sector. The scale (prevalence) of easy access to credit has reached 70% and has completely got over the next credit crisis. Unless there is another wave of the coronavirus, this credit crisis will be the most short-lived. It took 3 months to reach pre–crisis credit availability in 2020, 24 months in 2015, and 18 months in 2008.

If the availability of loans in the summer months reached the pre-crisis level, the investment expectations of the industry recovered only 25 points by August out of 40 lost in April and remained in the negative zone. At the same time, they improved by only 2 points in August. The industry was still not ready to invest in

the wake of the second to none crisis and a ample provision of capacity for both the current output and the expected changes in demand.

In September, the Russian industrial sector attempted to continue its recovery from the coronavirus crisis. Improved demand dynamic with an increasing shortage of finished goods inventory helped enterprises to produce more goods in September than in August. However, the output expectations began to lose optimism gained in the previous months. And hiring expectations have not gained optimism, although in September the industry already started (unplanned) to raise the number of workers. In anticipation of the second wave of the coronavirus crisis, the industry refused to restore investment projections.

In September, the industrial sector reported a resumption of positive changes in the demand dynamic. Following the August slowdown in growth, in September, the balance of actual sales changes increased, however, by a modest 4 points. However, even this result helped the index to reach a 26-month high. Following the August jump, demand projections stood in a positive area and displayed enterprises' expectations to maintain upward trends.

In the meantime, a steady decline in the balance of estimates of finished goods inventory on the back of an increase in the share of responses "below normal" indicated the uncertainty of enterprises in the implementation of their own projections. By September 2020, the share of such estimates rose to 17%, which was a 10-year high. The industry, thus, even with a significant overhang of surplus capacity, was in no hurry to use them to replenish empty, in its opinion, finished goods warehouses.

In September, the industry again produced more goods than in the previous month. The balance (growth rate) of actual output changes remained positive for the third consecutive month without significant growth. Meanwhile, the balance of enterprises' projections shed 5 points in September, but remained positive: expectations of industrial output growth were still more than expectations to reduce it.

The pricing policy of the industry underwent a sharp change in September: enterprises abandoned the extremely restrained and non-recurrent growth and showed the upsurge in selling prices for the previous 26 months. The seasonally adjusted balance of actual price changes gained 15 points over the month. In September, the balance of projected price changes rose by 8 points and turned out to be an 18-month high.

The industry's vigorous exit from the first wave of the coronavirus crisis prompted enterprises to recruit staff only in September. The balance of actual changes in the workforce number became positive for the first time since April and amounted to +4 points. In April 2020, this index collapsed from the March +1 point to -36 points. There has never been such a one-time plunge in hiring and such a quick recovery from the personnel crisis in the entire history of our business surveys. In the generally recognized crisis of 2008-2009, the balance downward trend lasted 8 months, and the recovery from the crisis (transition to recruitment) took 16 months. During the official crisis of 2015-2016, the industry did not resort to either crisis-related layoffs or post-crisis headcount reduction. However, the

balance of hiring expectations after the May (again surprisingly fast!) recovery, remained close to zero mark for 5 months. The industry could not move to the projected hiring of workers and solved its workforce issues as they arose.

In anticipation of the second wave of the coronavirus crisis, the industry backed down from the return of investment projections in September. Following a not too rapid increase in the balance of investment expectations in May-August, in September the index again slipped down outright by 14 points. In the meantime, satisfaction with the actual volume of investments in Q3 2020 rose to 56% following the crisis-led collapse of Q2 estimates, when only 44% of survey enterprises recognized it as "normal". The latest result is comparable to the assessment of investment activity seen in Q1 2015.

4.3.4. Fourth quarter. Pause and continuing recovery from 2020 crisis

A clear slowdown in the post-crisis recovery of demand and output in the face of an obvious deterioration in the epidemiological situation and unobvious actions of the authorities forced the industry to continue getting rid of surplus finished goods inventory and held back the recovery of investment activity in October. However, the demand projections and especially the output expectations of enterprises had no obvious signs of the imminent onset of the second wave of the crisis. Against this backdrop, the Russian industrial sector continued to recruit workers and swung the balance of hiring expectations to the pre-crisis mark.

At the beginning of Q4, demand, according to enterprises' estimates, again demonstrated a halt to the post-crisis recovery. The seasonally adjusted balance (growth rate) of actual sales decreased by 1 point in October after rising by 3 points in September. Such a modest and multidirectional dynamic of this index has been recorded by business surveys since August. During this period, the index was able to improve only by 3 points. While in May-July, the balance gained 46 points. Sales projections reached a post-crisis high in August, increasing by 38 points in the first four post-crisis months and reaching a "good" pre-crisis level as a result. But in September-October, they fell by 4 points. On the back of these dynamics of actual sales and demand projections, satisfaction with sales began to fall. The share of normal demand estimates for September-October dropped to 53% after reaching a post-crisis high of 59% in August.

Estimates of finished goods inventory continued to indicate minimal expectations of the industrial sector for demand growth in the face of growing unpredictability of the authorities' actions with an obvious increase in the number of coronavirus cases. In October, the balance of inventory estimates fell by another 4 points and turned out to be a 10-year low. Such a large shortage of stocks has not been recorded since October 2010, when the industry was not fully confident of completing the recovery from the 2008-2009 crisis. But the biggest shortage of stocks in the entire history of the Russian industrial sector occurred after the 1998 default. Then the industry for a very long time – more than 30 months (from September 1998 to the beginning of 2001) – could not believe in the end

of the protracted crisis of the 90s and, having learned from bitter experience, deliberately minimized warehouse inventory.

In October, for the first time since May 2020, the balance of actual changes in output stopped growing, shed 5 points and stood at zero mark. That is, in October, according to the enterprises ' estimates, the industry produced as much as in September. In May-July, the balance gained 38 points and became positive, and in August-September, it could only gain 4 points. However, production expectations improved by 5 points in the face of a growing shortage of finished goods inventory and even with a decrease in the optimism of demand projections.

In October, the industry continued to recruit workers and swung the balance of hiring expectations to pre-crisis marks. The surveys recorded the growth of actual employment in the Russian industrial sector for the second month in a row. In April, this index plunged to -36 points, at the beginning of Q4 it was +6 points. In October, the balance of hiring expectations for the first time during the current crisis climbed into positive territory, however, could only reach +3 points.

Industry investment projections, which declined by 14 points in September after an extremely weak recovery, lost another 2 points in October. The strategy of a quick exit from the April 2020 collapse, which was demonstrated by enterprises in relation to demand, output and employment, was not implemented in terms of investment. The industrial sector was definitely not ready to return even to the extremely moderate pre-crisis investment expectations of 2019.

The share of enterprises with "normal" credit availability, after a quick restoring in August the usual pre-crisis level of 69%, tried to evade from sliding into the second wave of tightening credit conditions in September-October. In September-October, this index decreased by only 3 percentage points: in October, 66% of enterprises reported "normal" credit availability.

The resumption of positive dynamic of actual sales and demand projections in November improved satisfaction with their achieved volumes, helped the industry to restore output growth, and improved the optimism of production projections and hiring expectations. In November, investment projections of enterprises also demonstrated growth after a two-month decline. The tightening of credit conditions did not affect the dynamic of industrial output, as the lack of credit still was at the bottom of the rating list of constraints to industrial growth according to a host of enterprises. The main constraint to the output growth in 2020 for the industry were demand, uncertainty of the situation, competition with imports and ... weak ruble.

In November, the Russian industrial sector reported a resumption of positive demand dynamic. The balance of sales for the month gained 9 percentage points after a pause in August-October, when this index remained almost unchanged. A pause in the recovery of demand projections occurred in September-October, and by October the balance of expected sales changes even decreased by 4 percentage points. However, in November, the index gained 12 points and reached an 8-year high – such optimistic projections of demand have not been recorded since the beginning of 2013.

Having said that, in November the balance of estimates of finished goods inventory continued to decline – the share of "below normal" responses increasingly exceeded the share of "above normal" responses. The industry was well aware that its inventory holdings were falling further behind the current demand and its possible and, most likely, positive changes, but it was not ready to move on to maintaining a small manageable surplus of stocks in the wake of a very unusual crisis.

The resumption of demand growth with a growing shortage of finished goods inventory helped the industrial sector to continue output expansion, which halted in October. The balance of actual production changes gained 12 points in November, after a decline of 5 points and a return to almost zero growth in October. Output expectations for October-November fully recovered from the September decline and returned to the pre- and post-crisis level of optimism lost by the industry in the period from February to May 2020.

The quarterly monitoring of constraints to output growth, which we kick started in 1993, makes it possible to assess the significance of the constraints to industrial growth in the 2020 crisis year from the point of view of a wide range of enterprises. In general, at the end of 2020, insufficient domestic demand topped the rating list of constraints. However, the reference to this factor during the crisis year went up only from 50 to 54%. Besides, there have been more remarkable situations in the history of our surveys. Thus, in the officially recognized crisis year 2015, insufficient demand was mentioned even less often than in the officially non-crisis year 2014: 48% against 52%.

"Uncertainty of the current economic situation and its prospects" triggered the surge in insufficient domestic demand references in 2020. An average of 50% of enterprises mentioned this factor against 33% in 2019. Having said that, the April survey findings primarily contributed to the average annual growth of references to this factor, when 72% of enterprises ranked it to top the list. In Q1 2020, its mention was the usual 30% for previous pre-crisis quarters. In Q3, in the course of dynamic recovery from the April collapse, "the uncertainty of the situation" factor reduced its adverse impact to 50%, nevertheless, staying at the top of the list. At the beginning of Q4, when the industrial recovery paused in order to understand the authorities' reaction to the apparent increase in morbidity, the uncertainty increased the negative impact on the Russian industrial sector to 61% and still remained at the top of the list. However, there is traditionally a significant excess of "insufficient demand" over "the uncertainty of the situation" in Q1 2020 (54 against 30%) and a small gap in mentions in the other three quarters (5-8 points) did not allow the factor of "uncertainty of the current situation and its prospects" to top the list of constraints by the end of 2020.

Enterprises ranked "low export demand" third on the list even in the context of the ruble's weakening increased in 2020 compared to 2019. The reason, most likely, lies in the global COVID-19 crisis, which has had a strong negative impact on traditional consumers of Russian exports. The Russian industry competition with imports was fourth on the list, which at first glance is surprising with a weakening national currency. However, the smooth nature of the devaluation has intensified

the outstripping demand for imported products or for Russian goods with a significant share of imported components. To the detriment, apparently, of sales of purely Russian goods.

"The weakening of the ruble exchange rate and the rise in price of imported equipment and raw materials" closes the top-5 constraints to industrial growth in 2020 according to the enterprises' responses. The mention of this factor exhibited the second largest (after the "uncertainty of the situation") growth: from 9% in 2019 to 19% in 2020. As a result, the "weak ruble" rose from the 15th place in the rating of 17 constraints to the 4th place and for the third quarter in a row strongly holds in the top-5 constraints, displacing the "lack of qualified personnel" from there. That said, the "strong ruble" was able to achieve only 9% of responses (at the end of 2019 - early 2020) and reached only the 13th place (out of 17) in this rating as a negative factor for Russian industrial sector growth.

In the last, 17th place on the rating list of constraints to growth of output, enterprises put the still popular lack of credit. The industrial sector as a whole (and not its media representatives) for the third consecutive year ranks this factor last with only 3% of references.

After a robust recruitment in September-October (the balance reached +5 points in these months, which was the highest value of the index after the April dip to -36 points), in November the industry decided to adjust the speed of hiring – the balance fell to +3 points. However, enterprises' hiring expectations of qualified personnel continued to gain momentum and rose in November to +8 points, which was a 10-year high. The resumption of recruitment and projections for its continuation were formed by the Russian industrial sector in 2020 under the influence of "lack of qualified personnel" factor at the top on the sub-rating list of input constraints to industrial growth. In the meantime, the current crisis helped the industry to do away with the shortage of headcount recorded in 2019, and to close 2020 with a zero balance of estimates of provision of personnel amid the expected change in demand.

At the end of the two-month pause, the industrial sector resumed restoring investment projections. However, it was very restrained: in November, the balance gained only 4 points. Though, after a two-month drop in this index, the November growth gave hope that there will be no second lockdown. In April, the lockdown led to a collapse of the investment expectations of the industrial sector by outright 40 points.

In December, the balance of change (growth rate) in demand after seasonal adjustment gained another 2 points and reached values that have not been recorded by business surveys since 2010. Thus, the demand for Russian industrial goods continued to rebound after a pause in August-October. However, sales projections for the first months of 2021 demonstrated a sharp decline in optimism of the Russian industrial sector. In December, the balance of these expectations collapsed outright by 31 points – from the level of very good optimism to the level below only to that recorded in April 2020.

The average annual balances of changes in demand demonstrate that the crisis-led decline in the index in 2020 was a continuation of the negative dynamic

that formed in 2018. Then, the industry could not continue to emerge from the 2012-2016 stagnation and began to be drawn into a slump, interrupted by the COVID-19 crisis of 2020.

The balance of estimates of finished goods inventory fell to -13 points by December. Surveys have not registered such a predominance of "below normal" responses over "above normal" responses for twenty years – since December 2000.

The consistent minimization by enterprises of their stocks of finished goods provided an amazing result amid the 2020 crisis – the average annual balance of stock estimates is almost no different from zero (+1.6 points). However, such a modest result amid a crisis year is recorded for the second time in the past decade: in the 2015 crisis year, the final balance was equal to +3 points, and at the beginning of that crisis (January 2015), there was even a shortage of stocks of finished goods.

Rising demand and a growing shortage of finished goods inventory helped the industry to maintain output growth in December. The balance (growth rate) of actual changes in production remained positive (retained growth compared to the previous month) and gained 5 points (growth, according to enterprises ' estimates, became more robust). However, the December output projections lost all the optimism gained by the industry in May-November 2020. The balance of expected changes in output decreased to +1 point. The surveys recorded worst expectations only in April 2020.

Despite pessimistic expectations for the beginning of 2021, long-term recruiting challenges are forcing the industry to recruit personnel. In December 2020, the balance of changes in the actual number of workers displayed robust growth, which has not been seen for many years. On the other hand, the workers themselves were convinced that the authorities would not again risk forced restrictions on work or shutdown of industrial enterprises. In this context, industrial jobs have become very attractive. This saved the industry from the traditional December mass outflow of personnel.

The robust post-shock recovery of recruitment and the unique (in the context of pandemic restrictions on the activities of other industries) opportunity to resolve their long-term staffing issues at the expense of "neighbors" kept the annual balance of changes in the number of industrial workers away from a crisis-led collapse. As a result, 2020 "did not make it" even to the worst years of 2012-2016 stagnation, not to mention the 2008-2009 crisis.

In December, the industry decided to continue restoring investment optimism after a pause in September-October. The balance increased by another 14 points and reached the highest values since the beginning of the coronavirus crisis. However, it remained "in the red" – that is, there are still more expectations to reduce investment in the industrial sector than there are expectations for their growth. In this context, it is more correct to speak not about the growth of investment optimism, but about the decrease in investment pessimism.

The decline in the normal availability of credit for the industrial sector, which enterprises reported in September-November, has stopped. In December, the

index gained 2 percentage points and went up to 62%. The best result of the year was recorded in February 2020 and was equal to 73%.

The credit crisis of 2020 was the weakest for the Russian industrial sector compared to three crises that occurred in the first 20 years of the XXI century. The normal availability of loans according to the average annual data decreased only to 62%, whereas in 2015 it fell to 44, and in 2009 – to 37%.

4.4. The transportation industry[1]

The transportation industry is not only a key sector of the economy, but also its indispensable glue. The development of transport infrastructure is a major factor of economic growth and a key driver of exit from the economic crisis.

In the past few years, the transportation industry demonstrated upturn dynamic both in terms of the development of infrastructure and the volumes of transportation. In 2020, the COVID-19 pandemic and the relevant restrictions aimed at fighting the spread thereof led to substantial changes in the supply and demand situation on numerous markets, not only affecting directly freight and passenger traffic, but also making a sizable portion of the population revise their views on the need and required parameters of the infrastructure (not only transport infrastructure, but also social-information and communication ones).

The transportation industry and logistics are among the sectors which were hit the hardest by the pandemic. On the back of restrictions on international traffic introduced early in 2020 and the decline of business activity, the volumes of hauling operations, passenger traffic and freight turnover decreased and logistic chains changed.

As of the end of 2020, the list of the hardest -hit sectors[2] included motor transportation and air carriage; sea, inland-water, air and other overland passenger services; intercity and international railway passenger services, bus terminals and auto stations, as well as auxiliary activities related to air and space transportation.

At the same time, it is noteworthy that effect of the pandemic on the situation in the transportation industry is not quite homogeneous in terms of the pattern of effects broken down by the sub-sectors and their indicators' dynamics during 2020.

So, the restrictions aimed at fighting the spread of the pandemic, particularly during the period of non-work days and the mandatory stay-at-home regime in April-May 2020, the limitation of international mobility[3] and the shift to remote work affected dramatically the volume of passenger traffic by all types of transport. It started to recover, as shown below, only in H2 2020.

1 This section was written by: *Borzykh K.*, Junior Researcher of the Infrastructure and Spatial Studies Department, IAES RANEPA; *Ponomaryev Yu.*, Candidate of Economic Sciences, Head of the Infrastructure and Spatial Studies Department, IAES RANEPA; Senior Researcher of the Center for Real Sector Studies, Gaidar Institute.

2 URL: http://base.garant.ru/73846630/#block_1000

3 RF Government Order No.763-r of March 27, 2020 on Temporary Suspension of Traffic via Russia's State Borders.

At the same time, the impact on freight traffic was also negative, but not so much homogeneous. Fast growth in online sales of goods led to higher demand for freight services (particularly, trucking) on the part of logistics companies, retailers and distributers. To deliver essential goods to some cities, the authorities had to assign the taxi service a new function.[1] Also, a pickup in the online segment of sales increased a load on transport industry-related entities providing warehousing services: in 2020 demand for such services doubled and renewed the record-high level of the busiest period preceding New Year's Day.[2]

It is noteworthy that the impact of the coronavirus has brought about globally similar trends in transport systems all over the world, specifically, a substantial decline of activities of large international transportation hubs and global cargo and passenger traffic. The volumes of reduction in the transportation industry's activities differ from country to country and depend on the specifics of approach to dealing with the pandemic's implications. However, the common trend consists in switching over freight flows to railways and reorientate the transport system to the domestic market (internal traffic growth).[3] For example, China used railways as the main mode of transportation of goods, including medical supplies: railways which operated 24/7 replaced trucking at individual supply chain parts which functioning was disrupted. In the euro area, the introduction of incentives for freight companies (tax breaks and cancellation of rentals owing to a decrease in the volume of intra-European and International freight traffic) failed to prevent the contraction of the market of transport and logistics services (a decrease of over 30% at year-end). According to the OECD's preliminary estimates, a drop in the global freight traffic was equal to 36% in 2020.[4]

A rapid recovery of the transportation industry is largely hindered by international traffic restrictions (albeit eased gradually) which are in effect till the end of the year. On the back of these restrictions, in 2020 the international tourist flow decreased by 74% as compared with the previous year.[5] According to the UNWTO, an international tourism organization, in December 2020 out of 217 destinations (countries) 27% of countries kept their borders completely closed and 70% of countries eased partially international travelling restrictions.[6] The International Air Transport Association (IATA) assessed that air traffic decreased by 66% at year-end as compared with 2019. At the same time, the IATA notes that owing to internal air service growth of 3.8% in summer as compared with August 2019, the Russian market was the first one to see growth since the beginning of the pandemic (*Table 15*). Upward dynamics of the air transportation industry's indicators were driven by the reduction in the cost of air flights in combination with growing demand for internal holiday trips.[7]

1 URL: https://www.vedomosti.ru/partner/articles/2020/06/16/832460-pandemiya-zastavila
2 URL: https://www.rzd-partner.ru/logistics/reviews//pandemiya-rasshirila-spros-i-trebovaniya-k-skladam/
3 URL: https://www.retail.ru/articles/logisticheskie-trendy-2020-2021-goda-vliyanie-pandemii-covid-19-na-perevozki/
4 URL: https://www.itf-oecd.org/sites/default/files/global-freight-covid-19.pdf
5 URL: https://www.e-unwto.org/toc/wtobarometereng/19/1
6 URL: https://www.unwto.org/covid-19-travel-restrictions
7 URL: https://www.iata.org/en/pressroom/pr/2020-09-29-02/

Table 15

Dynamics of indicators of air traffic on developed countries' internal markets, August 2020 as compared with the corresponding period of 2019, %

	Share in global traffic volume	Revenue passenger kilometers	Passenger load factor (increase)	Passenger load factor (level)
Internal traffic	36.2	-50.9	-21.5	64.2
Australia (internal)	0.8	-91.5	-44.9	37.1
Brazil (internal)	1.1	-67.0	-6.4	76.1
China (internal)	5.1	-19.1	-12.3	75.3
India (internal)	1.3	-73.6	-19.1	66.2
Japan (internal)	6.1	-68.6	-45.6	35.6
Russia (internal)	1.5	3.8	-4.6	86.4
USA (internal)	14.0	-69.3	-37.7	48.9

Source: The International Air Transport Association (IATA).

Below we review in detail the dynamics of the transportation industry's main indicators in 2020.

4.4.1. Transportation dynamic in 2020

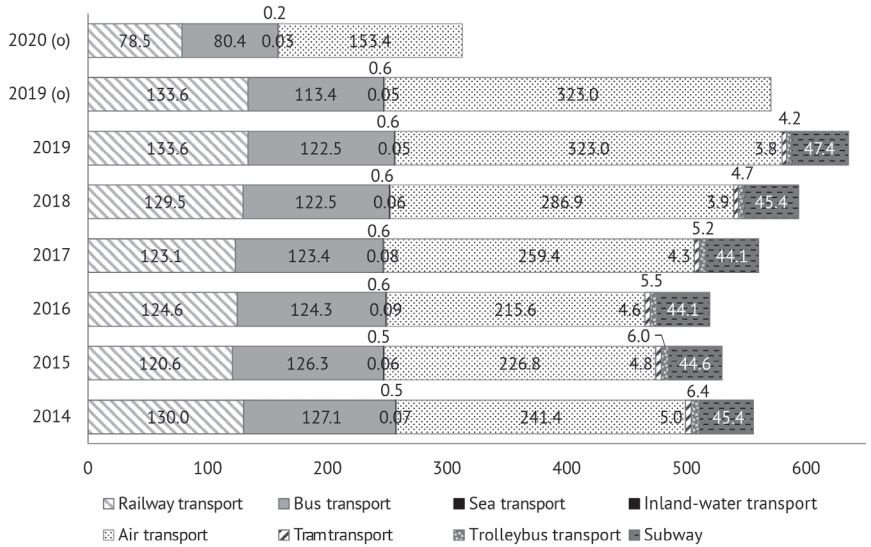
Passenger traffic

The year 2020 saw a huge slump in passenger traffic in Russia: as per the data of the Rosstat it was equal to 45.2% as compared with 2019 and took place largely during the stay-at-home regime in April-May. Passenger traffic decreased substantially as regards inland water service (-59.5%), air service (-52.5%, including international air service (-85.9%) and internal air service (-13.5%)), railway service (-41.3%) and sea service (-39,5%). Bus passenger traffic, mostly intra-city and inter-city bus services, fell by 29%. In summer, passenger traffic by all types of transport increased, but owing to the prevailing restrictions on international traffic and relatively lower demand for transportation services failed to embark on the former trajectory comparable with the previous year.

At the same time, based on the results of four quarters of 2020 it can be stated that the passenger traffic pattern did not undergo serious changes; the share of air traffic is declining, while that of railway and bus traffic is on the rise relative to 2019 (*Fig. 16*).

In 2020, the overall volume of passenger traffic decreased by 29%. The largest contraction took place in the air transportation industry: air passenger traffic fell by 46%. In particular, passenger traffic of the Moscow Air Cluster decreased by 52.3%.[1] Owing to the restrictions on the international air service between Russia and other countries, in 2020 the volume of regular and occasional flights was equal to 23.8% of the volume seen in 2019. As regards internal flights, this indicator is higher – 76.9%, however it does not exceed the volume of the previous year. In

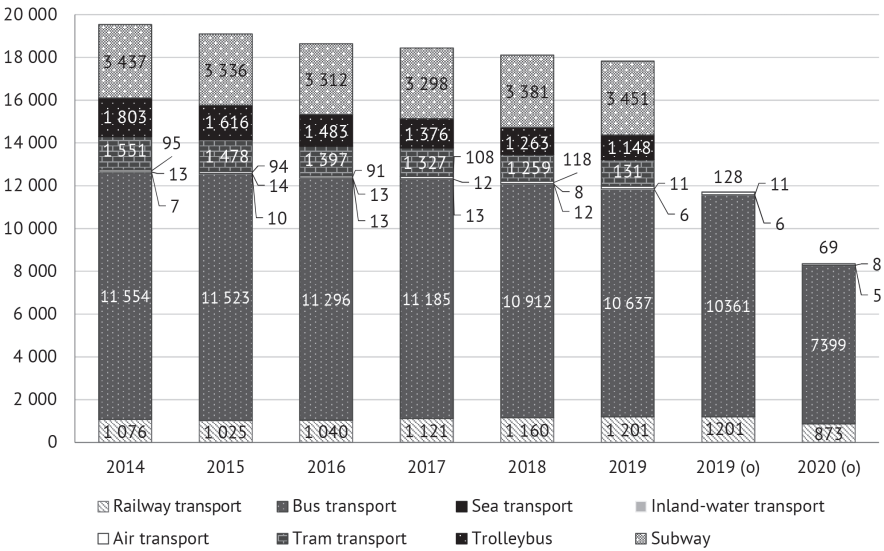
1 URL: https://www.aviaport.ru/news/2021/01/26/665055.html



Note. 2020 and 2019 (for comparison) are represented by the on-line data ("**o**" next to the year) without taking into account tram and trolleybus traffic and subway.

Fig. 16. Passenger traffic by the type of transport (billion passenger kilometers), 2014–2020

Source: The Rosstat, own calculations.



Note. 2020 and 2019 (for comparison) are represented by the on-line data ("**o**" next to the year) without taking into account tram and trolleybus traffic and subway.

Fig. 17. Passenger traffic by the type of transport in 2014-2020, million passengers

Source: The Rosstat, own calculations.

addition, passenger load factor in the industry as a whole decreased by 6.7% in 2020 on 2019.[1]

There was almost an equal decrease in passenger traffic by sea transport (-23.9%), railway (-27.3%), bus (-28.6%) and inland water transport (-31.8%) (*Fig. 17*).

Freight traffic

As per the Rosstat's data, in 2020 the share of the transportation industry in gross value added[2] was equal to 6.5% (a decrease of 0.3 p.p. as compared with 2019). By estimates of the RF Ministry of Economic Development, the cargo traffic dynamic throughout 2020 remained negative. Overall, in 2020 freight turnover fell by 4.9% relative to 2019 with the largest drop of -8.2% based on the results of Q2 2020.[3]

A decrease in freight turnover and cargo traffic volume in nominal terms based on the results of H1 2020 led to growth in transport cargo capacity[4] (54.6). However, at year-end a downward trend observed since 2014 was registered and this is evidence of higher efficiency in utilization of transport (*Fig. 18*).

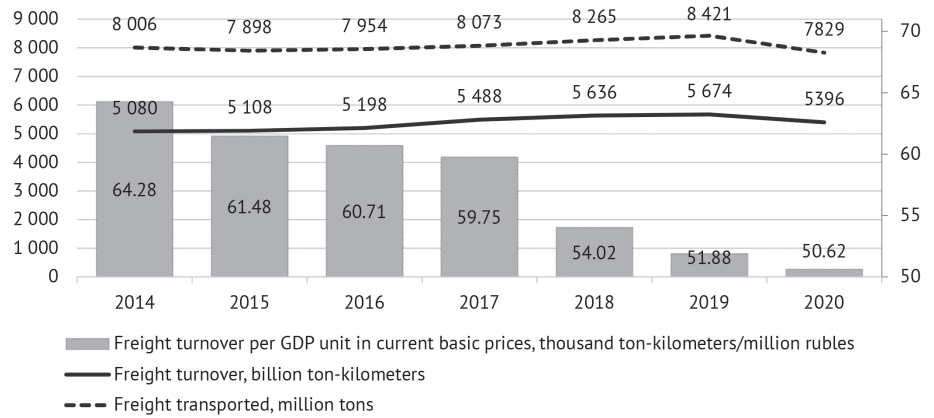


Fig. 18. The dynamic of freight turnover per GDP unit in current prices (thousand ton-kilometers/million rubles), cargo traffic volume (million tons) and transport freight turnover (billion ton-kilometers), 2014–2020

Source: The Rosstat, own calculations.

1 URL: https://favt.gov.ru/dejatelnost-vozdushnye-perevozki-osnovnye-proizvodstvennye-pokazateli-ga/

2 The Rosstat. (GDP produced. The annual data on OKVED 2 (NAC Edition 2) (since 2011) in current prices. URL: https://rosstat.gov.ru/accounts; URL: https://www.gks.ru/storage/mediabank/osn-12-2019.pdf

3 URL: https://www.economy.gov.ru/material/file/f6ba6608b92d30df520e89cdf7ec16cf/210128.pdf

4 Cargo capacity is the value of freight turnover (sum of productions of weight of each freight shipment by a transportation distance) per GDP unit and shows the extent of the "load" on the economy by the work of transport.

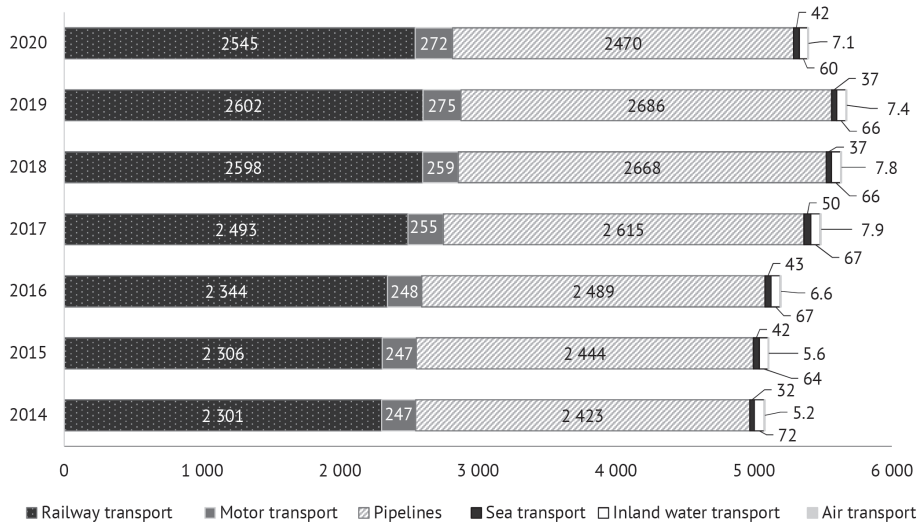


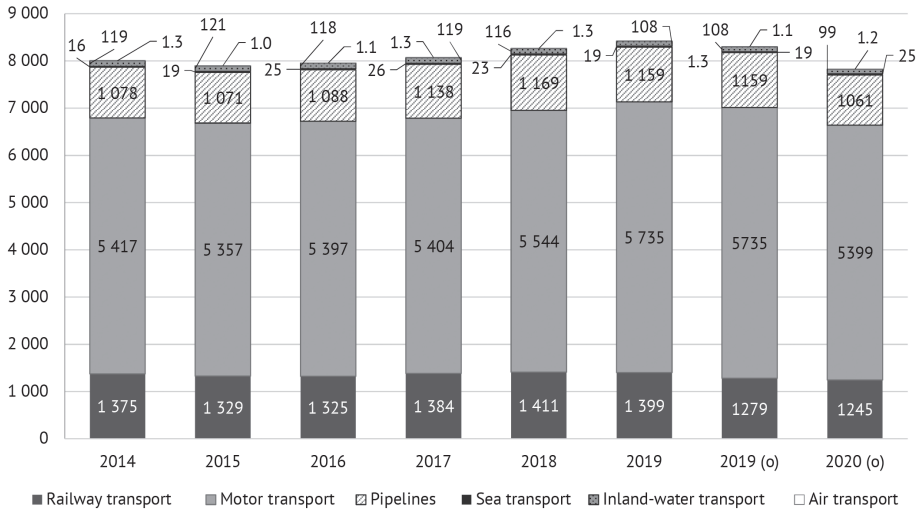
Fig. 19. Freight turnover by the type of transport (billion ton-kilometers), 2014–2020

Source: The Rosstat, own calculations.

As per the Rosstat's data, in 2020 the monthly dynamic of freight turnover did not surpass the indicators of the previous year. The smallest deviation relative to 2019 was registered in February (99.5%), while the highest gap, in May and June (90.8% and 90.5%, respectively), but it was narrowed considerably based on the results of Q3 and Q4. In terms of the types of transport, freight turnover decreased as follows: inland-water transport (-8.6%), pipelines (-8%), air transport (-3.8%), railways (-2.2%) and motor transport (-1.4%). In November-December, air carriage succeeded in increasing substantially the volume of freight turnover and surpass the relevant indicators of the previous year. The sea transport became the only one which achieved a positive dynamic of freight turnover and surpassed by 16% the volume seen in 2019. In addition, in 2020 air carriage saw upward freight turnover dynamics on Russian internal routes (+10.6%), including local traffic (+29.2%). In freight turnover across the country as a whole, the share of motor transport increased, while that of pipelines became smaller (*Fig. 19*).

In 2020, the freight traffic volume in nominal terms decreased by 5.7%. Specifically, it concerned all types of transport, except for sea transport (32.9%), which can be explained by growth in transit and the volume of grain shipments which made up for a drop in other components of freight traffic (*Fig. 20*). In addition, foreign trade which Russian sea carriers are oriented at was hit slightly less by the crisis than other sectors and this could not but influence the dynamic of freight turnover and sea freight.[1] At year-end, air freight increased and embarked

1 URL: http://www.morvesti.ru/analitika/1691/86483/



Note. 2020 and 2019 (for comparison) are represented by the on-line data ("**o**" next to the year).

Fig. 20. Freight traffic dynamic by the type of transport (million tons), 2014–2020

Source: The Rosstat, own calculations.

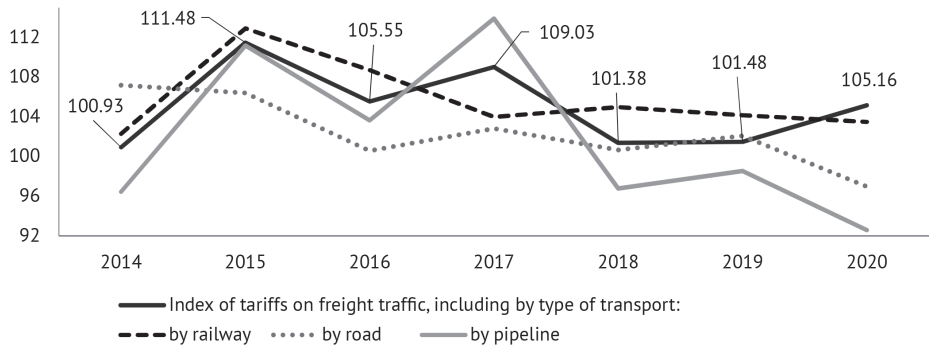


Fig. 21. Growth rates of freight carriage tariffs (aggregate and by the type of transport), December on December of the previous year, %

Source: The Unified Interdepartmental Statistical Information System, own calculations.

on the positive dynamic: 1.9%, while based on the results of January-October it saw negative growth (-1.4%).

The largest decrease in freight traffic was registered with pipelines (-8.5%), inland-water transport (-8.3%) and motor transport (-5.9%). Railways saw a relatively small drop (-2.7%) in freight traffic.

Overall dynamics and changes in the freight traffic pattern were affected to some extent and driven by the dynamics of freight tariffs (*Fig. 21*). Generally, the overall level of freight tariffs on freight carriage has been declining since 2015. Explosive tariffs growth on the back of nearly three-fold increase in tariffs from 105.2% to 288.9% on air freight in November-December 2020 compared with the relevant period of 2019 was an exception. Throughout the entire observation period, the dynamics of tariffs on transportation by pipelines were the most volatile with a dramatic slump registered in 2020. The growth rates of tariffs on freight transportation by road demonstrated a downward trend, while those on freight transportation by railway remained on a consistently high level relative to other types of carriage.

Transportation infrastructure

Apart from limitations and losses caused by the pandemic, there is an acute need of upgrading and replacing nearly one third of the entire rolling stock and bringing the transportation infrastructure in compliance with the relevant standards.

To maintain the rates of development of the transportation infrastructure, the authorities had to take prompt and systemic steps, that is, the optimization[1] of procedures for implementation of projects and provision of additional financing for the sector. With the breakdown into the type of transport, the following trends can be highlighted in 2020. First of all, amid the pandemic the start of implementation of large railway infrastructure projects on external markets (for example, the RZhD's and the Transmashholding's projects in Argentina and Egypt) was postponed. To implement railway infrastructure projects on commissioning 400 kilometers of additional main trunk routes and new railway lines primarily in the Eastern test range and approaches to seaports of the Azov sea and the Black sea, it required to increase the RZhD's investment program by 1.5%.

The year 2020 saw the contraction of shipbuilding activity in Russia: at year-end maximum 60 civil ships are expected to be put into service, a decrease of 20% compared with the previous year.[2] The development of refueling infrastructure and building of natural gas refueling transport facilities slowed down: the building of 10% of such facilities was postponed from 2020 to the beginning of 2021.[3]

The road building dynamic is positive: in the current year the volume of road building jobs has increased and surpassed actually the planned targets, including those set in the "Safe and Quality Highways" national project (SQH).

1 Federal Law No.254-FZ of July 31, 2020 "On the Specifics of Regulation of Individual Relations for the Purpose of Upgrading and Expanding the Trunk Infrastructure and Amending Individual Statutory Acts of the Russian Federation." URL: http://kremlin.ru/acts/bank/45782

2 Shipbuilding on a High Note // The Kommersant daily. URL: https://www.kommersant.ru/doc/4442575

3 Anton Inyutsyn held a meeting on the ways of speeding up the development of the market of natural gas as petrol // The RF Ministry of Energy. URL: https://minenergo.gov.ru/node/18661

As of November, 7.000 road facilities were brought in compliance with relevant standards, that is above the 2020 target indicator of 6,000 road facilities; the area of asphalt cover milling was equal to 142 mn sq. meters (instead of 123 mn sq. meters).[1] Early in December, the annual plan of commissioning roads in Moscow was accomplished ahead of schedule,[2]while in the Nizhny Novgorod Region the overall area of wearing coat milling was equal to 98.8% of the annual volume.[3] Within the framework of the SQH national project, in 12 metropolitan areas the public transport rolling stock was upgraded with 511 transport vehicles provided among other things on preferential terms (with a price discount of 60%).

From among large infrastructure projects in the transportation sector in 2020, the Tavrida Highway project was completed, the building of the bridge across the Zeya river in the city of Blagoveschensk was started ahead of schedule, the period of building of the bridge across the Ob river in the city of Novosibirsk was reduced by a year and the work proceeded on building the bridge across the Sheksna river in the city of Cherepovets, the northern bypass of the city of Kaluga and the M-12 Moscow-Kazan highway.

Port infrastructure saw further development: at year-end production capacities of Russian ports increased by 27 mn tons. In addition, inland-water service launched new cruise routes on the Yenisei river and the Volkhov river; also, the Mustai Karim cruise liner built at the Russian shipyard was put into service.

4.4.2. The transportation industry's losses and state support measures

By estimates[4], in 2020 the transportation industry's losses owing to the pandemic amounted to Rb1.27trillion or 66% of the overall volume of Russian infrastructure companies' losses.

Among different types of transport, air infrastructure service companies were hit the hardest: airline companies and airports short-received Rb600 bn and Rb113 bn, respectively. In terms of the relative ratio of losses as the share of lost annual revenues, the public transport, particularly, carsharing services, the subway and city overland transport services were hit hard, too (*Fig. 22*).

The transportation industry which is critically important to the economy managed to avoid substantial cuts in personnel and bankruptcies thanks to state support measures worth about Rb200 bn.[5] Amid the COVID-19 pandemic, the complex of anti-crisis measures aimed at maintaining transport companies'[6] operations included primarily the support of systemic companies by means of

1 Road building has surpassed the planned target this year – Marat Khusnullin // Dorinfo. URL: https://dorinfo.ru/star_detail.php?ELEMENT_ID=87667
2 Bochkaryev: Moscow Has Accomplished the Annual Plan of Commissioning of New Roads // The website of the Town-Planning and Construction Complex of the City of Moscow. URL: https://stroi.mos.ru/news/bochkariov-moskva-vypolnila-ghodovoi-plan-po-vvodu-dorogh
3 Kilometers of roads repaired in the Nizhny Novgorod Region in 2020 // The website of the Strategy of Development of the Nizhny Novgorod Region. URL: https://2035.government-nnov.ru/ru-RU/news/skolko-kilometrov-dorog-bylo-otremontirovano-v-2020-godu-v-nizegorodskoj-oblasti
4 InfraOne Research of 01.2021 URL: https://infraone.ru/sites/default/files/analitika/2021/infrastruktura_i_pandemiya_poteri_otrasli_v_2020_infraone_research.pdf
5 URL: https://regnum.ru/news/economy/3118554.html
6 URL: https://www.mintrans.gov.ru/activities/289/291

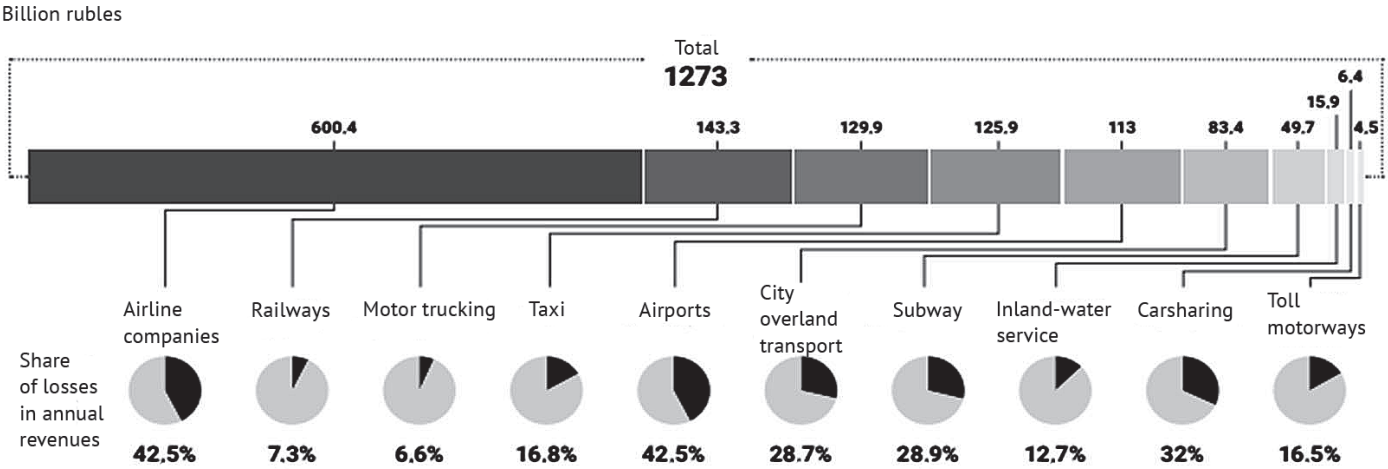


Fig. 22. The transportation industry's revenue losses in 202, billion rubles

Source: InfraOne Research.

subsidies to finance costs, tax deferrals and government loan guarantees.[1] Transport companies were granted extended deadlines for making advance payments and insurance payments, including mandatory social insurance payments provided that the company's revenues decreased by more than 10% or in case of profit tax losses in 2020.[2] In addition, the government reimbursed airline companies for their costs related to the transportation of RF citizens from countries with an unfavorable epidemiologic situation and provided subsidies to airline companies and airports for partial compensation of transportation expenses to Kaliningrad at special tariffs (in the volume of Rb36.1 bn). River and maritime cruise companies received subsidies to support their operations, preserve jobs and make payments under lease contracts (Rb5 bn). Rb443.7 bn worth financing of railway companies (including the placement of OAO RZhD's irredeemable bonds) is aimed at subsidizing the project on the development of the Tran Siberian and Baikal-Amur railway main lines, transshipments via Far Eastern seaports, lease payments by suburban public transport operators and labor remuneration of the AO FPK personnel, as well as reimbursing of expenses on services related to the utilization of the railway transport infrastructure of the OOO Airoexpress and the AO "Transport Company "Grand Service Express".

Also, to underpin and motivate demand for transportation services in future, it was decided to freeze the AO FPK's ticket prices of railway passenger trips in compartment cars in March 2020 with the number of routes reduced[3]; large airline companies cut their tariffs on internal flights (this measure facilitated air passenger traffic growth in August)[4]; the reduced tax rate of 10% on Russian internal flights via the Moscow transportation hub was extended till the end of 2021– this measure facilitated affordability of air passenger service amid high prices of jet fuel and airport services and high operating losses of Russian airline companies; the reduced tax rate of 1.6% on the property of entities operating public railway tracks was extended till the end of 2021. The scheme of subsidizing Rb835 mn worth of internal air flight tickets for families with children was developed (from January 1, 2021).[5] Within the framework of the Nationwide Plan of Activities, it is envisaged to create a "single ticket" for all types of the public transport and uniform standards of payment of fares for passengers from different regions.[6]

4.4.3. The outlook for development and recovery of the transportation industry in 2021–2023

The transportation industry's mid-term dynamic is justified by other sectors' targets and furthermore its recovery depends largely on the scenarios of the

1 RF Government Decree No.651 of May 10, 2020
2 RF Government Decree No.409 of April 2, 2020
3 URL: https://www.rbc.ru/society/26/03/2020/5e7b8f5d9a794710988ec5c2
4 URL: https://www.vedomosti.ru/business/articles/2020/08/21/837295-aviakompanii-iz-za-plohogo-sprosa
5 URL: http://www.finmarket.ru/news/5368346
6 The nationwide plan of activities facilitating the recovery of employment and households' incomes, economic growth and long-term structural economic changes (approved at the RF Government meeting on September 23, 2020 (Record No.36, Section VII) No. P13-60855 of October 2, 2020. URL: https://www.garant.ru/products/ipo/prime/doc/74678576/

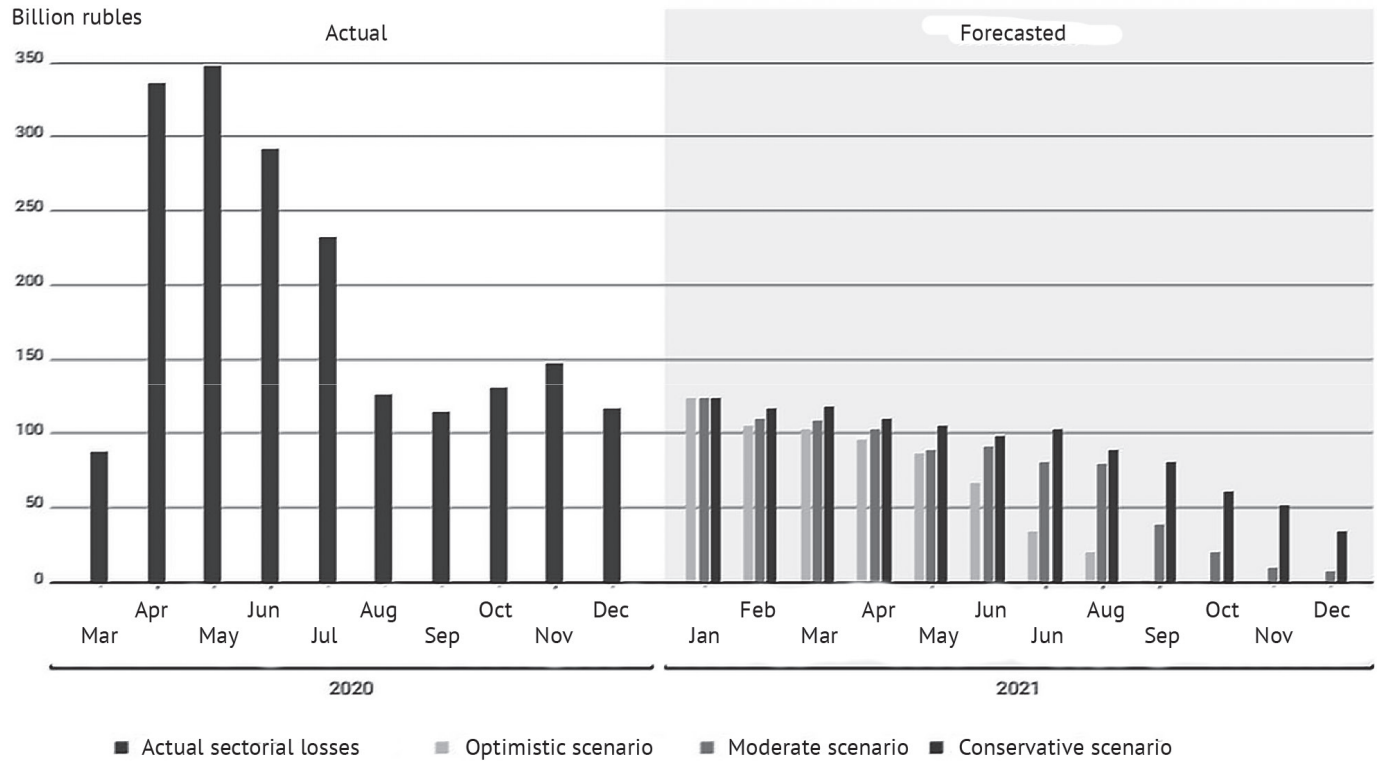


Fig. 23. Forecast scenarios of distribution of infrastructure companies' revenues losses

Source: InfraOne Research.

pandemic's growth/decline. In case of worsening of the epidemiologic situation and the repeated introduction of quarantine restrictions, the recovery of the global and national economies will be protracted and this cannot, but slow down the growth rates of various sectors of the economy, including the transportation industry.

According to the forecasts[1] of the RF Ministry of Economic Development, the global economic activity is expected to recover gradually in 2021. The rates of recovery of the transportation industry and its return to the former volume of functioning will depend directly on when quarantine restrictions are lifted completely, herd immunity is effectively formed in different countries and international travelling is renewed. Overall, the indicators are expected to recover to pre-crisis levels by 2022. By estimates, in case of the optimistic scenario,[2] the transportation industry's overall pandemic-related losses will be minimum. In case of the moderate-pessimistic scenario[3] and the critical scenario,[4] the rates of recovery of infrastructure industries, including the transportation industry will be low (*Fig. 23*).

Though state borders are being gradually opened, lots of countries still require individuals to self-isolate on arrival and/or undergo tests for COVID-19. Tourist trips abroad are still limited, but some countries allow tourists in if they have got complete vaccination. Entry to some "closed" countries is possible for Russian citizens only via third countries.

As per the Rosaviation's order[5], Russian airline companies are permitted to make charter and passenger/cargo flights[6] to "closed" countries which include Austria, Bulgaria, Hungary, Germany, Israel, Spain, Italy, Cyprus, China, Malta, the Netherlands, Saudi Arabia, Turkmenistan, Uzbekistan, France and the Czech Republic. In 2021, international air service has renewed with a number of countries (Finland, Vietnam, India, Qatar, Greece and Singapore). European countries' borders are expected to be open for Russian citizens not earlier than August-September 2021.[7]

1 URL: https://www.economy.gov.ru/material/directions/makroec/prognozy_socialno_ekonomicheskogo_razvitiya/prognoz_socialno_ekonomicheskogo_razvitiya_rf_na_2021_god_i_na_planovyy_period_2022_i_2023_godov.html

2 No tough restrictions, such as the shutdown of economic sectors, the start of the nationwide vaccination in Q1 2021 and the number of new coronavirus cases per day not exceeding 6,000 persons.

3 The period of new restrictive measures applied to a half of the population lasts for maximum six weeks and the number of new coronavirus cases per day is in the range of 6,000-12,000 persons.

4 The period of new restrictive measures applied to 85%–95% of the population lasts for over eight weeks and the number of new coronavirus cases per day exceeds 12,000 persons.

5 Order No.1244-P of October 05, 2020 of the Rosaviation "On Granting and Withdrawal of Permit to Air Carriers Having the Relevant License to Carry out International Passenger and (or) Cargo Flights." // URL: https://favt.gov.ru/dejatelnost-vozdushnye-perevozki-dopusk-perevozchikov-k-vypolneniju-mezhdunarodnyh-perevozok/?id=6964

6 For certain categories of individuals which are allowed entry to the territory of the recipient country (not for tourism).

7 URL: https://tourism.interfax.ru/ru/news/articles/75353/

4.5. Housing market of Russian cities[1]

The past year in the Russian real estate market was unique. Some of the trends that emerged earlier have noticeably intensified (the decline in the developers' profitability, the digitalization of technical and business processes, increase in size and consolidation of the industry as a response to the pre-bankruptcy state of a significant part of market participants, the expansion of state support for developers and its participation in the completion of many uncompleted projects). Other trends impact the spread of remote work format, migration from megacities, the systemic revival of the individual housing construction (IHC) segment as an alternative to apartment buildings, the easing of requirements for the level of income of borrowers and their reliability, the unprecedented expansion of state-subsidized mortgages - have only just begun to take shape.

The price dynamics of the housing market was influenced by multidirectional factors: on the one hand, the fall in real disposable incomes of the population and the general depressive mood in the market acted in the direction of reducing demand, and on the other hand, state support for the industry and subsidized mortgages, on the contrary, caused a commotion, which was clearly manifested in the second half of the year in the form of rising prices for all types of real estate.

4.5.1. Market price indexes

First of all, let's consider the data of professional market analysts from a number of well-known companies under the Russian Guild of Realtors (RGR).[2]

The main indexes of the prices dynamic in the housing market in Russian cities in 2020 are presented in *Table 16*.

According to RGR experts, the leaders in price growth (20% or more) in 2020 in the secondary market were Ryazan and Krasnodar, and in the primary market – Ryazan, Krasnodar, Irkutsk, Moscow, and St. Petersburg.

There were more cities where prices for newly constructed buildings were higher than in the secondary market. However, among the cities that have prices on the secondary market higher than the primary ones, are Moscow, St. Petersburg and Vladivostok, which form the top three in terms of absolute price levels (more than Rb100,000 per sq. m).

1 This section was written by: *Malginov G.*, Candidate of Economic Sciences, Head of Ownership and Corporate Governance of the Gaidar Institute; *Maslov D.*, Director of Analytical Department of LLC TK Agro; *Sternik S.*, Doctor of Economic Sciences, Professor of the Financial University under the Government of the Russian Federation, Senior Researcher, Ownership and Corporate Governance Department of the Gaidar Institute.

2 URL: http://rgr.ru/news/itogi-rynka-nedvizhimosti-rossii-2020-goda-i-prognoz-na-2021-god Voronezh: Moskalev A., General Director of LLC Invest Otsenka; Saint Petersburg: Bent M., General Director LLC BN Expert; Syktyvkar: Prosheva E., chief expert on determining cadastral value GBU RK RUTIKO; Sevastopol: Pichuev I., Managing paqrtner LLC Analiticheskaya korporativnaya gruppa; Perm: Skorobogach A., Director ATs KD Consulting; Ekaterinburg: Khorkov M., Head of Analytical Department the Urals Chamber of Real estate; Tyumen: Molodkina S., independent analytic-consultant of the real estate market; Irkutsk: Galuschenko T., Marketing Director business district Irkutsk-Citi UK Irkutsk-Citi GK Aktiv; Novosibirsk: Ermolaeva E., Director of RID Alalytics; Vladivostok: Dymchenko S.N., Director of LLC INDUSTRIA-R; Khabarovsk: Shvalova A., specialist KGBU Khabkraikadastr; other cities: aggregator of real estate offers Restate.ru.

Table 16

Prices in apartment buildings in Russian cities in 2020

Federal district/city	Secondary market		Primary market		Price difference between primary and secondary markets, %
	Average asking price, Rb/m2	Change for the year, %	Average asking price, Rb/m2	Change for the year, %	
Central FD					
Moscow	260200	12.0	230039	20.2	13.1% higher in the secondary market
Tambov	58800	5.0	46000	11.0	27.8% higher in the secondary market
Voronezh	57136	16.4	60517	14.6	5.9% higher in the primary market
Ryazan	49450	26.0	54500	37.0	10.2% higher in the primary market
Kostroma	45000	5.0	46000	15.0	2.2% higher in the primary market
North-Western FD					
Saint Petersburg	148000	13.0–15.9	145400	19.0–22.5	1.8% higher in the secondary market
Syktyvkar	52505	2.0	59000	7.0	12.4% higher in the primary market
Sothern FD					
Sevastopol	90488	5.0	73593	8.0	23.0% higher in the secondary market
Krasnodar	65000	20.0	70000	30.0	7.7% higher in the primary market
Volga FD					
Perm	59960	4.7	71626	13.6	19.5% higher in the primary market
Saratov	45000	15.0–20.0	38000	10.0–12.0	18.4% higher in the secondary market
Urals FD					
Ekaterinburg	77270	7.0	87430	12.0	13.1% higher in the primary market
Tyumen	74804	10.0	77125	15.0	3.1% higher in the primary market
Siberian FD					
Irkutsk	76310	17.0	81000	24.0	6.1% higher in the primary market
Novosibirsk	73400	5.0	80000	12.0	9.0% higher in the primary market
Far-Eastern FD					
Vladivostok	135973	9.5	122334	9.7	11.1% higher in the secondary market
Khabarovsk	96822	13.2	92985	11.3	4.1% higher in the secondary market

Source: Russian Guild of Realtors.

If we talk about the degree of excess of prices of one market segment over another, the most noticeable advance in prices in the secondary market compared

to the primary one was observed in Tambov and Sevastopol (more than 20%). They were followed by Saratov, Moscow and Vladivostok (with a difference of 11 to 18%). The excess of prices for newly constructed buildings relative to the secondary market by more than 10% was noted in Perm, Yekaterinburg, Syktyvkar, and Ryazan.

RGR analysts work with the offer prices, however local realtors noted an increase by 40-50% in the number of real transactions in many cities of the country in the second half of the year compared to the results seen in the first half of the year. The specifics of the 2020 situation affected not only the market itself, but also the representativeness and quality of professional analysis on it. The number of analysts who personally provide data to the RGR has markedly decreased, and a number of cities use statistical processing of samples of the aggregator of offers on the Internet with an erratic error.

In this regard, it is advisable to consider for comparison the data of another aggregator of offers - CIAN, which is larger and has more experience in its own analytical division, but analyzes data only on the secondary market.[1]

The sample of CIAN included 107 cities with a population of 100,000 people and the sale offer of 100 apartments.[2] Subsidized mortgages have fueled a surge in the cost not only in the segment of newly constructed buildings, but also in the secondary market, where the price increase was twice as high as in 2019. In December 2020, average cost of 1 sq. m. in the secondary market totaled Rb90,200 against Rb77,700 at the end of 2019.[3] For the year, the increase was 16.1% against 7.5% at the end of 2019 (*Table 17*).

Table 17

Dynamics of average asking prices of 1 sq. m in apartment buildings on the secondary market in Russian cities in 2018–2020

Year	Average price of 1 sq.м, Rb thousand	Increase on previous year, %
2018	72.3	
2019	77.7	7.5
2020	90.2	16.1

Source: CIAN.

Therefore, in two years, the average prices in the secondary market gained 24.8% (by almost Rb18,000 per 1 sq. m).

Let's take a closer look at how the price dynamic developed over the past year (*Table 18*).

1 URL: https://www.cian.ru/stati-vtorichka-sdaet-pozitsii-i-proigryvaet-novostrojkam-po-tsene-313548/

2 Given the high representativeness of the sample, it is worth noting that more than 40% of all the cities included in it are located in the Volga (25 cities) and Central (22 cities) federal districts. The other three districts (Southern, Ural, and Siberian) are represented by 12 cities each, while the North-Western, Far-Eastern, and North Caucasian districts are represented by 10, 9, and 5 cities, respectively.

3 Hereinafter, the annual price dynamic is estimated based on a comparison of prices at the end of the month (December).

Table 18

Movement of average prices in apartment buildings on the secondary market in Russian cities in 2020

Month	Average price of 1 sq. m. at month-end, Rb thousand	Change		
		Month-on month, %	Quarter-on-quarter, %	Year-on-year, %
December 2019	77.7			
January 2020	77.3	-0.5		
February 2020	77.8	0.6	-0.4	
March 2020	77.4	-0.5		
April 2020	77.5	0.1		
May 2020	76.5	-1.3	2.7	
June 2020	79.5	3.9		
July 2020	78.0	-1.9		16.1
August 2020	82.9	6.3	5.2	
September 2020	83.6	0.8		
October 2020	83.6	0.0		
November 2020	83.9	0.4	7.9	
December 2020	90.2	7.5		

Source: CIAN.

In Q1 2020, the average price of 1 sq. m. in the secondary market of Russia slightly decreased by 0.4% (to Rb77,800).

The second quarter was almost completely in self-isolation regime. And if the developers managed to quickly switch to remote sales, then the secondary market actually stopped operating. The decline in demand led to a drop in prices in May 2020 (by 1.3% compared to April). In June, due to the expansion of the pent-up demand accumulated during the quarantine period, prices went up, compensating for the May drop. Overall, the average unit price gained 2.7% in Q2.

In Q3 2020, the secondary market was still in a fever: in July, average prices declined (by 1.9%), in August, an increase of 6.3% was recorded against the background of a rise in the price of newly constructed buildings due to subsidized mortgage programs. As a result, the average price of 1 sq. m. gained 5.2% for the third quarter.

Q4 2020 was marked by a record price growth in December (by 7.5%). The reasons for this accumulated throughout the second half of the year: the ruble's devaluation, low rates on bank deposits, which made some of the depositors to go to the real estate market. The inability to travel and lack of vacation trips gave time and money to resolve the housing problem, which was in line with one of the traditional stereotypes of many Russians: aspirations to resolve all the major issues before the end of the year. It is in November–December that the highest price increase is observed in the primary market, pushing up the cost in the secondary segment as well.

Consequently, the main price growth occurred during the period of the subsidized mortgage rate in the primary market, thanks to which (in combination with greater availability of mortgage loans to a number of categories of the

population) developers were able to significantly increase the cost of housing. The reaction of the owners in the secondary market was an increase in prices relative to the primary market.

At the end of the year, the pricing of ready-made housing was also affected by the emotional component, which was not bolstered by real demand. On the news about the general rise in the price of goods and services, some sellers began to raise prices for real estate, taking advantage of the decline in supply on the back of the pandemic.

The average price tag of an apartment on offer on the secondary market in Russia as a whole (cities with a population of 100,000 people or more) is equal to Rb5.4 mn as of year-end 2020 (*Table 19*).

Table 19

Average price tag for an apartment on offer on the secondary market of apartment buildings in Russian cities in 2018–2020

Year	Average price tag for an apartment on offer, Rb million	Increase year-on-year	
		%	Rb mn.
2018	4.57		
2019	4.83	5.7	0.26
2020	5.5	13.9	0.67

Source: CIAN.

Over the year, the apartment price on the offer increased by Rb670,000, over two years - by Rb930,000 or 20.4%. In other words, for two years (2019-2020), the average apartment offered on the secondary market has risen in price by almost Rb1 mn.

Table 20

Dynamics of the average unit of asking price of 1 sq. m in apartment buildings on the secondary market in Russian cities by federal districts

Federal District	Weighted average price of 1 sq. m., Rb thousand			Increase, %	
	2018	2019	2020	over 2020	over 2019–2020
Central	110.0	108.0	109.2	1.1	- 0.7
North-Western	101.8	102.8	106.2	3.3	4.3
Far-Eastern	67.5	65.4	79.2	21.1	17.3
Sothern	62.6	64.6	77.2	19.5	23.3
Urals	56.6	57.4	64.9	13.1	14.7
Siberian	55.7	58.7	66.8	13.8	19.9
Volga	50.6	51.9	54.1	4.2	6.9
North-Caucasus	43.5	46.9	53.2	13.4	22.3

Source: CIAN.

The largest price increase was recorded in the Far-Eastern (more than 21%) and Southern (about 20%) Districts. At the other pole were the Central, North-Western

and Volga Districts, where the price growth did not exceed 5%. The intermediate position is occupied by the North-Caucasus, the Urals and Siberian Districts with a price increase of 13-14% (*Table 20*).

When considering the dynamics for 2019-2020, the leaders are the Southern and North- Caucasus Districts (an increase of more than 22%-23%), the Siberian District is slightly behind (about 20%). The composition of the outsider group did not change, the price growth there did not exceed 7%, and in the Central District prices even slightly decreased. The intermediate position was taken by the Urals and the Far-East Districts, where the price growth exceeded 14% and 17%, respectively.

The price dynamic for different groups of cities is most indicative (*Table 21*).

Table 21

Dynamics of the average unit of asking price of 1 sq. m in apartment buildings on the secondary market in Russian cities by city groups

Location	Average price of 1 sq. m., Rb thousand			Increase, %	
	2018	2019	2020	over 2020	over 2019–2020
Capital agglomerations* as a whole	134.3	137.9	158.6	15.0	18.1
Moscow	204.0	210.4	237.0	12.6	16.2
Moscow region	91.5	97.5	113.4	16.3	23.9
St. Petersburg	116.3	123.2	139.2	13.0	19.7
Leningrad region	65.6	70.7	75.8	7.2	15.5
City outside of capital agglomerations, including	54.5	56.1	64.6	15.2	18.5
Cities with over 1 mn people (major)	57.7	61.0	67.9	11.3	17.7
Cities with 500,000 to 1 mn people (large)	51.3	54.0	62.8	16.3	22.4

**Moscow,* St. Petersburg, Moscow and Leningrad regions.
Source: CIAN.

Average cost of 1 sq. m. on the secondary market in the Moscow and St. Petersburg agglomerations in 2020 hit Rb158,600, which is 15% higher than a year ago. The largest growth was recorded in the Moscow region (more than 16% for the year, up to Rb113,400). Prices in Moscow and St. Petersburg increased to a lesser extent: by 12.6% (to Rb237,000) and 13% (to Rb139,200), respectively. The smallest increase was recorded in the Leningrad Region by 7% (up to Rb75,800).

In other regions, the price of residential real estate on the secondary market gained 15.2% (to Rb64,600 per 1 sq. m.). At the same time, in cities with a population of more than 1 million people (without Moscow and St. Petersburg), it increased to a lesser extent (by 11.3%), while the price per square meter in cities with a population of 500 thousand to 1 million people, it grew significantly (by 16.3%). Among the cities with million+ people, prices increased most markedly in Omsk (20.6%), Nizhny Novgorod (16%), Voronezh (15.7%), and Krasnoyarsk (14.8%). On the contrary, in Samara, Volgograd and Perm, their growth did not

exceed 5%. CIAN notes a relatively small difference in the cost per square meter for both categories: due to a larger price increase, cities with a smaller population are catching up in price with the largest cities. The price per square meter in large cities (Rb62,800) in 2020 was higher than in the largest cities in 2019 (Rb61,000).

This effect is even more pronounced in the 2-year span (2019-2020). The increase in housing prices in metropolitan agglomerations was comparable to the price dynamic in other cities (more than 18%). If we consider the dynamic within these locations, the cities with a population of 500,000 to 1 million people in terms of price growth (by 22.4%) were ahead not only of the cities with a population of more than 1 million people (17.7%), but also of Moscow (16.2%), and St. Petersburg (19.7%). The only region of the metropolitan agglomerations where the price growth in two years has overtaken the value of this index in large cities is the Moscow region (about 24%). On the opposite pole of the Moscow region was the Leningrad region, where the price growth was 15.5%.

Table 22

Dynamics of the average unit of asking price in apartment buildings and the average price tag for an apartment on offer on the secondary market in Russian cities in 2019–2020

Federal District / city	Average price of 1 sq. m., 2020, Rb thousand	Price increase, %		Average price tag of an apartment on offer, Rb million	
		over 2020	over 2019–2020	2019	2020
Central FD					
Moscow	237.0	12.6	16.2	13.17	14.58
Tula	73.1	13.3	15.1	3.64	4.33
Belgorod	67.0	13.8	15.3	3.56	4.41
Kaluga	60.2	2.9	4.0	3.19	3.28
Vladimir	60.3	9.2	15.1	3.10	3.45
Yaroslavl	56.1	8.3	14.0	2.78	3.16
Voronezh	58.3	15.7	21.5	2.85	3.37
Tver	54.8	7.0	15.1	2.93	3.21
Tambov	55.2	17.9	23.5	2.65	3.28
Kursk	56.4	20.0	30.0	2.68	3.45
Kostroma	52.7	10.3	19.8	2.52	2.91
Orel	53.2	17.7	22.9	2.46	3.19
Lipetsk	50.9	8.8	13.9	2.62	2.84
Ryazan	48.1	6.2	7.8	2.51	2.76
Ivanovo	47.7	7.7	11.7	2.36	2.63
Staryi Oskol	48.6	12.5	16.5	2.43	2.90
Smolensk	45.8	6.0	8.3	2.40	2.69
Briansk	44.4	13.3	14.7	2.16	2.54
Novomoskovsk	42.9	8.1	2.6	2.14	2.19
Murom	42.4	8.4	10.7	1.95	2.25
Kovrov	38.1	9.8	13.7	1.83	2.08
Rybinsk	34.7	2.7	-2.3	1.67	1.68

Federal District / city	Average price of 1 sq. m., 2020, Rb thousand	Price increase, %		Average price tag of an apartment on offer, Rb million	
		over 2020	over 2019–2020	2019	2020
North-Western FD					
Saint Petersburg	139.2	13.0	19.7	7.78	9.01
Kaliningrad	77.3	25.3	31.7	3.59	5.02
Severodvinsk	73.7	6.8	10.7	3.87	4.36
Arkhangelsk	63.3	3.8	3.6	3.19	3.33
Petrozavodsk	61.2	26.7	25.2	2.70	3.76
Syktyvkar	59.4	3.5	2.6	3.01	3.21
Murmansk	58.4	9.8	10.0	2.86	3.25
Cherepovets	53.2	33.0	39.3	2.16	3.11
Vologda	49.7	9.7	13.2	2.42	2.72
Velikiy Novgorod	48.1	7.4	6.7	2.49	2.80
Sothern FD					
Sochi	158.6	9.6	12.0	9.42	9.54
Sevastopolь	108.7	15.1	17.5	5.66	6.78
Simferopol	83.9	6.7	8.5	4.45	4.96
Novorossiysk	73.0	7.5	14.4	3.94	4.26
Krasnodar	70.6	6.6	18.3	4.13	4.26
Rostov-on-Don	66.6	5.5	7.4	3.63	3.85
Bataisk	52.2	5.7	7.0	2.7	2.82
Volgograd	51.3	3.8	6.0	2.73	2.87
Astrakhan	45.5	11.0	13.8	2.40	2.78
Volzhskiy	44.0	8.1	10.8	2.13	2.33
Taganrog	39.9	2.8	6.1	2.16	2.15
Volgodonsk	33.2	0.0	3.8	1.96	1.92
North-Caucasus FD					
Pyatigorsk	59.1	4.8	9.6	3.52	3.71
Kislovodsk	56.2	6.2	12.9	3.17	3.34
Essentuki	53.8	11.6	13.5	3.02	3.38
Stavropol	52.7	12.4	22.0	2.72	3.14
Nalchik	50.7	16.0	6.1	2.14	2.97
Volga FD					
Kazan	90.5	12.4	18.3	4.84	5.66
Nizhniy Novgorod	79.7	16.0	22.0	3.88	4.71
Ufa	75.5	5.6	8.6	4.10	4.31
Samara	62.2	2.6	4.4	3.40	3.53
Perm	60.7	3.8	9.2	3.30	3.34
Almetievsk	59.2	12.1	14.5	3.03	3.56
Naberezhnye Chelny	56.9	5.4	12.5	2.95	3.27
Izhevsk	54.7	5.2	13.7	2.75	2.90
Penza	54.7	14.2	18.9	2.58	2.98
Cheboksary	49.4	4.7	4.2	2.53	2.80
Oktiabskiy	47.3	3.7	-8.3	2.25	2.47
Orenburg	47.0	3.5	2.8	2.38	2.50

Federal District / city	Average price of 1 sq. m., 2020, Rb thousand	Price increase, %		Average price tag of an apartment on offer, Rb million	
		over 2020	over 2019–2020	2019	2020
Kirov	46.8	5.2	4.7	2.31	2.49
Ulyanovsk	46.7	9.6	15.6	2.40	2.64
Saratov	46.4	5.5	7.4	2.45	2.61
Tolyatti	44.1	5.0	5.5	2.28	2.50
Yoshkar-Ola	42.8	4.4	4.9	2.32	2.43
Engels	42.6	3.4	6.0	2.33	2.45
Dzershinsk	42.3	5.2	3.7	2.03	2.11
Neftekamsk	39.3	1.8	-26.7	2.18	2.06
Novocheboksarsk	37.7	2.7	5.0	1.95	2.06
Votkinsk	37.0	-0.5	-1.9	1.77	1.87
Balakovo	32.6	3.5	3.2	1.64	1.71
Dimitrovgrad	32.0	3.6	7.4	1.79	1.71
Orsk	26.4	-1.1	3.1	1.52	1.44
Urals FD					
Nefteyugansk	86.7	8.6	19.9	4.6	5.2
Surgut	84.2	7.8	12.9	4.76	5.34
Ekaterinburg	76.6	7.4	9.7	4.07	4.48
Tyumen	72.8	9.5	17.4	4.05	4.6
Nizhnevartovsk	65.1	10.5	14.2	3.39	3.93
Sterlitamak	45.0	7.1	9.2	2.27	2.38
Chelyabinsk	42.9	6.5	3.6	2.25	2.42
Kurgan	40.7	5.7	7.7	2.04	2.18
Pervouralsk	38.6	2.4	3.8	1.91	2.05
Nizhniy Tagil	37.4	3.3	2.7	1.94	1.95
Magnitogorsk	35.0	9.0	14.0	1.78	1.87
Miass	33.8	6.6	7.6	1.74	1.85
Siberian FD					
Irkutsk	81.9	18.4	30.2	4.15	4.88
Novosibirsk	77.7	9.7	14.8	4.02	4.43
Krasnoyarsk	70.6	14.8	19.3	3.58	4.32
Tomsk	67.6	17.2	22.5	3.11	3.93
Abakan	58.4	13.0	18.9	3.01	3.63
Barnaul	58.1	16.7	20.8	2.87	3.3
Omsk	56.2	20.6	27.1	2.50	3.11
Kemerovo	55.0	13.6	15.3	2.7	3.31
Angarsk	49.5	12.8	19.3	2.34	2.88
Novokuznetsk	48.6	14.4	29.6	2.37	2.76
Norilsk	40.4	20.2	28.7	1.87	2.37
Biysk	38.6	12.2	8.7	1.95	2.02
Far-Eastern FD					
Yuzhno-Sakhalinsk	142.9	15.1	29.7	6.62	8.1
Vladivostok	132.6	11.0	22.0	6.74	7.34
Khabarovsk	94.2	12.7	20.9	4.63	5.27

Federal District / city	Average price of 1 sq. m., 2020, Rb thousand	Price increase, %		Average price tag of an apartment on offer, Rb million	
		over 2020	over 2019–2020	2019	2020
Blagovechshensk	90.3	20.4	36.2	4.45	5.21
Yakutsk	87.7	1.0	7.7	5.10	5.44
Chita	65.6	26.4	35.5	3.02	4.07
Nakhodka	64.5	16.0	13.2	2.9	3.4
Ulan-Ude	64.3	20.4	29.9	2.92	3.72
Komsomolsk-on-Amur	44.0	3.8	3.8	2.23	2.3

Source: CIAN.

Only in three Russian cities out of 107 surveyed by CIAN (with a population of 100,000 people and from 100 apartments on offer for sale), at the year-end 2020 the average cost of 1 sq. m. decreased or remained the same (*Table 22*). Among them, not a single city with a population of more than 250,000 people. The fall in prices was recorded in Orsk (Orenburg region, by 1.1%) and Votkinsk (Udmurtia, by 0.5%). In Volgodonsk (Rostov region) prices remained the same.

In 2020, the group of leading cities in terms of price growth comprises Cherepovets (Vologda Oblast, 33.0%), Petrozavodsk (26.7%), Chita (26.4%), and Kaliningrad (25.3%). In five other cities (Kursk, Norilsk, Blagoveshchensk, Ulan-Ude, and Omsk), the price for the year gained 20-21%. In the next group, the price increase was from 15 to 20% (11 cities). The most numerous was the part of the sample with a price increase in the range from 5 to 10% (39 cities). Roughly equal were the groups with price increases of up to 5% (23 cities) and from 10 to 15% (22 cities).

If we consider the 2-year span (2019-2020), the following picture is observed. The group of leading cities where the price increase was at least 30% is represented by 6 cities (Cherepovets, Blagoveshchensk, Chita, Kaliningrad, Irkutsk, and Kursk). At the other pole were Votkinsk, Rybinsk (Yaroslavl region), Oktyabrsky and Neftekamsk (both in Bashkortostan), where prices exhibited a negative trend. In 15 cities, the price increase was in the range of 20 to 30%. Roughly equal were the groups with price increases of up to 10% (39 cities) and 10 to 20% (43 cities).

With an almost universal price growth of a square meter of housing in almost all cities in 2020, there was an increase in the average price tag for an apartment on offer. The exceptions were Neftekamsk, Dimitrovgrad (Ulyanovsk region), as well as the aforementioned Volgodonsk and Orsk, where, contrary to the all-Russian trend, housing prices fell or remained unchanged, which can be explained by the poor quality of housing offered for sale.

The largest absolute value of the average price tag for an apartment on offer in 2020 was expected to be in Moscow (about Rb14.6 mn). It was followed by Sochi (Rb9.5 mn), St. Petersburg (Rb9.0 mn), Yuzhno-Sakhalinsk (Rb8.1 mn), Vladivostok (Rb7.3 mn), and Sevastopol (Rb6.8 mn). In several other cities: Kazan, Surgut (Tyumen region), Yakutsk, Khabarovsk, Blagoveshchensk, Nefteyugansk (Tyumen region), and Kaliningrad, the average price tag for an apartment on offer

was more than Rb5 mn, and in almost all of them (except Yakutsk) a year earlier it was lower.

4.5.2. Construction and newly built housing commissioning

According to preliminary data released by Rosstat, 80.6 million square meters of housing were commissioned in Russia in 2020, which is 1.8% less than in 2019 (*Table 23*).

Table 23

Commissioning of new housing in Russia in 1999–2020

Year	Gross floor arear, million sq. m.	Growth rates, %	
		Year-on-year	Relative to 2000
1999	32.0	104.2	105.6
2000	30.3	94.7	100.0
2001	31.7	104.6	104.6
2002	33.8	106.6	111.5
2003	36.4	107.7	120.1
2004	41.0	112.6	135.3
2005	43.6	106.3	143.9
2006	50.6	116.0	167.0
2007	61.2	120.9	202.0
2008	64.1	104.7	211.5
2009	59.9	93.4	197.7
2010	58.4	97.5	192.7
2011	62.3	106.6	205.6
2012	65.7	104.7	216.8
2013	70.5	107.3	232.7
2014	84.2	119.4	277.9
2015	85.3	101.3	281.5
2016	80.2	94.0	264.7
2017	79.2	98.8	261.4
2018	75.7	95.1	248.5
2019	82.0/81.0*	108.3/107.0*	270.6/267.3*
2020	80.6/75.5*	98.2/93.2*	266.0/249.2*

* Without taking into account commissioning of houses on allotments, which volume is given according to the initial data released by Rosstat.
Sources: Rosstat, own calculations.

Contrary to initial fears, the depth of the housing crisis was also small in comparison with the economy as a whole (the decline in GDP was 3.1%), and especially in comparison with the decline in previous crises. (6.6% in 2009 and 6% in 2016).

However, the past year was the first full validity span of the provisions of Federal Law No. 217-FZ of July 29, 2017 “On Gardening by Citizens for Their Own Needs and on Amendments to Certain Legislative Acts of the Russian Federation”, which led to the start of accounting for houses commissioned on allotments from

August 2019. As a result, in 2019 about a million square meters of real estate were reported by Rosstat from this source,[1] and in 2020, the value of this index was already 5.1 million square meters (or 6.3% of the total commissioning).[2] Without taking this category into account, the depth of the decline (6.8%) is quite comparable to the indexes of 2009 and 2016.

If we consider the housing construction dynamic in the regional context, the number of subjects of the Russian Federation with a positive dynamic of commissioning slightly exceeded the number of territories where it decreased. Approximately the same pattern was observed in the group of regions with a total volume of housing commissioning of more than 1 million square meters (*Table 24*).

Table 24

Housing commissioning dynamic in Russian regions in 2020 (ranked by commissioning rate)

Region	Housing commissioning rates, in % on 2019
Kaliningrad region	120.6
Novosibirsk region	110.3
Tyumen region (with autonomous okrugs)	105.3
Irkutsk region	105.0
Nizhniy Novgorod region	104.7
Bashkortostan	103.5
Stavropol krai	102.7
Perm krai	101.9
Chelyabinsk region	101.5
Ulyanovsk region	101.5
Moscow region	101.2
Tatarstan	100.2
Rostov region	100.1
Krasnodar krai	99.8
Sverdlovsk region	98.3
Saint Petersburg	97.1
Saratov region	96.4
Moscow	96.2
Lipetsk region	96.0
Voronezh region	91.7
Krasnoyarsk krai	91.6
Belgorod region	91.2
Leningrad region	81.1
Samara region	76.1

Source: On residential construction in 2020. URL: http://rosstat.gov.ru/

As follows from *Table 24*, the housing commissioning growth by over 3% was recorded in the Kaliningrad, Novosibirsk, Tyumen, Irkutsk, and Nizhny Novgorod

1 URL: https://gks.ru/bgd/free/B19_00/IssWWW.exe/Stg/dk12/2-4.doc
2 URL: https://rosstat.gov.ru/bgd/free/b04_03/IssWWW.exe/Stg/d05/201.htm

regions and Bashkortostan. Another 7 regions (including the Moscow Region) exhibited positive dynamic of housing commissioning, but less than the specified value. At the same time, the fall in housing commissioning occurred in 11 regions, including Moscow, St. Petersburg, and the Leningrad region, and in the latter the depth of the fall was almost 19%. It was even more serious only in the Samara region (around 24%).

The Moscow region, with an increase in housing commissioning by 1.2%, naturally retained its leadership among Russian regions in terms of the absolute value of housing commissioning (more than 8.7 million square meters). Moscow, after an unprecedented growth seen in 2019, demonstrated a slight decline (3.8%), taking second place (about 5 million square meters). The five leading regions also included: Krasnodar Krai (about 4.5 million square meters), St. Petersburg (about 3.4 million square meters) and Tatarstan (about 2.7 million square meters). The share of the capital region in the total volume of residential construction in the country stood at 17% (including the Moscow region - 10.8% and Moscow - 6.2%), approximately staying at the 2019 level.

4.5.3. Shifts in the structure of individual housing construction

The main trend of shifts in the structure of housing construction in Russia in the last decade has been an increase in the share of commissioned individual houses on the back of a reduction in the share of apartment building construction.

In the economic terms, these categories of housing construction have significantly different requirements in terms of the mechanism of permanent extended reproduction: construction carried out by individuals is aimed at meeting the individual needs of citizens (households) in the quantitative and/or qualitative improvement of existing housing conditions. After that, as a rule, there is no sustainable construction business to meet the similar needs of other citizens (households). This process, therefore, is irregular (often one-time) in nature, without requiring the formation of a mechanism for extended reproduction of the housing stock on a large scale. And its promotion can be targeted and quite flexible, tied to the needs of a specific category of citizens, with due regard for the peculiarities of a particular region.

The share of individual housing construction (IHS) in the indexes of annual housing commissioning, which previously did not fall below 40%, has grown markedly in the last two years, approaching half (47-48%) (*Table 25*).

According to Rosstat, the area of individual housing construction (IHS) facilities commissioned in Russia at the year-end 2020 totaled 38.7 million square meters, which is 0.5% more than in the previous year. The indexes of 2019-2020 exceed the values provided for in the technical passport of the national project "Housing and Urban Environment" for this category not only for the specified 2-year period, but also for all subsequent years, with the exception of 2024. The volume of commissioning of individual homes should increase by less than 1/4: from 33 million square meters. m in 2017 to 40 million sq. m in 2024 (*Fig. 24*).

Table 25

Structure of commissioning residential housing in the Russian Federation in 2010–2020

Year	Total, million sq. m	Apartment building construction (ABC)		Individual housing construction (IHC) fro own and attracted funds	
		Million sq. m	Share in total commissioning, %	Million sq. m	Share in total commissioning, %
2010	58.4	32.9	56.3	25.5	43.7
2011	62.3	35.5	57.0	26.8	43.0
2012	65.7	37.3	56.8	28.4	43.2
2013	70.5	39.8	56.5	30.7	43.5
2014	84.2	48.0	57.0	36.2	43.0
2015	85.3	50.1	58.7	35.2	41.3
2016	80.2	48.4	60.3	31.8	39.7
2017	79.2	46.2	58.3	33.0	41.7
2018	75.7	43.3	57.2	32.4	42.8
2019	82.0	43.5	53.0	38.5	47.0
2020	80.6	41.9	52.0	38.7	48.0

Sources: Rosstat, own calculations.

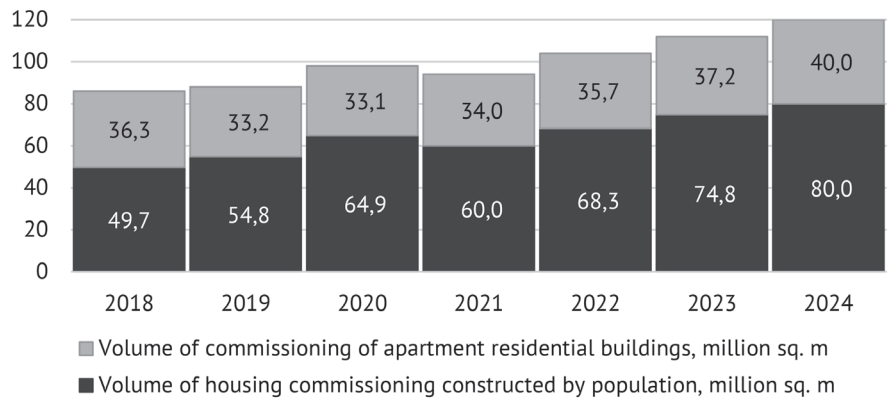


Fig. 24. Parameters of commissioning of apartment buildings until 2024 under national project "Housing and Urban Environment"

Source: technical passport of national project "Housing and Urban Environment" [URL: https://base.garant.ru/72192510/].

The interpretation of this trend may be different. On the one hand, it is possible that many households have come to view suburban life as more attractive than the habitual pattern of life in large cities.

Last year, Russia saw a significant increase in demand for private homes. According to RBC,[1] based on the report of the Unified Institute for Housing

1 URL: https://realty.rbc.ru/news/5fe268539a79473875fdd3a0

Development of JSC "DOM. RF", the findings of the survey demonstrated that almost 40% of Russians in self-isolation began to prefer the construction of an individual house as a more suitable and promising housing option, considering it as an alternative to buying an apartment in a new residential building not only in the metropolitan agglomeration, but also in other cities and regions of the country.

For the first time in a very long time, there was a negative migration growth in Moscow, according to Rosstat, in January-September 2020, almost 27 thousand more people left the capital than arrived.[1] There is no doubt that this is due to the pandemic fallout, and most importantly to the transition to the remote work format, which allowed many workers, especially qualified ones, to leave the metropolis without losing their income and quality of life. Of course, one year, especially such an atypical one, is not enough to predict the shaping of a stable trend for de-urbanization. However, we cannot exclude the beginning of a process that can stop and possibly reverse the concentration of various resources and business activity including construction in several prosperous regions amidst minimal activity of developers throughout the rest of the country.

Secondly, individual construction represents an obvious reserve for the use of statistical tools in order to improve the indexes of housing commissioning in certain regions and the implementation of the national project for the country as a whole. In the IHS, in contrast to commissioning of apartments built in the framework of ABC, there are two aspects for indexes improvement: (1) recording real estate built earlier, but registering it only in the reporting period, and (2) recording residential houses built by the population on land plots for gardening, which were not previously taken into account. The latter used since August 2019 has already affected the results achieved by the construction industry as a whole. Commissioning of housing built on garden plots in 2020 (5.1 million sq. m) accounted for more than 13% of the total volume of individual housing construction, being much more than the total increase in individual housing construction, i.e. it compensated for the fall in its other main volume. Without due regard for this factor, the dynamic of individual housing construction looks much less rosy.

Meanwhile, the technical passport of the national project "Housing and Urban Environment" provides for an increase in the volume of residential construction to 120 million square meters per year for the period until 2024, mainly due to an increase in the volume of construction of apartment buildings, which should almost double: from 46.2 million sq. m in 2017 to 80 million sq. m in 2024. So far, we can talk about the noncompliance with the national project in this part. The volume of commissioning of the ABC in 2020 fell by 3.7% compared to 2019, coming to around two thirds of the planned amount.

More than half of the housing commissioning volume (excluding those built by the population)[2] was accounted for 10 regions (with commissioning of at least

1 URL: https://mosstat.gks.ru/folder/64634
2 There is no such index in the official reports of Rosstat. However, it can be calculated as the difference between the total volume of housing commissioning and housing commissioning by

1 million sq. m in each of them), and the share of the top five (Moscow Region and Moscow, St. Petersburg, Krasnodar Krai and Tyumen Region with autonomous districts) accounted for about 39% of the total volume of apartment buildings commissioning.[1] Its concentration is in the largest megacities is obvious, where the opportunities for residential construction growth are limited by a shortage of land resources. And in other regions, developers do not exercise due activity given insufficient effective demand.

The unfavorable prospects for the segment and the industry as a whole are also indicated by the reduction in the volume of ABC under construction in 2020 from 107.5 million sq. m to 94.0 million sq. m (or 12.5%), which is due to the lack of new projects launched in the first half of the year against the background of the coronavirus pandemic and falling demand for housing.[2]

The mass proliferation of the new housing finance scheme continued. According to the Central Bank of the Russian Federation, as of January 1, 2021:

- over 303,000 escrow accounts have been opened for shared-equity housing construction;
- the volume of funds deposited on these accounts by shareholders exceeded Rb1.19 trillion that is 8.5-fold more than at end-2019;
- Rb126.7 bn have been released from escrow accounts for construction projects completion in 64 regions of the Russian Federation, i.e. have been transferred to developers or sent to repay the loans they received for the construction;
- there are 2,242 active mortgage loan agreements concluded by banks and developers worth Rb2.72 trillion, which is about 200% more than a year earlier.

A positive result is that since the beginning of the reform, no problematic situations with the use of escrow accounts have ever been recorded, in other words, in the context of the pandemic it was possible to avoid exacerbating the long-standing problem of defrauded homebuyers.[3]

According to "DOM.RF" by reference to the Unified Information System of Housing Construction (UISHC) apartment building construction using escrow accounts for the first time exceeded half of the total construction area: 48.6 million sq. m of 95.8 million sq. m (or 50.7%) as of December 30, 2020. According to this indicator, the top ten leading regions comprised Udmurtia, Perm and Primorsky Krai, Voronezh and Sverdlovsk regions, Stavropol Krai, Tatarstan, Rostov, Tyumen and Kaliningrad regions. In Moscow, its value was at the average Russian level (51.4%), and the gap between the two leaders in terms of housing

the population built from their own and attracted funds.

1 URL: https://rosstat.gov.ru/folder/14458, own calculations

2 Review of the apartment housing construction market in the Russian Federation. December 2020, p. 1. URL: https://дом.рф

3 *Zubov S.* Mortgage credit in 2020 // Monitoring of Russia's Economic Outlook. Trends and Challenges of Socio-Economic Development. 2021. No. 3 (135). February. Gaidar Institute, RANEPA, pp. 17–20. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3793820 URL: http://www.iep.ru/files/text/crisis_monitoring/2021_03-135_Feb.pdf

commissioning was noticeable: Krasnodar Krai and St. Petersburg (about 45 and 39%, respectively).[1]

4.5.4. State support of apartment housing construction in the context of anti-crisis policy

The financial and economic problems that suddenly emerged in the spring of 2020 on the back of a temporary but steep decline in world oil prices and the COVID-19 pandemic forced the Russian authorities to start ensuring the functioning of residential construction in the wake of lockdown and its fallout from April.

First of all, we are talking about boosting the demand for housing:

- state subsidization of mortgage rates for apartments in newly constructed buildings originated in 2020-2021 (subsidized mortgage according to the Resolution of the Government of the Russian Federation of April 23, 2020 No. 566);
- amendments to Article 241 of the Budget Code of the Russian Federation, allowing regional and municipal authorities to apply budget funds towards escrow accounts;
- easing by the Bank of Russia of the requirements for the minimum rating of credit institutions for participation in the mortgage lending program down to the level not lower than "A-(RU)" according to the classification of the rating agency ACRA or " ruA -" according to the classification of the rating agency "Expert RA";
- cancellation of the premium to risk ratios for mortgages originated prior to April 1, 2020, and its reduction for loans granted after that date;[2]
- introduction of a new methodology for assessing credit risk on mortgage loans, which allows more accurately assessing capital adequacy premiums depending on the loan-to-collateral ratio and debt burden;
- provide a possibility for pension funds to invest pension funds in mortgage-backed bonds with a set limit of 5%.

Put in place measures contributed to the growth of mortgage lending.

A special importance was assigned, of course, to the opportunity for borrowers to receive funds from banks at a rate of no more than 6.5% per annum for the purchase of new housing. The operator of the program was the Integrated Housing Development Institution, JSC "DOM. RF", which reimburses creditors for lost income up to the amount of "key rate plus 3 percentage points", receiving allocations from the federal budget without increasing its authorized capital. Credit holidays were also of some importance for those who, due to falling incomes, faced difficulties in servicing previously taken out mortgages. For federal and regional authorities, the opportunity has opened up to select projects of interest of certain developers and buy out the housing under construction from

1 Review of the apartment housing construction market in the Russian Federation. December 2020, p. 1, 5. URL: https://дом.рф

2 For mortgages with a low loan-to-collateral ratio that are repaid at the expense of the maternal capital, the reduction in allowances is linked to the repayment of the loan.

them at the expense of the corresponding budgets. The effect on banks from the cancellation of risk factor premiums on loans issued before the crisis, which consisted in eliminating negative consequences for compliance with capital adequacy standards, eliminating losses on loans, and partially compensating for potential losses from a decrease in interest income, amounted to more than Rb100 bn. The introduction of a new methodology for assessing credit risk on mortgage loans due to the reduction in the values of premiums allows to release around Rb300 bn more of the capital of banks.

DOM.RF began to act in the same direction, when in June 2020 it began the next stage of apartments purchase from developers in newly constructed buildings as part of state support for the industry. In addition to the Voronezh region and the Krasnoyarsk Krai, which became pilot sites of the state program, it comprises Kaluga, Lipetsk, Novosibirsk, Rostov, Smolensk, Tyumen, Ulyanovsk, and Yaroslavl regions, Bashkortostan and Stavropol Krai. The program for the purchase of standard housing under construction from developers is being implemented on the initiative of the President of the Russian Federation as one of the measures to support the construction industry and resolve the housing problem in the wake of the crisis.

The procedure for the program implementation provides for an auction. Within its framework, regional developers should offer a discount to the average market selling price (in each particular residential building), which emerged over the past six months. Accordingly, those for which the highest discount is offered will be considered primarily for redemption. In addition, the proposed residential buildings must be commissioned by June 30, 2021. The buyer is a closed-end mutual investment fund (CEMIF) "Comfortable Housing" under the management of "DOM.RF Asset Management", which, in turn, is one of the subsidiaries of JSC DOM. RF. The total amount of funds earmarked for direct purchase of apartments aimed to support the construction industry during the crisis period comes to Rb150 bn. One third of this amount (Rb50 bn) is secured by state guarantees provided to the company by the Ministry of Finance. In this way, according to DOM.RF estimates up to 3 million square meters can be purchased, or about 3% of all residential housing built in the country.

Another measure of support for developers was the identification of strategic enterprises as part of the package of anti-crisis measures adopted by the Russian government in the spring of 2020. These include organizations that have exceeded the minimum industrial indexes, with due regard for the affiliation within their group (holding) structures (i.e. when calculating indexes for a group of companies). Initially, in the construction industry, the volume of construction in accordance with the current permits was determined as an indicator in the amount of 400 thousand sq. m of residential and non-residential buildings. As of April 1, 2020, according to the portal ERZ.RF 32 developers from 1,300 organizations in the country had the volume of current construction exceeding the specified amount, most of which were in pre-bankruptcy.

The Decree of the RF Government dated April 3, 2020 No. 428 imposed a moratorium on the initiation of systemic companies' bankruptcy proceedings,

which, after being extended in autumn, terminated in early 2021. At the same time, these organizations on the basis of the Decree of the RF Government dated May 10, 2020 No. 651 could apply for the following state support measures:

- subsidies for financial support (reimbursement) of costs (part of costs) in connection with the production (sale) of goods, performance of works, provision of services;
- deferred payment of taxes and insurance premiums (advance payments);
- guarantees for loans and bonded loans raised for the purposes established by the Government of the Russian Federation as part of measures aimed at solving urgent tasks to ensure the sustainability of economic development, in accordance with the procedure and under the terms provided for by the Decree of the Government of the Russian Federation No. 549 of May 10, 2017.

An integral part of the "National Action Plan for Restoring Employment and Incomes, Economic Growth and Long–term Structural Changes" (hereinafter referred to as the "National Plan"),[1] which is in force until the end of 2021 is the "Agenda for Action for the Development of Housing Construction and Mortgage Lending", submitted by the Ministry of Construction to the government and is under approval. It comprises more than 200 initiatives of the Ministry of Construction, "DOM. RF", industry associations NOSTROY and NOZA and other market participants.

The proposed support measures required for the implementation of the national project stay within the framework of three strategic directions of institutional reforms and modernization of the management of the construction industry and real estate markets:

1. "New rhythm of construction": acceleration of construction procedures, reform of the regulatory framework for urban development and construction.

2. Digitalization of the construction industry: creating a single digital space in construction, deployment of a digital model of an object during its life.

3. Creation of a program mechanism for accelerating the socio-economic development of urban agglomerations and cities that are centers of economic growth. These strategic directions comprise a number of specific medium-term institutional stimulus measures, including:

- development of saving instruments for the down payment for a mortgage loan;
- absorption in the turnover of federal land plots for the purposes of housing construction;
- enhancing the importance of federal development institutions - JSC DOM. RF, PPK "Fund for the Protection of the Rights of Citizens Participating in Shared Construction", Housing and Utilities Fund;
- improving the efficiency of providing land plots with the necessary infrastructure;
- development of the institute of integrated individual housing construction;

1 Approved at the meeting of the RF Government of September 23, 2020. URL: https://www.economy.gov.ru/material

- development of the rental properties institution;
- optimization of technological connection processes to engineering networks;
- reduction of failing housing stock;
- improving the quality of major structural repairs of apartment buildings.

Operational monetary measures of emergency support for the industry and the market are as follows:

- extension of the subsidized mortgage lending program;
- lower mortgage rates for young families on waiting lists;
- state subsidized interest rates on loans issued to developers to finance new projects with low profitability;
- additional advance financing of the state program "Stimul" in 2020-2021 through disbursement of funds planned for 2022-2023.

The federal program "Stimul", which has been operating in Russia since 2016, helps developers to build infrastructure facilities from the budget funds. According to its terms, the developer participating in the project of integrated urban development (IUD) must draft a proposal and receive an endorsement from the government expert review panel, as well as transfer the site on which the objects of social, transportation, and engineering infrastructure will be built. The customers of the construction works are the municipal authorities that choose the contractor, although the main source of funding is the federal budget. Currently "Stimul" is an integral part of the national project (NP) "Housing and Urban Environment".

An important positive aspect of the National Plan is the fact that among the system-wide measures there is a mutual link between the activities of this NP and other national projects, which potentially allows us to synchronize efforts to achieve the NP targets with other priority projects and higher-level strategic planning documents.

4.5.5. Preferential mortgage as the main reason for new trends

The sharp increase in demand for real estate in the past year (mainly through mortgage lending) was impossible without the easing monetary policy of the Bank of Russia, which, in contrast to its policy during the past crises, has reduced the key rate several times.

So, at the beginning of the year, it was 6.25%, falling to 4.25% by the end of the year, while deposit and mortgage rates fell in parallel. According to the Central Bank, the average mortgage rate stood at 9.01% on January 1, 2020 against 7.36% - on January 1, 2021 (the minimum level was recorded in September - 7.17%).[1] The already extremely attractive terms of purchase (by Russian standards) were also accompanied by active PR program of subsidized mortgage rates for newly constructed buildings in the mass media, aggressive advertising by banks, as well as streamlining of the mortgage loan procedure (for example, the practice of remote application for a loan has expanded).

1 URL: https://cbr.ru/statistics/bank_sector/mortgage/

In July 2020, the disbursement limit under the preferential mortgage program was raised from Rb740 bn to Rb900 bn. The down payment amount was reduced from 20% to 15%, and the maximum loan amount was doubled to Rb6 mn (Rb12 mn in Moscow, St. Petersburg, Moscow and Leningrad regions).

Since then, the speed of mortgage origination has increased dramatically, and the average monthly volume of loans exceeds Rb500 bn, which is an unprecedented amount for the banking system.

In mid-autumn, by the Decree of the Government of the Russian Federation No. 1732 of October 24, 2020, the program was extended until July 1, 2021, with an increase in the disbursement limit by more than twice (up to Rb1,850 bn).

Mortgage rates have been declining over the past few years, accompanied by an increase in: (1) the amount of the mortgage loan, (2) the loan term, and (3) the number of loans with a low down payment. All this points to an increase in systemic risks for mortgage, even despite the extremely low overdue debt of the population.

The share of mortgage loans with 90+ days overdue payments in December remained at the level of the beginning of the year (1.3% of the mortgage portfolio), including in the primary market - decreased from 1.2 to 1%. At the same time, this indicator for other loans to the population went up from 7 to 8.5%. It should be noted that the quality of the loan portfolio was largely supported by an increase in the number of restructurings, including under the laws on credit (No. 106-FZ of March 3, 2020) and mortgage holidays (No. 76-FZ of May 1, 2019). This helped borrowers to maintain their solvency, and helped banks not to raise their reserves for potential losses on these loans. According to the Bank of Russia, 3.1% of mortgage loans were restructured.[1]

In 2020, a record volume of mortgages was originated for the entire history of observations: more than 1.7 million loans, which is 35% more than a year earlier. And their amount totaled around Rb4.3 trillion, exceeding the figure of the previous year by one and a half times. At the same time, the share of refinancing has almost doubled: if in 2019 6.8% of mortgage loans issued were refinanced, then in 2020 – already 13.7%. In absolute terms, the number of refinanced loans went up almost 2.7 times (to 234,000 against 88,000 in 2019). However, this procedure does not generate new demand for real estate and, excluding refinancing, the increase in mortgage lending stayed at about 25%.

Among them loans for the purchase of ready-made housing predominated (around 58% of all loans issued). Their growth compared to 2019 was 18% (995,000 against 841,000). Much more (by 42%) increased the number of loans for the conclusion of co-investment agreements (CIA) (up to 484,000 against 340,000 a year earlier).[2]

However, the outstripping growth rate of this category of loans does not imply the same growth of the primary market as a whole. Part of this segment is represented by ready-made housing sold in newly constructed buildings, as well as individual houses. In addition, mortgages are also used in the secondary market,

1 URL: https://дом.рф: Review of the mortgage lending market in 2020. February 2021, p. 7.
2 URL: https://дом.рф: Review of the mortgage lending market in 2020. February 2021, p. 3, 5

which, on the one hand, is marked by the alternative nature of a significant part of transactions within the proceeds, and on the other, by the frequent purchase of real estate by sellers in newly constructed buildings.

Therefore, taking into account these factors, as well as the growth in the share of transactions with mortgages in the primary market as a whole,[1] putting out other transactions, we can conclude that the growth of the primary market in unit terms in 2020 was not so significant. Since the volume of commissioning of MAC and its current construction in Russia does not grow, the increase in the number of transactions could only be achieved by reducing the available lots for sale from developers, including those who, taking advantage of the stir in the market, reassigned previously purchased lots.

As a result, by the end of 2020, the mortgage portfolio of banks (according to the reports of the Bank of Russia) approached Rb9 trillion, and the entire mortgage portfolio, which characterizes the total debt of the population on mortgages (according to DOM.RF) comes to Rb10 trillion. The difference is due to the write-off of part of the mortgage bonds from the balance sheets of banks as a result of the repurchase by the mortgage agent DOM. RF, which, in turn, issues bonds secured by these assets.

Of course, the catalyst for housing lending in the past year was loans issued at concessional rates, subsidized by the state (*Table 26*).

Table 26

Concessional mortgage lending in 2020

Credit category	Number of loans		Total amount	
	thousand	%	Rb bn	%
Total	1713.0	100	4296.0	100
Concessional mortgage at the rate of 6,5%	345.6	20.2	1003.0	23.3
Family mortgage*	78.8	4.6	214.9	5.0
Far-Eastern mortgage**	14.8	0.9	52.4	1.2
Preferential loans (in total)	439.2	25.7	1270.3	29.6

* It exists since 2017, in 2020 the down payment is reduced from 20 to 15%.
** It exists since the end of 2019, but it has been fully operational since 2020 (the possibility of purchasing housing on the secondary market and a reduction in the loan rate).

Sources: Review of the mortgage lending market in 2020. February 2021, p. 5–6, own calculations. URL: https://дом.рф

The share of soft loans accounted for about 30% of the total volume of mortgage lending. Among them, the program of issuing loans at a rate of 6.5% (79% of the total volume of soft lending) dominated. The "Family Mortgage" and "Far-Eastern Mortgage" programs were complementary (about 17% and 4%, respectively).

A distinctive feature of soft lending was its focus on the primary market, represented by new buildings under construction, which involves the conclusion

1 According to DOM.RF up to 70% of transactions in the primary market are made with mortgages. URL: https://дом.рф/upload/iblock/065/0656b03286094221e71b484ecfb9d347.pdf

of co-investment agreements (CIA). In general, this segment accounted for more than 28% of all mortgage loans origination, and their volume amounted to almost Rb1.5 trillion, an increase of more than 60% compared to 2019. Having said that, almost 3/4 of all loans issued under the co-investment agreements, and more than 70% of their amount were concessional.

The structure of concessional lending was dominated by loans issued under co-investment agreements (more than 80% of the number and volume), while the vast majority of other mortgage loans were issued for the purchase of ready-made housing (more than 90% of the number and 85% of the volume). At the same time, the situation within concessional lending was not homogeneous by category. For "Family mortgage", the share of ready-made housing was more significant than for preferential loans in general (more than 45% of loans and 35% of their volume). For the "Far Eastern mortgage", the share of ready-made housing was about 1/3. However, due to the rather modest size of these programs, the structure of concessional lending was determined mainly by the indexes of the standard subsidized mortgage at the rate of 6.5%, for which the share of loans issued under the co-investment agreements was slightly less than 90%.

When assessing the impact of the state on the housing market, do not forget about the direct subsidization programs, the most well-known of which is the maternity capital (about 80% of its value is used for the purchase of real estate). So, in 2019, according to Rosstat, these funds were handled by 647,998 people,[1] which in terms of money is about Rb250 bn, potentially poured by the state into the real estate market.[2] From 2020, on the initiative of the President of the Russian Federation, this amount will increase significantly, since the maternity capital for the first child in the amount of Rb466,000 will be introduced, for the second child, it increases by Rb150,000 to Rb616,000.[3] Also, since 2019, there is a program to support multiple children borrowers who receive a subsidy of Rb450,000 to pay off the principal debt.

Returning to the events of 2020, we note that the original stated goal of the concessional lending program (compensation for lost demand induced by restrictions imposed during the lockdown period) was already achieved by the summer. The further increase in mortgage demand naturally led to an unbalanced market. A record demand growth on the back of reduced supply led to an increase in ruble prices.

At a time when the volume of mortgage loans alone far exceeded the level of previous years, the total inflow of funds on the residential real estate market for the purchase of housing (taking into account subsidies and buyers' own funds) allowed developers to raise prices, reducing the volume of housing offered. We can expect the upward price dynamic to continue, since the preferential mortgage programs have been extended until mid-2021, and developers cannot quickly raise the supply due to the sector-specific issues.

1 URL: https://rosstat.gov.ru/folder/13807?print=1
2 However, it is impossible to simply sum up mortgage loans with the maternity capital, since the latter is very often used for early repayment of the mortgage.
3 URL: https://pfr.gov.ru/branches/tver/news/~2020/03/11/201343

Not surprisingly, by the end of the year, there was some cautious opposition from the financial authorities to the expansion of the preferential lending program.[1] In a concentrated form, it found expression in the position of the RF Central Bank, which consists in the advisability of transforming preferential mortgage into a tool for selective support of individual groups of the population and regions.

Accordingly, a new systemic trend in 2020 was that real estate pricing was determined not so much by the market as by the state through its policy (primarily through mortgage incentives). Without formal or informal guarantees from the state, banks would not be able to issue impressive long-term loans at low rates (if just for the structure of the liabilities side of the balance-sheet, where banks are dominated by short-term liabilities).

The distorting impact of the state on the formation of demand for residential real estate and market pricing in this real estate market is especially evident when comparing the dynamic of mortgage and consumer loans origination. Unlike mortgages, which grew in both ruble and quantitative terms, consumer lending has been stagnating all year. Thus, according to the National Bureau of Credit Histories (NBCH), in 2020, the number of loans decreased by 25.9% compared to 2019.[2] Its obvious difference from mortgages is that there are no subsidized rates, and institutional support for borrowers is much weaker, therefore, both rates and lending volumes are more in line with those formed in the context of the free market.

4.5.6. Investment attractiveness of real estate as a factor of demand for mortgage products from the population

In 2020, the growth of prices in the real estate market significantly outstripped the official level of inflation in the consumer market. For example, according to the Moscow Exchange DomKlik index, prices for metropolitan real estate increased gained 14.4% over the year.[3] In the primary market, the growth was even higher – by 19.1%.[4] In the country, the growth in the primary market was recorded at the level of 15.7%.[5] At the same time, bank deposit rates fell from 5.92% to 4.48% over the year.[6] Since the real deposit rates became negative, the population, fearing for the safety of their funds, could direct part of the funds from the deposits to the real estate market. However, a much more significant factor in the stir was negative real mortgage rates. It is obvious that obtaining a loan at a rate of 6-8% with an increase in real estate prices of 15-20% becomes an extremely profitable operation, and more and more people are involved in speculative investments, hoping for further price rise.

1 "Nabiullina called for" timely " curtailment of the preferential mortgages program". URL: https://www.rbc.ru/finances/25/11/2020/5fbe2c2b9a79470de03c7bde.
2 URL: https://www.nbki.ru/company/news/?id=248930
3 URL: https://www.moex.com/ru/index/MREDC
4 URL: https://erzrf.ru/images/repfle/16913735001REPFLE.pdf
5 URL: https://erzrf.ru/images/repfle/16877631001REPFLE.pdf
6 More precisely, "the maximum rate for the 10 largest institutions that attract the largest volume of retail deposits." URL: https://cbr.ru/statistics/avgprocstav/

The trend to outstrip the growth of prices in the primary market compared to the secondary segment after 2015, which was clearly manifested in the past year, is associated not only and not so much with subsidizing mortgage interest rates in the primary market (it did not exist in 2016-2019), but with a change in the model of financing shared-equity construction and a general decline in rates in the economy.

Until 2019, developers financed their projects at the expense of equity holders, providing them with significant discounts at the construction stage. Owing to the difference between the price of an unfinished residential building under construction and the price of such a property in an already commissioned residential building, private investors received a high investment income, significantly exceeding the deposit rates, which determined their interest in participating in such a risky scheme. The double-digit yield covered all the risks of the developer's bankruptcy or postponing the commissioning of the residential building to a later date.

While in transition to project financing, where the bank becomes the main lender of the developer, the latter loses the economic sense to provide discounts to the co-investor at the construction stage, which is visually expressed in the outstripping "growth in prices for newly constructed buildings." De facto, we are talking about reducing discounts at the construction stage, and not about increasing prices for real estate. Further reduction (up to the complete disappearance) of discounts at the construction stage calls into question the rationale of investment purchases of newly constructed buildings for the purpose of their further resale, where private investors were actively engaged since the early 2000s.

The purchase of real estate for investment purposes against the background of the economic crisis led to another important phenomenon: almost for the first time in recent Russian history, real estate prices and apartment rental rates not only demonstrated different dynamic, but moved in opposite directions. Recap that the growth of nominal ruble prices for housing on sale was in the range of 14-20%. At the same time, according to the portal CIAN, rental rates in some cities have fallen. For example, Moscow recorded a decrease of 3%, and in St. Petersburg – a drop by 7%.[1] It is obvious that rental rates are devoid of the speculative and investment component inherent in apartment prices, the demand for rent is not subsidized in any way, and, therefore, the rental situation more accurately shows the real state of affairs in the economy.

The simultaneous decline in the profitability of renting out real properties and the reduction in the attractiveness of investments in newly constructed buildings for resale undermines the stability of the housing market financing model in the medium term. In the context of low profitability of investments in real estate, the only significant motive for buying it for investment purposes can only be an increase in real estate prices, which comes on the back of the corresponding demand. Accordingly, with any pause in price growth, the reverse effect rapidly

1 URL: https://www.cian.ru/analitika-nedvizhimosti-online/

occurs (sale of investment apartments, lower prices, further sales and even greater price reductions), whereby the developers will lose most of the demand.

The fundamental nature of the existing housing problems in Russia (lagging behind developed countries in terms of housing security and quality), in itself does not create important reasons for purchases. And it's not just the low level of real incomes of the population. Demographic problems are beginning to play an increasingly important role. With the risk of depopulation in general, the age structure of the population is expected to reduce the share of the working-age population, and especially the share of the population aged 25-40 years.[1] It is young people of childbearing age who are most interested in buying and expanding living space, and while reducing the number of such people the fundamental need for housing decreases. Only investment demand remains, but it does not make sense when growth stops and real estate prices decline. Damping this process on the back of the general increase in prices and lower mortgage rates on newly constructed buildings is possible, but it is unable to promote residential construction to the role of the driver of the Russian economy.

4.5.7. Projection of the construction market development and sale of apartment residential housing

On the supply side, there are no objective grounds to predict significant growth driven by an increase in the number of new projects being implemented and an increase in the indexes of commissioning of ready-made apartment buildings in most regions of Russia. Probably, the supply will still grow, but slowly and very unevenly. At the same time, the relative share of supply in the individual housing construction segment will increase in many regions, partially offsetting for the lack of supply and preventing excessive price increases in the apartment building construction segment. It can be assumed that, contrary to the National Project, it is more likely that the share of individual housing construction will grow, and not the share of apartment building construction.

The crisis of 2020 adjusted the usual logic of cyclical movement of real estate prices, when the growth phase resumes, and real estate prices also grow with a certain lag. However, the past year in Russia was fundamentally different from the previous crises. When the Central Bank lowered the key rate, the ruble exchange rate remained relatively stable, and inflation remained moderate. Despite the alarming spring expectations, world oil prices, after certain fluctuations, reached a level far from historical lows, which was an important factor that supported the domestic economy. With massive government support for demand, banks increased mortgage lending. Therefore, construction was not particularly affected, and real property prices in ruble terms went up, remaining in foreign currency terms at the level of 2017-2019.

However, such dynamic has an unstable basis in the form of mortgages, reduced in price owing to state support measures, and low consumer inflation. Maintaining lending at the same level is very difficult given the lack of banks' own

1 See "Demographic projection of the population until 2035" by Rosstat. URL: https://rosstat.gov.ru/folder/12781

resources, budget constraints, and increased inflationary risks after the easing of restrictive measures.

Therefore, the scenario where the issuance of mortgage loans will sharply slow down by the summer of 2021 looks quite realistic. In this case, we can say that the delayed effect of the crisis on prices has worked. Much will depend on the format chosen by the state for further selective support of individual groups of population and regions. With a high probability, it is possible to predict that the preferential mortgage programs will be significantly reduced. If the total volume of issuance is expected to fall to Rb2-2.5 trillion after a short period of high demand, the housing prices in apartment buildings will gradually slide down over the course of one to two years.

4.6. The pandemic and food security[1]

Early in 2020, Russia adopted the new Food Security Doctrine,[2] which included the entire range of amendments as compared with the previous Doctrine-2010:

- the section dealing with the national interests in the field of food security includes the list both of traditional interests (upgrading of the standard of living, ensuring of food safety, sustainable development and modernization of agriculture, fishery and the domestic market infrastructure, promotion of livestock breeding and plant selection and recovery and boosting of soil fertility) and the new ones (the prohibition of the importation of genetically modified organisms and biological control agents to the territory of the Russian Federation);
- along with traditional tasks, the section dealing with the Doctrine's strategic goal and main objectives includes a number of new ones: the achievement of a positive balance in exports and imports of agricultural products, primary products and food and ensuring of food security within the framework of formation of healthy food ration;
- the list was expanded in respect of products on which the threshold levels of food sovereignty were set: threshold levels were added in respect of vegetables and cucurbits, fruits and berries, as well as seeds of the main agricultural crops of domestic plant selection;
- in respect of three types of products, the Doctrine 2020 raised the threshold levels of food sovereignty as compared with the Doctrine 2010: as regards sugar and vegetable oil – from 80% to 90%; as regards fish and fish products – from 80% to 85%;
- the methods of calculation of the threshold level of food sovereignty regarding individual products were changed as "the correlation of

1 This section was written by: *Schagaida N.*, Doctor of Economic Sciences, Head of the Center for Agro-Food Policy, IAES RANEPA; *Uzun V.*, Doctor of Economic Sciences, Professor, Senior Research Associate of the Agricultural Policy Department, Gaidar Institute, Senior Research Associate of the Center for Agro-Food Policy, IAES RANEPA; *Ternovsky D.*, Doctor of Economic Sciences, Leading Research Associate of the Center for Agro-Food Policy, IAES RANEPA.

2 Executive Order No.20 of January 21, 2020 of the RF President "On Approval of the Food Security Doctrine of the Russian Federation."

the volume of the domestic output of agricultural products, primary products and food to the volume of domestic consumption." By contrast with the Doctrine-2010, this calculation algorithm does not require to give up the importation of those products which are in demand in the Russian Federation. This interpretation correlates to the Doctrine's abovementioned strategic goal, that is, the facilitation of the positive export-import balance as a whole across the entire group of agro-food products;

- the criteria of economic availability of food were established in respect of the main groups of food. They are calculated as "the ratio of the actual consumption of the main food products per capita to the reasonable norms of consumption meeting the healthy nutrition requirements and has the threshold value of 100%"[1];
- it was determined that the physical availability criterion should be established.

Such an interpretation of food sovereignty not only allows the importation of those products which are in demand in the Russian Federation, but not produced there (or which have poor quality and cost more as compared with foreign analogs), but also provides for an increase in imports on condition that exports grow to the same extent. This interpretation correlates to the Doctrine's abovementioned strategic goal, that is, the facilitation of the positive export-import balance across the entire group of agri-food products. This strategic goal has a priority over the objectives to achieve food sovereignty in respect of each product.

In compliance with the new doctrine, the level of food sovereignty as a whole in respect of the group of agri-food products (TNVED – 1–24) can be increased owing to growth in exports of those types of products whose production is the most cost-efficient in Russia, rather than by means of import substitution alone.

The spread of Covid-19 coincided with the beginning of 2020. The UN Food and Agriculture Organization (FAO) identified a few food security risks related to the expansion of the geography of this disease, but they did not include the risk of food shortages in the world:

- disruption of food supply logistics chains;
- reduction in donor-countries' contributions to international funds and contraction of international organizations' humanitarian activities;
- impoverishment of the population in importer-countries;
- exporter-countries' restrictive measures and destabilization of markets;
- appreciation of prices (on importers' domestic markets owing to currency depreciation and logistics costs; on external markets owing to restrictions on supplies in exporter-countries;
- disruption of migration flows of workers to agriculture.

Before the outbreak of the pandemic, the global grain stocks exceeded the previous year's level; the outlook for the 2020 grain yield was optimistic.[2] During

1 See: The RF Food Security Doctrine, p. 5.
2 URL: The FAO reports disruptions in distribution of food during the pandemic. http://www.cnshb.ru/news/fao/fao_srpp.pdf

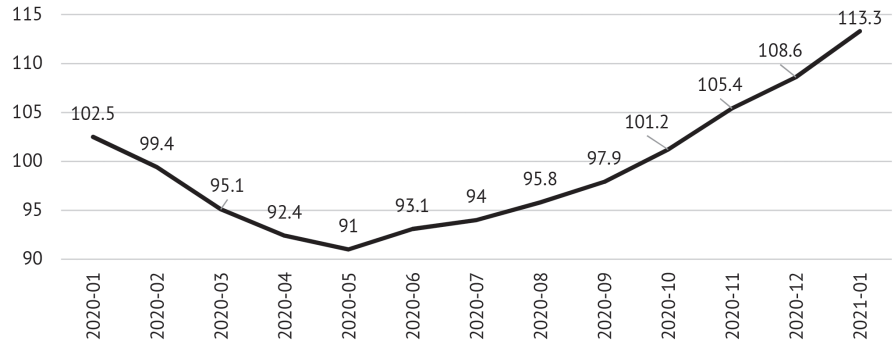


Fig. 25. FAO food price indices, %

Source: URL: http://www.fao.org/worldfoodsituation/foodpricesindex/ru/

the first wave of the pandemic, prices of essential foods were depreciating in January-May though the epidemic was on the rise (*Fig. 25*). The lessons of the first wave of the pandemic changed the behavior on external markets: anxiety increased and prices appreciated.

The situation with grain stocks and outlooks for the yield in Russia at the beginning of the pandemic were favorable, too. However, the depreciation of the ruble and anxiety created risks to the food security system. The main risks are shown in *Table 27*.

Table 27

The systemization of risks to the internal food market amid the pandemic

Risks	Assessment
Feverish demand and depletion of supplies	Risk exists
Growing competitiveness of Russian products and exportation thereof to detriment of domestic market	Risk exists partially (in respect of limited range of products)
Food shortages on external markets and infeasibility of importation of food which is in short supply to Russia	Low risk
Restrictions on movement of products within EEU's borders and between subjects of RF	Risk exists partially (small farms)
Risk of catching disease at work	Risk exists

Feverish demand manifests itself in sudden growth in purchases of relatively inexpensive long shelf-life products. If in January 2020 there was a 2.3% growth in purchases as compared with January 2019, in March it was already equal to 4.7%. However, overall, in Q1 2020 purchases were equal to +3.6% relative to the previous year, while a year before, to +2,2%. Based on the results of January-April, the volume of purchases of 2020 was equal to that of 2020 (*Fig. 26*).

Purchases of inexpensive and long shelf-life products increased by 78%. (*Fig. 27*).

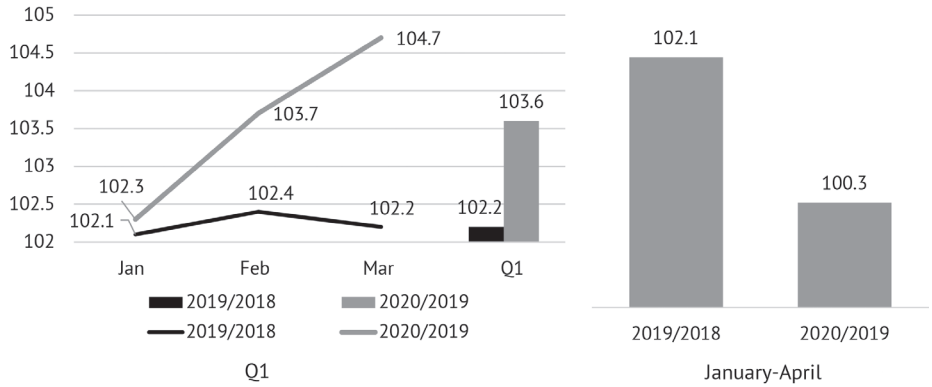


Fig. 26. Retail food sales, % change compared with the corresponding period

Source: The Rosstat

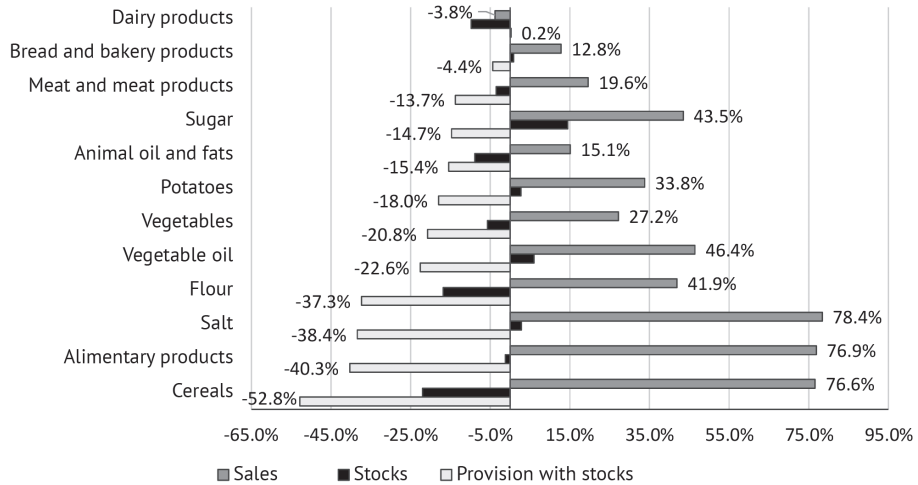


Fig. 27. Dynamics of sales and stocks of food products amid feverish demand, March 2020 on February 2020

Source: The Rosstat.

Despite increased growth in food purchases and reduction in their stocks, only stocks of alimentary products were critically low. It can be stated that feverish demand was overcome owing to correct moves made by the federal government (which did not introduce restrictions on freight traffic inside the country) and the business (which managed to adjust to the situation and replenished stores with goods again and again).

External market shortages and infeasibility of the importation to Russia of food which was in short supply were low because the FAO forecasted high stocks

of food and yield in 2020. Actually, the Russian market did not experience any food shortages after feverish demand had subsided.

Growing competitiveness of Russian products and exportation thereof to the detriment of the domestic market

Early in 2020, depreciation of the ruble promoted Russian goods' competitiveness. To arrive at this conclusion, just take NPC ratios, that is, the nominal coefficient of protection of agricultural producers with producer prices at the threshold of the Russian farm in its numerator and those at the farm of the potential importer in its denominator (*Table 28*). For instance, on the back of a 20% depreciation of the ruble only beef and dairy products remained non-competitive in terms of price, with pork being so to a lesser extent. Consequently, there is motivation to export food products, including even livestock products. But exports are limited because of veterinary requirements imposed in numerous countries regarding the importation of livestock products.

Table 28

Correlation of prices of agricultural products at the threshold of a farm and on global markets (NPC)

Product	2019	Product	2019
Wheat	0.99	Milk	1.16
Barley	1.00	Beef	1.27
Maize	1.19	Pork	1.24
Rye	0.98	Poultry	1.07
Sunflower	0.92	Eggs	1.00
Sugar	1.21	Potatoes	1.00

Source: The OECD.

Table 29

Post-Soviet countries' measures to ensure food availability on the internal market

Measures		Country	Period	Products
Export restrictions	Export ban	Ukraine	April 3 – July 1	Buckwheat
		OECD countries	April 12 - June 30	Onions, garlic, turnip, rye, rice, buckwheat and sunflower seed, soya
		Kazakhstan	March 16 – September 1 (initially till April 15)	Wheat and wheat-rye flour, soft wheat, meslin, buckwheat, buckwheat groats, sugar, potatoes, sunflower seed, sunflower oil
	Quotas on exports to non-OECD	Russia	April 1 - June 30	Grain (7 mn tons)

Source: FAO, website Kremlin.ru.

With Russian food becoming more competitive and exports growing, it was necessary to take measures to protect the domestic market. However, Russia's and OECD countries' restrictions were not necessarily justified. The review of protective measures by post-Soviet countries is shown in *Table 29*.

Food traffic restrictions and shutdown of small markets. There were just few instances of shutdown of borders of subjects of the Russian Federation by decision of regional authorities. Restrictions at state borders on movement of small consignments of goods and entrepreneurs' vehicles were observed all over the EEU territory. So, green cabbage from Kazakhstan failed to get through the Russian border in spring and this when no restrictions on freight traffic were in place between the EEU member-states.[1] As small food markets were closed, resellers did not come on a mass scale to buy the delicacies of the season and green vegetables, so this led to the loss of products of small producers and farmers.[2] Meat producers in regions where traffic communication was limited encountered problems related to the delivery of their products. As a result, prices appreciated. So, in H1 2020 the consumption of lamb decreased by 9.1% owing to the Rosselkhoznadzor's ban on lamb supplies from the North Caucasian federal okrug and the Southern federal okrug,[3] as well as the shutdown of markets and small retail outlets during the pandemic; it is noteworthy that about 95% of lamb is sold on food markets and through non-chain retail outlets.[4]

By estimates of the USDA, the outlook for yield in Russia in spring 2020 was set at the level higher than in 2019 and with stocks of the previous year at the level surpassing 2019-2020 made it possible to assess favorably the food supply situation amid the pandemic. Based on the results of 2020, this estimate turned out to be underestimated: the yield was higher than forecasted.

In 2020, the output of agricultural products increased by 1.5%. Growth drivers were the production of grain (+9.8%), pork (+8.9%) and milk (+2.7%) (*Fig. 28*). Downside dynamics were observed in production of sugar beet (-40.4%), sunflower (-13.7%), potatoes (-11.3%) and vegetables (-2.3%). Production of eggs (0%), poultry (+0.3%) and cattle (+0.3%) remained stable.

The main factors of changes in the output volumes of crop farming were fluctuations in agricultural crop yield made worse in case of potatoes and sugar beet by substantial reduction in the crop production area (-5.0% and -19.0%, respectively). It is noteworthy that the contraction of the sugar beet production area is justified by a dramatic drop in prices of sugar after the record-high yield seen in 2019 and that of potatoes production area, by a long-term trend of reduction thereof by households.

Overall, in 2020 the agricultural sector exported $30 bn worth of agricultural products, an increase of 20% compared with the indicator seen in 2019 and $5 bn

1 Cabbage has disappeared. The Minselkhoz's (the Ministry of Agriculture) answer to Kazakh farmers. URL: https://tengrinews.kz/kazakhstan_news/kapusta-propadaet-kazahstanskim-fermeram-otvetil-minselhoz-398155/.
2 Russian farmers started to squash the unsold harvest. URL: https://www.kp.ru/daily/27126/4209656/
3 Demand for lamb was undercut.URL: https://www.kommersant.ru/doc/4465787
4 Lamb sales are falling in Russia. URL: https://agrotrend.ru/news/2276-v-rossii-padaet-realizatsiya-baraniny/

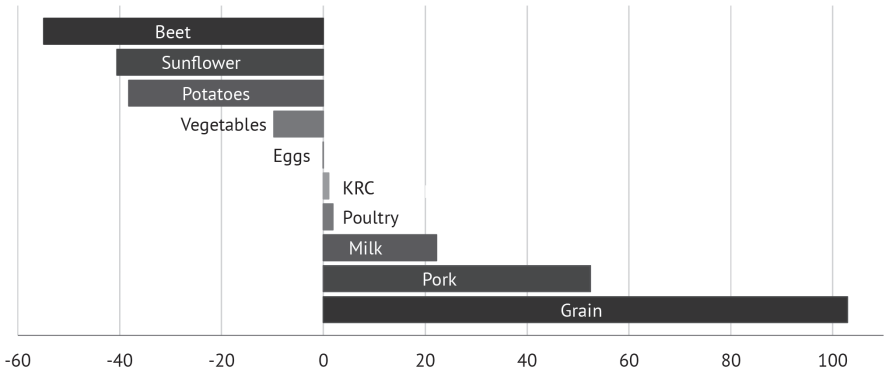


Fig. 28. Main agricultural products' contribution to gross output growth in 2020 (preliminary estimates in prices of 2018, billion rubles)

Source: own calculations based on the Rosstat's data.

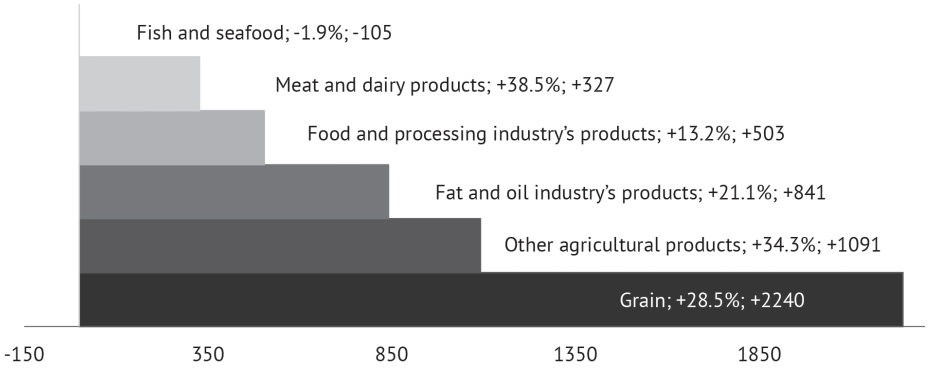


Fig. 29. Growth in exports of the agricultural sector's products in 2020 (million US Dollars, %)

Source: The Federal Center for Promotion of Exports of Agricultural Products, the RF Ministry of Agriculture, the data as of January 17, 2021.

above the 2020 target indicator of the "Exports of Agricultural Products" federal project. The performance over and above the targets of the federal project is facilitated by growth in exports of grain and other agricultural products (mainly unprocessed oil-yielding crops), while the shortfall is caused by insufficient growth in exports of fish, meat and dairy products (*Fig. 29*).

Though the targets of the federal project failed to be achieved, exports of meat and dairy products demonstrated high growth rates (+38.5%), with an increase facilitated primarily by growth in exports of meat: the shares of pork and poultry in exports growth were equal to 49.9% and 30.9%, respectively.

Growth in exports was underpinned by the exchange rate: agricultural exports volume-weighted average Ruble/US Dollar exchange rate exceeded by 9.7% in January-September 2020 the relevant indicator seen in 2019 (Rb71.3 per $1 against Rb65.1 per $1).

Advanced growth in exports of the fat and oil industry's products (+21.1%) and meat and dairy products (+38.5%) changed for the better the exports pattern as regards the process stage of products: in 2020 the share of midstream process stage products increased by 1 p.p. to 24.6% with the share of upstream process stage products remaining stable (59.8%). The downside is the lag of growth in exports of downstream process stage products, that is, prepared foods: their share decreased by 1.0 p.p.to 15.6%. If growth in exports of midstream process stage products related to meat and dairy products amounts to 39.9%, that in exports of downstream process stage products, to the mere 16.9%. A similar situation is observed in the food and processing industry: with overall growth of +13,3%, growth in output of downstream process stage products amounts to +5.5%.

In 2020, the importation of food and agricultural primary products decreased by 0.8%, but the decline was not homogeneous. The largest contribution to the reduction in exports was driven by a decrease in imports of meat (27.0%), spirits and alcohol-free beverages (6.5%) and fish (9.8%). At the same time, imports of apples and palm oil increased by 31.7% and 18.7%, respectively (*Fig. 30*).

The appreciation of food prices on external markets and depreciation of the ruble created all the conditions for price rises on the internal market. Global food prices appreciated by 8.5% and 6.5% in November 2020 on November 2019 by estimates of the IMF and the FAO, respectively. A similar appreciation of prices is registered with Russian producers of agricultural products (+8.8%) and food producers (+10,2%). At the same time, in Russia retail food prices demonstrate smoother dynamics, appreciation of 5.7% (*Table 30*).

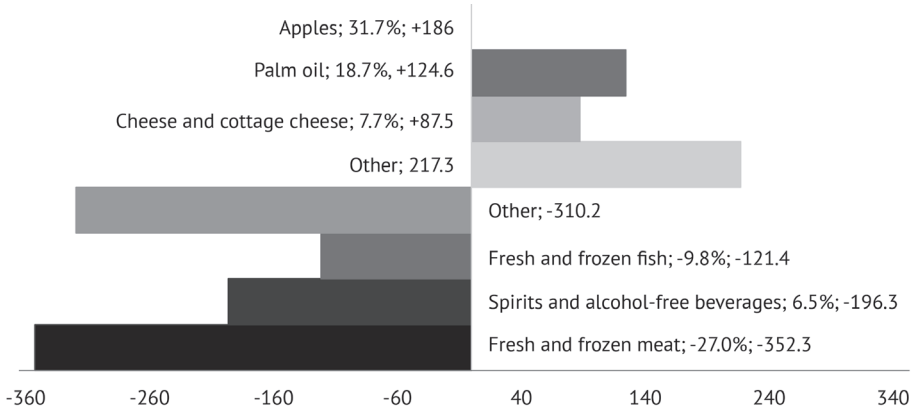


Fig. 30. Growth in imports of the most important food products in absolute and relative terms in 2020 (million US Dollars, %)

Source: The RF Federal Customs Service, data as of February 8, 2021.

Table 30

Dynamics of Russian and global food prices (growth rates, %, November 2020 on November 2019)

Products/indices	Retail prices in Russia (Rosstat)	Global prices (IMF, US Dollars)	Global prices (IMF, rubles at exchange rate of RF Central Bank)
Products/indices	-0,8	-1,1	19,0
Chickens	24,7	47,7	77,7
Sunflower oil	59,3	17,7	41,6
Sugar	13,1	33,8	61,0
Wheat flour/wheat	0,8	14,1	37,3
Milk	5,7	12,9	35,9
Tomatoes	0,0	18,8	43,0
Pork	17,2	15,5	39,0
Apples	5,7	8,5	30,5
CPI of food products/ Food price index IMF	8,8	X	X
Agricultural producer price index	10,2	X	X

Source: The Rosstat, the IMF and the RF Central Bank.

Changes in prices of various agricultural and food products were not homogeneous. Prices of products that integrate Russia into the global market as the exporter (grain, sunflower oil) and the importer (vegetables and fruits) appreciated the most. Appreciation of prices of these products was explicit, but did not exceed global prices growth. As regards those products whose domestic consumption is close to the output volume (poultry, pork and milk), prices fluctuated within the range of 1% and were several-fold below the appreciation of prices on the global market. Dramatic growth in Russian prices of sugar (+59.3%) leaving behind global price changes can be largely substantiated by the low base effect: the depreciation of internal prices of sugar in autumn-winter 2019 because of the record-high sugar beet yield. From January 2019, internal prices of sugar increased by 11.5%, while global nominal prices, by 17.8%; with depreciation of the exchange rate of the ruble taken into account, they grew by 34%. By comparing the dynamics of changes in output and prices, it can be concluded that as regards crops which output increased the price change was relatively small, while as regards those which output decreased, prices appreciated; it is noteworthy that percentage of price growth was much higher than that of output contraction (*Fig. 28* and *Table 28*).

Overall, it can be concluded that both the global agricultural sector and the Russian one have safely passed through two phases of the pandemic providing sufficient output of food. The downside is the global food price appreciation which can be explained by higher risks of disruption of trade supply chains and relevant growth in national stocks of food.

The appreciation of global prices of individual types of agricultural products which constitute large volumes of Russian foreign trade brought about price

rises on the internal market and worsened the social and economic situation related to households' falling incomes amid the pandemic and lower economic availability of food. The government regulation priority should consist in the development and introduction of instruments limiting the pass-through of sharp price fluctuations from the global market into export goods without undermining the base of agricultural production in the long-term and ensuring producers with sufficient resources for achieving output growth and higher competitiveness of their products.

4.7. The foreign trade[1]

4.7.1. The state of the global economy and world trade

The pandemic has dealt a heavy blow to the world economy and global commodity markets. The COVID-19 containment measures have taken a toll on economic activity particularly in Q2 2020 when the majority of G20 countries demonstrated an unprecedented drop in real GDP. In relation to G20 as a whole, GDP decreased by a record 6.9% which markedly exceeded a decline by 1.6% recorded in Q1 2019 at the height of the financial crisis.[2] China was the only G20 nation exhibiting in Q2 2020 economic growth by 11.5% which was due to the fact that China was the first to exit the crisis. All other G20 economies reported contraction of GDP by 11.8% on average in Q2 2020 when the pandemic fallout was more pronounced.

The utmost decline of GDP was in India (-25.2%) followed by Great Britain (-20.4%). Severe contraction of GDP was observed in Mexico (-17.1%), South Africa (-16.4%), France (-13.8%), Italy (-12.8%), Canada (-11.5%), Turkey (-11.0%), Brazil and Germany (-9.7% in both countries), the United States (-9.1%), Japan (-7.9%), Australia (-7.0%), and Indonesia (_6.9%). Contraction of GDP was less pronounced in Korea and Russia (-3.2% in both countries).

On a year-to-year basis, GDP of G20 countries contracted by 9.1% in Q2 2020 following a contraction by 1.7% in the previous quarter. China recorded the highest annual growth rate (3.2%) among G20 economies, meanwhile India recorded the steepest annual decline (-23.5%).

According to OECD data,[3] following an unprecedented contraction of real gross domestic product reported in H1 2020 on the back of COVID-19 containment measures, GDP in the OECD area countries moved up by 9.0% but stayed 4.3% below its pre-crisis maximum. In Q3, the highest rates of economic recovery among G7 nations recorded those countries that weathered the deepest fall in Q2: up by 18.2% in France (following a drop by 13.7%), 16.1% in Italy (following a drop by 13.0%) and 15.5% in the United Kingdom (following a drop by 19.8%).

1 This section was written by *Volovik N.*, Senior Researcher, International Trade Studies Department, IAES RANEPA; Head of Foreign Economic Activity Department, Gaidar Institute.
2 URL: // http://oecd.org/. G20 GDP Growth - Second quarter of 2020, OECD
3 URL: https://www.oecd.org/sdd/na/GDP-Growth-Q320.pdf

In the third quarter, GDP went up in all other major countries: in Canada (up by 10% following a reduction by 11.5% in Q2), Germany (up by 8.2% against -9.8%), Japan (up by 5.0% against -8.2%) and the USA (up by 7.4% against -9.0%). In Eurozone and the European Union, GDP increased by 12.6 and 11.6%, respectively following a decrease by 11.8 and 11.4% in the previous quarter. GDP stood markedly below the level in the previous year (-4.1%) both in the OECD area as a whole and in all G7 countries: the USA exhibited the least annual decline (-2.9%) and Great Britain – the utmost (-9.6%).

GDP growth in the OECD area slowed to 0.7% in the fourth quarter of 2020.[1] In the Major Seven economies, GDP rebounded by 0.8% with quite divergent patterns across countries. GDP growth remained positive in Japan (3.0%), Canada (1.9%), the USA and Great Britain (1.0% in each), and Germany (0.1%). In Italy and France, GDP fell (by2.0 and 1.3%, respectively) after the rebound in Q3 (16.0 and 18.5%, respectively).

For 2020 as a whole, GDP declined by 4.9% in the OECD area, which is the largest fall ever recorded (since 1962). Almost all countries were confronted with falls in GDP in 2020. Among the Major Seven economies, GDP declines ranged from 3.5% in the USA to 9.9% in the United Kingdom. Marked falls in GDP were also recorded in France (-8.2%) and Italy (-8.9%).

According to statistics released by WTO on January 26, 2021, world trade in services in Q3 2020 decreased by 24% compared to the same period of 2019, i.e. there is an uptick compared to a slump of 30% in annual terms recorded in Q2 2020 in contrast to a stronger rebound of commodity trade.

The International Monetary Fund in its report "World Economic Outlook Update" released in January 2021[2] forecast contraction of the world economy for 2020 by 3.5% which is less than that projected in the previous forecast. The revision was due to higher than expected GDP growth rates in H2 principally in the countries with advance economy where business activity began improving earlier than expected following lifting of the COVID-19 restrictions in May and June. According to the IMF forecast the global economy is projected to growth 5.5% and 4.2% in 2022 (*Table 31*). The 2021 forecast is revised up 0.3 p.p. on the back of fiscal stimulus plan put in place in the USA and stronger than expected rebound of Asian economies.

World trade growth slowed from Q4 2018 turning negative in Q3 2019 and fell by 3.0% y-o-y in Q1 2020. In March-April last year, virtually all countries implemented stringent measures to combat the spread of COVID-19 which resulted in collapse of the global economy. In Q2 2020, seasonally adjusted world trade in goods decreased by 14.3% quarter-on-quarter and by 21% compared to Q2 2019, which is the largest fall ever recorded. Europe and North America were the hardest hit with exports declining by 24.5 and 21.8%, respectively. To compare, exports of Asian countries contracted by mere 6.1%. During the same period, exports fell by 14.5% in North America and by 19.3% in Europe and solely by 7.1% in Asia.

1 URL: // https://www.oecd.org/sdd/na/gdp-growth-fourth-quarter-2020-oecd.htm
2 URL: https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020

Table 31

Growth rates of the global GDP and world trade, in % to the previous year

	2012	2013	2014	2015	2016	2017	2018	2019	Estimate	Forecast	
									2020	2021	2022
Global GDP	3.5	3.5	3.6	3.5	3.3	3.8	3.6	2.8	-3.5	5.5	4.2
Advanced economies	1.2	1.4	2.1	2.3	1.7	2.5	2.3	1.7	-4.9	4.3	3.1
USA	2.2	1.8	2.5	2.9	1.6	2.4	2.9	2.2	-3.4	5.1	2.5
Euro area	–0.9	-0.2	1.4	2.1	1.9	2.5	1.9	1.3	-7.2	4.2	3.6
Germany	0.7	0.6	2.2	1.5	2.2	2.5	1.5	0.6	-5.4	3.5	3.1
France	0.3	0.6	1.0	1.0	1.1	2.3	1.7	1.5	-9.0	5.5	4.1
Great Britain	1.4	2.0	2.9	2.3	1.8	1.7	1.4	1.5	-10.0	4.5	5.0
Emerging markets and developing countries	5.1	4.7	4.6	4.0	4.3	4.7	4.5	3.7	-2.4	3.6	3.1
Russia	3.4	1.3	0.6	-3.7	-0.2	1.5	2.3	1.3	-3.6	3.0	3.9
Developing countries of Asia	6.7	6.6	6.8	6.6	6.4	6.5	6.4	5.5	-1.1	8.3	5.9
China	7.7	7.7	7.3	6.6	6.7	6.9	6.6	6.1	2.3	8.1	5.6
India	4.7	5.0	7.3	7.6	7.1	6.7	6.8	4.2	-8.0	11.5	6.8
Latin America and Caribbean basin	2.9	2.7	1.3	0.0	-0.9	1.3	1.0	0.0	-7.4	4.1	2.9
Brazil	1.0	2.5	0.1	-3.8	-3.6	1.4	1.1	1.1	-4.5	3.6	2.6
Mexico	4.0	1.1	2.1	2.5	2.3	2.2	2.0	–0.3	-8.5	4.3	2.5
World trade in goods and services	2.9	3.0	3.3	2.6	2.2	5.2	3.9	1.0	-9.6	8.1	6.3
Advanced economies	2.0	2.4	3.4	3.6	1.8	4.4	3.5	1.4	-10.1	7.5	6.1
Emerging markets and developing countries	4.6	4.4	2.9	1.3	3.0	6.9	4.1	0.3	-8.9	9.2	6.7

Source: World Economic Outlook Update, January 2021: Policy Support and Vaccines Expected to Lift Activity (imf.org)

Following five months of uninterrupted decline, world trade began to rebound in June 2020 when pandemic-induced restrictions began to ease. According to Netherlands Bureau for Economic Policy Analysis,[1] in June 2020 compared to the previous month, world trade went up by 7.9%, in July – by 4.8%, and in August – by 2.4%. In August, Europe exhibited strong growth of exports by 4.0%. Japanese exports are also growing strongly (+6.6%) meanwhile imports continued falling

1 CPB Netherlands Bureau for Economic Policy Analysis. URL: https://www.cpb.nl/en/cpb-world-trade-monitor-august-2020

(-2.1%). The US exports growth constituted 2.5%; imported exhibited similar growth by 2.3%. China has contributed strongly to the rebound of world trade. Chinese exports demonstrating steep decline in the first months of the pandemic stabilized in Q2 and strongly rebound in Q3. By contrast with other major economies, Chinese exports stabiliz4d in July and August and increased by 13% in September.

In Q3 2020, value of world trade fell by 5% compared to the same period in the previous year an improvement on the decline reported in Q2.

In February 2021, the World Trade Organization released next WTO Goods Trade Barometer[1] which provides information of world goods trade trajectory in real time pursuant to latest trends. The Goods Trade Barometer's current reading of 103.9 is above both its baseline value of 100 for the index and its previous reading of 100.7 from last November, signaling a marked improvement in goods trade since its dropped sharply in the first half of last year. All component indexes are either above trend or on trend, however some already exhibit signs of deceleration while others could turn down in the near future. Furthermore, the indicator may not fully reflect resurgence of COVID-19 and the appearance of new mutations of the disease, which will undoubtedly weigh on goods trade in the first quarter of 2021.

Indexes of export orders (103.4) and automotive products (99.8) that are among the most reliable leading indexes for world trade, have both peaked recently and started to lose momentum. By contrast, the container shipping (107.3) and air freight (99.4) indexes are both still rising, although higher-frequency data suggest that container shipping has dipped since the start of the year. Finally, while the indexes for electronic components (105.1) and raw materials (106.9) are firmly above trend, this could reflect temporarily stockpiling of inventories. Taken together, these trends suggest that trade's upward momentum may be about to peak and then slump.

4.7.2. The state of prices on principal goods of Russian export and import

COVID-19 impact of commodity market was uneven. Crude oil prices dropped sharply during early stages of coronavirus infection and only partially recovered to their pre-crisis level, meanwhile prices on metals declined relatively moderately and returned to the levels preceding the pandemic-induced shock. The pandemic has virtually not affected prices of agricultural products. According to the World Bank forecast,[2] price index on energy resources in 2020 will decrease by 32.9%, on non-energy commodities will rebound by 1.2% and due to price growth on agricultural products up by 3.6% with declining price on metals by 1.3%.

In 2020, the crude oil market faced an unprecedented instability significantly affected by the COVID-19 pandemic and subsequent plunge in demand. In Q2

1 WTO 2021 News items - Goods Barometer signals strong trade rebound but momentum may be short lived

2 URL: https://openknowledge.worldbank.org/bitstream/handle/10986/34621/CMO-October-2020.pdf

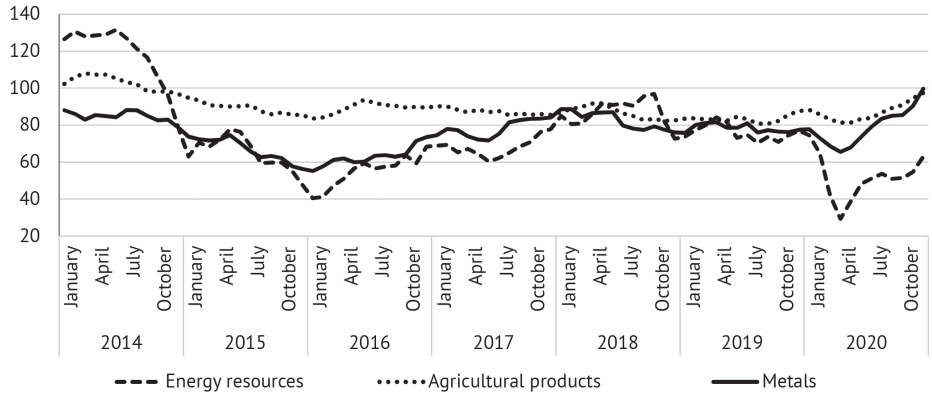


Fig. 31. World Bank price index on commodities

Spurce: URL: http://www.worldbank.org/en/research/commodity-markets#1

2020, global crude oil consumption plunged by 16% year-on-year principally on the back of lockdowns and self-isolation regime put in place in virtually all countries to combat the spread of the coronavirus infection. At some point in April, combination of factors pushed down WTI futures to negative values for the first time on record in the oil market.

Travel ban has markedly affected the consumption of oil due to the fact that transportation fuel accounts for two thirds of global consumption of crude oil. There was a widespread decline in demand for oil with the EU countries bearing the brunt. China was a notable exception where oil consumption dropped slightly in Q1 2020 but has since rebounded against the backdrop of renewed economic activity and mounting stocks, with consumption in Q2 2020 exceeding that seen in Q2 2019. Beyond the boundaries of China, the consumption of oil displayed an upward trend on the back of lifting of quarantine measures. According to October report released by the International Energy Agency, in 2020, demand for oil will remain on average 8% lower than in 2019.

A notable exception was China, where oil consumption declined slightly in the first quarter of 2020, but has since recovered amid renewed activity and inventory accumulation, with consumption in the second quarter of 2020 being higher than in the second quarter of the previous year. Outside of China, oil consumption began to recover after the lifting of quarantine measures. According to an October report by the International Energy Agency, oil demand in 2020 will be about 8% lower than in 2019.

In May 2020, global oil prices were rapidly rebounding following multy-year low reported in April 2020. This was due to the adherence to the OPEC+ agreement on the oil production cut (Declaration of Cooperation, DoC). In June-July, the recovery of the global oil prices went on, however their recovery rates slowed. Recovery of prices were on the back of demand growth, reduction in oil production in the USA and extension by the OPEC+ countries of tougher production quotas in July. In July

2020, ICE Brent futures price went up by 6% - up to $43.22 bbl and NYMEX WTI up by 6.4% to $40.77 bbl. Compared to the same period a year earlier, ICE Brent price fell by 35.8% and NYMEX WTI by 34.9%.

In December 2020, spot oil prices surged hitting ten-month record high owing to the improvement of fundamental indicators in quantum market against the backdrop of dynamic purchases of crude oil by oil refineries in Asia-Pacific Region. Pending gradual lifting of travel restriction and acceleration of demand, recovery have also contributed to the rebound of oil prices. Increased refining margin, reduction in crude oil held in sea storage and stringent adherence to production adjustments by the OPEC+ producers have ensured additional market support.

OPEC Reference Basket (ORB) of crudes went up in price at end-2020: in December, price increased by 15% to $49.17 bbl – the highest monthly value seen since February 2020. However, on yearly average ORB came down by 25.2% to $41.47 bbl which is the lowest average annual value since 2016.

In December 2020, crude oil futures surged on both sides of the Atlantic hitting the record high since February 2020. The investors were more positive in relation to economic rebound and rapid recovery of the oil prices following the registration of COVID-19 vaccines in several countries. Oil price futures and shares increased on the back of the adoption of additional stimulus packages in the USA and Europe. The market optimism enhanced against the backdrop of improved prospects of the global oil market balance following DoC participating countries voluntary decision adopted in December to voluntary adjust production from January and also to extend the compensation period.

In December, ICE Brent oil price spiked by 14.2% to $50.22 bbl, NYMEX WTI oil – by 13.8% to $47.07 bbl. However, ICE Brent dropped in price by 32.7% year-on-year and came to $43.21 bbl, NYMEX WTI oil – by 31.0% to $39.43 bbl.

On April 21, 2020, average price of Urals hit the lowest value since 1999 - $12.09 bbl down more than 80% from the start of the year due to a notable squeeze in demand on the back of containment measures introduced to face coronavirus pandemic as well as increased oil supply after the termination of the OPEC+ agreement in April 2020. In May, Urals oil edged up in price to $30 bbl, in June – to $42 bbl, in July – to $43.91 bbl which was 1.4-hold lower than in July 2019 ($63.34 bbl). In January-July 2020, the average price of Urals stood at $40.34 bbl (in January-July 2019 - $65.27 bbl). Anticipation of deceleration of the global demand at the year-end resulted in the Urals price to drop 8% in September-October relative to July-August.

Over 2020 as a whole, the average price of Urals stood at $41.73 bbl by 34.4% lower than in 2019 ($63.59 bbl).

COVID-19 pandemic-induced global recession led to a drop in demand for natural gas, however, the pandemic impact on the natural gas market was markedly softer than on the oil one given that natural gas in principally used for electricity production, industry and heating of residential and commercial facilities rather than in transportation. In H1 2020, natural gas was steadily dropping in price (primarily in Europe), natural gas prices recorded an all-time low in H2 2020. Demand began to rebound reporting an uptick in prices in Q3 2020.

In October, natural gas prices surged in Europe: average price on the principal virtual trading point for natural gas in Europe – Netherlands' Title Transfer Facility (TTF) spiked by 24% to $4.9 MMBtu in relation to September. In December, growth continued natural gas rose in price by 21.1%compared to November and hitting record high $5.86 MMBtu since February 2019. Prices were propped up by expectations of low temperatures at the start of November, projections of power outages in Norway due to strikes of oil workers and an accident at the major LNG producing plant in late September coupled with a spike in prices on LNG in Asia to $11 MMBtu which promotes LNG exports to that region.

According to International Energy Agency estimates,[1] in 2020 compared to 2019, global natural gas demand dropped by around 2.5% or by 100 bcm which was the largest drop on record. However, it is expected that natural gas demand will recover fast and in 2021 it will grow by around 3%, and by 2030 will grow by 14% compared to 2019 with Asia being in the forefront of price growth.

Price of Australian thermal coal following a drop by more than 20% in Q2 2020, stabilized in Q3 2020 and from September began rising. As a result, in December price for coal surged by 28.9% compared to November and constituted $83.0 per ton recording 20-months high mainly owing to more severe than average winter temperatures in North-Eastern Asia.

Nevertheless, it should be noted that the coronavirus pandemic accelerated the current downward trend in coal consumption in favor of cleaner natural gas and renewable energy resources, meanwhile low prices on natural gas have accelerated transition from coal to gas. All major coal producers have cut production led by Colombia (partially due to labor disputes), Indonesia, and the USA. Despite demand growth and strong production, China (major coal consumer in the world) introduced tight restrictions on coal import.

According to the IEA projection, coal demand will remain on average 8% lower through to 2030 than in pre-crisis levels due to a combination of expanding renewables, cheap natural gas and coal phase-out policies. In advanced economies, coal demand in 2030 is nearly 45% lower than in 2019. Demand for coal in the power and industry sectors continues to grow in India, Indonesia, and Southeast Asia, but its rate is slower than previously projected. In China coal use rebounds in the near term, peaks around 2025, before gradually declining.

The World Bank commodity metals and minerals price index rose in Q3 2020 by 19.5% quota-on-quota balancing losses incurred in H1. In December, commodity metals price index rose by 10.4% quota-on-quota and closed 2020 by 28.6% above that in December 2019 (*Table 32*). Price growth was due both to disruptions in shipments and renewal in economic activity, primarily in China, with easing of COVID-19 restrictions. Improvement in investors sentiments on the back of vaccines registration, expectations of additional fiscal stimulus package in the USA and weaker US dollar continued to boost price growth.

1 World Energy Outlook. URL: https://www.iea.org/reports/world-energy-outlook-2020/outlook-for-energy-demand#abstract

Table 32

Average annual world prices

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Oil (Brent), USD/bbl	79.64	110.9	111.97	108.86	98.94	52.37	44.05	54.39	71.07	64.03	49.73
Natural gas (USA), USD/MMBtu	4.39	4.00	2.75	3.72	4.37	2.61	2.49	2.96	3.16	2.57	2.04
Natural gas, European market, USD/MMBtu	8.29	10.52	11.47	11.79	10.05	6.82	4.56	5.72	7.68	4.80	3.28
Natural gas (Japan), USD/MMBtu	10.85	14.66	16.55	15.96	16.04	10.93	7.37	8.61	10.67	10.56	8.4
Coal (Australia), USD/t	98.97	121.45	96.36	84.56	70.13	58.94	66.12	88.52	107.02	77.86	61.41
Copper, USD/t	7534	8828	7962	7332.1	6863.4	5510.5	4867.9	6169.9	6529.8	6010.2	6041.7
Aluminum, USD/t	2173	2401	2023.3	1846.7	1867.4	1664.7	1604.2	1967.7	2108.5	1794.5	1721.4
Nickel, USD/t	21809	22910	17557	15032	16893	11863	9595.2	10409	13114	13914	13928
Iron ore, USD/t	145.86	167.75	128.50	135.36	96.95	55.85	58.42	71.76	69.75	93.85	110.03

Source: World Bank data.

After eight consecutive quarterly declines, the price of aluminum went up by 14% in Q3 2020 compared to Q2 2020 and exceeded the pre-pandemic level in mid-October. In December compared to April 2020, aluminum rose by 38% to $2,014.67 per ton which was the highest value since October 2018. Price growth was supported by strong demand from China, as imports of primary aluminum to the country moved up by 8-fold in August compared to the previous year which is the largest monthly growth rate in the last ten years. Demand for aluminum in the United States has also risen as brewers have moved from using kegs to cans to accommodate the growing consumption of beer at home during lockdowns and restrictions on public gatherings. Global car sales are also gradually recovering. Despite the expected recovery in global demand next year, the planned increase in capacity is expected to keep prices down. According to the World Bank projection, aluminum prices will be up by around 1% in 2021 after falling by 4.6% in 2020.

Copper prices surged 22% in Q3, the highest quarterly growth recorded since mid-2009 markedly exceeding the pre-pandemic level in September. Compared to November, copper went up in price by 9.9% to $7,772.24 per ton in December against the backdrop of a further decline in stocks: in December, ground stocks of the London Metal Exchange (LME) dropped to 107,950 tons from 149,00 tons in November, which highlights market pressure. The price growth was driven by strong demand and sharp increase in imports in China. Serious supply disruptions caused by the pandemic have also driven up prices. In Chile, the world's largest copper producer, a rise in COVID-19 infections and a union backlash have led to temporary shutdown of the state company Codelco. The pandemic-induced labor

shortages and weather conditions have also cut production in Panama and Peru. The supply gap in the copper market is expected to decrease in the coming years, as ambitious new projects or expansion of existing capacity are launched in Chile, Democratic Republic of Congo, Indonesia, Mongolia, Panama, and Peru. According to the World Bank forecast, in 2021 copper prices to rise 4% following growth by 3.2% in 2020.

Indonesia's ban on nickel ore exports, which came into force in January 2020, has sharply restricted the supply of raw materials for the production of nickel pig iron production (NPI) in China. Shipments from the Philippines, major supplier of nickel ore to China, are being hampered by mine closures due to the COVID-19 outbreak. The increase in nickel consumption, boosted by strong demand from stainless steel producers in China and concerns about nickel shortages, has led to a significant rise in the price of this metal. In December 2020, prices of nickel rose by 42.5% compared to those in April. However, in general, in 2020, nickel dropped in price by 0.4%. According to the World Bank forecast, the price of nickel will move up by around 2% in 2021.

In December against November, iron ore went up in price by 25% to $155.4 per ton, exceeding the level recorded in December 2019 by 68%, i.e. iron ore became a commodity with the highest growth in price in the last 12 months. Prices were supported by strong demand for crude steel production in China. According to the World Steel Association,[1] in 2020, China's crude steel production hit 1,053.0 mn tons, up by 5.2% on 2019. China's share of global crude steel production increased from 53.3% in 2019 to 56.5% in 2020.

The World Bank precious metal price index moved up by 23.7% in Q3 2020 compared to Q1. Price hike reflected a flight to safe-haven assets, increased uncertainty in the face of the COVID-19 pandemic, and ultra-low interest rates as major central banks continued expansionary monetary policy. The weakening of the US dollar and supply disruptions have also propped up prices.

In Q4 2020, there was a decrease in prices of precious metals. The biggest deterrent to this was the positive news about vaccines. For example, in November, gold weathered its sharpest drop in 7 years after Pfizer announced the development of an effective vaccine against COVID-19. The same day, the price of gold dropped by 5% ending the month below $1,800 per ounce.

In general, in 2020, precious metals exhibited very good results: gold went up in price by 27.8% compared to 2019, which was the best result since 2010, silver - up by 27.3%. According to the World Bank forecast, in 2021, precious metals will drop in price by around 4% as the world economy recovers.

In 2020, agricultural products went up in price by 4%, mainly on the back of supply shortage and higher-than-expected demand for edible oils and meal. Some regions observed local price hikes on food products, and declining household incomes, primarily among poorest segments of the population, have raised the risk of the food security. According to the World Bank forecast, in 2021, the price index for agricultural products will increase by 1.4%.

1 URL: https://www.worldsteel.org/media-centre/press-releases/2021/Global-crude-steel-output-decreases-by-0.9--in-2020.html

The Bloomberg Commodity Index (BCOM) includes 22 types of commodities ranged from 60 to 82 points in 2020. At the turn of the year, BCOM exceeded 81 points. Having fallen on April 24 to the lowest level in 5 years - 60.24 points, on December 4, 2020, BCOM climbed up to 74.3 points reflecting the continuation of low prices in commodity markets.

4.7.3. The main indicators of Russian foreign trade

The recession of the world economy triggered by the spread of the novel coronavirus infection, price crash on the energy market have adversely affected Russian foreign trade. April 2020 saw collapse in main indexes of the Russian foreign trade. Thus, the foreign trade turnover calculated according to the balance of payments methodology amounted to $40.7 bn, down by 30.7% against the same index of the previous year. Goods worth $23.5 bn were exported abroad, down by 36% against April 2019. Imports contracted by 21.9% to $17.2 bn against April 2019.

In 2020, Russian foreign trade turnover contracted by 15.3% to $571.5 bn compared to 2019. Contraction was uneven. If in Q1 2020 compared to the same quota of 2019, foreign trade turnover contracted by 8.1% owing to a drop in exports by 13% with an increase in imports by 0.8%, then in Q2 there was a collapse in main foreign trade indexes – the value of exports dropped by 30.6% and imports - by 12.7%, as a result of which Russian foreign trade turnover decreased by 23.9% compared to Q2 2019. In Q3, the rate of decline in Russian foreign trade slowed, but nevertheless remained very significant - foreign trade turnover decreased by 17.7%, exports from Russia down by 24.4%, imports from Russia down by 8.1%. In Q4, Russia's foreign trade turnover decreased by 11.5%, primarily due to a 16.9% drop in exports, while the decline in imports slowed to 2.9%.

In 2020, foreign trade turnover with countries of far-abroad decreased by 16% to $495.7bn and with CIS countries fell by 10% to $75.5 bn.

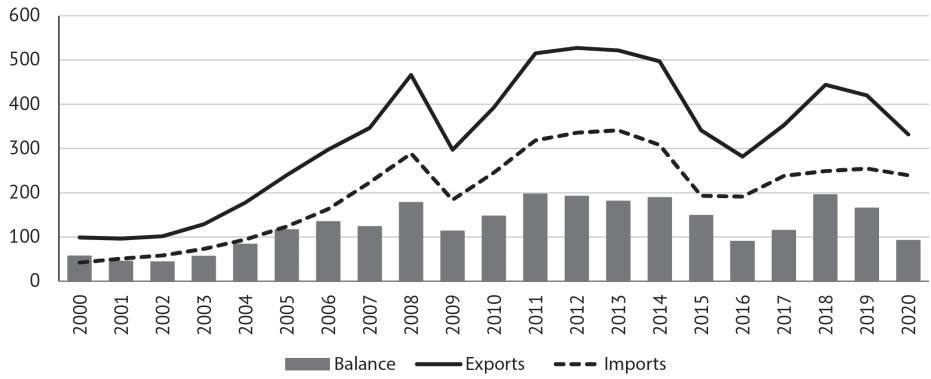


Fig. 32. Main indexes of Russian foreign trade (bn USD)

Source: Bank of Russia

In 2020, Russia's exports shrank by 21% compared to the same index in 2019 to $331.7 bn, while Russia's imports went down by 5.8% to $239.7 bn. The current dynamic of exports and imports gave rise to a sizable contraction of positive trade balance to $92 bn against $165.3 bn in 2019 (down by 44.3%) (*Fig. 32*).

The collapse in imports is primarily due to a reduction in contract prices for virtually all Russian goods exported abroad, given that the value of exports of many goods (above all, non-resource non-energy) increased (*Table 33*). According to the Federal Customs Service (FCS), the value of all exports decreased by 20.7% and volume - down by 2.1% in 2020 compared to 2019. This being said, the value of non-resource non-energy (NRE) exports climbed by 2.2% and volume of non-resource non-energy exports - up by 2.8%.

Table 33

Indexes of average prices and volume of export and import pattern of the Russian Federation in 2020 (in % to corresponding quarter 2019)

OKVED code EAEU	Merchandised line	Average price index						Quantum index					
		Exports			Imports			Exports			Imports		
		Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3
01-24	Food products and agricultural primary products (except for textile)	102.6	97.1	97.6	101.3	99.3	98.5	120.7	147.6	98.5	97.7	90.9	104.5
25-27	Mineral commodities	87.8	51.8	62.4	89.3	75.9	94.0	92.1	102.5	88.5	125.9	110.6	74.3
27	Fuel and energy products	87.8	51.4	62.0	88.0	65.3	91.6	91.9	101.9	87.6	96.3	124.6	73.8
28-40	Chemical products, rubber	89.7	82.6	80.4	99.9	95.9	99.7	104.8	100.3	110.9	86.0	96.3	77.1
41-43	Rawhide, furs and articles made therefrom	99.1	85.0	96.7	104.4	97.2	96.6	95.5	50.2	61.8	84.2	37.7	86.6
44-49	Timber and pulp and paper articles	85.4	86.9	86.0	97.0	97.0	98.7	118.1	111.2	116.1	96.6	87.4	93.9
50-67	Textile, textile products and footwear	103.3	85.9	91.8	98.3	115.0	92.8	130.4	82.8	110.2	110.2	75.7	103.7
72-83	Metals and article made therefrom	94.6	87.0	92.3	99.0	90.5	92.0	86.1	98.6	97.6	111.2	76.3	81.6
84-90	Machinery, equipment and means of transportation	86.8	91.2	93.9	97.2	96.2	96.3	91.3	86.4	96.7	105.4	89.8	97.2
68-70, 91-97	Other goods	95.7	92.5	90.6	98.0	92.8	96.4	66.7	89.1	48.8	101.1	83.4	95.9

Source: FCS data.

Export structure and dynamic

Following a two-year growth in 2017-2018, Russia's exports began falling in Q2 2019, and in 2020 the negative dynamic gathered momentum (*Table 34*). Stringent social distancing measures and travel and traffic restrictions were in full effect in the majority of countries during April and May. In the wake of global uncertainty, in May 2020, Russian exports hit the lowest level since February 2016 worth $20.98 bn.

Table 34

Russian exports dynamic

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Exports, USD billion	297.2	392.7	515.4	527.4	521.8	496.8	341.4	281.7	353.1	443.1	419.8	331.7
Including:												
Far-abroad countries	252.0	333.6	436.7	443.8	443.8	428.1	292.1	241.7	303.0	386.6	362.4	281.3
Growth rates, in % to previous year												
Quantum index	105.0	96.8	97.0	110.0	97.8	99.9	104.9	109.0	103.5	106.5	98.3	96.1
Price index	110.9	137.4	76.4	119.8	132.9	101.6	95.7	58.1	76.9	118.5	96.7	75.5

Sources: Bank of Russia, Ministry of Economic Development.

The negative dynamic of exports is primarily due to price collapse in energy commodities coupled with a reduction in world demand for goods and services in the wake of an economic recession in the trading partner countries. A certain role was also played by restrictions on their production as a result of the OPEC+ deal, which provided for a cut in crude oil production by 9.7 mbpd in May-June 2020.

The combination of these factors led to a 37.5% drop in Russia's exports of fuel and energy products in 2020 compared to 2019. This is primarily due to a reduction in contract prices for the main commodities of Russian export – crude oil and natural gas - and the reduction in their deliveries volume overseas. In 2020, according to the Federal Customs Service (FCS), the value of crude oil exports contracted by 40.8% compared to 2019, and natural gas - by 39.66%. In volume terms, crude oil exports decreased by 11.4% and natural gas by 9.7% than in the previous year, as crude oil was cheaper by 33.2% and natural gas - by 33.1%. In volume terms, exports of petrochemicals virtually remained at the 2019 level, while exports of motor gasoline went up by 12.4% and diesel fuel - by 3.3%.

The primary consumers of Russian crude oil are China, Netherlands, Republic of Korea, Germany, and the USA and of Russian natural gas – Japan, Republic of Korea, Taiwan (PRC), Belgium, and China.

The proportion of these commodities in the overall structure of Russian exports has dramatically shrunk on the back of a collapse in fuel and energy commodities exports. If in 2019 it stood at 62.1% then in 2020 – 49.6%. Accordingly, the proportion of non-resource and non-energy exports in the overall Russian export

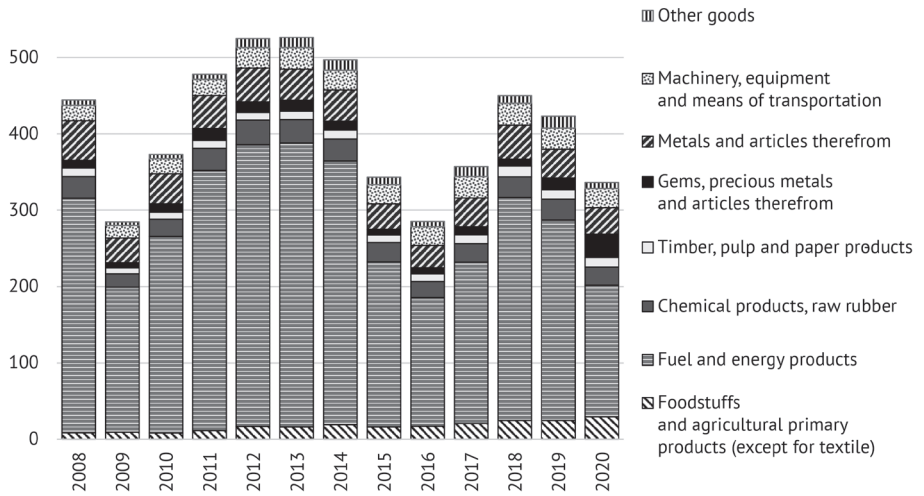


Fig. 33. Goods-wise dynamic of Russian exports (USD bn)

Source: FCS

volume increased by more than 10 p.p. relative to that in 2019 amounting to 48% (in 2019 – 36.4%). Compared to 2019 in 2020, the share of exports of foodstuffs and agricultural primary products went up from 5.9 to 8.8%, of chemical products - from 3.0 to 3.7%, of gems, precious metals and articles therefrom - from 3.6 to 9.0%, of metals and articles therefrom - from 8.9 to 10.4%, machinery, equipment and means of transportation - from 6.6 to 7.4% (*Fig. 33*).

In 2020, Russia's exports dropped year-on-year virtually across all expanded commodity items minus "Food products and agricultural and agricultural primary products (except for textile)" (up by 19.2%), "Textile, textile products and footwear" (up by 6.5%) and "Gems, precious metals and articles therefrom" (up by around 2-fold).

Since 2015, Russian exports of food products exhibit positive momentum. In 2020, grain exports spiked by 29% to $10.019 bn, fat-and-oil products – up by 20% to $4.707 bn., food and food-processing industry products – up by 14% to $4.154 bn. Exports of meat and dairy products surged by 41% - to $1.146 bn.

Cereals are the main export item in commodity line food products and agricultural products, their proportion accounted for 33.8% of the total exports of Russian foodstuffs in 2020. Export volume of cereals rose by 12.6% to 31.4 mn tons driven by wheat - up by 7.5%, barley up by 37.8%, and corn - up by 43.6%. Russia's shipments of grain go to more than 120 countries. The main export destinations for Russian grain are Turkey with 19.4% of the total grain exports, Egypt with 16.1%, Bangladesh with 6.6%, and Iran with 6.1%.

It should be noted that grain exports increased in the wake of effective temporary quota put in place by Decree No. 385 of March 31, 2020 of the Government of the Russian Federation. A quota was imposed to limit exports

of wheat, meslin, rye, barley, and corn to 7 mn tons to countries outside of the Eurasian Economic Union was imposed for the period from April 1 until June 30, 2020. Due to the fact that on April 26, the non-tariff-rate grain export quota was taken up, grain export to countries outside of the EAEU was suspended until July 1, 2020. The restrictive measure paved way to steady prices on grain and secure domestic needs in grain and products therefrom.

In 2019, Russia reported a bumper vegetable oil crop of around 23 mn tons. On the back of accumulated stocks, for the first nine months last year, exports of fat-and-oil products increased by 16.6% in volume terms - up to $3.98 mn tons worth $2.9 bn. Sunflower oil, safflower seed or cottonseed oil and fractions thereof (70.7% of the total exports of this commodity line), soya oil and fractions thereof (13.1%), rapeseed oil or mustard-seed oil and fractions thereof (9.7%), and margarine (3.5%) account for the major share of the total volume of exports for this segment. China remains the main buyer and for the first nine months, and in the previous year ramped up imports of Russian fat-and-oil products 2-fold – up to $779.3 bn with sunflower oil accounting for nearly half. Turkey and India are among the top three buyers of fat-and-oil products.

Meat export from Russia for the first nine months of 2020 exhibited a significant growth – meat and by-products of 242.6 mn tons worth $632.2 bn were delivered to foreign markets, which is up 79% compared to the same period last year in value terms and up by 65.9% in volume terms. Russian exports of poultry meat increased by 65.8% worth $326.1 mn, pork meat – 2.6-fold worth $183.7 mn, frozen beef – up 2.8-fold worth $42.8 mn.

The top fine buyers of Russian meat include China, which in 2020 purchased products in Russia worth $235 mn, which is 3.9 time more than in 2019. In second place is Vietnam, which increased purchases by 3.8 times to $92 mn. Ukraine takes the third place, having purchased Russian meat for $80 mn (up by 14%). Exports to Hong Kong increased 2.1 times to $47 mn, and to Kazakhstan up by 48% to $35 mn.

Russian poultry meat exports increased primarily due to opening of the Chinese market. China purchases half of Russian poultry meat exports. For the first nine months in the previous year mainland China accounts for 45% of deliveries in volume terms and with Hong-Kong – 54%. The Rosselkhoznadzor has been working to ensure access of poultry products to the Chinese market since 2014. In late 2018, both parties signed a Protocol on mutual deliveries of frozen poultry to the markets of both countries. The list of approved establishments for delivery of their products to the PRC was expanding gradually. In early 2019, China officially confirmed deliveries of poultry meat from 23 Russian and by late 2020, 40 Russian establishments and 15 cold storages got an approval to export poultry meat and products thereof to the Peoples Republic of China.

For the last 10 years, positive trends have been observed in Russian exports of textile, textile products and footwear (minus 2015). In 2019, export of products in this segment was worth $1.35 bn which is 3.7 times more than that in 2010. The share of textile, textile products and footwear in the overall volume of Russian

exports is small, but it consistently grows: if in 2010, it came to merely 0.09% of the total Russian exports, then in 2019 – 0.32%, and in 2020 – 0.44%.

In order to stabilize the situation induced by the spread of COVID-19 virus and the lack of personal protective equipment (PPE), the Eurasian Economic Commission collegium decided on March 24 to put in place a temporary ban on exporting personal protective equipment, protective agents and disinfectants, products for medical use and materials from the customs territory of the Eurasian Economic Union (cotton wool, gauze fabric, bandages, masks, half-masks, face respirators, respirators, filters for personal respiratory protective equipment, protective glasses, disinfectants, protective overshoes, certain types of clothing and related accessories, and gloves), and despite this fact exports of textile, textile products and footwear increased by 6.5% in 2020 compared to 2019.

Footwear remains the top product in this segment. In 2020, it accounted for 16.1% of the total exports value of textile, leather and foot-wear industries. Footwear exports dropped by 11.4% compared to 2019.

Growth in Russian exports of textile products and manufacture of clothes was driven by accelerated dynamic and increased share of "Other finished textile products; footwear and preowned textile products" (10.9% in overall exports of textile, textile products and footwear) which shipments surged by 40.1% - up to $162 mn, "Articles of clothing and accessories used with the, minus machine and hand-made knitwear" (18.1% share) – increase by 13.8% - to $269 mn, "Items of clothing and accessories used with them, machine and hand-made knitwear" (17.6% share) – up by 20.8% - to $261 mn.

The main countries that purchase the above mentioned products from Russia are Belorussia (32%), Kazakhstan (29%), Ukraine (8%), Italy (8%), and Poland (3%).

The Bank of Russia suspended purchases of precious metals on the domestic market from April 1, 2020. It should be noted that the BoR decision to suspend purchases of gold synchronized with the onset of quarantine which led to disruptions of deliveries of gold abroad due to restrictions of air transport in early April 2020. However, soon a special air service was organized for precious metals.

According to the Federal Customs Service (FCS) data, Russian gold exports came to 42.6 tons worth $2.3 bn (exports increase 14 times in volume terms compared to April 2019), in May – 23.8 tons worth 1.3 bn (7 times more than in May 2019), in June – 24.6 tons worth 1.3 bn (4 times more than in June 2019). Over 2020, Russia's gold exports amounted to 320 tons up 2.6-fold above the 2019 level and up by 3.2-fold in value terms. In 2019, Russia's gold exports were worth $5.76 bn and in 2020 – worth $18.54 bn.

Great Britain is the main purchaser, for the first 9 months of 2020 Great Britain purchased from Russia 193.1 tons of gold worth $11.1 bn. As a result, Russian exports to Great Britain went up 2-fold – to $15.9 bn in January-September 2020 compared to the same period of the previous year.

According to data released by REC,[1] in 2020, Russian non-resource non-energy exports (NRE) was worth $161.3 bn up by 3.5% than in 2019 and nearly 3.5 times

1 URL: https //www.exportcenter.ru/press_center/news/v-2020-godu-eksport-rossiyskikh-nesyrevykh-neenergeticheskikh-tovarov-prevysil-161-mlrd-dollarov-eto/

more than in 2000 when NRE totaled $46 bn. Main drivers of the NRE exports in 2020 were precious metals and agro-industrial complex products. In 2020, the NRE exports minus gold exports would have totaled $142.77 bn against $149.34 a year earlier, i.e. the index dipped by 4.4%. From 2021 onwards, the export of gold will not be considered a non-resource non-energy export item, since gold is not a tradable commodity in classical terms – it is traded by financial institutions, the influence of market environment on the volumes of transactions is very high while common systemic measures of export support are not applicable in this case.

The pattern of dynamic of imports

For the recent months as a whole, Russian import dynamic reflects changes in both Russian and world economy. Decrease in Russian imports commenced in March 2020 down by 2.3% against March 2019 at the peak of ruble's depreciation. The Asia-Pacific Economic Cooperation (APEC) member-states have contributed most to the reduction in Russian imports with China at the forefront by being the first to put in place restrictive measures to combat coronavirus. In April, imports decline rates accelerated to 19.9% in annual terms - up to 13.2% month-on-month due to the fact that the toughest containment measures imposed to face coronavirus in various countries were most effective during that month. From June 2020, as economies commenced to open, there was a gradual rebound in Russian imports. For example, imports rose by 10.8% month-on-month, in July – by 2.9%, in August – by 1.2%, in September – by 2.5%, in October – by 6.5%. At the end of the day, if in Q2 2020 against Q2 2019 imports of goods contracted by 13%, then in Q3 down by 7.9%.

By year's end, imports dynamic improved, the decrease in imports of goods decelerated in Q4 2020 to 2.9%. Moreover, purchases of goods from far-abroad countries increased by 3.3% in December compared to December 2019, despite a decline by 14% in the real effective exchange rate of the ruble, a slowdown in business activity in Russia, and new restrictions triggered by the pandemic (*Table 35*). In December 2020, goods import growth from far-abroad countries was boosted mostly by chemical (+11.5%) and engineering products (+6.7%). Imports of chemical industry products went up on the back of pharmaceutical products purchases by 32.3%, polymers and India rubber by 8.8% in December 2020 compared to the corresponding month of the previous year.

In the segment of engineering, products purchase of ships and floating crafts increased 5.7-fold, instruments and optical devices - by 9.9%, electrical equipment - by 6.6%, mechanical equipment – by 5.9%, and vehicles for land transportation – by 0.8%.

In the commodity structure of imports, the largest proportion was still accounted for by purchases of machinery and equipment, the share of which in the total volume of imports in 2020 was 47.6% against 46.1% in 2019 (*Fig. 34*). Imports of machinery and equipment into the Russian Federation declined by 2.2% in 2020 compared to 2019. There was a notable reduction in imports of railroad locomotives and tram motor coaches (-22.38%), vehicles for land

transportation (-29.96%), ships, boats and floating crafts (-23.31%). Imports of inorganic chemicals shrank by 20.96%, pharmaceutical products – by 17.66%, and fertilizers – by 17.62%.

Table 35

Russian imports dynamic (USD bn)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Imports, USD bn	183.9	245.7	318.6	335.8	341.3	307.9	193.0	191.5	238.1	249.1	254.6	239.7
Including:												
To far-abroad countries	162.7	213.2	273.8	288.4	295.0	271.9	170.6	170.8	212.8	222.5	226.7	214.4
Growth rates, in % on previous month												
Quantum index	130.1	127.1	113.5	63.3	135.4	122.2	105.1	97.8	96.6	99.3	103.6	92.0
Price index	105.5	107.6	117.8	99.1	101.6	109.1	97.3	102.5	99.8	102.1	97.2	96.5

Sources: Bank of Russia, Ministry of Economic Development.

The second important group in the commodity structure of Russian imports remains the chemical products (8.3% in 2020). Purchases of these products abroad declined by 11.3% in 2020. Food products and agricultural primary products (except for textile) are ranked third in Russian imports pattern. In 2020, these products account for 12.8% against 12.3% in 2019. In 2020, imports of

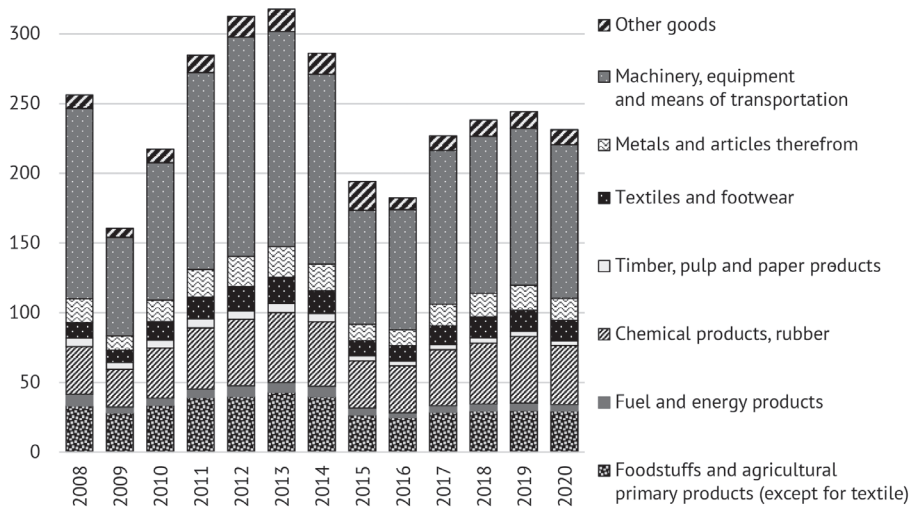


Fig. 34. Goods-wise dynamic of Russian imports (USD bn)

Source: FCS.

food products decreased by 0.8% in value terms and remained at the last year level in volume terms. According to data released by FCS, purchases of milk and cream rose by 21.8%, butter – by 14.3%, cheeses and cottage cheese – by 11.7%. However, the import volumes of sunflower oil dipped by 53.7%, fresh and frozen meat – down by 30.4%, fresh and frozen fish – down by 9.5%, and citrus fruits – down by 8.0%.

At the beginning of 2020, purchases of petrochemicals, primarily motor gasoline, increased notably. For the first five months of 2020, import volumes of motor gasoline surged 85-fold compared to the same period of 2019. In this situation, the RF Government was forced to ban the supply of foreign fuels due to the fact that the latter were cheaper than motor gasoline and diesel fuel produced at home. By the Decree No. 732 of May 22, 2020, the RF Government temporary suspended fuel import into the territory of the Russian Federation. The list of banned fuels comprised motor gasoline, diesel fuel, marine fuel and gasoils. The measure adopted for purposes of energy security paved the way for stabilization of the situation on the domestic market. In particular, the temporary ban on import of petrochemicals avoided the situation of mid-May 2020 when Belorussia bolstered motor gasoline sales to Russia hundreds of times. The ban was effective until October 1, 2020.

The geographic pattern of the Russian foreign trade

In the geographic pattern of Russian foreign trade, the trend continues to increase the APEC's share in Russian foreign trade turnover: in 2020 it rose to 33.8% against 31.8% in 2019. That said, the share of the CIS displayed an uptick from 12.2% to 12.9%. The share of the EU went om decreasing from 41.6% to 38.5% in 2020 (*Fig. 35*).

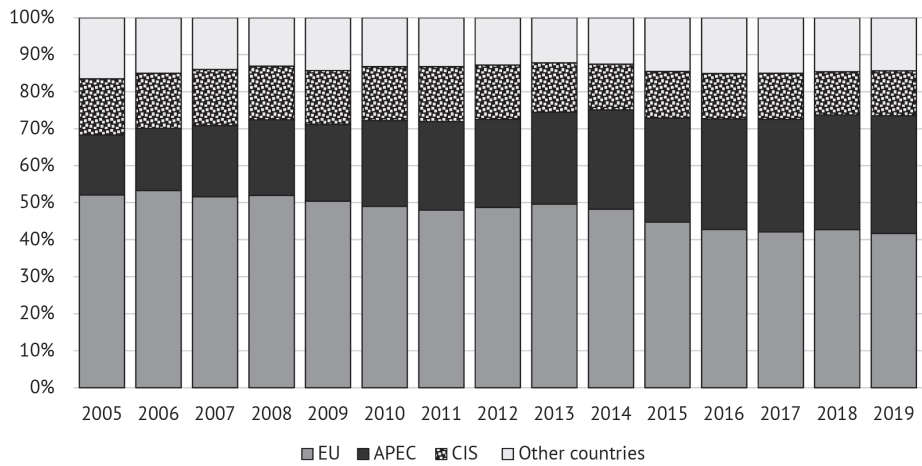


Fig. 35. Geographic pattern of Russian foreign trade (%)

Source: The Federal Customs Service of the Russian Federation.

The European Union is still the main trade partner of the Russian Federation, although in 2020, the Russian foreign trade turnover with the EU countries shrank by 21.3% with Russian exports and Russian imports falling in value terms by 27.9% and 7.4%, respectively. The collapse of the Russian export volumes was primarily due to a slump in prices of energy resources.

Russia's trade turnover with APEC member-states shrank by 9.7% mainly because of a drop in Russia's exports by 16% and imports by 2.7%. Having said that, trade turnover with Vietnam hiked by 15.2%, with Hong Kong – by 84.7%, and with New Zealand – by 31.7%.

Increase in turnover with Turkmenistan (up by 39.6%) and Uzbekistan (up by 15.6%) failed to offset a reduction in turnover with other CIS states. As a result, Russian foreign trade turnover with the Commonwealth of Independent states contracted by 9.8%.

The largest trade partner of Russia since 2010 remains the People's Republic of China, whose proportion in Russian foreign trade turnover increased to 18.3% in 2020 against 16.7% in 2019. For two consecutive years, the Russian Federation maintained a positive trade balance, in 2020 this index again turned into a negative one for Russia (-$5.8 bn).

4.7.4. The Russian foreign trade regulation[1]

Tariff regulation

Export customs duties

In 2020, the rates of export customs duties on crude oil and petrochemicals were calculated in compliance with the methods approved by the Resolution No. 276 of March 29, 2013 of the Government of the Russian Federation "On Calculation of the Rates of Export Customs Duties on Crude Oil and Individual Categories of Products Made of Oil."

Table 36

The rates of export duties on crude oil and petrochemicals in 2019–2020 (USD per ton)

	Crude oil	Petrochemicals	
		Light oil	Dark oil products
2019			
January 1	89.0	26.7	89.0
February 1	80.7	24.2	80.7
March 1	91.2	27.3	91.2
April 1	97.4	29.2	97.4
May 1	104.6	31.3	104.6
June1	110.4	33.1	110.4
July 1	100.3	30.0	100.3
August 1	94.1	28.2	94.1

1 The Resolution of the Government of the Russian Federation; information of the Ministry of Economic Development of the Russian Federation.

	Crude oil	Petrochemicals	
		Light oil	Dark oil products
September 1	90.7	27.2	90.7
October 1	87.2	26.1	87.2
November 1	88.3	26.4	88.3
December 1	90.5	27.1	90.5
2020			
January 1			
February 1	78.5	23.5	78.5
March 1	66.9	20.0	66.9
April 1	52.0	15.6	52.0
May 1	6.8	1.0	6.8
June1	8.3	2.4	8.3
July 1	37.8	11.3	37.8
August 1	46.9	14.0	46.9
September 1	47.5	14.2	47.5
October 1	45.4	13.6	45.4
November 1	42.2	12.6	42.2
December 1	42.0	12.6	42.0

Sources: Resolution of the Government of the Russian Federation; information of the Ministry of Economic Development of the Russian Federation.

According to price monitoring findings for the period March 15 2020 until April 14, 2020, average price of crude oil stood at $19 per barrel or $138.7 per ton. According to the information released on April 15, 2020 by the Ministry of Economic Development of Russia, from April 15, 2020 until May 31, 2020 the rate of export customs duty on crude oil will decline by $45.2 and will amount to $6.8 per ton which is the lowest rate seen during 2000s (*Table 36*).

Import customs duties

On April 3, the Eurasian Economic Commission's Council approved a list of critical imports in order to minimize the adverse economic fallout of spreading COVID-19 coronavirus infection and prevent a shortage of socially important goods in the EAEU countries. They are granted tariff preferences in the form of exemption from import customs duties when importing to the Eurasian Economic Union States from April 1 until June 30 of this year inclusive. The list includes certain agricultural and food products (potato, onion, garlic, cabbage, carrot, pepper, rye, long-grain rice, buckwheat, juices and ready-made baby food), certain finished pharmaceutical products and medical goods (endoscopes, contactless thermometers, disposable pipettes and mobile disinfectant units). Besides, the expanded list of goods used for manufacturing medicines as well as medical products (it includes thermal bags, films for sealing bottles and medical freezers), the import of which was duty-free from March 16 until September 30, 2020 subject to confirmation of their intended purpose.

The Decree of the Government of the Russian Federation No. 545 of April 18, 2020 simplifies and promotes free import of medical goods for combating

the COVID-19 coronavirus. The list of goods comprises COVID-19 test kits, lung ventilators, medical masks, and protective equipment. From March 16 until September 30, the import of these goods was duty free on condition that they are intended for free transfer to health care institutions. The intended use of goods must be confirmed by a special document. Previously it was issued by executive bodies of regional state authorities. The Decree authorizes the Ministry of Industry and Trade and the Ministry of Healthcare to promote the issue of necessary documentation.

In order to reduce export volumes and contain price growth on sunflower, raps and products therefrom the Decree No. 2065 of the Government of the Russian Federation of December 10, 2020 "On Amending the Rates of Export Customs Tariffs on Goods Exported from the Russian Federation beyond the States that are Parties to Agreements on the Customs Union" establishes an export tariff of 30% but not less than €165 per ton of sunflower seeds and rapeseeds to be in effect from January 9 until June 30, 2021. The decision applies to products exported from Russia beyond the Customs Union. Previously, export tariff on sunflower seeds and rapeseeds was 6.5% but no less than €11.4 per ton.

Tariff rate quotas

By Decree No. 385 of March 31, 2020 of the Government of the Russian Federation, a quota was imposed to limit exports of wheat, rye, barley and corn to 7 mn tons to the countries outside of the Eurasian Economic Union imposed for the period from April 1 to June 30, 2020. The Ministry of Agriculture of the Russian Federation was authorized to release information in real time on taking up the quota and submit the information to the Federal Customs Service of the Russian Federation.

By Decree No. 2096 of December 14, 2020 the Government of the Russian Federation introduced amendments in the rates of export customs duties approved by Decree No. 754 of August 30, 2013 of the Government of the Russian Federation. According to introduced amendments, the version comprises a list of rates of export customs duties on wheat, rye, barley, and corn. The amendments establish a zero-tariff rate on exporting rye, barley, and corn within the tariff-rate quota, while the in-quota export tariff on wheat will be €25 per ton and the out-of-quota export tariff of 50% but no less than €100 per ton will apply from February 15 until June 30, 2021.

Non-tariff regulation

On November 18, 2020, the WTO released its report on the G20's[1] trade measures implemented by the G20 countries between mid-May to mid-October 2020.

During that period, there was a notable slowdown in the number and coverage of trade-restrictive and trade-facilitating measures on goods. The trade coverage of "regular" import-facilitating measures introduced by G20 are estimated at $36.8 bn compared to $735.9 bn in the previous period. The main sectors for which

1 URL: https://www.wto.org/english/news_e/news20_e/trdev_18nov20_e.ht

trade-facilitating measures were introduced were electrical equipment and parts, machinery and mechanical appliances, and pharmaceutical products. The volume of trade affected by import-restrictive measures imposed by the G20 countries is worth $ 42.9 billion (for the period from September 2019 to May 2020 – $ 417.5 billion). The main sectors affected by the new restrictions were mineral fuels and oils, machinery and mechanical devices, vehicles and parts thereof. The sharp decline in the volume of world trade, which is covered by "regular" facilitating and restrictive measures, is primarily owing to a decrease in trade turnover and a shift in the attention of governments to the fight against the pandemic. In addition, in recent years, a significant part of restrictive measures comprised mutual increase in duties introduced by the United States and China, there were no major new developments in this particular context during the reviewed period. At the same time, the coverage of trade in goods related to combating COVID-19 since the pandemic outbreak is estimated at $ 155 billion. Of the 133 trade measures taken for these products, 63% were trade–facilitating and 37% were trade-restrictive measures. By mid-October, three out of every ten such restrictive measures had been lifted.

According to the WTO secretariat, with due regard for the measures introduced since 2009 and still in force, a total of 10.4% of the G20 countries ' imports are subject to restrictions, which is equivalent to $1.5 trillion (a year ago, this index was 8.8% and $1.3 trillion). The main restrictive measures are tariff increases, import bans, and stringent import procedures.

Protectionism against Russian goods is escalating every year. According to the data presented in the Register of Restrictive Measures[1], as of December 1, 2020, 203 restrictive measures were identified that cut down access of Russian goods to the markets of foreign countries. This is primarily the introduction of anti-dumping duties, which account for 25.1% of the total number of measures introduced, 16.3% were for sanitary and phytosanitary measures (SPS measures), 11.3% - for special protective duties (*Table 37*).

At present, 33 investigations are being conducted in respect of Russian goods, including 2 countervailing, 11 antidumping, 16 special protective ones, and 4 for national security reasons, 14 revisions of antidumping measures and a revision of a special protective measure, as well as 2 agreements on the suspension of anti-dumping investigations in the United States (in respect of uranium products and thick-gauge plate).

In line with the" sanctions " policy pursued by the European Union, the United States, Japan, Ukraine, Switzerland, Norway, Australia, Iceland, Liechtenstein, Montenegro and Albania, these countries have imposed a ban on the import of goods originating from the Republic of Crimea and Sebastopol. In addition, "sanction" restrictions in relation to the events in Crimea and eastern Ukraine were imposed on a number of Russian organizations and individuals by the European Union, the United States, Canada, Japan, Ukraine, Switzerland, Norway, Australia, New Zealand, Iceland, Liechtenstein, Montenegro and Albania.

1 URL: http://www.ved.gov.ru/mdb/information/database/

Table 37

Market protective measures introduced by third countries in respect of goods from the Russian Federation

Restrictive measure	2014	2015	2016	2017	2018	2019	2020
Antidumping duty	40	39	40	43	48	50	51
Special protective duty	9	15	17	13	21	26	23
Compensatory duty	-	1	1	1	1	1	1
TBT measures	9	9	10	15	14	17	17
SFS measures	3	7	11	17	31	38	33
SPS measures	2	3	3	3	6	4	4
Quotas (including tariff quotas)	5	4	5	7	5	4	3
Discriminating excises	4	3	4	6	8	9	12
Bans on imports	5	5	5	8	7	7	8
Threats to introduce measures	25	24	29	30	29	36	51
Other non-tariff measures	102	110	125	143	170	192	203

Source: Restrictive Measures Register as of December of corresponding year.

Domestic market protective measures

The Eurasian Economic Union regulates application of protective measures by Articles 48-50 of the Agreement of May 29, 2014 on the Eurasian Economic Union and by the Protocol on Application of Special Protective Antidumping and Compensatory Measures against Third Countries (Annex No. 8 to the Agreement on the Eurasian Economic Union). At present, 20 protective measures aimed at safeguarding the domestic market are in effect in the EAEU (*Table 38*).

Table 38

The EAEU's domestic market protective measures

No.	Goods	Type of measure TN VED EAEU	Exporter-country	Type of measure
AD-28	Aluminum strip	7606	Azerbaijan; PRC	Antidumping
AD-23	Herbicides	3808	European Union	Antidumping
AD-27	Hot-worked corrosion-resistant seamless pipes	7304	PRC	Antidumping
AD-9	Graphitized electrodes	8545	India	Antidumping
AD-18	Truck tires	4011	PRC	Antidumping
AD-17	Tracked bulldozers	8429	PRC	Antidumping
AD-14	Kitchen appliances and cutlery made from corrosion resistant steel	8211, 8215	PRC	Antidumping

No.	Goods	Type of measure TN VED EAEU	Exporter-country	Type of measure
AD-24	Cast-aluminium wheels	8708	PRC	Antidumping
AD-8	Polymer coated rolled metal products	7210, 7212, 7225	PRC	Antidumping
AD-1	Some types of steel pipes	7304, 7305, 7306	Ukraine	Antidumping
AD-21	Stainless steel pipes	7304	Ukraine	Antidumping
AD-16	Seamless pipes for drilling and operation of oil and gas wells	7304	PRC	Antidumping
AD-26	Galvanized steel sheet	7210, 7212, 7225	PRC	Antidumping
AD-3	Rolling bearings (except needle roller bearing)	8482	PRC	Antidumping
AD-7	Forged steel rolls for rolling mills	8455	Ukraine	Antidumping
AD-13	Wire rods	7213, 7214, 7227, 7228	Ukraine	Antidumping
AD-22	Angle iron	7216, 7228	Ukraine	Antidumping
AD-19	Steel all-rolled wheels	8607	Ukraine	Antidumping
AD-20	Ferrosilicon manganese	7202	Ukraine	Antidumping
AD-11	Cold-deformed seamless stainless steel pipes	7304	PRC; Malaysia	Antidumping

Source: URL:http://www.eurasiancommission.org/ru/act/trade/podm/investigations/Measures.aspx

Bans and import restrictions

International Monetary Fund and World Trade Organization have warned against imposing restrictions on export of medicine and food products because they "can be dangerously counterproductive." The IMF and WTO have stated that such export restrictions "disrupt supply chains, depress production, and misdirect scarce, critical products and workers away from where they are most needed."[1] However, many countries have banned export of medical products needed to combat coronavirus, from personal protective equipment to medicines and artificial lung ventilation apparatuses.

The Eurasian Economic Union member-states also put in place prohibitive measures. In order to stabilize situation triggered by the spread of the COVID-19 virus and shortage of personal protective equipment, the Eurasian Economic Commission collegium decided on March 24 to put in place a temporarily ban on exporting of personal protective equipment, protective agents and disinfectants, products for medical use and materials from the territory of the Eurasian Economic Union.

The list of goods prohibited for export from the customs territory of the Eurasian Economic Union comprises cotton wool, gauze fabric, bandages, masks, half-masks, face respirators, respirators, filters for personal respiratory protective

1 URL: https://www.wto.org/english/news_e/news20_e/igo_15apr20_e.htm

equipment, protective glasses, disinfectants, protective overshoes, certain types of clothing and related accessories, and gloves). This restrictive measure was effective until September 30, 2020.

In August 2014, Russia banned import of certain types of agricultural products, raw materials and foodstuffs from countries that had imposed anti-Russian sanctions. Meat, sausages, fish and seafood, vegetables, fruits, and dairy products were banned. As the sanctions continued, the Russian Federation extended its retaliatory measures. By the Decree No. 2054 of December 9, 2020, the Government of the Russian Federation extended the food embargo until the end of 2021. The list of countries was supplemented by the United Kingdom, since the latter will finally leave the European Union on December 31, 2020 after a one-year transition period.

4.8. Russia's participation in the WTO's trade disputes[1]

The WTO utilizes the trade dispute settlement mechanism in accordance with the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU).[2] As a WTO member, Russia has the right to uphold its trade interests by means of this instrument. The WTO dispute settlement procedure is made up of the following five main consecutive stages[3]:

- *holding of bilateral consultations* (60 days from the day of request for consultations);
- *establishing of a panel* at the request of either party to the dispute and selection of the panelists to consider the case (45 days from the day of request for the panel to be established);
- *work of the panel* (6–9 months from the day of the start of work) and adoption of the panel's report by the Dispute Settlement Body (DSB) and the DSB's recommendations (60 days from the day of issuing of the panel's report);
- *consideration of the case by the Appellate Body (AB)*, in case of appeal by either party to the dispute (60–90 days from the day of appeal), adoption of the report by the Appellate Body of the DSB and announcement of the DSB's recommendations to the parties (30 days from the day of issuing of the Appellate Body Report);
- *the DSB control* over the implementation of recommendations (maximum 15-18 months from the day of adoption by the DSB of the panel's report or the Appellate Body Report).

As of the year-end 2020, Russia participated in 103 WTO disputes: in 8, 9 and 86 disputes as the complainant, the respondent and the third party, respectively.

In most cases, Russia has participated as a principal party to WTO disputes with the EU, Ukraine, as well as the US. As the complainant, Russia is interested in anti-dumping investigations and measures, particularly, concerning the iron and steel

1 This section was written by *Baeva M.*, Researcher of the Center for International Trade Studies, RANEPA; *Knobel A.*, Candidate of Economic Sciences, Director of the Center for International Trade Studies, RANEPA, Director of the Institute of International Economics and Finance, RFTA.
2 URL: https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm
3 URL: https://www.iep.ru/files/text/trends/2019/04.pdf

industry and the chemical industry. Other countries file complaints against Russia regarding technical barriers to trade (TBT) and SPS (sanitary and phytosanitary) and anti-dumping measures affecting trade, tariffs and transit.

As the third party, Russia has participated most commonly in disputes concerning products of the iron and steel industry, the agriculture, the food industry, the motor industry and the aircraft-building industry, as well as RES, wood and articles thereof. A particular attention is paid to the disputes related to anti-dumping investigations and measures, as well as subsidies and countervailing measures. Russia's participation in disputes as the third party is related not only to its substantial trade interest, but also the practice of taking part in specific disputes (particularly, disputes concerning safeguard investigations and measures) and system-based interest in administration of the WTO regulations because Russia stands now and then on positions similar to those of respondents (protection of life and health of individuals and animals).

Though its participation in trade disputes is not that active as compared with other countries and integration associations (primarily, the US, the EU, China and Canada), Russia is amassing experience and taking increasingly more and more advantage of opportunities to promote positioning of its products and companies abroad.

Notwithstanding its current functionality difficulties, the WTO remains a multilateral institution entrusted with important trade monitoring functions and development of new trade rules through negotiating and upholding its members' interests on the basis of the dispute settlement mechanism. Russia should continue to stand for the preservation of the WTO as the pillar of the multilateral trade system and participate in search for the ways out of the dispute settlement crisis.

In 2020, Russia did not initiate any disputes as the principal party. In 2020 Ukraine revoked antidumping measures on ammonium nitrate imports from Russia, having complied with the DSB's recommendations on dispute DS493. The Panel upheld Russia's claims in the dispute with the EU concerning energy cost adjustment methodologies and antidumping measures (DS494). Russia complied with the DSB's recommendations regarding the dispute initiated by Ukraine over the measures affecting the importation of railway equipment and parts thereof (DS499).

In 2020, Russia joined 7 disputes as the third party. Some of those disputes are already over, but it is noteworthy that Russia benefitted (directly or indirectly) from its participation in them.

Let us review below how the situation changed in 2020 regarding WTO trade disputes which Russia participated in:

- as the complainant;
- as the respondent.
- as the third party.

Also, analyzed below is the crisis of the WTO trade dispute settlement mechanism and the effect of the COVID-19 pandemic on it.

4.8.1. Russia as the complainant

DS493: Ukraine – Anti-Dumping Measures on Ammonium Nitrate (Russia)

On May 7, 2015, Russia requested consultations with Ukraine regarding the latter's antidumping measures imposed on ammonium nitrate imports originating from Russia.[1] In summer 2018, the Panel presented the report ruling that Ukraine had carried out anti-dumping investigation with violation of the WTO regulations: instead of taking into account electricity prices from Russian producers, Ukraine used the third parties' prices and applied the so-called "energy cost adjustments." On August 23, 2018, Ukraine filed an appeal against the Panel's ruling and on September 12, 2019 the Appellate Body Report which upheld the Panel's findings was circulated to the parties. On September 30, 2019, the DSB adopted the Appellate Body Report and the Panel's report with recommendations for Ukraine to bring its measures in compliance with the WTO regulations.[2]

On April 8, 2020, the arbitrator determined the reasonable period of 11 months and 15 days for Ukraine to comply with (until September 15, 2020). The anti-COVID-19 measures were regarded by the arbitrator as factors which could affect Ukraine's ability to comply with the recommendations in time. On September 21, 2020, Ukraine revoked its anti-dumping measures.

DS494: European Union – Cost Adjustment Methodologies and Certain Anti-Dumping Measures on Imports from Russia (Russia)

On May 7, 2015, Russia requested consultations with the European Union regarding the cost adjustment methodology used by the EU pursuant to Article 2.3 and Article 2.5 of EU Council Regulation No.1225/2009 of November 30, 2009 on protection against dumped imports from countries not members of the European Community for the calculation of anti-dumping margins in anti-dumping investigations and reviews.[3]

Russia believes that in anti-dumping investigations regarding ammonium nitrate and welded pipes the European Union has breached its WTO obligations because in calculating the cost of production the third countries' electricity prices (cost adjustments) were taken into account instead of those prevailing in Russia and this caused substantial injury to Russian suppliers. By estimates, the EU's measures against Russia have brought virtually to a halt the exports of Russian welded pipes to the EU (the measures have been in effect since 2008), while the exports of ammonium nitrate from Russia to the EU have decreased almost 1.5-fold as compared with 2012 (about $220mn worth of ammonium nitrate exports in 2012).[4] In 2014, the European Union accounted for around 30% of Russian exports of challenged goods (nearly 11% of the European Union's imports of ammonium nitrate and welded pipes).[5]

1 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds493_e.htm
2 URL: https://www.iep.ru/files/text/trends/2019/04.pdf
3 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds494_e.htm
4 URL: Russia filed a complaint to the WTO against Ukraine and the European Union // http://www.wto.ru/2015/05/07/
5 URL: https://www.iep.ru/files/text/trends/2018/04.pdf

On July 24, 2020, the Panel's report was circulated. As regards Russia's claim *"as such"* in respect of the cost adjustment methodology, the Panel determined that Russia demonstrated the existence of this methodology, as well as its general application and noted that the EU was not able to identify any instance of non-application thereof. The Panel came to the conclusion that the alleged unreasonableness of costs did not constitute an adequate or sufficient basis to conclude that the records of the investigated producers did not reasonably reflect the costs related to the production and sale of the product concerned with the meaning of Article 2.2.1.1 (Determination of Dumping) of the Anti-Dumping Agreement. Also, the Panel upheld Russia's claim that the cost adjustment methodology was inconsistent with Article 2.2 of the Anti-Dumping Agreement, by providing for the use of out-of-country input price information without establishing whether such information was adequate to reflect the cost of production in the country of origin.

As regards Russia's "as applied" claim regarding the expiry of the validity period of anti-dumping measures on welded pipes, the Panel determined that the EU's measures were inconsistent with Article 2.2.1.1. of the Anti-Dumping Agreement because the EU rejected the costs specified in Russian producers' records. The panel came to the conclusion that the EU violated Article 2.2.1 of the Anti-Dumping Agreement because in its ordinary-course-of-trade determination the EU had relied on costs that were calculated on the wrong basis inconsistent with the abovementioned article. The Panel ruled that the European Union violated Article 11.3 (Duration and Review of Anti-Dumping Duties and Price Undertakings) by basing its conclusion that dumping was likely to reoccur on costs of production calculated on the wrong basis.

As regards Russia's "as applied" claim regarding the third review of anti-dumping measures on ammonium nitrate, the Panel disagreed with Russia that the European Union violated Article 11.3. of the Anti-Dumping Agreement, having determined that there was a likelihood of recurrence of dumping and injury if the anti-dumping measures lapsed. However, the Panel upheld some of Russia's "as applied" claims.

The Panel did not agree that the EU Baseline Regulation on Anti-Dumping Measures "as such" violated the WTO rules. The Panel disagreed that the EU Regulation required the use of only "representative" prices in the construction of the normal value of the like product and introduced an additional condition which was not provided for by Article 2.2 of the WTO Anti-Dumping Agreement permitting the authorities to use alternative methods in determining the normal value. The Panel decided that though Article 2 (5) did not require adapting out country information to arrive at the cost of production in the country of origin, it was not sufficient to render the challenged provision inconsistent "as such" with Article 2.2 of the Anti-Dumping Agreement.

On August 28, 2020, at the very end of the validity period the European Union filed an appeal against the Panel's ruling, thus actually putting the dispute on hold with the ruling, so important to Russia, in favor of the respondent on most claims. In response, Russia filed a cross- appeal on September 2, 2020.

DS521: European Union – Anti-Dumping Measures on Certain Cold-Rolled Flat Steel products from Russia (Russia)

On January 27, 2017 Russia requested consultations with the European Union concerning anti-dumping measures imposed by the European Union on certain cold-rolled flat steel products from Russia.[1] In 2016, the exports of challenged products from Russia to the European Union decreased by 84% as compared with 2015; the share of these exports in the overall exports of these products fell from 46% in 2015 to 10% in 2016.[2] The following anti-dumping duties of 34%,18.7% and 36.1% were introduced against Russian producers PAO Severstal, OAO MMK and PAO NLMK and others, respectively. This dispute is the example of Russia's challenging the "cost adjustment" practice applied in anti-dumping investigations where the information from Russian producers is substituted for that from the third countries despite the fact that the European Union has recognized Russia's market economy status. On March 13, 2019 Russia requested the DSB to establish a Panel and it was done on April 26, 2019. Some countries which joined the dispute as the third parties upheld the complainant's position, while others (Ukraine had a similar dispute with Russia resolved in favor of the latter late in September 2019 (DS493)), the respondent's.[3]

On March 16, 2020 the Panel was composed. In the light of the COVID-19 pandemic and complexity of the dispute the Panel does not expect to issue the report before July 2021.

4.8.2. Russia as the respondent

D475: Russian Federation – Measures on the Importation of Live Pigs, Pork and Other Pig Products (European Union)

Early in April 2014 the European Union requested consultations with Russia concerning the ban on imports of pork and live pigs from all EU member-states because of concerns related to cases of African Swine Fever (ASF) and imposition of restrictions on supplies of all types of prefabricated pork products from Poland and Lithuania.[4]

On June 27, 2014 the European Union asked the DSB to establish a Panel and it was done a month later. On August 19, 2016, the Panel presented the report with the ruling that the measures were inconsistent with the standards of the OIE (the World Organization for Animal Health) and introduced in violation of the WTO agreement on SPS measures. It was stated that the Russian Federation did not properly evaluate the risk on the scientific basis for adapting the regionalization principle to carry out trade with individual regions of a country which were recognized pest-or disease free if the situation was unfavorable in the rest of that country. On the contrary, Russia introduced the EU-wide ban on all imports of pork and live pigs. The Panel noted that Russia's measures were discriminatory

1 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds521_e.htm
2 UN COMTRADE database. URL: http://comtrade.un.org/
3 URL: https://www.iep.ru/files/text/trends/2019/04.pdf
4 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds475_e.htm

and constituted a disguised restriction on trade. On September 23, 2016, Russia filed an appeal against some issues and legal interpretations in the Panel's report. On September 28, 2016, the European Union filed a cross appeal. On February 23, 2017, the Appellate Body issued the report which upheld the Panel's findings regarding imports of pig products from the EU. The Appellate Body agreed with the Panel's findings that such a total ban was a measure introduced by Russia, while the conditions of Russia's joining the WTO did not include any restrictions on evaluation by the Panel of the European Union's claims concerning the ban.[1] Overall, the Appellate Body upheld the Panel's findings and the DSB issued recommendations to Russia to bring its measures in compliance with the WTO regulations. On April 19, 2017, Russia declared that it would comply with the DSB's recommendations, but it needed a reasonable period of time to do it. On June 2, 2017, Russia and the European Union agreed on the reasonable period of 8 months and 15 days from the day of adoption of the Appellate Body Report. The period expired on December 6, 2017 and Russia had complied with the DSP's demands by that time: Russia lifted the EU-wide ban on the importation of pork, live pigs and other pig products because of the outbreak of African Swine Fever, except for administrative territories specified in the relevant list and approved the agreed upon EU-Russia bilateral veterinary certificates. The Ministry of Economic Development of the Russian Federation declared that the food import ban introduced in response to the EU's sanctions was still in effect.[2] This ban is not a measure at dispute. According to the EU, Russia failed to comply in full the DSB's recommendations and in the light of this on December 19, 2017 the European Union requested counter measures to be introduced in terms of suspension of rebates and obligations worth euro 1.39 bn a year (respective exports in 2013) with an annual increase of 15%. Russia disagreed and the panel was appointed on January 3, 2018.[3] In autumn 2018, the panel (made up of experts of the previous panel) was established to verify Russia's compliance with the DSB's recommendations. On January 28, 2020, the Panel granted the European Union's request of January 24, 2020 to suspend the work pursuant to Article 12.12 (Panel Work Procedure) of the DSU. The Panel's authority lapsed on January 28, 2021.

DS499: Russia– Measures Affecting the Importation of Railway Equipment and Parts Thereof (Ukraine)

On October 21, 2015 Ukraine requested consultations with Russia concerning the measures imposed on the importation of railway equipment and parts thereof (particularly, rolling stock and railroad switches)[4].

Ukraine claims that Russia has suspended certificates of conformity issued to suppliers of Ukrainian railway products and rolling stock before the entry in force of the new technical regulations and rejected requests for new certificates to be issued. Ukraine claims that Russia discriminates against products of the

1 URL: http://pticainfo.ru/news/?ELEMENT_ID=53214
2 URL: https://www.rbc.ru/rbcfreenews/5a27ccc99a79474b20fce4f8
3 URL: https://www.iep.ru/files/text/trends/2018/04.pdf
4 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds499_e.htm

Ukrainian origin as compared with the like products from other WTO member-states and Russia. These measures led to excessive restrictions on international trade and Russia failed to respond to Ukraine's request to explain the reasons for adopting these measures. Ukraine believes that the Russian competent authorities have breached some conformity assessment procedures. The authorized bodies' conformity assessment requirements were in excess of those in respect of the information and amount of payment. On July 30, 2018, the Panel, which started its work early in March 2017, issued the report. The Panel disagreed with Ukraine's claims that Russia's violations were systematic. At the same time, the Panel agreed that Russia's requirement was discriminatory against Ukrainian products, individual decisions on refusal to issue certificates were in excess of the standard requirements of the conformity assessment procedure and assessment results were not properly communicated to the applicants.[1] Late in August, Ukraine filed an appeal, while Russia did it early in September 2018.[2]

On February 4, 2020, the Appellate Body issued a report in which it rejected Russia's claim that the Panel had erred in its preliminary ruling. In particular, the Appellate Body ruled that the Panel had analyzed properly the linkage between the measures challenged by Ukraine and the WTO provisions allegedly infringed. The Appellate Body agreed with the Panel that Ukraine had properly identified the measures in its request.

Russia put forward some claims pursuant to Article 11 (the Panel's Functions) of the DSU regarding the Panel's findings in respect of the requirement that the Russian authorities should not recognize certificates issued in other EEU member-states if certified railway products were not manufactured in the EEU member-states. The Appellate Body rejected these requirements. It ruled, in particular, that the review of this measure was within the Panel's competence.

As regards Ukraine's claims, the Appellate Body agreed with the Panel that the assessment of whether access was granted on conditions no less favorable than "in a comparable situation" within the meaning of Article 5.1.1. (Procedure for Assessment of Conformity by Central Government Bodies) of the Agreement on Technical Barriers in Trade (TBT) should focus on factors having a bearing on conditions of granting access to conformity assessment and the ability of the regulating Member to ensure compliance with the requirements in the underlying technical regulation or standard. In examining factors relevant for establishing the existence of a "comparable situation" in the particular circumstances of this case, the Panel did not focus sufficiently on the aspects specific to the suppliers who had been granted access under less favorable conditions and instead relied on information concerning the security situation in Ukraine in general. Accordingly, the Appellate Body reversed the Panel's application of Article 5.1.1 to the facts of this case.

The Appellate Body disagreed with the Panel that it was for Ukraine to establish that there had been any non-conformities or consumer complaints relating to products at issue. The Appellate Body found that Ukraine failed to demonstrate

1 URL: http://www.vavt.ru/materials/site/BE758A6F
2 URL: https://www.iep.ru/files/text/trends/2018/04.pdf

that Russia systemically prevented the importation of Ukrainian railway products into Russia.

On March 5, 2020, the DSB adopted the Appellate Body Report and the Panel's report. On March 19, 2020, Russia notified that it revoked certain requirements for recognition of conformity assessment procedures and informed relevant Ukrainian producers of requirements they should comply with to obtain a certificate of conformity, having implemented the DSB's recommendations. On March 23, 2020, Ukraine asked the DSB to request Russia to elaborate on the requirements Ukrainian producers had to comply with in order to obtain the certificates of conformity, in particular, those related to the safety of the employees of the certification body. Ukraine also noted that it believed that the issue of the implementation of the DSB's rulings and recommendations could be considered only after receiving and analyzing the requested information.

Table P.1 of the Annex presents WTO disputes which Russia is a principal party to.

4.8.3. Russia as the third party

As of the year-end of 2020, Russia is participating or participated as the third party in 86 WTO trade disputes (*Table. P.2* of the Annex) of which about 37.2% of the disputes ended up one way or another, while in 44.2% of the disputes the main dispute settlement procedures were completed.

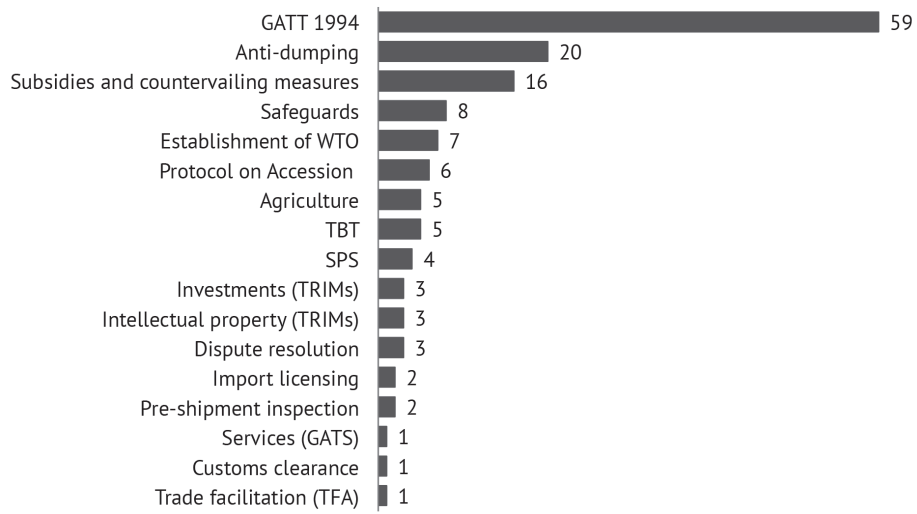


Fig. 36. The subject matter of the WTO disputes which Russia joined as the third country

Source: based on the WTO website's official data: URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds462_e.htm

In 2020, Russia joined 7 disputes: 3 disputes on tariffs, 1 dispute on anti-dumping measures, 1 dispute on safeguard measures and 1 dispute on export restrictions. It often happens that some technically different disputes initiated by different complainants are related with the respondent's one and the same measures.

Russia joins more often the disputes on measures affecting agricultural and food products, the iron-and-steel industry, the motor industry, the aircraft-building industry, the chemical industry, wood and articles thereof and renewable energy sources (RES). As regards agreements which cover the disputes Russia has joined as the third party (one dispute normally covers several agreements), *Fig. 36* presents the relevant breakdown of the subjects of disputes. Generally, most disputes relate to GATT, as well as the Anti-Dumping Agreement and subsidies and countervailing measures. Also, Russia takes interest in the instances of the violation of the Agreement on Safeguards and the Agreement on Establishing the World Trade Organization.

We shall review 7 disputes (on 5 measures at dispute) which Russia joined to as the third party in 2020.

DS582, DS588: India – Tariff Treatment on Certain Goods in the Information and Communications Technologies Sector (EU, Chinese Taipei), DS584: India – Tariff Treatment on Certain Goods (Japan)

On April 2, 2019, May10, 2019 and September 2, 2019, the European Union[1], Japan[2] and Chinese Taipei,[3] respectively, requested consultations with India regarding the tariff treatment which India allegedly accorded to certain goods of the information and communications technologies sector (ICT).

When joining the WTO, India determined the ad valorem duty rate at 0% in respect of the abovementioned tariff items. However, India applies the duty of up to 20% to the importation of these goods depending on the tariff item and, hence, exceeds the bound rate. The complainants believe that these measures are inconsistent with Article II:1 (a) and Article II:1 (b) (Schedule of Concessions) GATT 1994.

On February 17, 2020 the EU requested the establishment of a Panel, on June 29, 2020 it was established and on August 31, 2020 the panelists were selected. On March 24, 2020, Chinese Taipei requested the establishment of a panel, on July 29, 2020 it was established and on August 31, 2020 the panelists were selected. On March 19, 2020, Japan requested the establishment of a panel, on July 29, 2020 it was established and on October 7, 2020 the panelists were appointed.

Russia's participation in this dispute is determined by its priority policy in the ICT sector, as well as its interest in reviewing disputes regarding the raising of tariffs above the bound levels. The trade interest in challenged goods is not very high: based on the data of 2019 Russia's share of these goods in the overall Russian exports to India is equal to about 1.4%, while in Indian imports, to 0.1%[4].

1 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds582_e.htm
2 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds584_e.htm
3 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds588_e.htm
4 UN COMTRADE database. URL: http://comtrade.un.org/

DS590: Japan – Measures Related to the Exportation of Products and Technologies to Korea (Republic of Korea)

On September 11, 2019 the Republic of Korea requested the DSB for consultations with Japan regarding certain measures, including licensing policies and procedures adopted by Japan allegedly restricting exports of fluorinated polyimide, resist polymers and hydrogen fluoride, as well as their related technologies destined for Korea.[1] Those products are used primarily in the production of smartphones, TV displays and semiconductors. On July 1, 2019, the Ministry of Economy, Trade and Industry of Japan declared that it would apply tougher licensing requirements and procedures to the exportation of products and technologies under review if they were destined for Korea. The complainant believes that these measures are inconsistent with Article I (General Most-Favored-Nation Treatment), Article VIII (Fees and Formalities Connected with Importation and Exportation), Article X (Publication and Administration of Trade Regulations), Article XI:1 (General Elimination of Quantitative Restrictions), Articles XIII:1, XIII:5 (Non-Discriminatory Administration of Quantitative Restrictions) and Article XXIII:1 (b) (Elimination and Reduction of Concessions) GATT 1994; Article 2 (Opportunity to Comment, Information Before Entry into Force and Consultations), Article 6 (Disciplines on Fees and Charges Imposed on or in Connection with Importation and Exportation and Penalties), Article 7 (Release and Clearance of Goods), Article 8 (Border Agency Cooperation) and Article 10 (Formalities Connected with Importation, Exportation and Transit) of the Trade Facilitation Agreement (TFA); Article 2 (National Treatment and Quantitative Restrictions) of the Agreement on Trade-Related Investment measures (TRIMs); Article 3.1 (National Treatment), 4.1 (Most-Favored-Nation Treatment) and Article 28.2 (Rights Conferred) TRIMs; Article VI:1 and Article VI:5 (Domestic Regulation) GATS; Article XVI:4 (Market Access) of the Agreement Establishing the World trade Organization.

On June 18, 2020, Korea asked the DSB to establish a panel and on July 29, 2020 it was established.

Russia's participation in this dispute can be explained by the importance of the importation of goods and technologies for the production of smartphones, TV displays and semiconductors, as well as interest in reviewing the discipline of disputes regarding relevant restrictions.

DS591: Columbia – Anti-Dumping Duties on Frozen Fries from Belgium, Germany and the Netherlands (EU)

On November 15, 2019, the EU requested consultations with Columbia regarding anti-dumping duties imposed by Columbia on imports of potatoes, prepared or preserved (otherwise than by vinegar or acetic acid), frozen (frozen fries) originating in Belgium, the Netherlands and Germany.[2] The EU claims that Columbia has carried out the anti-dumping investigation and introduced measures which are inconsistent with Article 1 (Principles), Articles 2.1, 2.4, 2.4.1, 2.6 (Determination of Dumping), Articles 3.1, 3.2, 3.4, 3.5, 3.6, 3.7, 3.8 (Determination of

1 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds590_e.htm
2 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds591_e.htm

Injury), Articles 5.1, 5.3, 5.4, 5.8 (Initiation and Subsequent Investigation), Articles 6.1.2, 6.2, 6.4, 6.5, 6.5.1, 6.8 , 6.9 (Evidence), Articles 9.1, 9.2, 9.3 (Imposition and Collection of Anti-Dumping Duties), Article 11.1 (Duration and Review of Anti-Dumping Duties and Price Undertakings), Articles 12.2, 12.2.2 (Public Notice and Explanation of Determinations), Article 18.1 (Final Provisions) and Cl. 3 and Cl. 6 of Annex II (Best information Available in Terms of Paragraph 8 of Article 6) of the Anti-Dumping Agreement; Article 10 (Confidentiality of Information) of the Customs Valuation Agreement; Article VI (Anti-Dumping and Countervailing Duties) GATT 1994. In particular, Columbia failed to rely on the proper source of information on export prices from Belgium, Germany and the Netherlands and determined the export price of the investigated products on the basis of the DIAN database of prices of all exporting producers, rather than on the basis of the information on export prices from the producers under that investigation. In the light of this, Columbia set incorrectly the dumping margin too high and did not exclude the sampling from the calculation of the specific producer's dumping margin. The complainant believes that Columbia has erroneously included in the field of use of the product under investigation both traditionally frozen fries and frozen delicacies and failed to apply "the like product" term. There were other violations, too.

On February 17, 2020, the European Union requested the establishment of a panel, on June 29, 2020 the Panel was established and on August 24, 2020 the panelists were selected.

Russia takes interest in principle in disputes related to safeguard measures, particularly anti-dumping measures, both in terms of the existence of trade interest and the practice of participation in such disputes and reviewing the administration of the WTO's relevant regulations because plenty of similar measures have been imposed on Russia, too, and affect seriously Russian exports. The procedure for substitution of the data from the exporters under the anti-dumping investigation for the data of producers from the third countries is challenged by Russia, in some disputes (disputes DS474, DS494 and DS521 with the EU; dispute DS493 with Ukraine, and dispute DS586 with the US).

DS593: EU – Certain Measures Concerning Palm Oil and Oil Palm Crop-Based Biofuels (Indonesia)

On December 9, 2019, Indonesia sent a request to the DSB for consultations with the EU regarding certain measures imposed by the EU and its member-states concerning palm oil and oil palm crop-based biofuels from Indonesia.[1] In particular, it concerns Directive No.2009/28 of the European Parliament and of the Council of April 23, 2009 on the promotion of the use of energy from renewable sources as amended (the so-called RED I), as well as Directive No.2018/2001 of the European Parliament and of the Council of December 11, 2018 on the promotion of the use of energy from renewable sources (recycling) (RED II). For example, RED II sets the new target of at least 27% for renewable energy sources consumption in the European Union by 2030; the relevant rules of the calculation of the share

1 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds593_e.htm

of energy from renewable sources and the model of reduction of the maximum share of biofuels and bioliquids produced from food and forage crops starting from 2021 allow the EU member-states to set lower limits and differentiate various types of biofuels and bioliquids. The complainant believes that these measures are inconsistent with Article 2 (Preparation, Adoption and Application of Technical Regulations by Central Government Bodies), Article 5 (Procedures for Assessment of Conformity by Central Government Bodies), Article 12 (Special and Differential Treatment of Developing Country Members) of the Agreement on Technical Barriers in Trade (TBT); Article I:1 (General Most-Favored-Nation Treatment), Article III:4 (National Treatment on Internal Taxation and Regulation), Article X:3 (a) (Publication and Administration of Trade Regulations) and Article XI:1 (General Elimination of Quantitative Restrictions) GATT 1994 and Article 3.1 (b) (Prohibition) and Article 5 (Adverse Effects) of the Agreement on Subsidies and Countervailing Measures.

On March 18, 2020, Indonesia requested the establishment of a panel, on July 29, 2020 the Panel was established and on November 12, 2020 the panelists were selected.

In February 2018, Indonesia won the dispute with the European Union regarding anti-dumping measures on biodiesel (DS480), which Russia joined as the third party. Russia's interest in such disputes can be explained, in particular, by the development of renewable sources both in the country and globally.

DS595: European Union – Safeguard Measures on Certain Steel Products (Turkey)

On March 13, 2020, Turkey requested consultations with the European Union concerning safeguard measures imposed by the EU on imports of certain steel products and investigations that led to the imposition of those measures.[1] Turkey declared that the investigation and the imposed measures were inconsistent with Article 2.1 and Article 2.2 (Conditions), Article 3.1 (Investigation), Articles 4.1(a), 4.1 (b), 4.1 (c), 4.2, 4.2 (a), 4.2 (b), 4.2 (c) (Determination of Serious Injury or Threat Thereof), Articles 5.1, 5.2 (Application of Safeguard Measures), Article 6 (Provisional Safeguard Measures), Articles 7.1, 7.4 (Duration and Review of Safeguard Measures) and Article 9.1 (Developing Country Members) of the Agreement on Safeguards; Article I:1 (General Most-Favored-Nation Treatment), II:1 (b) (Schedules of Concessions), XIII:1, XIII:2 (Non-Discriminatory Administration of Quantitative Restrictions) and Article XIX:1 (a) (Emergency Action on Imports of Particular Products) of GATT 1994. In particular, the complainant believes that the European Union's investigation failed to make accurate findings regarding unforeseen events and the way they led to growth in the importation of the relevant products creating a threat of injury to domestic producers, identify correctly the categories of products and other. The European Union imposed the final safeguard measure on steel products in terms of tariff quotas on February 2, 2019. Tariff quotas are determined in respect of each out of 26 commodity groups

1 URL: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds595_e.htm

of steel products subject to that measure. A duty of 25% is imposed on shipments above the imposed quotas.[1]

On July 16, 2020, Turkey requested the establishment of a panel, on August 28, 2020 the Panel was established and on September 29, 2020 the panelists were selected.

Russia's participation in the dispute can be explained by its substantial trade interest (in 2019 the exports of commodity groups 72 and 73 from Russia to the EU accounted for 28.3% and 12.9% of Russia's overall exports of these commodity groups, respectively, while the EU's overall imports of these commodity groups, for 3.6% and 0.4%, respectively[2]), as well as the fact that these safeguard measures are aimed against all countries, including Russia and affect seriously Russian exporters.

DS597: United States – Origin Marking Requirement (Hong Kong)

On October 30, 2020, Hong Kong requested consultations with the United States regarding certain measures concerning the origin marking requirement applicable to goods purchased in Hong Kong.[3] On August 11, 2020, the US Customs and Border Protection (USCBP) published a notice that after September 25, 2020 (later the deadline was postponed to November 10, 2020) goods produced in Hong Kong needed a marking which specified that their origin was "China." In Hong Kong's opinion, these US measures violated GATT 1994 because in respect of the importation rules and formalities related to origin marking the Unites States applied a more discriminatory treatment of goods from Hong Kong than similar goods from other countries; the Unites States did not apply their origin marking requirements on a consistent, unprejudiced and reasonable basis. Hong Kong believed that the measures violated Article 2 (Disciplines during the Transition Period) of the Agreement on Rules of Origin because:

- in respect of goods produced in Hong Kong, the United States requested compliance with a certain requirement not related to manufacturing or processing as a preliminary condition for determination of the country of origin;
- the United States made a distinction between Hong Kong and China and other members as regards the rules of origin which it applied to the importation of goods;
- the United States did not apply their rules of origin in a consistent, equal, unprejudiced and reasonable way.

Further, these measures did not comply with Article 2.1 (Preparation, Adoption and Application of Technical Regulations by Central Government Bodies) of the Agreement on Technical Barriers in Trade as origin marking requirements applied by the United States to the importation of goods were technical regulations and in respect of these technical regulations the United States extended less favorable

1 Based on the Register of Safeguard Measures of the Ministry of Economic Development of the Russian Federation: URL: https://www.economy.gov.ru/material/directions/vneshneekonomicheskaya_deyatelnost/dostup_na_vneshnie_rynki_i_zashchitnye_mery/reestr_ogranich_mer/

2 UN COMTRADE database. URL: http://comtrade.un.org/

3 https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds597_e.htm

regime to goods from Hong Kong than those afforded to similar goods produced in other countries.

On November 9, 2020, the United States expressed their readiness to start consultations with Hong Kong, however, in the US view the measures imposed concerned issues of national security not susceptible to review or capable of resolution by WTO dispute settlement.

On November 13, 2020, the Russia Federation requested to join the consultations. On November 19, 2020, the United States requested the Chair of the DSB to circulate a communication where it rejected the Russian Federation's request to join the consultations. The Russian Federation's intension to participate in this dispute was justified by the practice of participation in disputes concerning the rules of origin, as well as disputes where respondents referred to issues of national security not susceptible to review by the WTO. Also, participation in this dispute would be important to the Russian Federation in terms of the Republic of Crimea's exports and relevant sanctions imposed by other countries, including the United States in respect of goods originating from this Russian region. Probably, this was the reason for which the United States rejected the Russian Federation's request to join the consultations.

4.8.4. The crisis of the WTO dispute settlement mechanism and the COVID-19 pandemic

In the past few years, the multilateral trade system has encountered certain problems. In 2020, the WTO faced the crisis caused by the COVID-19 pandemic amid its internal crisis: the crisis of the Appellate Body; transparency problems; complexity of negotiations; painful agenda issues; trade wars and "unfair trade practices" and other. Due to COVID-19 the WTO:

- has suspended face-to-face meetings;
- has postponed the 12th Ministerial Conference in Nur-Sultan to June 2021;
- partially fulfills its current work (some working bodies hold only online meetings);
- notifies its member-states of new trade policy measures (aimed at restricting or promoting trade) on a specially designed and regularly updated web-page of its official website;
- carries out in the online mode an exchange of views and the development of trade policy guidelines during the pandemic and publishes its member-states' statements on a regular basis;
- instructed its Secretariat to carry out additional monitoring (apart from collection of notifications) of trade policy measures on goods and services amid the pandemic, as well as the analysis of various trends in trade and pandemic-related effects on trade.

Alan Wolff, WTO Deputy Director-General has called on WTO member-states to discuss specific reforms within the WTO, particularly, the rebuilding of trust to the WTO and elimination of export restrictions on essential medicines and medical products.[1]

1 URL: https://www.wto.org/english/news_e/news20_e/ddgaw_30oct20_e.htm

With the US blocking for long the decisions on the appointment of new members of the Appellate Body on grounds that radical reforms are needed, the WTO dispute settlement system has found itself in a difficult situation where the Appellate Body's work is actually suspended. The US believes that the Appellate Body exceeds its authorities and creates for member-states rights and obligations which are not provided for by the WTO's existing regulations. Another issue is the violation of deadlines for reviewing appeals. Plenty of WTO member-states agree that reforms are needed and believe that there are the following ways out of the crisis related to the Appellate Body:[1]

- the internal reform of the Appellate Body: change in the number of arbitrators, deadlines for implementation by them of their duties, deadlines for publication of reports and advisory proceedings options;
- parties' appeal waiver, that is, the recognition of the Panel's ruling as final and not subject to appeal. Take, for example, the agreement between Indonesia and Vietnam, the agreement between Indonesia and Chinese Taipei and the agreement between the US and Korea on the sequence of actions in case of appeal against the findings of the review of the dispute concerning the US compliance with the DSB's recommendations (as per Article 21.5 of the DSU: the parties to the dispute agreed not to challenge that ruling. If the parties agree later on arbitration proceedings within the framework of Article 25 of the DSU instead of appeal, the agreement will be amended);
- formation of a provisional alternative mechanism of arbitration proceedings (as per Article 25 of the DSU), which will function as the appeal body for a small group of countries (special agreement member-states) and make the final ruling on the case. This model was upheld by about 20 WTO member-states, including the European Union and China; the relevant agreement (MPIA) became effective in April 2020.[2]

Late in October 2020, the European Parliament and the Council of the European Union came to an agreement on the ways of administration of panel rulings made in favor of the EU: if the losing party files an appeal to the actually non-working Appellate Body and blocks further arbitration proceedings, the EU legislation provides for retaliatory measures to be introduced. After the agreement has been considered by the European Parliament Committee on International Trade, amendments to the Regulations of 2014 will be put to a vote at the European Parliament's plenary session and then be approved by the Council of the European Union.[3]

Late in October 2020, Alan Wolff, WTO Deputy Director-General put forward concrete proposals on the provisional solution of long-standing issues related to the WTO trade dispute settlement mechanism: in initiating a dispute within the

1 The Monitoring of Topical Developments in the International Trade. Issue No.43 (February) 2020. URL: http://www.vavt.ru/materials/site/5a32971b3b2f3d0c4325850c0030df55/$file/Monitoring_43.pdf
2 URL: https://trade.ec.europa.eu/doclib/press/index.cfm?id=2176
3 URL: https://www.europarl.europa.eu/news/en/press-room/20201024IPR90124/agreement-on-stronger-eu-countermeasures-in-trade-disputes

WTO before the panel has been established it is necessary to agree with the other party to the dispute that[1]:

- either the Panel's ruling will be deemed final;
- or further consideration of the dispute will be in accordance with arbitration proceedings as specified in the alternative scheme (for example, MPIA).

But how to convince countries to assume such obligations? We believe that Russia should upheld Alen Wolff's proposal or work out its own proposal. It is necessary in terms of freezing the disputes important to Russia at the stage of work of the Appellate Body, particularly, the disputes with the EU concerning energy cost adjustments in which the Panel upheld Russia's main claim (DS494). Probably, to overcome the crisis the Appellate Body should rely less on consensus as a decision-making instrument (in other words, it should promote the role of special opinions within the Appellate Body), raise the issue of changing the rulings' precedent-setting nature typical of the previous practice, upgrade the standard of panel experts' expertise and call for compliance with recommended deadlines.

The WTO regulations grant the WTO member-states a broad variety of opportunities to take trade measures which are deemed necessary to protect public health and wellbeing (including prohibition of/quantitative restrictions on imports and exports and non-automatic licensing of imports) in case of emergency situations in the international trade. The main principles are as follows[2]:

- trade measures imposed by WTO member-states should not be discriminatory (the non-discrimination principle);
- trade measures should not be disguised restrictions on the international trade (they should be adequate and proportionate);
- the WTO member-states should notify all their partners of any new or modified requirements affecting the trade (notifications).

As regards social programs intensified because of the pandemic, for example, cash benefits for children, they have nothing to do with international trade regulations, that is, the WTO. As regards the support of the private sector during the COVID-19 pandemic, different countries applied a broad range of such measures. Russia supports its businesses during the pandemic no more than other countries do. Micro, small and medium enterprises (MSME) are broadly represented in the hardest-hit sectors; by virtue of their size, MSME are less sustainable and flexible to various shocks. In the years to come, experts predict a surge in countervailing investigations and measures owing to growing protectionism, trade wars and effects of the coronavirus pandemic. For example, the US has been carrying out anti-dumping and countervailing investigations regarding Russian seamless carbon and alloy tubes since July 2020.[3]

1 URL: https://www.wto.org/english/news_e/news20_e/ddgaw_30oct20_e.htm
2 *Bayeva M.*, *Knobel A.* (2020) Trade Restrictions During the Coronavirus Pandemic and their Conformity with the WTO Regulations // Russia's Economic Development, Issue No.9. pp. 32–38: URL: http://edrussia.ru/archive/2020/1184-09-2020
3 The Review of the Existing Restrictions on Access of Russian Goods to Foreign Markets: URL: http://www.ved.gov.ru/rus_export/torg_exp/

Annex

Table P.1

WTO trade disputes which Russia participated in as the principal party (complainant or respondent)[1]

Dispute	Subject of Dispute	Current Status (as of year-end 2020)
	As complainant	
DS474: EU – Cost Adjustment Methodologies and Certain Anti-Dumping Measures on Imports from Russia (23.12.20132)	Cost adjustments in anti-dumping investigations for calculation of dumping margin (EU ignored information on costs and prices from Russian producers and exporters). EU verified expiry of term of anti-dumping measures without sufficient data on continuation of dumping and injury.	Selection of panelists (July 22, 2014). Dispute actually passed over to another dispute – see second complaint (DS494).
DS476: EU – Certain Measures Relating to Energy Sector (April 30, 2014)	EU Third Energy Package: gas-producing companies cannot be owners of major pipelines situated in EU. Operating-companies controlled by foreign entities have to pass a special certification procedure.	Work of Appellate Body (September 21, 2018). Appellate Body's work is actually frozen
DS493: Ukraine – Anti-Dumping Measures on Ammonium Nitrate (May 07, 2015)	In anti-dumping investigation on ammonium nitrate, Ukraine failed in calculation of cost of production to take into account Russian electricity prices provided by producers; instead, Ukraine used third parties' prices (energy cost adjustments).	Respondent complied with DSB's recommendations (measures revoked) (September 21, 2020).
DS494: EU – Cost Adjustment Methodologies and Certain Anti-Dumping Measures on Imports from Russia (May 07, 2015)	In anti-dumping investigation on seamed tubes and ammonium nitrate from Russia, for calculating dumping margin EU took third countries' prices (energy cost adjustments) instead of taking into account data on costs and prices from producers and exporters.	Work of Appellate Body (August 28, 2020). Appellate Body's actual work is actually frozen.
DS521: EU – Anti-Dumping Measures on Cold Rolled Flat Steel Products from Russia (January 27, 2017)	In anti-dumping investigations, data from Russian producers is ignored by EU and replaced by unsubstantiated data and incorrect calculations.	Work of Panel (March 16, 2020)
DS525: Ukraine – Measures Relating to Trade in Goods and Services and Transit (19.05.2017)	Comprehensive complaint on Ukrainian measures on trade in goods and services from Russia	In consultations (May 19, 2017)
DS554:US – Certain Measures on Steel and Aluminum Products (June 29, 2018)	Russia believes that in autumn 2018 US introduced measures on steel and aluminum products in violation of GATT 1994 and Agreement on Safeguards: US granted favorable terms on discriminatory basis, introduced measures on importation by means of quotas in addition to duties, taxes or other levies, failed to justify extraordinary measures and notify in writing within shortest time limits possible and dodged consultations.	Work of Panel (January 25, 2019)

1 The updated table. See URL: https://www.iep.ru/files/text/trends/2019/04.pdf
2 Specified in brackets is the date of request for consultations

Dispute	Subject of Dispute	Current Status (as of year-end 2020)
DS586: Russia – Anti-Dumping Measures on Carbon Quality Steel from Russia (US, July 05, 2019)	Russia believes that US failed to calculate correctly fair value and dumping margin for all known exporters and producers, as well as cost of production of goods at dispute, substantiate properly need of further administration of measures and terminate them; on contrary, US expanded range of measures and refused to rely on data from Russian exporters.	In consultations (July 05, 2019)
As respondent		
DS462: Russia – Recycling Fee on Motor Vehicles (EU, July 09, 2013)	Additional payments (recycling fee) on imported motor vehicles, while domestic motor vehicles are exempted from them subject to certain conditions. In calculating fee, there is great difference in fee size for new and used vehicles.	Selection of panelists (November 25, 2013). Dispute inactive
DS463: Russia – Recycling Fee on Motor Vehicles (Japan, July 24, 2013)	Additional payments (recycling fee) on imported motor vehicles, while domestic motor vehicles are exempted from them subject to certain conditions.	In consultations (July 24, 2013). Dispute inactive
DS475: Russia – Measures on Importation of Live Pigs, Pork and Other Pig Products (EU, April 08, 2014)	Prohibition on importation of live pigs, pork and pork products from EU is disproportionate measure because there were just few insignificant cases of wild hogs' contamination with African Swine Fever in areas close to border with Belarus and situation was promptly localized. EU challenges that Russia carries out regionalization of territory .	Dispute suspended (January 28, 2020). Panel on verification of compliance with DSB's recommendations suspended its work at EU's request. Panel's authorities expired on January 28, 2021.
DS479: Russia – Anti-Dumping Duties on Light Commercial Vehicles from Germany and Italy (EU, 21.05.2014)	Russia's procedure for carrying out anti-dumping investigations and determination of dumping margin on light commercial vehicles is in conflict with WTO regulations in establishing fact of dumping and injury, evidence, definition of industry, public notice and substantiation of decisions.	Respondent complied with DSB's recommendations (measures revoked) (June 20, 2018).
DS485: Russia – Tariff Treatment on Agricultural and Manufacturing Products (EU, October 31, 2014)	In case of paper and paperboard, Russia applies duties of 15% or 10% which are in excess of bound level of 5%. In case of other goods where customs value is below certain level duties are charged above bound rate.	Respondent complied with DSB's recommendations (June 08, 2017). Panel rejected claims of systemic violation by Russia of its WTO obligations on import tariffs.
DS499: Russia – Measures Affecting Importation of Railway Equipment and Parts Thereof (Ukraine, October 21, 2015)	Russia suspends certificates of conformity issued to producers of railway parts and rolling stock before new technical regulations were introduced and turns down applications for new certificates to be issued.	Respondent implements DSB's recommendations (05.03.2020). Ukraine requested from Russia explanation of requirements which Ukrainian suppliers have to comply with in order to receive certificate of conformity (March 23, 2020)

Dispute	Subject of Dispute	Current Status (as of year-end 2020)
DS512: Russia – Measures Concerning Traffic in Transit (Ukraine, September 14, 2016)	International freight traffic in transit by road and rail from Ukraine to Kazakhstan or Kirgizia via Russian Federation should be carried out only from Belarus under certain conditions. Ban on traffic in transit of goods on which tariff rates are not equal to zero and which are under embargo.	Reports adopted, no further actions required (April 26, 2019)
DS532: Russia – Measures Concerning Importation and Transit of Certain Ukrainian Products (Ukraine, October 13, 2017)	Russia took measures to restrict imports and transit of juice, beer, confectionary and wallpaper of Ukrainian origin via its territory to third countries. Exports of such Ukrainian products to Russia dramatically decreased and as regards some items fell to zero level.	In consultations (October 13, 2017)
DS566: Russia – Additional Duties on Certain Products from US (USA, August 27, 2017)	In August 2018, Russia increased import duties on some types of freight, road-building equipment, oil and gas equipment, metalworking equipment and rock boring machines, as well as optic fiber (25%, 30% and 40% depending on goods). US believes that these measures violate GATT 1994 because Russia does not impose such duties on similar products from other WTO member-states and grants US less favorable treatment.	Work of Panel (January 25, 2019). Panel's report is expected in H2 2021.

Source: based on the data of the WTO official website: URL: https://www.wto.org/english/tratop_e/dispu_e/dispu_by_country_e.htm.

Table P.2

WTO disputes which Russia joined as the third party[1]

Subject	Disputes
Prohibition or import restrictions (for ecological or other reasons)	DS400, DS401, DS469, DS484, DS495, DS524, DS531, DS537, DS576
Countervailing investigations and safeguard measures (anti-dumping, countervailing and safeguard)	DS414, DS437, DS449, DS454, DS468, DS471, DS473, DS480, DS488, DS490, DS496, DS513, DS516, DS518, DS523, DS529, DS533, DS534, DS536, DS538, DS539, DS544, DS545, DS546, DS547, DS548, DS550, DS551, DS552, DS553, DS556, DS562, DS564, DS573, DS577, DS578, DS591
Export restrictions	DS431, DS432, DS433, DS508, DS509, DS541, DS590
Intellectual property rights	DS441, DS458, DS467, DS542, DS567
Subsidies (including tax and other rebates) and localization requirements	DS502, DS456, DS472, DS487, DS497, DS489, DS510, DS511, DS522, DS579, DS580, DS581, DS583, DS593, DS595
Tariffs and tariff quotas	DS492, DS517, DS557, DS558, DS559, DS560, DS543, DS561, DS585, DS582, DS584, DS588
Trade and economic sanctions	DS526

Source: based on the article by Bayeva M.A. (2015). WTO Trade Disputes which Russia Participated in and Dispute Settlement Mechanism // The Russian Foreign Trade Bulletin, Issue No.3. pp. 75–90.

1 The updated table. See: URL: https://www.iep.ru/files/text/trends/2019/04.pdf

4.9. Science and innovations[1]

Over the past year, the pandemic and the resulting crisis whipped up the decision-making process in science and technology policies. A number of top-level programs were revised, alongside some adjustment of budget allocations for R&D projects. Operational decisions were adopted across a number of areas, where discussions and coordinated planning had been underway for several years already (e.g., the transformation of scientific research funds, improvement of coordination and promotion of continuity between the development institutions operating in the science and technology sector, alterations in the current procedures for estimating the cost-effectiveness of budget-funded venture capital investment, etc.), in order to significantly change the situation in that sphere. Besides, some important normative legal changes were introduced, which addressed the science sector and promoted the creation of a favorable environment for developing and implementing technological innovations.

4.9.1. Revision of strategic targets

In July, the RF President signed an Executive Order on the national development goals of the Russian Federation for the period until 2030.[2] Among the national goals set forth in its text, the creation of *"conditions for self-fulfillment and the unlocking of talent"* explicitly refers to the field of science, its implementation indicator being to *"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"*. Such a definition of the national goal logically translates into the idea of a closer merger of science and education. And this is exactly what was done by transforming the National Project (NP) "Science" into the National Project "Science and Universities".

One of the key themes in this connection was the integration of education and science. The issue turned out to be especially acute for the research institutes formerly subordinated to the Russian Academy of Sciences. The concerns that research institutes may indeed be merged with higher educational establishments[3] in order to strengthen the scientific research base of the latter have been voiced once again, and repeatedly. This recommendation was put forth in an analytical report prepared for the RF Ministry of Science and Higher Education in October 2020[4] by a team of authors representing several leading Russian universities (in the main the universities participating in the Project 5-100)[5] - "Higher Education:

1 This section was written by *Dezhina I.*, Doctor of Economic Sciences, Leading Researcher, Gaidar Institute; Head of the Analytical Department on Science and Technology Development, Skolkovo Institute of Science and Technology.

2 Executive Order of the RF President on Russia's national development goals through 2030, dated July 21, 2020. URL: http://kremlin.ru/events/president/news/63728.

3 *Volchkova N.* Caution: A reassembly! The scientific community is full of misgivings // Poisk, August 13, 2020. URL: https://www.poisknews.ru/science-politic/ostorozhno-peresborka-nauchnoe-soobshhestvo-polno-durnyh-predchuvstvij/

4 Analytical report "Higher Education: Lessons from the Pandemic. Operational and Strategic Measures for the System's Development". October 2020. P. 54. URL: http://www.tsu.ru/upload/iblock/ аналитический%20доклад_для_МОН_итог2020_.pdf.

5 Out of 61 authors of the report, 82% work in the universities participating in the Project 5-100; some authors are from St. Petersburg State University; none is from Moscow State University.

Lessons from the Pandemic. Operational and Strategic Measures for the System's Development". Among other things, the report points out the inadequacy of State assignment for the provision of funding for scientific research in universities, the lack of research infrastructure unity between research institutes and higher educational establishments, and the difficulties in interaction in the context of growing demand for interdisciplinary projects. Considering these problems, it is proposed *"... to raise the issue of launching pilot projects of legal integration of certain universities and academic institutes."* Thus, the idea of merging or, more precisely, 'joining' research institutes with universities was clearly voiced by representatives of Russia's leading universities. No "full integration" has been planned as yet at the official level, but later on, quite possibly, one can expect the adoption of some decisions aiming at the organizational structure optimization in the science sector.

In fact, the adoption of targets to be achieved by 2030 resulted in a situation where the targets set in the National Projects had been pushed aside. Thus, in particular, while the NP "Science" involved the achievement, by 2024, of the difficult goal of becoming one of the top 5 countries in the fields declared to be national priorities of scientific and technological development, the new document sets the goal of getting, by 2030, to 8th place in the world by the R&D volume. This is an easier target because now Russia ranks 9th in terms of this indicator (based on a calculation of purchasing power parity).[1] However, if one measures the volume of R&D in terms of share in GDP, Russia will belong somewhere between 30th and 40th places.

The national project "Science and Universities" will now include 4 federal projects: "Development of integration processes in science, higher education and industry", "Development of large-scale scientific and scientific-technological projects in priority research areas", "Development of infrastructure for research and training", and "Development of human capital in the interests of regions, industries and the sector of research and development."

Only one of these projects ("Integration") directly concerns the relationship between science and the real sector of the economy, and the growth of socio-economic benefits from research and development activities. This project envisages only a slight increase in extrabudgetary funding. In 2021, it is projected to be at the level of 22% of the total project budget, and by 2024, 26%. Such a modest increase in the planned target indicates either the confidence of the project's developers that businesses are not going to display a significantly increasing interest in investing in research and development, or a lack of any serious potential in universities and research institutions for conducting research that might be useful for the development of businesses.

The current version of the National Project "Science and Universities" aims at strengthening the research potential of higher educational establishments, and these plans should encompass all of Russia's 724 leading universities.[2] This goal

1 Science Indicators: 2020. Data Book. Moscow, HSE University, 2020, pp. 282–284.
2 *Bulgakova, N.* Both an anchor and a driver. Universities are faced with grandiose tasks // Poisk, No. 45–46, November 13, 2020. URL: https://poisknews.ru/edu/i-yakor-i-drajver-pered-vuzami-

appears to be rather unusual because, as demonstrated by world practices, only a small part of universities are engaged in research. Thus, for example, according to the Carnegie Classification of Institutions of Higher Education, less than 10% of universities in the USA are research universities, i.e. those entitled to confer a doctoral degree (PhD); in Germany, research universities constitute a little less than a third of all universities.[1] The involvement in scientific research of such a significant number of universities would be impossible without their closer integration with research institutions. Indeed, it is planned to set up consortia, and this form of interaction has been repeatedly presented by the RF Ministry of Science and Higher Education as a priority, although no clear definition of the concept of a consortium has yet been suggested. As of the year end, the final decision concerning the structure of and targets for the new NP "Science and Universities" had not yet been made, either.

Meanwhile, the budget allocations for R&D were projected without taking into account the revision of the National Project "Science" and the plans for reforming the development institutions, which were made public only as late as November. The budget allocations for civilian R&D were based on the previously established budget projections, and they were downwardly adjusted for the next 3 years (*Table 39*). The budget expenditure projections for civilian R&D are reduced by 5-6% per annum relative to the initially planned targets.

Table 39

The movement of budget allocations for civilian R&D

Indicator	2021	2022	2023
Federal budget expenditure on civilian R&D, total, bn Rb	486.1	514.4	531.7
Change relative to previous year, %	-3.9	+5.8	+3.4
Changes relative to draft law projections for 2020-2022, in given year, %	-6.3	-4.9	–

Source: Annex 10 to the Explanatory Note to the draft federal law on the federal budget for 2021 and the 2022 and 2023 planning period; own calculations.

The budget sequestration had different effects on the programs and research projects of different types. Among the government programs, the core one is the Government Program "Scientific and Technological Development of the Russian Federation", which pools the main budget expenditure projections for R&D, including the National Project "Science". In accordance with the Program, R&D expenditures are to increase at a rate twice as high as that of total federal budget expenditures on R&D: in 2022, by 10.2% (from Rb248.8 bn in 2021 to Rb274.2 bn in 2022), and in 2023, by 8.9% (to Rb298.6 bn). No changes in the amount of allocations for the National Project "Science" have been planned relative to the targets stipulated in Federal Law No 380-FZ. In 2020, Rb47 bn was allocated to the NP "Science", of which 88.53% went to civilian research projects. This is

stavyat-grandioznye-zadachi/

1 Higher Education Institutions in Figures. URL: https://www.hrk.de/fileadmin/redaktion/hrk/02-Dokumente/02-06-Hochschulsystem/Statistik/2017-06-14_Final_Engl._Faltblatt_2017_fuer_Homepage.pdf

the most hi-tech national project. Next comes the NP "Digital Economy" (total federal budget funding in the amount of Rb124.2 bn), where the budget funding allocated to civilian research is 8 times less (Rb5.5 bn, or 4.64 % of the total amount allocated to the project).[1]

The most rapid growth is expected in the expenditures on fundamental research, by 10.8% per annum; their share in the total expenditures on civilian R&D will increase accordingly. However, compared to the previously planned allocations for fundamental research (in the 2020–2022 budget), these were slightly reduced, by 2.3% in 2021 and by 6.9% in 2022.

A significant reduction in budget allocations for R&D is planned under the subprograms/projects aimed at developing advanced technologies. The funding for the Federal Project "Digital Technologies" under the National Program "Digital Economy of the Russian Federation" is to be cut twofold. In addition, the budget allocations for the subprogram "Promotion of Scientific Research and Experimental Development in Civilian Industries" under the Program "Development of Industry and Increasing Its Competitiveness", will be reduced by Rb2.7 bn in 2021, and Rb0.8 bn in 2022; in 2023, the subsidies to Russian organizations designed to compensate them for part of their costs under R&D projects involving modern technologies will likewise be reduced. These changes will result in a tangible reduction in government support for the R&D projects targeting promising technologies across all fields of science.

Thus, the volumes of planned budget allocations for civilian R&D projects have slightly decreased relative to the indicators of the previous planning period; nevertheless, it is envisaged that they should gradually increase every year. The allocations for fundamental scientific research will be increasing at a fastest rate. At the same time, the allocations in the R&D sector for the development of promising and "end-to-end" technologies are being significantly reduced, and if one considers the current low practical impact of science on the economic and technological development of this country, it can be said that Russia's position in hi-tech markets is not going to improve significantly.

The effect of the pandemic on the science sector

A certain shift in the targets was also triggered by the pandemic. The priorities in the field of scientific have become biomedicine, epidemiology, parasitology, and related disciplines. Besides, Gartner Inc. (global data and analytics company) notes a change in technological expectations in response to the pandemic: new social distancing technologies and so-called health passports have been taking the fastest climb up the Peak of Inflated Expectations.[2] Two trends have become the most obvious in the field of international scientific cooperation:

1 Martynova S., Tarasenko I. Allocations for civilian science from the federal budget within the framework of national projects (programs) of the Russian Federation // Science, Technology and Innovation. WP BRP Series. ISSEK, HSE University, March 25, 2020 URL: https://issek.hse.ru/news/352173147.html

2 5 Trends Drive the Gartner Hype Cycle for Emerging Technologies, 2020. URL: https://www.gartner.com/smarterwithgartner/5-trends-drive-the-gartner-hype-cycle-for-emerging-technologies-2020/#:~:text=5%20Trends%20Drive%20the%20Gartner%20Hype%20Cycle%20

- a switchover to online cooperation within the framework of current and new projects as a result of an effective halt in scientific mobility;
- increasing use of digital platforms, online access to data, publications and infrastructure.[1]

The switchover to remote work influenced multiple aspects of scientific cooperation: mutual visits of scientists, student and postgraduate exchanges, joint participation in conferences. A review of best practices in international scientific cooperation has shown that research partners consider their face-to-face communication (what is now called "offline mode") to be indispensable and one of the most important components of a successful scientific partnership. In addition, online contact for the most part can be effective when the researchers have already previously met in person.[2] Establishing a connection and developing a new project entirely in an online mode is a totally new practice, and its effectiveness is still questionable. The same is true of conferences. The important aspects of any conference are the socialization of participants and their private discussions, including those that take place outside of the formal sessions. The idea of keeping on the online or hybrid format of holding conferences even after the end of the pandemic could be attractive from the point of view of cost saving for research and higher educational institutions. However, the longer the pandemic lasts, the more negatively the scientists perceive the online format. Thus, in particular, the results of surveys of researchers across nearly 100 countries around the world in May and October 2020 demonstrated that over time, the number of those who negatively assessed both online conferences and the lack of "live" communication had increased.[3] More particularly, 29% of the scientists surveyed in May, and 37% of those surveyed in October, felt that the switchover to an online mode reduced their scientific productivity.

At the same time, the pandemic has become an incentive for developing the various forms of "open science": unified platforms pooling data from observations and experiments; open access to publications and expert estimations; crowdfunding; and even an open (remote) access to scientific infrastructure. "Openness", in all its aspects, began to be actively promoted by international organizations, including UNESCO.[4] A large-scale open science project is still undergoing the phase of coordination and approval, but the pandemic has sped up some of the ongoing processes. Thus, for example, the European Commission, on April 21, 2020,

for%20Emerging%20Technologies%2C%202020,-Trends&text=The%20Gartner%20Hype%20Cycle%20for%20Emerging%20Technologies%2C%202020%20highlights%2030,next%20five%20to%20ten%20years

1 *Dezhina, I.* International scientific cooperation: What does the pandemic change? Analytical materials from the Russian International Affairs Council's website. May 14, 2020. URL: https://russiancouncil.ru/analytics-and-comments/analytics/mezhdunarodnoe-nauchnoe-sotrudnichestvo-chto-menyaet-pandemiya/

2 *Grove J.* Pandemic 'frees' researchers from 'hampering' habit of travel // Times Higher Education, September 1, 2020. URL: https://www.timeshighereducation.com/news/pandemic-frees-researchers-hampering-habit-travel

3 Locked Down, Burned Out Publishing in a Pandemic: the Impact of Covid on Academic Authors. De Gruyter Publishing, December 15, 2020. URL: https://blog.degruyter.com/wp-content/uploads/2020/12/Locked-Down-Burned-Out-Publishing-in-a-pandemic_Dec-2020.pdf

4 URL: https://en.unesco.org/sites/default/files/open_science_brochure_en.pdf

launched a new portal for the scientists from any country to exchange their data and research results on the coronavirus, obtained from both national and regional sources.[1] Meanwhile, "open science" and scientist cooperation have most strongly affected the biological and medical fields, although the pandemic has also highlighted a whole spectrum of problems, including economic, psychological and social ones. In response to the development of open science in this country, the stratification of research organizations may become more pronounced, because they all differ in their technical potential enabling them to work with online data and platforms. The increasingly widespread use of online formats has created more advantages only for a limited number of Russia's leading universities and research institutes, most of which are situated in the capital, because by no means all of these organizations, especially those scattered across the regions, can boast of their adequate digitalization level.

4.9.2. The strategic academic leadership program

Throughout the past year, by way of further developing the new National Project "Science and Universities", the RF Ministry of Science and Higher Education was working on a new Strategic Academic Leadership Program (PSAL), designed to replace Project 5-100 and the support program for cornerstone universities.

Initially, the PSAL had a narrow focus, since it was formed as a version of continued Project 5-100. Project 5-100 was officially completed in 2020, and so it was no longer relevant from the point of view of its initially declared goals. The universities participating in the Project failed to enter the top 200, let alone the top 100 universities in the major world rankings. Some success has been achieved in by-subject university rankings; besides, it can be viewed as a successful outcome that now, more universities in principle have been actually included into international rankings. However, this is true not only of Project 5-100 participants.

It should be noted that in recent years, the excellence or perfection initiatives, which also include Project 5-100, have increasingly become subject to criticism. Such programs, as a rule, are implemented under strict supervision based on a limited set of indicators; as a result, universities focus on those specific disciplines and fields for which it is easier to obtain funding, and these are quite often mainstream ones.[2] Thus, in particular, the example of Germany's Excellence Initiative, with its 15-year history, demonstrates its positive effect on the quantitative parameters of scientific research in the participating universities, while "the effect on the quality of research is opposite." [3] If we look at the higher education system as a whole (and not just at the select group of elite universities), we will see that stratification has become more pronounced, the administrative burden has become heavies,

1 URL: https://www.timeshighereducation.com/news/europe-seeks-centralise-fractured-coronavirus-data?utm_source=THE+Website+Users&utm_campaign=a9f9eb90f5-EMAIL_CAMPAIGN_2020_04_24_02_50&utm_medium=email&utm_term=0_daa7e51487-a9f9eb90f5-74904797.

2 *Baker S.* Do university excellence initiatives work? Times Higher Education, June 11, 2020. URL: https://www.timeshighereducation.com/features/do-university-excellence-initiatives-work.

3 *Matthews D.* German excellence strategy 'harmed research quality'. Times Higher Education, August 10, 2020. URL: https://www.timeshighereducation.com/news/german-excellence-strategy-harmed-research-quality.

and there has emerged a tendency towards institutional fragmentation. Thus, the German initiative influenced positively the participating universities, while it failed to strengthen the national scientific research and educational system, and to a certain extent even contributed to its erosion.

Russia's Project 5-100 was no exception among the other excellence initiatives. It led to changes in the management patterns of the participating universities designed to accommodate them to achieving a limited number of goals. As a result, the system became more focused on certain functions, and thus more hierarchical, with heavier bureaucracy and higher risks of voluntarist decision-making. Along with the fact that some progress was indeed noted in the number of created scientific products, the quality of those products has not yet been fully ascertained. There is some evidence that quantity was achieved to the detriment of quality.[1]

During the first phase of its development, the PSAL was known as the Russian Academic Excellence Program (RAEP). Its goal was more modest than that of Project 5-100: to get to 10th place in the world by the inclusion of Russian universities into the top 500 global university rankings. The scope of the program was to be slightly increased, up to 30 universities, and to allocate funding at the level of Rb1.2 bn per university per annum.[2] At the same time, in addition to the goal of improving Russia's position in the rankings, it was intended to *increase the economic yield* of universities, in the sense that they should focus on the priority areas outlined in the Strategy for Scientific and Technological Development, build partnerships with businesses, take lead in digitalization processes, and develop "the third mission". In June 2020, RF Minister of Science and Higher Education Valery Falkov said that in the new program, *"Key Performance Indicator (KPI) will be based not so much on scientometrics as on the assessment of the real contribution to economic growth, welfare growth, creation of a more comfortable environment in our regions and cities."*[3]

The higher educational establishments that were eligible for the program were divided into 2 groups: those that, starting from 2018, were at least once included in the top 500 rankings by ARWU, QS or THE; and those that met at least four of the following five criteria: inclusion in a ranking; a student population of not less than 6,000, where foreign students number not less than 3%; an income of not less than Rb1.5 bn, where R&D projects yield not less than 10%. So, an applicant university must be sufficiently large, and have a history of getting into international rankings.

In June, the program was assigned a new name: the Strategic Academic Leadership Program, with a 10-year implementation period and a budget of Rb52

1 *Trubnikova E.* (2020) Project 5-100: a view through the prism of the theory of institutional corruption // Universe of Russia. V. 29. No 2. P. 72–91. DOI: 10.17323/1811-038X-2020-29-2-72-91.

2 The RF Ministry of Science and Higher Education suggested that the funding to support Russia's leading universities should be increased // Future of Russia. National Projects. April 8, 2020 URL: https://futurerussia.gov.ru/nacionalnye-proekty/minobrnauki-predlozilo-uvelicit-finansirovanie-na-podderzku-vedusih-vuzov-rossii

3 *Reznichenko A.* Valery Falkov: science is made not by structures, but by individuals // TASS, June 4, 2020. URL: https://tass.ru/interviews/8644947

bn for 2021–2024.[1] The selection criteria were changed, and the planned number of participants was increased. It was intended that the new version of PSAL was to cover the former participants in Project 5-100, the cornerstone universities, and some other eligible higher educational establishments, so that 150-200 universities in total would be included in the program. Meanwhile, in comparison with the first version of the program, the eligibility indicators were brought down to 4,000 students, a total income of Rb1 bn, and 5% of R&D expenditures.[2] The easing of eligibility criteria was justified by the broader range of participants, which increased from the original target of 30 universities to that of nearly 200. The planned budget for the program was increased accordingly, to Rb116.2 bn for the period 2021–2024. The option of introducing two main categories of supported higher educational establishments (those oriented to leadership in scientific research and to territorial/sectoral leadership) was also discussed. The trend towards increasing the number of participants in the PSAL can be viewed as a positive change, because the degree of stratification inside the system of state higher educational establishments will thus be reduced: now, more of them will be able to receive state support.

The word "academic" in the program's title attracted the attention of the Russian Academy of Sciences (RAS), both from the point of view of the role in this project of the Academy itself, and that of its subordinated institutes. In particular, among other things, the Presidium of the Russian Academy of Sciences suggested that its importance within the framework of program should be strengthened, and that it should be emphasized that one of the goals would be to develop human resources, including for the science sector, and so the institutes formerly subordinated to the RAS would become potential employers. As the PSAL envisaged the creation of consortia of higher educational establishments and research institutions, the Presidium of the RAS believed it to be important to thoroughly elaborate the guidelines for setting up such consortia, including the mechanisms for their financing. In those cases when it is planned to alter the legal status of a research institutions entering a consortium, it would be necessary to stipulate a mandatory coordination with the RAS of all the aspects of that procedure.[3] The orientation to integration of research institutes and higher educational establishments that is laid down in the program somewhat resembles the Program "Integration",[4] but in this particular case the leading role is obviously assigned to universities.

Judging by the indicators to be applied in the selection of universities, scientometrics will remain the focus of attention. For the universities oriented to leadership in scientific research, the total weight of the indicators relating in

1 Valery Falkov: not less that Rb52 bn will be allocated for the development of universities. June 8, 2020. URL: https://na.ria.ru/20200608/1572628732.html.

2 *Erokhina E.* "Anyway, the people must be forced to learn". On academic leadership and scientific integrity // The Indicator, June 16, 2020. URL: https://indicator.ru/humanitarian-science/vse-taki-narod-nado-zastavlyat-uchitsya.htm.

3 Strategic Academic Leadership Program // Scientific Russia, October 23, 2020. URL: https://scientificrussia.ru/news/programma-strategicheskogo-akademicheskogo-liderstva.

4 The Federal Target Program "State Support of the Integration of Higher Education and Fundamental Science for 1997-2000" was developed in accordance with the Executive Order of the President of the Russian Federation dated June 13, 1996.

one way or another to their position in international rankings is 3 times greater than that of all the other parameters taken together. For the other universities the relative weight, in their total assessment score, of the indicators describing their interaction with industry is likewise not so great, and thus it is easier for them to develop a purely "scientific" direction of their activity, which is assessed by their publication activity. In addition, it is planned to introduce the requirement for a mandatory international expert estimation of their projects. This makes more difficult their possible cooperation with big state-owned enterprises and private companies, in the interests of which the universities could launch R&D projects, because research projects frequently address certain themes that are sensitive from the point of view of international competitiveness, and so they cannot be reviewed by international experts. Thus, the proposed system of indicators gives rise to a conflict between the declared goals of the PSAL and the reporting indicators of the universities. In particular, this has to do with the goal of developing "the third mission" of universities.

In Russia, "the third mission" is often described in terms of the types of activities assigned to a given university, e.g., supplementary education, technology transfer, social involvement, and participation in solving global problems. From this list, which is by no means exhaustive, it becomes clear that the fulfillment, by universities, of their "third mission" should be assessed on the basis of a combination of quantitative and qualitative parameters. Part of "the third mission" is the involvement in the economic development of the region where the university is situated. It is this particular indicator that is measured by foreign universities when they want to determine the degree of their influence outside of their academic environment. Besides, there exist estimates of a university's impact on the country as a whole, and even on the global economy, but these only make sense for a handful of outstanding universities; e.g., such estimates were applied by the Massachusetts Institute of Technology (MIT) and Oxford University. The economic effects are subdivided into direct ones, which have to do with the revenues and expenditures of a university, its staff, and its students inside its native region (including the creation of startups); indirect ones, determined by the movement of the revenue and employment indices reported by the businesses and other structures responsible for smooth functioning of a university; and induced ones (those that become manifest, e.g., in their influence on the value of property, on the influx of new companies into the region caused by the fact that there is a university there, etc.).[1] In Russia, there have already been some examples of the contribution of Russian universities to the development of technological entrepreneurship being measured by the number of startups set up by their graduates.[2] However, such an assessment is based on the amount of funding (investments) attracted by those startups, and not on the amount of their

1 *Dezhina I.* Universities outside the academic environment // The Independent Newspaper - Science, November 10, 2020, pp. 9-10. URL: https://www.ng.ru/science/2020-11-10/9_8010_universities.html.

2 *Chukavina, K., Tolmachev, D., Perechneva, I., Volganova, E.* Make startups the foundation of a new economy // The Expert, No 42, October 10, 2020. URL: https://expert.ru/expert/2020/42/sdelat-startapyi-fundamentom-novoj-ekonomiki/

proceeds. More likely, this is indicative of the development potential of one or other startup, but not the effect of its influence on the economy. Unfortunately, the PSAL does not envisage an assessment of the economic impact of universities, although it proclaims the necessity to develop their "third mission".

At the very end of the year, on December 31, 2020, the RF Government issued a directive (No 3697-r),[1] whereby the PSAL was renamed "Priority-2030". The program is to be implemented until 2030 on a competitive basis, and the RF Ministry of Science and Higher Education should submit the financial and other parameters of the program by March 1, 2021.

4.9.3. The measures to be implemented within the framework of the national project "Science"

Last year, in spite of the National Program "Nauka" being re-formatted, the measures launched within its framework in 2019 continued to be implemented. In particular, there was a contest for the formation of world-class scientific centers (WCSC); a selection of world-class science and education centers (SEC), in addition to the five centers that had already been established 'in a manual mode' in 2019, was conducted;[2] and the mega-grant program was carried on.

World-class scientific centers

World-class scientific centers are set up in the form of consortia. According to the certificate of the Federal Project "Development of Scientific and Scientific-Production Cooperation", at least 9 world-class scientific centers involved in the implementation of research and development projects in conformity with the established scientific and technological development priorities should be selected within the framework of the National Project "Science". Based on the results of a contest, 10 centers were selected from among 60 applicants.[3] It is noteworthy that the WCSCs were selected with due regard not only for the level of their submitted applications, but also the thematic fields addressed by their projects. In this connections, the effect of the pandemic was also obvious, in that 4 out of the 10 winner projects will focus on those fields on study where medical science merges with promising technologies (*Table 40*). Each WCSC unites 2 to 7 organizations, each of which will receive unequal amounts of funding. One of these WCSCs is established on the basis of a just one organization (the National Medical Research Center for Endocrinology under the RF Ministry of Health), and so no consortium has been formed.

A number of WCSCs are attached to science education centers (SEC) or genomic centers (the WCSC "Advanced Digital Technologies" is attached to the West Siberian Interregional SEC; the WCSC "Agrotechnologies of the Future", to the Kurchatov World-class Genomic Center and the SEC "Innovative Technologies in the Agroindustrial Complex"). Thus, there has emerged an obvious trend towards

1 URL: http://publication.pravo.gov.ru/Document/View/0001202101050007.
2 For more details, see Russian Economy in 2019. Trends and Outlooks. Issue 41. Gaidar Institute Publishers, Moscow 2020, pp. 520–523. URL: https://www.iep.ru/files/text/trends/2019/06.pdf.
3 10 world-class scientific centers will receive government support. August 28, 2020. URL: http://www.fcntp.ru/events/news/1282.

intertwining the existing scientific policy instruments, and this happens, not least, because of the similarities between those "instruments" (science education centers, world-class scientific centers, and genomic centers).

Table 40

The specialization, number of participants, and funding of the WCSC set up in 2020

WCSC	Number of organizations in consortium	Funding allocated for 2020, Rb mn	Including the minimum / maximum amount of financing of organizations in the consortium, RUB mn.
Digital Biodesign and Personalized Healthcare	5	242.3	133.3 / 12.1
Center for Personalized Medicine	2	242.3	211.9 / 30.4
National Center for Personalized Medicine of Endocrine Disorders	1	242.3	–
Integrative Physiology for Medicine, High Tech Healthcare and Stress Resilience Technologies	4	213.9	73.9 / 30.0
Center for Photonics	3	242.3	155.1 / 24.3
Advanced Digital Technology	4	242.3	162.5 / 6.9
Rational Development of Planet's Liquid Hydrocarbon Reserves	4	242.3	135.0 / 28.8
Supersonics	6	242,3	211.0 / 3.5
Agrotechnology of Future	7	242.3	82.0/7.3
Center for Interdisciplinary Research of Human Potential	4	242.3	113.9 / 19.4

Source: RF Government Directive No 2744-r dated October 24, 2020. URL: http://static..ru/media/files/XY4j5lFwu64NWFt0GU3dmKOlDz5u2bip.pdf.

Rosneft Company began to play an important role in the field of genomic research, having received the status of the main technological partner of the WCSCs operating in this field. In 2019, 3 WCSCs were established, to address the themes of research outlined in the Federal Research Program for Genetic Technologies Development for 2019–2027; the National Research Center "Kurchatov Institute" was appointed to be the core organization under the Program. In April 2020, Rosneft established an autonomous non-profit organization (ANO) to conduct research in the field of genetics, which was to become a platform for developing proposals for improving the existing regulatory, legislative and normative frameworks, and adapting international best practices.1 Rosneft also becomes involved in scientific research, planning to examine its own employees and their family members in order to obtain primary genetic data for the development of

1 Meeting on developing genetic technology in Russia. Vladimir Putin chaired a meeting, via videoconference, on the development of genetic technology in the Russian Federation. May 14, 2020. URL: http://kremlin.ru/events/president/news/63350

health care and research work. It should be noted in this connection that the company currently employs over 350,000 people. Thus, a major research center and a state-owned company have been cooperating and assuming leadership roles within the framework of genetic technology development.

Science education centers (SEC): the achievements of the first centers and new projects

The first 5 SECs, which had been created in a "manual mode" in 2019, completed their first year of operation. Judging by the information provided by SECs about their activities (*Table 41*), the results are more obvious in those areas where the companies operating in the real sector of the economy and acting as industrial partners of the SECs have expressed their vested interests in those activities. This has been true, first of all, of the Perm and Belgorod SECs, which managed to attract the largest extrabudgetary funding. The volume of extrabudgetary funds involved in the projects launched by SECs amounted to Rb5,356 mn in 2019; the planned target for 2020 was Rb7,400 mn.[1]

Table 41

The characteristics of the functioning SECs

Center's name	Number of participants, including from real sector	Description of ongoing projects	Results
SEC Kuzbass	16, including 8 (50%) from real sector[2]	29 projects, with ongoing working groups (of about 1,000 people)	107 patents issued; Rb567 mn raised
Nizhny Novgorod SEC	27, including 19 (70%) from real sector	Infrastructure development, including plans for setting up innovative science and technology center (ISTC) (science and technology valley)	Rb220 mn raised; attached WCSC is set up*
West Siberian Interregional SEC	30, including 7 (23%) from real sector	Creation of laboratories; purchase of equipment; several joint projects were launched	Rb578 mn raised;[3] attached WCSC is set up*
Belgorod SEC	38, including 10 (26%) from real sector	30 projects on 5 platforms	Rb2 bn raised;[4] attached WCSC is set up*
Perm SEC	58, including 50 (86%) from real sector	190 contracts for R&D research for businesses	Rb2 bn raised;[5] 50 patents issued; 120 hi-tech jobs created

* World-class scientific center.
Source: own compilation based on data from the SECs' websites and information from the mass media.

1 Science education centers: a year later. November 23, 2020. URL: https://www.minobrnauki.gov.ru/press-center/news/?ELEMENT_ID=25903
2 URL: https://xn--42-bmce4b.xn--p1ai/tpost/36aeixio31-itogi-raboti-nauchno-obrazovatelnogo-tse
3 URL: https://ria.ru/20201010/tyumen-1579154236.html
4 URL: https://belregion.ru/press/news/index.php?ID=45759
5 URL: https://www.newsko.ru/news/nk-5689267.html

The SECs vary broadly by the composition and number of their participants. At the same time, there is no connection between the number of their participants and the number of regions involved in the formation of a SEC. Thus, for example, the West Siberian Interregional SEC has 30 participants, while the Perm SEC consists of nearly twice as many (58). Meanwhile, the current size of the SECs is rather modest, in terms of the number of participants. By comparison, the number of participants in the National Technology Initiative (NTI) Competence Centers (CC) established in universities is not less than, and quite often exceeds, the number of participants in SECs. Thus, the NTI CC for Wireless Communications and the Internet of Things consists of 70 participants, and their number is growing because the consortium is being joined by other interested universities and businesses.

The official estimation of the SECs' performance, which in late October 2020 was publicly presented by the RF Minister of Science and Higher Education, was rather restrained: the results of their activity were considered to be modest,[1] and the expectations for a better outcome were linked to a cumulative effect. One achievement of the SECs was claimed to be the creation of large teams and their conformity with the specific interests of the regions where they were situated. It was emphasized that within the framework of the SECs, it was important to shift the focus from the publishing articles to providing some real solution to the problems of regional development. The same aspect of the SECs' activity was also highlighted by the regions' heads, who believed their main goal to be that of bridging the gaps between the science and business communities, and making them share their responsibilities and funding sources.[2]

Last year, a contest was held with the aim of setting up another 5 SECs. In this connection, many of the applicants had used the experience of the first 5 SECs, e.g., in establishing interregional structures which, "all other factors being equal," had had a better chance of receiving the status of a SEC. When the applications were ranked according to their scores received from the experts and compared with the list of winners, it became obvious that the quality of an application and its expert assessment are the factors that are important, but by no means decisive. The other relevant factors are geopolitical ones, and probably the field of specialization of a future SEC.

As follows from the list of 5 new SECs (*Table 42*), the winners were the two 'strongest' applications (both were interregional ones), and 3 projects from the top ten finalists. Each SEC has its own strengths: for the Eurasian SEC, it is the international status; for the Tula SEC, it is the orientation to the defense industry; for the Arctic SEC, it is important geopolitical issues. Another relevant factor was that of their anchor partners: for the SEC oriented to Arctic issues, these were Rosatom and the Kurchatov Institute; and for the SEC "Engineering of the Future", these were Rostec, Roskosmos, and Russian Railways.

1 Meeting with members of the Government. October 28, 2020. URL: http://kremlin.ru/events/president/news/64293.

2 *Erokhina E.* SEC is not science // Indicator, December 18, 2020. URL: https://indicator.ru/engineering-science/noc-eto-ne-nauka.htm

Table 42

The ranking of the winning SEC projects in the project evaluation system (1 corresponds to the highest experts' score)

SEC	Ranking by score
Ural Interregional SEC "Advanced Production Technologies and Materials" (Sverdlovsk, Chelyabinsk, and Kurgan regions)	1
"Engineering of the Future" (Samara, Penza, Ulyanovsk, and Tambov regions; Republic of Mordovia)	2
Eurasian SEC (Republic of Bashkiria)	7
"Russian Arctic: New Materials, Technologies and Research Methods"	8
"TulaTECH" (Tula region)	9

Sources: Contest Commission's Protocol. URL: https://www.minobrnauki.gov.ru/common/upload/library/2020/11/main/Protokol_N_2020-15-NOTS-1-2.pdf; meeting. December 3, 2020. http://.ru/news/41012/.

New megagrants

There was also a megagrant contest: towards the year's end, 43 winning projects were selected out of the 465 submitted applications.[1] The fact that more than 10 grant applications had been submitted is indicative of the high popularity of this program, which has existed for 10 years already. It is characteristic that higher educational establishments prevailed among the applicants: they submitted 3.5 times more applications than did research institutes. Judging by the contest results, the quality of projects was higher in case of academic institutes: they submitted 22% of applications, but then they received 30% of grants. Besides, some of the higher educational establishments received more than one megagrant (there were 30 projects for 21 higher educational establishments); i.e., the level of 'university science' is higher in a limited number of universities.

It is also important to note that the share of projects directed by foreign scientists other that former compatriots has increased: they will manage 32 projects out of 43 (74.4%). At the same time, there are surprisingly few projects (only 3) to be directed by Russian scientists. This points either to a shift in the megagrant program's priorities towards foreign specialists, or to an insufficient number of world-class domestic scientists.

With due regard for the past contest, the total number of laboratories created in this country over the years since the launch of the megagrant program is 315. If we look at their by-discipline distribution, most of them belong in the field of medicine and medical technology (36 laboratories), next comes physics (34 laboratories), which is a traditionally "strong" field. The field of "economics and business" is an absolute "outsider": during all the years of the program's existence, only 4 laboratories with this specialization have been created.[2] As far as Russia's

1 In the eighth mega-grant contest, the winners were 43 scientific research projects // TASS, December 1, 2020. URL: https://nauka.tass.ru/nauka/10145439

2 Own calculations based on data for 8 contests. Data source for the past megagrant contests: Megagrants in pictures and numbers. Ten years of attracting scientists and creating laboratories // The Indicator, September 1, 2020. URL: https://indicator.ru/engineering-science/megagranty-v-kartinkakh-i-cifrakh.htm

global positioning in this field is concerned, it has traditionally been among the laggards. So one cannot say that the laboratories have been created in order to address the fields where the help of world-class scientists is most needed.

Large-scale scientific research projects

Among the implemented measures, one should also note one more contest held by the RF Ministry of Science and Higher Education: for winning the funding for large-scale research projects, in the form of grants amounting to up to Rb100 mn per year, for 3 years. The expert estimation was done by the RAS, since this program was supposed to replace the previous Fundamental Research Program launched by the RAS Presidium. Similarly to the other events where the distribution of significant amounts of funding had been involved, the competition was tight – the support was granted to only 41 projects out of 367 applicants. The list of winners[1] and the specific methods of their selection gave rise to some heated discussions. In particular, the "July 1 Club" expressed its dissatisfaction,[2] claiming that "*the results of the contest in some cases were notoriously odd-looking*." The strongest criticism was targeted at the allocation of grants to Sirius University, which had been created a year before but had not yet actually begun to function (the project "Genetic History of the Ancient Population of the Russian Plain"), and to the Institute for System Programming of the RAS (a small organization with modest publication activity indicators).

Criticism was also aimed at a number of fundamental issues. First, it was argued that the expert estimation was not transparent,[3] was carried out within too short a time, and the choice of experts was not clear to the scientific community. These circumstances are especially noticeable when compared with the megagrant contest, where the amount of funding is significantly less (Rb90 mn for 3 years, while in this contest it is Rb300 mn), and so the cost of an error is lower. Nevertheless, each application for a megagrant is evaluated by two Russian and two foreign experts. Secondly, criticism was also caused by the fact that the majority of projects received maximum funding (Rb100 mn each per year), while the research costs in natural and human sciences cannot be equal. Thus, among other things, there is no need for social scientists and humanitarians to buy expensive laboratory equipment. However, this feature of the contest is by no means unique. World-class scientific centers likewise received equal amounts of funding, regardless of their field of activity and the number of organizations participating in a consortium: for example, the WCSCs doing research in the field of social sciences received the same funding as the WCSCs belonging in other

1 Ministry of Science and Higher Education of the Russian Federation. Protocol No 2020-1902-01-3 dated July 28, 2020, for evaluating applications for participation in the contest for grants in the form of subsidies for major research projects in the priority directions of scientific and technological development. URL: https://m.minobrnauki.gov.ru/ru/documents/card/?id_4=1299&cat=/ru/documents/docs/

2 On the results of the contest of large-scale scientific projects. URL: http://www.1julyclub.org/node/349

3 *Fradkov A.* RAS-damaged contest / TRV-Science, No. 310, August 11, 2020, p. 14. URL: https://trv-science.ru/2020/08/11/ranenyj-konkurs/

fields (*Table 40*) Apparently, the Ministry in its approach to such competitions relies on the principle of even distribution of money among all.

And thirdly, and lastly, the choice of research subjects was also criticized, in particular that among the projects that had been granted support, none was in the field of fundamental and applied mathematics, and few in the field of modern physics. At the same time, given such a small number of grants for the entire country, the "loss" of a number of fields is quite possible, and this fact is further confirmed by the megagrant contest.

Thus, we can note the mix of several mechanisms involved in the support of science: SEC, WCSC, megagrant, and large-scale scientific project; and they are similar not only in their goals and achievement indicators, but also in the contest procedures and results. A comparison of the lists of winners in different contests shows an increasing concentration of budget funding in a select number of organizations, and especially in a limited number of universities. Thus, on a nationwide scale, the problems typical of excellence programs may be becoming more prominent – when there emerges a group of elite organizations, while overall, the system of scientific knowledge reproduction gains nothing.

4.9.4. Research evaluation: the debate over composite publication performance scores

Over the past year, the principles and indicators for research evaluation were coordinated and approved at the government department level. The methodology itself was named the "Composite Publication Performance Score" (CBPR). It is designed to be applied in evaluating research in the framework of projects implemented on government orders, with due regard for each specific field of science. It should provide a base for determining the amount of funding to be allocated to the state assignments for the next year. The methodology was compiled for the former academic institutes, but in the future it is also expected to be applied in evaluating the fulfillment of state assignments in universities. The initial version of the methodology had been adopted as early as December 2019, but there were so many complaints about it that a task force was set up by the RF Ministry of Science and Higher Education to examine the comments and responses from the scientific community.

As is known from the experiences of the past years, the orientation to international databases and quartiles of journals boosted the global visibility of Russian scientists, while at the same time it gave rise to misuse and falsification of data, and an immoderate race for publications in the "necessary" journals to the detriment of the target audience and research quality. Therefore, it was important to draw up a system of indicators and coefficients that would create incentives not only for the quantity, but also the quality, of scientific publications.

Initially, the performance bar was set very high: it was intended that research institutes should increase their CBPR by 10-30% per annum, which, according to experts, is problematic even for the 'strongest' institutes.[1] There were also some

1 *Erokhina E.* For multifacetness and diversity. One more month for a composite publication performance score // Indicator, March 13, 2020. URL: https://indicator.ru/engineering-science/

funny counting errors, up to the eighth decimal place,[1] due to the peculiarities of the new coefficients (for example, 0.12 for the journals on the Higher Attestation Commission's list). The most frequently discussed issues were as follows:

1) the introduction of a fractional count as a way to eliminate pseudo-affiliations, i.e. splitting the points assigned to each publication according to the number of co-authors and the affiliations of the author who works in the organization for which the score is calculated;

2) the determination of the coefficient values for the publications indexed in international and Russian databases;

3) the optimal way of evaluating monographs (by publication data; number of copies; monograph length; the publisher's standing; or a combination of all of these).

In April 2020, it was unanimously decided that different scores should apply to humanities and social sciences as compared with all the other disciplines. With regard to the studies in humanities and social sciences, significantly lower citation scores were established for publications in WoS/Scopus indexed journals compared with other fields of science (a score of 3, vs Q1 WoS - 20, Q2 WoS - 10, Q3 WoS - 5, Q4 WoS - 2.5 in the other fields). At the same time, the scores for the publications in the fields of social sciences and humanities appearing in the journals from the RSCI/Higher Attestation Commission's lists were upwardly adjusted. It was decided to evaluate published books in terms of their length (based on word count).

In September 2020, the final version of the CBPR methodology was issued. It still retained the requirement for lagging organizations to grow at a rate that would make them outstrips the leaders. The fractional count principle was approved, which would bring down the scores applied to the articles resulting from the work of large international collaborations with thousands of co-authors. At the same time, the methodology makes it unprofitable to attract scientists from abroad solely for the sake of increasing the citation index, because in this case the multiple affiliations would result in a lower final score for a given publication.

Some changes were also introduced for social sciences and humanities: the coefficient for the journals on the Higher Attestation Commission's list (which is perhaps the "weakest" among all the other existing lists) was increased from 0.12 to 1. For books, a very complex system was adopted, which includes, among other things, an expert estimation by the RAS: a monograph gets a certain number of points based on its word count; a score of 0.75 corresponds to a collection of articles; 0.5 goes for comments to works by classical authors, dictionaries, archival and other similar publications; the final scores will be determined by the RAS after each work has been submitted by its department responsible for a given field of science. As far as published books are concerned, these will be assigned a score

za-mnogoukladnost-i-raznoobrazie.htm.

1 *Vaganov A.* Russian science was swept by an outbreak of the CBPR epidemic // The Independent Newspaper - Science, May 2, 2020. URL: http://www.ng.ru/science/2020-05-02/100_200502falko.html.

on condition of a recommendation for their publication issued by an institution's academic council, and their registration with the RF Book Chamber.[1]

Thus, while in the first versions of the CBPR methodology the requirements for social sciences and humanities were too high, later on they were set too low, especially with regard to publications in WoS/Scopus indexed journals and the journal quartiles. This lack of proper balance creates incentives for publishing mostly in Russian journals; on the one hand, this is good, since the majority of their readers are in Russia, while on the other hand, there is little motivation to get into the best foreign publications. Perhaps the methodology will be further refined in 2021; among other things, the changes may include the elimination of the flat scale quality score applied to journals in the fields of humanities and social sciences.[2]

It should be noted that the movement itself towards the introduction and adjustment of the CBPR methodology, especially for social sciences and humanities, runs contrary to what is actually happening in the catch-up development economies. One example is China, where quantitative assessment scores were applied until recently, but now this practice is being abandoned. And particular concern were aroused by the reorientation of the social sciences and humanities to those topics that are most easily accepted by the editors of foreign journals, instead of focusing on in-depth studies of the problems that are vial to Chinese society.[3] In February 2020, two Chinese ministries, the Ministry of Education and the Ministry of Science and Technology, officially announced the refusal to use the Science Citation Index (SCI) in their system of assessing universities and academic institutions,[4] and to use the Social Science Citation Index (SSCI) in research evaluation in the field of social sciences.

4.9.5. The expert role of the RAS

The Russian Academy of Sciences, in accordance with its status, should carry out scientific and methodological supervision and guidance of the activities in the science and technology fields of research institutions and higher educational establishments, as well as conduct expert examinations. As far as the latter is concerned, over the course of the past year, some alterations were introduced whereby a number of organizations were no longer required to undergo the expert examinations conducted by the RAS. At the same time, at the end of last year, its function of scientific and methodological guidance was further elaborated.

1 URL: https://www.minobrnauki.gov.ru/common/upload/library/2020/09/main/Metodika_novaya.pdf

2 *Erokhina E.* We tried to come up with a methodology that it would be most difficult to crash. On the winners and losers in the new state scientometrics. // The Indicator, September 17, 2020. URL: https://indicator.ru/humanitarian-science/my-pytalis-pridumat-metodiku-kotoruyu-uronit-trudnee-vsego.htm

3 *Lau J.* Research relevant to China 'cast aside in race for citations' // Times Higher Education, 05. 08.2020. URL: https://www.timeshighereducation.com/news/research-relevant-china-cast-aside-race-citations

4 *Yaobin H.* China to move away from Science Citation Index in academic evaluation. February 25, 2020. URL: https://news.cgtn.com/news/2020-02-25/China-to-move-away-from-Science-Citation-Index-in-academic-evaluation--Onk82wPOlW/index.html

The strengthening of the scientific and methodological leadership of the RAS was formally consolidated by the signing, on December 4 at the RAS Presidium meeting, of an agreement between the Russian Academy of Sciences and 12 institutes doing research in the fields of chemistry and materials science. The agreement had been initiated by the Department of Chemistry and Materials Science of the RAS.[1] The purpose of the new consortium was to coordinate joint activities and viewpoints concerning the functioning of the involved institutions in cooperation with the RF Ministry of Science and Higher Education. The Consortium Council was created, while the RAS was assigned the right to present the consortium's unified position on issues related to the activities of its participants. The consortium could be further expanded, and several other institutes have already expressed their interest in joining it. Besides, the RAS Presidium believes that this form of interaction may be of interest to the institutes subordinated to the other RAS departments. It is possible that the joint efforts that resulted in setting up the consortium were a form of response to the Ministry's policy of giving more attention to higher educational establishments, since most of its programs and projects are aimed specifically at supporting scientific research projects implemented by the latter.

It should be noted that during the same period, the National Research Center (NRC) "Kurchatov Institute" also strengthened its positions, and so much so that it was informally dubbed "Academy of Sciences 2.0".[2] True, the amount of federal budget funding for R&D projects allocated for the Kurchatov Institute is almost 4 times higher than the corresponding allocations to Moscow State University and St. Petersburg State University (*Table 43*).[3]

The positions of these organizations were strengthened both through exercising their coordination function and through the addition of new institutes. In 2020, the NRC "Kurchatov Institute" became the founder of the Institute of Molecular Genetics of the RAS, and later on it merged with F.V. Lukin State Research Institute of Physical Problems. Thus, the range of topics addressed by the NRC in its research expanded significantly. In addition, the Kurchatov Institute was appointed to be the core research organization under the government program for

1 The Academy of Sciences and chemical institutes merged into a consortium // RAS, December 7, 2020. URL: http://www.ras.ru/news/shownews.aspx?id=4f139008-a38c-4114-a611-202651d0842d#:~:text=4%20декабря%202020%20года%20в,институтами%20химического%20и%20материаловедческого%20профиля.&text=Создание%20Консорциума%20с%20участием%20РАН,и%20наук%20о%20материалах%20РАН

2 The Kurchatov Institute as a substitute for the Academy of Sciences. The State has finalized its decision as to what will become the core of its scientific and technical policy // The Independent Newspaper - Science, June 4, 2020. URL: http://www.ng.ru/editorial/2020-06-04/2_7879_editorial.html

3 The Higher School of Economics also receives substantial funds. However, as NRU HSE is not one of the chief administrators of budget funds, the amount of budget funding that it receives for its research and development projects can only be determined on the basis of its statistical reporting data. According to the latest available data for 2019, the allocations for this purpose that NRU HSE received from the federal budget amounted to Rb2.7 bn. However, part of these funds was received as a result of participation in various contests. Source: Form 2-science. Information for 2019 on the implementation of research and development projects, p. 6 "Sources of funding for internal research and development costs." URL: https://www.hse.ru/data/2020/06/13/1604760852/Москва%20за%202019%20год%202%20Наука%20(годовая).pdf

genetic technologies development; it is also the core research organization under the Federal Program for the Development of Synchrotron and Neutron Research (a megascience-class project). While the RAS lost its institutes, the NRC acquired new ones and became responsible for several priority development areas.

Table 43

The comparative amounts of federal budget allocations for civilian R&D received by the organizations appointed to be chief administrators of budget funds, Rb bn

Organization	2021	2022	2023
NRC Kurchatov Institute	18.6	24.1	23.9
Moscow State University	4.1	4.0	4.2
RANEPA	1.8	1.8	1.9
St. Petersburg State University	0.9	0.9	1.0

Source: Appendix No 10 to the explanatory note to the draft Federal Law "On the Federal Budget for 2021 and the Planning Period of 2022 and 2023", titled "Federal Budget Expenditures on Civilian Scientific Research and Development (Analytical Group)".

At the same time, over the past year, the RAS lost some of its expert role. The Academy was deprived of the right to conduct expert estimations of the fundamental research projects implemented by the National Research Center "Kurchatov Institute" and several other research organizations. The changes were introduced by the RF Government Decree "On the introduction of alterations into the Rules for the conduct, by the Federal State Budgetary Institution "Russian Academy of Sciences", of scientific and methodological guidance of the scientific and scientific-technical activities of scientific research organizations and higher educational establishments, as well as expert estimations of the scientific and scientific technical results obtained by these organizations",[1] whereby the evaluation of research themes, draft plans and reports for those scientific research organizations and higher educational establishments, in respect of which the functions and powers of their founder are exercised by the Government of the Russian Federation, should be performed by the Russian Academy of Sciences on the basis of decisions made by the aforesaid organizations, and thus the resolutions issued by the RAS in respect of such organizations could be only advisory. The organizations that have been granted the right to decide on their own whether they need an expert estimation conducted by the Russian Academy of Sciences are equal in their status to the Academy itself, because they, similarly to the RAS, are subordinated directly to the RF Government. Consequently, the RAS cannot perform the functions of control and oversight over the organizations of an equal status. Besides, the previous version of the RF Government Decree[2] had actually granted

1 RF Government Decree No 1659 dated October 12, 2020. URL: http://www.garant.ru/products/ipo/prime/doc/74658338/.

2 Decree of the RF Government No 1781 dated December 30, 2018 "On the conduct, by the Federal State Budgetary Institution "Russian Academy of Sciences", of scientific and methodological guidance of the scientific and scientific-technical activities of scientific research organizations and higher educational establishments, as well as expert estimations of the scientific and scientific

to the RAS an unjustified monopoly right for making decisions concerning the effectiveness of budget-funded research and development projects implemented all over this country, whereas the RAS does not possess the resources to assess the entire spectrum of work carried out by different organizations.

During the phase of agreeing on the draft of the new Decree, the leadership of the RAS tried to appeal to the idea of the necessity of a comprehensive expert estimation across the entire field of science, where no research organization would be left out.[1] This standpoint was reflected in the decision of the RAS Presidium, which held an emergency meeting on September 2, 2020.[2] In October 2020, President of the RAS Alexander Sergeev, at a meeting with the President of the Russian Federation, once again raised the issue of the need to create in Russia a unified expert estimation system in the field of science and technology, from which it followed that no selective organizations could be left out of that system. The President of the RAS highlighted the point that, if the Academy's expert estimations were considered not to be trustworthy, that task should be delegated to another institution.[3] Nevertheless, the adopted RF Government Decree gave no consideration to the desire of the Russian Academy of Sciences to retain the ability to conduct expert estimations of all the organizations receiving budget funds for their R&D projects.

Thus, in the past year, the functions of the Russian Academy of Sciences in terms of evaluating the R&D projects, areas of research and reports conducted and submitted in this country were reduced. However, the role of the Russian Academy of Sciences as a coordinator for some of the institutes formerly subordinated to it somewhat gained in importance. At the same time, the NRC "Kurchatov Institute" significantly strengthened its position.

4.9.6. Technological development

The situation in the high tech business sector

Last year, Russia dropped one place in the Global Innovation Index 2020, becoming 47th in the list of 131 countries.[4] As before, in terms of innovation inputs, this country's position is better (42nd place) than that in terms of innovation

technical results obtained by these organizations, and on the introduction of amendments to some acts of the Government of the Russian Federation". URL: http://www.consultant.ru/document/cons_doc_LAW_315478/.

1 The scandal around the Kurchatov Institute goes on: the young scientists rise up in opposition. An appeal to President of the RAS Sergeev has been prepared. August 30, 2020. URL: https://www.mk.ru/science/2020/08/30/skandal-vokrug-kurchatovskogo-instituta-prodolzhaetsya-molodye-uchenye-vzbuntovalis.html

2 *Erokhina E.* "It is a shame to hear that the expert estimations by the RAS slow down scientific and technological progress in this country". The Presidium of the Russian Academy of Sciences has risen to defend its right to evaluate // The Indicator, September 2, 2020. URL: https://indicator.ru/humanitarian-science/ekspertiza-ran.htm

3 *Volchkova N.* About the earthly and the heavenly. The head of State met with proper understanding the proposals of the RAS // Poisk, No 40, October 2, 2020, p. 3.

4 Global Innovation Index 2020. Who Will Finance Innovation? 13th edition // Soumitra Dutta, Bruno Lanvin and Sasha Wunsch-Vincent (eds.). Cornell University, INSEAD, WIPO, 2020. P. xxxii. URL: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020.pdf

outputs (58th place).[1] The weakest components of the innovation environment remained as follows: institutions; infrastructure; and market sophistication. Russia has failed to make it into the top 100 of global rankings with regard to GDP/unit of energy use (115th); rule of law (114th); ISO 14001 environmental certificates/ bn PPP$ GDP (106th); investment (106th); and regulatory quality (105th).[2] The overall level of innovation activity in this country has been on the decline, and so far there are no signs of a reversal in that trend, as only every tenth company plans to implement innovations in 2020–2022.[3]

However, the picture was far from being uneven. In particular, six Russian companies (1C, Mail.ru, Playrix, Tinkoff Bank, Wildberries, and Yandex) were among the top 100 contenders for world leadership in the technology sector, according to BCG (global management consulting firm).[4] In the previous 4 years, the average annual proceeds of these companies amounted to $1.8 bn, which is below the statistical average of $2 bn; but the companies grew at a rate 6 times higher than the technology players in the S&P 500.

The pandemic had an adverse effect on innovation, and even on IT companies, although the latter seemed to have more opportunities for development. The issue of additional support for small and medium-sized technology companies was raised as early as April, because for them it was more difficult than for many other companies to recover from the crisis. A survey of technology companies conducted in March by the Russian Venture Company (RVC JSC)[5] demonstrated that their main problems were how to pay taxes (52% of respondents), preserve jobs (51%), ensure product sales (46%), and interact with international partners (32%). In addition, some problems arose in connection with the reduced volume of import contracts and the payments under the existing contracts, because the national currency's exchange rate changed, followed by a surge in prices for imported components.

The issue of keeping the existing teams turned out to be a most pressing one, because high-tech companies had managed to pool specialists with unique competencies. The greatest demand (voiced by 2/3 of companies) was a specific measure of support – to subsidize part of their employees' salaries. The second most popular measure was tax incentives (59.3% of respondents), which would enable them to redirect resources to business development and purchases of raw materials. Slightly more than half of the respondents (51.9%) also mentioned

1 Global Innovation Index 2020. Who Will Finance Innovation? 13th edition // Soumitra Dutta, Bruno Lanvin and Sasha Wunsch-Vincent (eds.). Cornell University, INSEAD, WIPO, 2020. Pp. xxxiv, xxxvi. URL: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020.pdf

2 Ibid, p. 315.

3 Science, Technology and Innovation. URL: https://issek.hse.ru/news/422172387.html

4 Technological leadership: six Russian companies are on the list // The Expert, No 48, November 23, 2020. URL: https://expert.ru/expert/2020/48/tehnologicheskoe-liderstvo-shest-rossijskih-kompanij---v-spiske/

5 The survey was conducted by RVC JSC among small (startups) and medium-sized technology businesses (TECHUP rating) over the period from March 25 to March 30, 2020. The surveyed companies operated mainly in the sectors of electronics, robotics, IT, industrial technologies. Source: Results of the survey of technology companies "Measures to Support Technology Businesses." RVC JSC, April 6, 2020.
URL: https://services.rvc.ru/upload/iblock/2c8/2c8c37b900d9814d53bc79f591512a9a.pdf.

another measure - a moratorium on business inspections until the situation stabilized. Experts spoke of similar measures,[1] as well as of the importance of additional budget funding for the R&D projects implemented by small companies.[2] And finally, there is one more problem – that of the existence of two extremes: it is relatively easy to obtain grants in the amount of Rb1–2 mn during the seed stage of a project, and there are also investments in the amount of Rb300 mn and more, which are a focus of tight competition. However, there are practically no intermediate option between these two 'poles'. A separate discussion centered around the support for medium-sized technology companies, including those in TECHUP rating. They are the ones who most often become the connecting link between science and the business community. However, high-tech businesses did not receive the support that they needed most.

IT businesses likewise had their own peculiarities. Only a few segments of the IT market revived due to the increasing number of employees switching to remote work. The greatest demand was for comprehensive solutions involving secure remote work in combination with rental of assets. At the same time, due to the pandemic, consumers began to spend less on information technologies, and many organizations froze their large capital investments in technical support. There were disruptions in the supply chains of IT equipment due to the incomplete workload of manufacturing plants and the restrictions imposed on international transport flows.[3] According to the surveys by the association of software developers (RUSSOFT), in April-May 2020, the proceeds of the majority of domestic software developers fell by 45–47% compared to the same period of the previous year.[4]

To improve the working conditions of IT companies, a "tax maneuver in the IT industry" was developed and introduced from January 1, 2021.[5] The changes have to do with the taxation regimes for VAT, corporate income tax, and the taxation of insurance premiums. Basically, only the income derived from software can be exempted from VAT, and the software products must be entered in a special register of Russian software. The corporate income tax rate is reduced from 20% to 3%, and that on insurance premiums from 14% to 7.6%; the new rules also apply to those companies that generate 90% of their income from software that they had developed independently. On the one hand, tax benefits are increasing, but on the other, the number of organizations entitled to them is decreasing. Not many companies qualify for the requirement of 90% their proceeds being derived from sales of software rights. Therefore, even during the discussion phase, the tax

1 *Mekhanik A*. We could lose another generation of scientists. April 22, 2020. URL: http://vybornaroda.org/vn_exclusive/162576-mehanik-my-mozhem-poterjat-esche-odno-pokolenie-uchenyh.html

2 *Firsov A*. Viscous environment. What is happening in the sphere of innovations in Russia // Snob, March 26, 2020. URL: https://snob.ru/profile/32368/blog/165914/.

3 *Grammatchikov A*. Digitalization under pressure // The Expert, No 15-16, April 13, 2020. URL: https://expert.ru/expert/2020/16/tsifrovizatsiya-pod-davleniem/

4 *Grammatchikov A*. Where are IT maneuvers going // The Expert, No. 28, July 6, 2020. URL: https://expert.ru/expert/2020/28/kuda-vedut-it-manevryi/

5 Federal Law No 265-FZ dated July 31, 2020 "On the Introduction of Amendments to Part Two of the Tax Code of the Russian Federation". The amendments come into force from January 1, 2021. URL: http://base.garant.ru/74450972/

maneuver was heavily criticized. Thus, in particular, the situations when a company creates several legal entities, some of which sell licenses and thus are entitled to exemptions, while others offer services, are by no means uncommon. As a result, the procedure of receiving the exemption becomes excessively complicated, as well as that of tax administration. Some calculations were made demonstrating that the budget will benefit from the maneuver, but not the IT sector.[1]

Venture investments

In H1 2020, venture investment shrank, especially in the seed and startup stages, both in terms total capital and average transaction volume.[2] In this connection, not only private investors, but also state corporations and funds reduced their venture capital investments, although in 2019, it had been these players who showed significant growth at year-end, having invested Rb4.3 bn in new projects, vs Rb1.8 bn a year earlier.[3] Private fund investments remained at the same level of about Rb1.4 bn.

It is possible that in the future, venture capital investments might increase, since the normative legal regulation of budget funds invested in venture projects was relaxed. This will primarily affect development institutions. From the start of the year onwards, the Federal Law "On the Introduction of Amendments to the Federal Law "On Science and the government scientific and technical policy" was discussed, and on July 31 it was adopted.[4] The Law stipulates that an innovative project is associated with a high level of acceptable risk, and provides for the option of not achieving the planned result. At the same time, it is envisaged that beside other sources, the funding of venture and direct investment can be allocated from the budget. Development institutions will be required to develop a methodology for assessing the risks of budget financing of venture projects, and then approve it in coordination with a federal body of executive authority or the body of executive authority of a subject of the Russian Federation. Most importantly, the Law introduces the principle of an overall assessment of the cost-effectiveness of budget funds invested in innovative projects across all investments in all projects, and not of each of them separately: "... the assessment should target the final and intermediate results, as well as the planned (projected) results of innovative activities, with due regard for the actual and projected schedule for achieving the said results across the entire set (portfolio) of innovative projects, from the moment when an innovative development institution initially receives funding in the form of state support for innovative activities".[5] Thus, a development

1 *Chachava A.* "In effect, this is a raise of business taxes": what is wrong with the tax maneuver in the IT industry // Forbes, June 30, 2020. URL: https://www.forbes.ru/tehnologii/403863-eto-fakticheskoe-povyshenie-nalogov-na-biznes-chto-ne-tak-s-nalogovym-manevrom-v

2 Venture Russia. Results for H1 2020. DSIGHT, 2020. URL: https://ict.moscow/research/venchurnaia-rossiia-rezultaty-pervogo-polugodiia-2020/

3 *Bykova N., Mamedyarov Z.* Risk at the expense of the State // The Expert, No 25, June 15, 2020. URL: https://expert.ru/expert/2020/25/risknut-za-schet-gosudarstva/

4 Federal Law No 309-FZ dated July 31, 2020 "On the Introduction of Amendments to the Federal Law "On Science and the government scientific and technical policy". URL: https://rg.ru/2020/08/07/nauka-dok.html

5 Amendment to Item 12 of the Law.

institution (venture fund) is to be recognized as successful when the entire project portfolio grows in value, while some individual projects may be unprofitable. The new approach can create incentives for development institutions to more actively invest in risky technology projects.

Infrastructure: technological valleys

The development of technological valley projects began after the adoption, in 2017, of the Federal Law "On Innovative Science and Technology Centers" (ISTC). ISTCs resemble the model implemented at Skolkovo, in that these are territories with a special tax and financial regime, where the participants are exempt from VAT and corporate income tax for 10 years (the benefit is lost if their proceeds exceeds Rb1 bn per annum), and they pay reduced insurance premiums (14% over the first 10 years, or until they reach a profit threshold of Rb300 mn). The funds that manage the ISTCs are exempt from property and land taxes for 10 years.

In 2020, 3 ISTCs were actually put into operation: Sirius, Mendeleev Valley, and the Project Vorobyovy Gory on the basis of Moscow State University. In November 2020, one more ISTC emerged on Russky Island, on the basis of Far Eastern Federal University.[1] The RF Government Decree explicitly recommends, in connection with that particular ISTC, for the "state corporations operating in the field of high technologies to take part in the creation and development of the Center's facilities, as well as the scientific, technological and experimental base of the Center."[2] At the end of the year, the ISTC Composite Valley (Tula) was also undergoing the stage of approval with the government.

The ISTCs are designed to supplement the already existing infrastructure models (clusters, science cities, closed administrative-territorial entities). Besides, they can promote a closer interaction with the "scientific-research" entities within an innovation system. The RAS signed agreements with two ISTCs; the RAS expects that, through the mechanism of an ISTC, it will become possible to accelerate the transformation of knowledge into technology.[3] In addition to their interaction with the RAS, the ISTCs supplement the tools available within the National Project "Science" through their interaction with science education centers (SEC). To a certain extent, these tools are similar, in that they imply the involvement of the regions, and close interaction between scientific and educational organizations with businesses and regional administrations.

The ISTC Sirius occupies a special place among all the other ISTCs, because it will receive the status of a federal territory (FT). In November 2020, a draft law to this effect was submitted to the State Duma. The concept of "federal territory" itself was put forth with the adoption of amendments to the RF Constitution. It is

1 Decree of the RF Government No 1868 dated November 18, 2020 "On the creation of the Innovative Science and Technology Center "Russky". URL: http://static.government.ru/media/files/yqAADxgCJVK0ApAc6HmA7ZdKeXbPQlO5.pdf

2 Item 7 of the RF Government Decree.

3 *Kravchuk M.* The RAS, CTUR, and Mendeleev Valley agreed on cooperation // Scientific Russia, March 18, 2020. URL: https://scientificrussia.ru/articles/ran-rhtu-i-dolina-mendeleeva-dogovorilis-o-sotrudnichestve; The RAS and MSU will jointly raise the INTC Vorobyovy Gory // Poisk, March 18, 2020. URL: https://www.poisknews.ru/ran/ran-i-mgu-budut-vmeste-podnimat-intcz-vorobevy-gory/

assumed that the law is going to be promptly adopted, and the formation of the new federal territory's governing bodies will be launched in 2021. However, the transition period will last until December 31, 2025.

The federal territory is subject only to federal regulations, and its own regulations. Regional and municipal legislation will operate only in the part that does not contradict these regulations. A FT will resemble a city of federal significance; science cities are one example of such an entity. The main idea behind the concept of Sirius is to create a city with a strong university, focused on the third mission (both economic and social). At the same time, the status of a FT makes it possible to quickly resolve various issues by directly addressing the RF President. Towards the end of last year, the functionality of the FT had not yet been fully determined.[1]

A new concept implemented in relation to ISTCs was reflected in the amendments, suggested by the RF Ministry of Economic Development, to Federal Law No 216-FZ "On Innovative Science and Technology Centers", which imply a more systematic approach to setting up technological valleys. In particular, it should be based on a valley development strategy, and its management company should submit annual reports on the course of its implementation. In addition, it is suggested that the criteria for selecting ISTCs, including those concerning the assessment of their technological specialization, availability of investment projects, potential investors, and extrabudgetary funding feasibility studies should be determined more precisely. The budget funding investment payback period for a newly created ISTC should be not more than 15 years.[2] Indeed, the already established ISTCs experienced some difficulties with securing the obligations of investors and, in general, with their attraction into the ISTCs. Part of the problem was that, until September 2020, the government funding mechanism for ISTCs had not been properly defined.[3] Then, the RF Government issued its Decree No 1443 dated September 15, 2020, which addressed the issue of subsidizing the ISTCs.[4] Helped by the subsidies, businesses will be able to cover part of their costs associated with the payment of customs duties on the goods imported in order to implement the ISTC project and conduct scientific research in the territories of the valleys, as well as to pay value added tax.

1 *Khodykin M.* A province of federal scale // The Expert, No 50, December 7, 2020. URL: https://expert.ru/expert/2020/50/provintsiya-federalnogo-masshtaba/

2 *Edovina T.* Innovators are asked to present their investors. The RF Ministry of Economic Development clarifies the rules for creating scientific and technological centers // The Kommersant, No 101, June 9, 2020, p. 2. URL: https://www.kommersant.ru/doc/4373284

3 *Bykova N.* What will grow in Mendeleev Valley from the billion-rubles investments // The Expert, No 36, August 31, 2020. URL: https://expert.ru/expert/2020/36/chto-vyirastet-v-doline-mendeleeva-iz-milliardnyih-vlozhenij/

4 Decree of the RF Government of September No 1443 dated 15, 2020 (MOSCOW) "On the provision of subsidies from the federal budget to the Russian organizations created in the organizational legal form of joint-stock companies for the purpose of performing the functions of managing innovative science and technology centers, in order to provide financial backing for the costs associated with the subsequent compensation of the costs of paying import customs duties and value added tax incurred by legal entities, individual entrepreneurs, who are the entities involved in the implementation of the project for the creation and operation of innovative science and technology centers." URL: http://static.government.ru/media/files/l1JhFBqpDMT35Ai8Aw97mDSqZGVmggpo.pdf

It cannot be rules out that in the future, the ISTCs may become the main driver of regional technological development, while the previously existing forms of support (e.g., clusters) will either be transformed into ISTCs, or will officially cease their existence (which no longer be supported by state resources).

Artificial intelligence as a priority area of technological development

Over the past year, the issue of artificial intelligence (AI) was very widely discussed in many countries of the world, including Russia. By a large margin, the USA and China are the leaders in terms of the amount of investment in the development of AI technologies (about 48% and 38% of total global spending on these purposes), followed by the UK (4%).[1] Russia lags significantly behind them in many aspects, especially in the number of supercomputers and the science intensity (the number of published scientific articles on AI is 18 times less than that in China, 10 times less than that in the USA, and 3.5 times less than that in the UK) (*Table 44*). One of the factors holding back the development of this field in Russia is the necessity to invest in computing power assets, which fully consist of imported components. Almost half (48%) of Russian investments in AI development is earmarked for these purposes.[2]

Table 44

The indicators the AI development potential: leading countries vs Russia

Indicator	USA	China	UK	Russia
Place in international AI rankings				
Global AI Index 2020 (1/62)	1	2	3	31
AI Readiness Index 2020 (1/172)	1	19	2	33
Science and technology base and performance				
Supercomputer number in TOP500, June 2020	113	226	10	2
Number of universities in 2020 THE World University Rankings 2020 for computer science (1/750)	117	60	54	17
Journal articles on AI subjects, 2015–2019 (Scopus AI Index)	41,920	78,862	15,382	4,354

Sources: URL: https://www.tortoisemedia.com/intelligence/global-ai/; https://www.oxfordinsights.com/-ai-readiness-index-2020; URL: https://top500.org/statistics/list/; https://www.timeshighereducation.com/world-university-rankings/2020; Scopus SciVal. URL: https://www.scival.com/landing.

The pandemic spurred increased spending on AI research. The drivers of development were two counter-processes: an increasing demand for AI technologies triggered by the growing number of businesses and industries relying on automation, and the emergence of new algorithms and data processing technologies (primarily Machine Learning and Deep Learning).

1 By 2022, the global market for artificial intelligence technologies will amount to $52.5 bn. January 29, 2020. URL: https://ww2.frost.com/news/press-releases/ к-2022-году-объем-мирового-рынка-технолог/

2 *Krasnova V.* Machine mind in action // The Expert, No 4, January 18, 2021. URL: https://expert.ru/expert/2021/04/mashinnij-razum-v-dejstvii/

In August 2020, the government commission on digital development approved the certificate of the Federal Project "Artificial Intelligence".[1] The amount of funding was greatly reduced compared with the previously planned target: according to the explanatory note, Rb36.3 bn will be allocated for the project implementation until 2024. Meanwhile, in the previous July, the budget allocation target had been Rb89.69 bn.[2] Thus, the expected of budget-funded support for AI research, most likely, will be insufficient for actually reducing the gap with the leading countries. At the same time, it would be unrealistic to rely on extrabudgetary investment sources, because the venture capital market for AI research financing in Russia is very poorly developed. According to the Stanford Institute's 2020 AI Index Report, Russia accounts for 0.3% of global investment in AI. For the most part, the obstacle to development has been the low demand of big companies and government departments for the AI products developed by small and medium-sized companies. As a result, the market remains fragmentary and uncompetitive.

The potential for development exists primarily in the "niche" areas, including those related to the implementation of applied projects (large-scale projects launched by Yandex, Sberbank, Mail.ru Group; and startups, e.g., iPavlov, itSeez3D). These projects target fields like autopilot, computer vision, industrial and predictive analytics, medical data analysis, augmented and virtual reality.

In world practices, increasing attention has been paid to issues like the impact of AI on human life and the ethical aspects of its application and development. The general consensus was that these technologies should be controlled, and their feasibility depends on how AI technologies are researched, developed and regulated. Standardized approaches to risk assessment may not fully capture the important ethical implications (many of which are not quantifiable, and some are not yet observable). The Concept for Developing AI in Russia also raises this issue, and the priority goal of regulating the AI sphere was defined as the promotion of development, implementation and use of safe and trustworthy AI technologies and systems for the benefit of society and the State. At the same time, in the opinion of the CEOs of the RF Ministry of Economic Development, the Russian economy is not yet ready for the introduction of AI technologies.[3]

Reform of development institutions in the science and technology sector

At the end of last year, the government announced its plan to reform 40 development institutions, some of which operate in the science and technology sector. The reform had been prepared covertly, and the forthcoming changes were announced quite unexpectedly, including those targeting the relevant development institutions, as it had also been the case during the liquidation of the RAS, RAMS, and RAAS systems in 2013.

1 *Skobelev V., Balashova A.* Nearly Rb37 bn will be spend on the State Project "Artificial Intelligence". // RBC, August 28, 2020. URL: https://www.rbc.ru/technology_and_media/28/08/2020/5f4900119a7947026b495660

2 Data as of July 6, 2020 Source URL: https://ria.ru/20200706/1573937886.html

3 *Syutkina V.* Rb36 bn to be allocated for artificial intelligence // The Expert, No 38, September 14, 2020. URL: https://expert.ru/expert/2020/38/na-iskusstvennyij-intellekt-vyidelyat-36-milliardov/.

According to RF Government Directive dated December 31, 2020 (No 3710-r),[1] the majority of the development institutes in the technology sector (RusNano, the Fund for Assistance to Innovation, Skolkovo Foundation, the Industrial Development Fund, the Fund for Infrastructure and Educational Programs, the Russian Fund for the Development of Information Technologies) will be transferred to VEB.RF. The Russian Venture Capital Company is to be taken over by the Russian Direct Investment Fund, and the Russian Fund for Basic Research (RFBR) will be merged with the Russian Science Foundation (RSF). It is noteworthy that two of the development institutions to be reformed, the Fund for Assistance to Innovation and the RFBR, are direct administrators of budget funds (*Table 45*).

Table 45

Current and projected budget allocations to development institutions, Rb bn

Development institute	Funding type	Budget allocations			
		2020	2021	2022	2023
RusNano	Contribution to charter capital	–	–	–	2.0
Fund for Assistance to Innovation	Allocations (chief administrator of budget funds)	13.7	12.0	14.4	17.4
Industrial Development Fund	Allocations	41.0	1.2	1.2	1.2
Skolkovo Foundation	Subsidies	10.8	10.3	10.3	10.3
Russian Venture Company	Contribution to charter capital	4.5	1.5	2.8	4.8
Russian Foundation for Basic Research	Allocations (chief administrator of budget funds)	25.0	22.6	22.2	22.0
Russian Science Foundation	Property contribution	9.0	22.9	24.8	25.3
TOTAL:		**101.4**	**70.5**	**75.7**	**83.0**

Sources: Federal Law "On the federal budget for 2020 and the planning period of 2021 and 2022", URL: https://minfin.gov.ru/common/upload/library/2019/12/main/380-FZ.pdf; Annex 12 and Annex 15 to the draft Federal Law "On the federal budget for 2021 and the planning period of 2022 and 2023"; Annex 10 to the Explanatory Note to the draft Federal Law "On the federal budget for 2021 and the planning period of 2022 and 2023".

The implementation of new formats for the development institutions should be completed in 2021. So far, we can only discuss the intention to optimize their operation, increase their efficiency, revise the tools that they have been relying upon, and develop a unified approach to their key performance indicators. Besides, the development institutions should be distinctly focused on Russia's national development goals until 2030.[2] Generally speaking, all these goals belong in the science and technology field, because science and technology contribute to the solution of almost all problems, and their key performance indicators to consider in this connection are as follows:

1 URL: http://publication.pravo.gov.ru/Document/View/0001202101090037
2 *Butrin D.* There will be definitely no "golden parachutes" // The Kommersant, No 219/P, November 30, 2020, p. 1. URL: https://www.kommersant.ru/doc/4593111

- real growth of exports of non-primary non-energy goods of not less than 70% relative to 2020;
- increasing number of people employed in small and medium-sized businesses;
- fourfold growth of investment in domestic solutions in the field of information technologies relative to 2019.[1]

The reform of development institutions also implies the so-called "seamless" transition from one support instrument to another. This idea has long been attractive to managers: the idea of an "innovative lift" (that is, the formation of a financial system capable of providing a project with opportunities for receiving support at all stages of its development, from a scientific idea to a new product or technology) had been discussed in the past, but it was not implemented. At the end of the year, six development institutions[2] in the technology field took a first step towards providing seamless support for small businesses, by signing a memorandum on the integration of their measures through exchange of information about projects, teams and companies.

The reform plans gave rise to many negatively charged discussions of the current state of affairs in various development institutions, since many of them have long been subject to criticism from both the government authorities and their clients. The criticism was first voiced in the spring, when Prime Minister of the Russian Federation Mikhail Mishustin instructed his first deputy Andrey Belousov to analyze the performance indicators of development institutions. At the same time, it was also claimed that some of these development institutions had been performing "the functions of gaskets" in the channels for pumping money from the federal budget, and "some of them were created just for providing the right people with lucrative jobs";[3] they were unable to attract sufficient private investment, spent too much effort in supporting only startups, etc. After the reform plan had become publicly known, VEB.RF itself became a target of criticism, because it was going to be joined with many heterogeneous structures. Thus, in particular, VEB's assets are shrinking, it has been suffering losses, while over the past 13 years, it has received government funding in the form of contributions to its capital and other types of subsidies in excess of Rb1.4 trillion.[4] If we compare this amount with that of budget-funded "injections" into the development institutes in the science and technology sector that will shortly be reformed, the total assets of the latter would appear to be modest by comparison with those of VEB.RF, and so they may "dissolve" inside the VEB system.

1 Executive Order of the RF President on Russia's national development goals through 2030 dated July 21, 2020. URL: http://kremlin.ru/events/president/news/63728

2 The Russian Direct Investment Fund, Russian Venture Capital Company, Skolkovo Foundation, the Fund for Assistance to Innovation, the Fund for Infrastructure and Educational Programs, National Technological Initiative Platform (NTI Platform). Source: Six development institutions signed a memorandum on seamless integration of support measures for technology entrepreneurs. December 28, 2020. URL: http://government.ru/news/41235/

3 Belousov will analyze the performance of development institutions in 2019, with the option of issuing operational instructions and reprimands // Interfax, March 16, 2020. URL: https://www.interfax.ru/russia/699303

4 *Ivanter A., Mekhanik A., Obukhova E., Ulyanov N.* Reform of the negative KPI system // The Expert, No 49, November 30, 2020. URL: https://expert.ru/expert/2020/49/reforma-sistemyi-otritsatelnogo-kpi/

NTI 2.0

The discussion of the new format of the National Technology Initiative (NTI) can also be viewed in the context of development institutions reform. The NTI, in accordance with Paragraph 23 of the Strategy of Scientific and Technological Development of the Russian Federation (approved by Executive Order of the President No 642 dated December 1, 2016), is one of the "main instruments that ensure the transformation of fundamental knowledge, exploratory and applied scientific research into products and services contributing to the achievement of leadership of Russian companies in the promising markets within the framework of existing and emerging priorities (including after 2030)." Thus, the NTI should be integrated into the seamless system and, like that of the development institutions, its impact on the economy should become manifest in structural shifts and scalability of effects.

The NTI includes a wide range of initiatives, from scientific research to educational and infrastructure projects, which are being implemented on the basis of roadmaps. Each roadmap follows its own logic, they had not been plotted to address an established set of uniform indicators, and therefore the NTI was designed to ensure the *unification* of the performance indicators of the roadmaps. This is by no means an easy task, because in the framework of the NTI, support is granted not only to new projects, but also to existing companies, as well as to non-profit organizations (such as universities) and associations of entrepreneurs. Over the period 2016–2019, nearly Rb30 bn was spent on various measures implemented as part of the NTI. Among these, the most noteworthy ones are the NTI roadmap projects, research and development projects sponsored through the Fund for Assistance to Innovation, the NTI Competence Centers, and NTI University. Based on the national goals, the unification of the performance assessment system can be achieved on the basis of indicators like total proceeds of the companies that had received funding under the NTI, their value, the creation of jobs, and volume of exports. However, they are not applicable for all the types of measures implemented within the framework of the NTI, and moreover, they may display a delayed effect over time. In particular, this could be true with regard to development and introduction of regulatory changes in the normative legal system. The NTI working groups proposed some changes to legislation designed to reduce barriers, and to date, 40 laws and normative acts have been approved on the basis of the regulations proposed by the NTI.[1]

However, NTI 2.0 implies not only the introduction of a unified performance assessment system, it also aims at expanding initiative – among other things, by bringing together businesses and expert communities, so that they could develop a common vision of the new promising markets, promote regional involvement, and promote export support of companies and projects.[2] Thus, the NTI can evolve not only towards unifying the performance monitoring and assessment procedures,

1 What is NTI 2.0, and how does it differ from NTI 1.0? URL: https://nti-new.nti2035.ru/
2 NTI 2.0. How startups could find new markets and make money in face of uncertainty // VC.RU, March 30, 2020 НТИ 2.0. URL: https://vc.ru/future/116286-nti-2-0-kak-startapam-nayti-novye-rynki-i-zarabotat-v-usloviyah-neopredelennosti

but also towards increasing the number of target markets and reformatting the activities of the NTI community.

The transformation of scientific funds

It is planned to merge the Russian Foundation for Basic Research with the Russian Science Foundation in the course of reforming the development institutions. Among all the proposed changes, it is only this particular takeover of one fund by another that has attracted significant attention of the Russian scientific community. Official statements in favor of preserving the RFBR were issued by the "July 1 Club", the Presidium of the RAS, the RAS Departments, and the Society of Scientific Workers. The Russian public initiative launched a campaign to collect signatures under the statement "Prevent the closure of the RFBR".[1]

According to the government plans, the budget of the new fund will pool the budgets of the two funds to be merged; during the transition period, the volume of financing allocated for some core activities of the RFBR will remain the same, and it is only later on that certain directions of support will be transformed.[2]

The issue of creating a single scientific foundation is especially sensitive because in Russia, private charity scientific foundations are practically nonexistent, and the access to foreign funding for scientific research is likewise being curtailed. The latest statistics indicate that the share of foreign sources in domestic R&D expenditures has shrunk to 2.4%.[3] In such a situation, only government funds will be capable of providing a variety of opportunities.

Moreover, the question as to which fund should be the one to be joined to the other, is pretty controversial. From the point of view of budget allocations assigned to these two funds, the RFBR is larger than the RSF, and it is only from 2021 that they have become practically equal in this respect (*Table 45*). However, if we compare the RFBR and the RSF by the number of grants allocated to each of the two, then the RSF will appear to be a "chamber fund" (*Table 46*). Meanwhile, the contest levels of both funds differ only slightly.

Table 46

A comparison of scientific funds, by the number of grants and the share of approved grant applications

Fund	Number of funded projects, per annum	Share of approved grant applications
RFBR	17,999 (8,198, including initiative scientific projects contest)	20%, young scientist contests 25%
RSF	4,700	25%, groups projects 19.5%, young scientist contests 29-32%

Sources: RFBR performance report for 2019; RSF annual report for 2019.

1 URL: https://www.roi.ru/65945/
2 The leaders of the RSF and the RFBR agreed on the terms of their merger. December 8, 2020. URL: https://www.minobrnauki.gov.ru/press-center/news/?ELEMENT_ID=26553
3 *Ratay T.* The structure of science expenditures, by funding source, in Russia and the leading countries of the world // Science, Technology and Innovations. Express Information. ISSEK NRU HSE. December 10, 2020. URL: https://issek.hse.ru/mirror/pubs/share/424274138.pdf

Thus, the decision to join the RFBR to the RSF, and not the other way round, is insufficiently justified from the point of view of the size of their budgets and the scope of the coverage of researchers by research grants.

All the issues discussed in connection with the reform of the two funds can be divided into pro and contra arguments. The arguments in favor of setting up a single fund on the basis of the RSF can generally be boiled down to the following provisions:

1) elimination of duplication (the existence of similar contests), administrative apparatus optimization;

2) simplification of the budget expenditure administration in the science sector;

3) strengthening the focus on quality performance: the RSF has achieved great progress in increasing publication output in international databases (by way of rather stringent requirements to both scientific groundwork and the obligations involved in writing articles);

4) it is logical to join a fund with a shrinking budget to a fund that receives growing allocations from the state budget;

5) building a unified grant support policy (a kind of seamlessness; e.g., the winner of a young scientist contest can then apply for support within the framework of contests for scholars over 35 years of age following clearly defined procedures).

Among the arguments listed above, only the first can be considered to be a truly controversial one. The duplication of programs across the two funds, even if it does exist, is insignificant, because the functional characteristics of the two funds have been quite different, just like their target orientation: the RFBR creates and maintains the environment, including in the regions, while the RSF supports the leaders in different categories (research groups and laboratories, young scientists, organizations). Ideologically, these are likewise two different organizations. Besides, no optimization of the administrative apparatus may actually be achieved as a result of reform. Thus, studies of the experiences of mergers and takeovers, e.g., those occurring in the university environment, show that these transformations frequently produce an opposite effect in the form of increased administrative staff.

From the point of view of the research quality, it is by no means easy to compare the two funds, because no open data is available on the total numbers of publications prepared with the support of the RFBR and the RSF based on Scopus/Web of Science databases. Indirectly, quality can be assessed by the number of papers published in the so-called predatory journals. We reviewed data released by the RAS Commission on Counteracting Falsification of Scientific Research on the results of a study of 94 "junk" journals (as of mid-February 2020). According to these data, it turns out that RFBR grants funded 2.5 times more articles published in "junk" journals than did RSF grants (*Table 47*). Since the RSF supports leading research teams and laboratories, in theory there should not be any publications in "junk" journals at all.

Table 47

The number of articles published by Russian authors in predatory journals within the framework of projects implemented under RFBR and RSF grants

Funding organization	Articles in predatory journals indexed in Scopus	Articles in predatory journals indexed in WoS	Articles in predatory journals, total
RFBR	439	116	555
RSF	171	38	209

Source: RAS Commission on Counteracting Falsification of Scientific Research. Foreign predatory magazines indexed in Scopus and WoS: translation plagiarism and unscrupulous Russian authors. Moscow, 2020. 64 p. URL: https://kpfran.ru/wp-content/uploads/plagiarism-by-translation-2.pdf.

For reference, the US National Science Foundation annually provides information to Congress on the incidence of plagiarism, falsification, and fabricated data in the articles and materials prepared in relation to the Foundation's grants. The number of such cases is on the decline, and it is measured in not more than dozens. According to data for 2020, there were 28 cases of plagiarism (vs 85 in 2011), 4 cases of falsification, and 5 of fabricated data (vs. 17 and 15, respectively, in 2011).[1]

The opponents of the RFBR's accession to the RSF put forward a number of arguments, many of which are based on their intuitive fear of a deterioration in the system of grant-based funding, and in the main, these can be boiled down to the following provisions:

1) loss of diversity (in all the developed countries, there is a variety of scientific foundations). Monopoly will lead to voluntarism in the fund's policy, because it is constrained by the views of the board members and the expert council, and by their personal understanding of the prospects for development in a particular field of knowledge.[2] As a result, support could be granted, e.g., only to those projects that are "closer and more pleasing to the management and employees of the Fund";[3]

2) normative and legal considerations: the RFBR is a direct recipient of budgetary funds, while the RSF is not a budget-funded organization. When the RFBR joins the RSF, there will remain not a single state scientific foundation in this country.[4] However, there is one reservation: the RSF was created on the initiative of the RF President, and its activities are regulated by a special federal law; currently, this special status results in more advantages than disadvantages;

1 National Science Foundation. Office of Inspector General. Semiannual Report to Congress. April 1-September 30, 2020, NSF-OIG-SAR-63. P. 19.

2 Statement of the Society of Scientific Workers' Council on the RFBR joining the RSF. URL: http://onr-russia.ru/content/Sovet-ONR-o-prisoedinenii-RFFI-k-RNF

3 *Oganov A., Shtarev D.* The merged RFBR and RSF will work according to Parkinson's law // Vedomosti, No 169, December 4, 2020. P. 7.

4 *Komarova E.* All research grants go into one pair of hands. December 8, 2020. URL: https://www.vtimes.io/2020/12/08/vse-nauchnie-granti-v-odni-ruki-a1884; The RAS is preparing an appeal to the government in connection with the merger of the RSF and the RFBR // TASS, November 24, 2020. URL: https://nauka.tass.ru/nauka/10085233?fbclid=IwAR30JvjFRJJOrp8KOS8DNr-qx5m6ZUEpVV_hyM4QdhSUxZARUfaJeNPY39I

3) increasing stratification: grants will be concentrated even more in the leading organizations,[1] and it is regional researchers that are going to suffer in the first place;

4) loss of seed funding to test ideas (as a result of the likely termination of the most popular RFBR contest designed to support the research projects of individual scientists and research groups);

5) cuts in funding for social sciences, which already happened after the Russian Humanitarian Science Foundation (RHSF) was joined to the RFBR. It is highly likely that this could happen once again.

The danger of cuts in the funding allocated for the humanities and social sciences is real, while these areas truly need to be supported and developed. According to Clarivate, it is in social sciences that Russia currently lags behind in terms of "research fronts", being in 47th place (for reference: in mathematics, Russia is in 7th place; in physics, in 15th place).[2] Apart from this, the most realistic risks are the loss of diversity and the possible consequences of the resulting monopoly. These risks obviously outweigh the potential benefits of budget optimization and seamlessness. In fact, in a seamlessness paradigm, it would be more expedient to have two scientific funds (a seed fund and an elite fund), because seamlessness is not about creating a monopoly, but about providing opportunities for making a choice.

* * *

The past year was characterized by an intensification of government policies in the field of science and technology, which had to do with the change of government and the crisis caused by the pandemic. A revision of the strategic documents for science and technology development, as well as of the National Project "Science", was launched. In particular, the policy was adjusted according to the new national development goals until 2030, and this concerned not only science, but also technological innovations. In the future, most probably, the key document – the Strategy of Scientific and Technological Development of the Russian Federation - will also be revised, and the revision will also involve the Government Program "Scientific and Technological Development of the Russian Federation".

In the field of science, there was an increasing interconnection between the development instruments like science education centers, world-class scientific centers, megagrants; and the course towards the growth of integration of the former research institutes of the RAS with higher educational establishments became obvious, including within the framework of the new Priority 2030 Program. At the same time, the stratification of the science and technology sector became

1 *Komarova E.* All research grants go into one pair of hands. December 8, 2020. URL: https://www.vtimes.io/2020/12/08/vse-nauchnie-granti-v-odni-ruki-a1884

2 Research Fronts 2020: Active Fields, Leading Countries. Institute of Science and Development, Chinese Academy of Sciences, Clarivate. P. 12.

more pronounced due to a greater concentration of resources in a limited number of organizations. The ongoing monopolization can be viewed as the upshot of dwindling resources.

In the field of technological innovation, there have been no major changes, the innovation activity remained at low ebb, and venture capital investments have been on the decline. The crisis even affected the IT sector, which seemed to possess adequate incentives for development in the contest of the pandemic that translated into the proliferation of telecommuting jobs. The most serious changes in technological policies happened in connection with the reform of development institutions aimed at their optimization and the creation of a general system of targets and indicators designed to assess their contribution to this country's economic development. This will be a radical change, similar to the one that occurred in the past as a result of reform in the system of state academies of sciences. The logic of reforming development institutions toward their unification can potentially increase the degree of monopolization, and thus reduce the available spectrum of types and forms of support, what is called a "policy mix". This poses a serious threat to the innovation system, because its stability, as demonstrated by the results of studies, is based on a variety of mechanisms and capabilities.

4.10. Small and medium business amid coronacrisis[1]

The unprecedented scale of the COVID-19 epidemic created harsh environment for operation of small and medium-sized businesses: decline in household incomes and demand, shutdown of foreign markets and uncertainty of the economic situation. The lockdown introduced in April 2020, resulted in temporary suspension of activities of many enterprises providing services: thus, for instance, trade, catering, hotels, repair shops, hairdressers, etc. Activity of small businesses reduced to the values observed during the crisis of 2015. According to our estimates, the crisis affected more than 75% of SMEs, although about 11% of enterprises and 5.5 million employees[2] are concentrated in the most affected industries. In March-April 2020, revenues in some industries fell by more than 90%. There was a high likelihood of closing millions of businesses and reducing the number of people employed in the SME sector by several million.

The data of the SME Unified Register[3] show that after the annual cleaning of the register in August 2020, the number of SMEs was only 4.2% lower than the August value of 2019, and if we compare the data for December, it turns out that this gap is even smaller, i.e. 3.75%. At the same time, the average number of people employed in SME has not practically changed as of August 2020 (+ 0.4%),

1 This section was written by: *Barinova V.*, Candidate of Economic Sciences, Head of IAES RANEPA International Department for Sustainable Development Studies, Head of Innovation Economics Department of the Gaidar Institute; *Zemtsov S.*, Candidate of Technical Sciences, Director, RANEPA Center for Economic Geography and Regional Studies; *Tsareva Yu.*, Researcher, IAES RANEPA International Department for Sustainable Development Studies.

2 *Zemtsov S.*, *Tsareva Yu.* Trends in development of small and medium-sized enterprises in the context of pandemic and crisis //Economic development of Russia. – 2020. – V. 27. – No. 5.

3 Unified Register of the subjects of small and medium entrepreneurship. URL: https://ofd.nalog.ru/

and according to December, increased by 90.000 (+ 0.48%). Among the reasons for such dynamics positively differing from forecasts at the beginning of pandemic, one can note the high speed of adaptation of many businesses to the provision of online services in large agglomerations in addition to specifics in collecting statistical data and filling the register, as well as the impact of certain anti-crisis measures.

In the spring and summer of 2020, the Russian government proposed a number of measures to support small and medium-sized enterprises in the most affected industries[1]: deferrals in the payment of taxes and insurance premiums, exemption from their payment for Q 2 2020, reduction of insurance premiums, deferral and restructuring of loans, credit holidays for individual entrepreneurs, gratuitous financial assistance and interest-free loans in April and May 2020 to the most affected industries for paying salaries, introduction of a moratorium on SMEs tax audits, automatic extension of all licenses and permits for six months.

The government's operational measures also included support for the demand for SME goods and services: subsidies for the poorest segments of the population, families with children, and the unemployed. More than 21.7% of the companies surveyed[2] took advantage of reduction in insurance premiums. Subsidies for payment of wages for April and May 2020 were an extremely popular measure. According to the Ministry of Economic Development of Russia,[3] about 18% of all SME subjects have monthly enjoyed this assistance. This support reached nearly 3.8 million people or 5.0% of the workforce.[4] By August 2020, about 4% of SMEs (212.000) received loans to pay wages and 4% of SMEs enjoyed credit restructuring. For comparison, prior to the crisis, direct government support implying the provision of financial resources covered a smaller share of enterprises (2-3%).[5]

However, the feasibility to obtain support for SMEs was limited due to specific issues related to identification of affected industries, distribution of companies to these industries and submitting timely reports by these companies. Issues related to the definition of activities according to OKVED codes arose when receiving support. Only those companies could apply for benefits whose main type of activity (code) was indicated in the list of the most affected industries. However, this type of activity was not the main one for some companies or, on the contrary, the companies retained the old OKVED code, although they actually operated in the affected industry. The decision to identify the affected industries

1 Society and pandemic: experience and lessons of combatting the COVID-19 in Russia. – Moscow: 2020. – p.744.

2 Annex to report of the Commissioner for Rights of Entrepreneurs under the President of the Russian Federation. COVID-19: Impacts for Business and Economy. URL: http://doklad.ombudsmanbiz.ru/2020/7.pdf

3 Ministry of the Economic Development of Russia. URL: https://www.economy.gov.ru/material/news/samoy_vostrebovannoy_formoy_gospodderzhki_biznesa_v_2020_godu_stali_granty_na_vyplatu_zarplaty.html

4 In April, 3.7 million people were included in May so far. Estimates of the Institute RSU HSE "Development Center" according to FTS. URL: https://www.nalog.ru/rn77/business-support-2020/subsidy/

5 *Antonova M., Barinova V., Gromov V., Zemtsov S., Krasnoselskikh A., Milogolov N., Potapova A., Tsareva Yu.* Development of small and medium entrepreneurship in Russia in the context of the National Project implementation – M.: Publishing House "Delo" RANEPA, 2020. – p.88.

and allocate support according to OKVED codes was not perfect, but it can be considered reasonable in the context of tight deadlines for decision-making. Moreover, prior to the 2020 crisis, some companies were not included in the SME Unified Register, since they have not previously received support and failed to see this value. Likewise, they could miss submitting annual reports on the average number of employees in due time. Companies were allowed to submit reports and use additional OKVED codes when receiving support. Hence, the size of subsidies was 26-30% of the average wage in Russia, although in more developed countries (OECD) the size of such one-time payments was higher and reached 50-90%.[1] On the whole, Russian support measures are characterized by a lower coverage and size of financial support for SMEs in the context of international experience, while the conditions for their provision are often more stringent than in some developed countries.

At the same time, the ongoing second and possible subsequent waves of the coronavirus epidemic call into question the continuance of the current values of main indicators related to SME sector in 2021.

Thus, the volume of retail trade and paid services to the population has not recovered to pre-crisis levels,[2] in the fall of 2020, although this was expected by experts. The long-term impact of the taken measures on the SME sector is ambiguous: it is highly likely that the fiscal and credit burdens will rise again. However, the Russia's Government has developed the "FOT 3.0" program (payroll fund) for concessional lending to companies representing the least recovered sectors of the economy.[3]

4.10.1. Major trends and obstacles in development of small and medium entrepreneurship

Major development indicators of small and medium-sized entrepreneurship (SME) dropped in Russia in the recent years.[4] The number of employed in 2019 reduced by 0.5 million, while the number of SME subjects dropped by 100.000 (-1.7%) due to several years of stagnation or a decrease in the household income (*Fig. 37*), rise in VAT and introduction of online cash registers. Consequently, the share of small and medium-sized entrepreneurship sector in the gross domestic product fell to 20.6% in 2019 compared to 22% in 2017.

The incomes of Russians and their share received from entrepreneurial activities have been declining almost every year since 2014. In Q 2 2020, the share of incomes from entrepreneurial activities reached a record low level of 4% due to introduction of lockdown and a sharp drop in demand for SME goods and services. According to Rosstat,[5] the real disposable incomes of Russians decreased by 3.5%

1 Society and pandemic: experience and lessons of combatting the COVID-19 in Russia. – Moscow: 2020. – p. 744.
2 Federal State Statistics Service. Retail trade, public services, tourism. URL: https://rosstat.gov.ru/folder/23457?print=1
3 Government of Russia. URL: http://government.ru/news/41623/
4 Russian economy in 2019. Trends and Outlooks. Issue 41. Moscow. Publishing House of the Gaidar Institute, 2020.
5 Rosstat. URL: https://rosstat.gov.ru/folder/13397?print=1

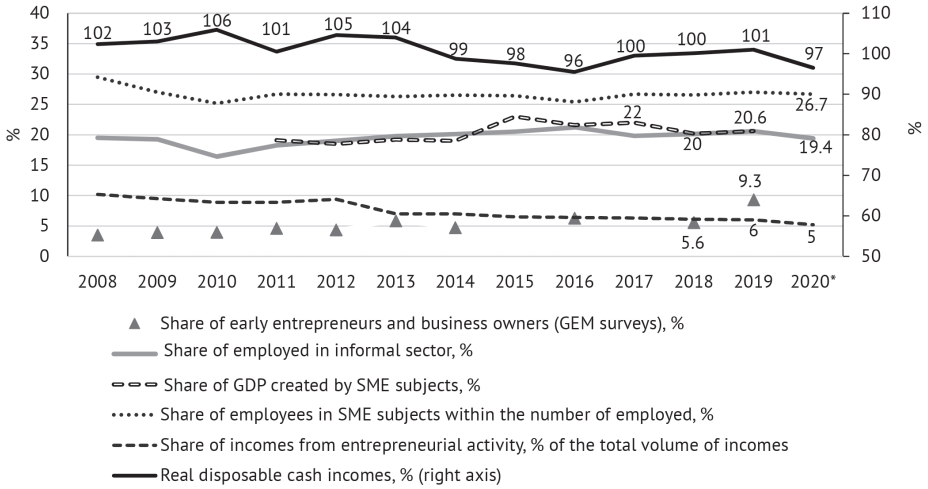


Fig. 37. Dynamics of main indicators in Russia's SME sector in 2008–2019

Source: Rosstat

in annual terms in 2020 (lagging behind the level of 2013 by almost 10%), while incomes from entrepreneurial activities dropped by 13%.

In 2020, according to results of the Rosstat[1] all-Russia survey of small companies, there was a decline in confidence of small businesses in the prospects for their development to the level of 2016, which, however, is slightly higher than the values of the 2015 crisis year (*Fig. 38*). The "Opory Rossii" small and medium business activity index (RSBI index),[2] showed a significant decline continuing from March 2020. Due to the introduction of lockdown, the RSBI index reached its minimum value in April 2020, i.e. 38.5 points, which is lower than indicators of 2015. By September, the index rose to 46.6 points (in Q 3 2015 it was 46.4).

Despite the mentioned challenges, one can expect growth in the number and share of forced entrepreneurs in 2020 having no other sources of income. Already in 2019, the share of early entrepreneurs and business owners increased to 9.3%[3]; 76% men and 81.7% women representing early entrepreneurs set up a business forcibly in absence of other places of employment.[4] The number of unemployed increased in Russia by 24.7% in 2020 and their total number exceeded 4.3 million people.[5] Part of them can enlarge the number of forced entrepreneurs, especially

1 Business activity main indicators of small companies. URL: https://www.gks.ru/folder/14036
2 Index RSBI. URL: https://www.psbank.ru/Business/RSBI
3 GEM. URL: https://www.gemconsortium.org/
4 *Verkhovskaya O., Bogatyreva K., Knatko D., Dorokhina M., Shmeleva E.* National report "Global monitoring of entrepreneurship. Russia 2019/2020." St. Petersburg: Graduate School of Management, St. Petersburg University, 2020.
5 TASS. Rosstat: number of unemployed increased in Russia by 24.7% in 2020. URL: https://tass.ru/ekonomika/10572707

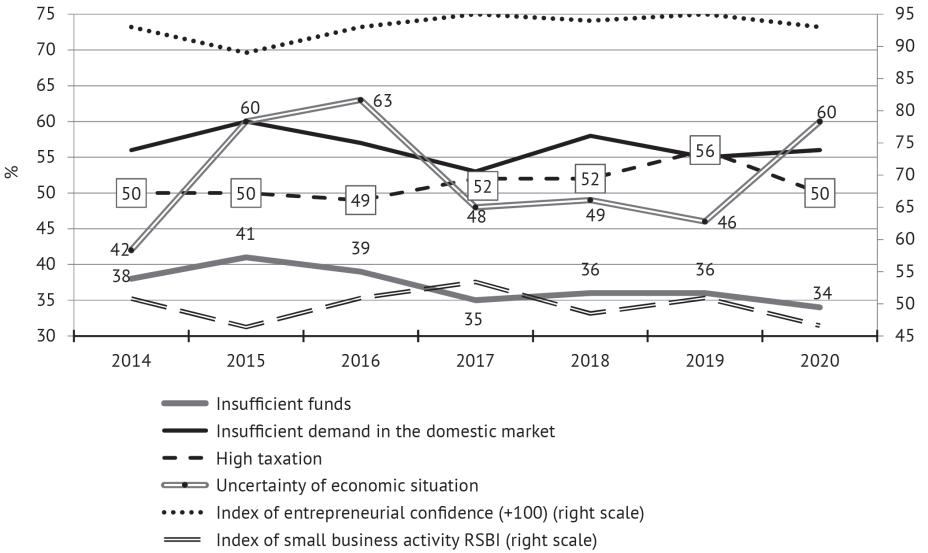


Fig. 38. Share of small manufacturing companies specifying the factor as limiting their growth, in Q 3 of each year (%) and business activity indexes

Source: Rosstat

that a simplified tax regime has been introduced for the self-employed almost right across Russia.

According to a Rosstat survey, among the restrictions on the activities of small manufacturing businesses, the most significant in 2020 were the uncertainty of the economic situation (60% of respondents) and insufficient demand (56%). The significance of both factors is predictably increasing during crises (*Fig. 38*). The high level of taxation, cited by the majority of respondents (56%) as a barrier for business activity in 2019 after the VAT increase, became less relevant in 2020 (50%) due to the government's actions to postpone and introduce a moratorium on certain taxes, as well as to reduce insurance premiums.

At the same time, the share of respondents considering lack of access to financial resources to be an obstacle to their activities decreased from 36% in 2019 to 34%; in 2015, the crisis year, this share was 41%. Indeed, the rate on long-term loans issued to SME subjects was reducing annually from 17.8% in 2015 to 8.01% in July 2020[1] (*Fig. 39*). On the whole, this is due to a general decrease in rates, development of a guarantee system and introduction of interest rate subsidy programs for small businesses. Early 2019, the mean value of the weighted average interest rate for SME loans was 11.5% for a period up to 1 year, and in August 2020 the rate dropped to a record value of 6.73%. However, this does not mean that it is easier now to obtain loans for small businesses. The requirements for solvency of the borrower remain high. Therefore, many companies do not see

1 Bank of Russia. URL: https://cbr.ru/statistics

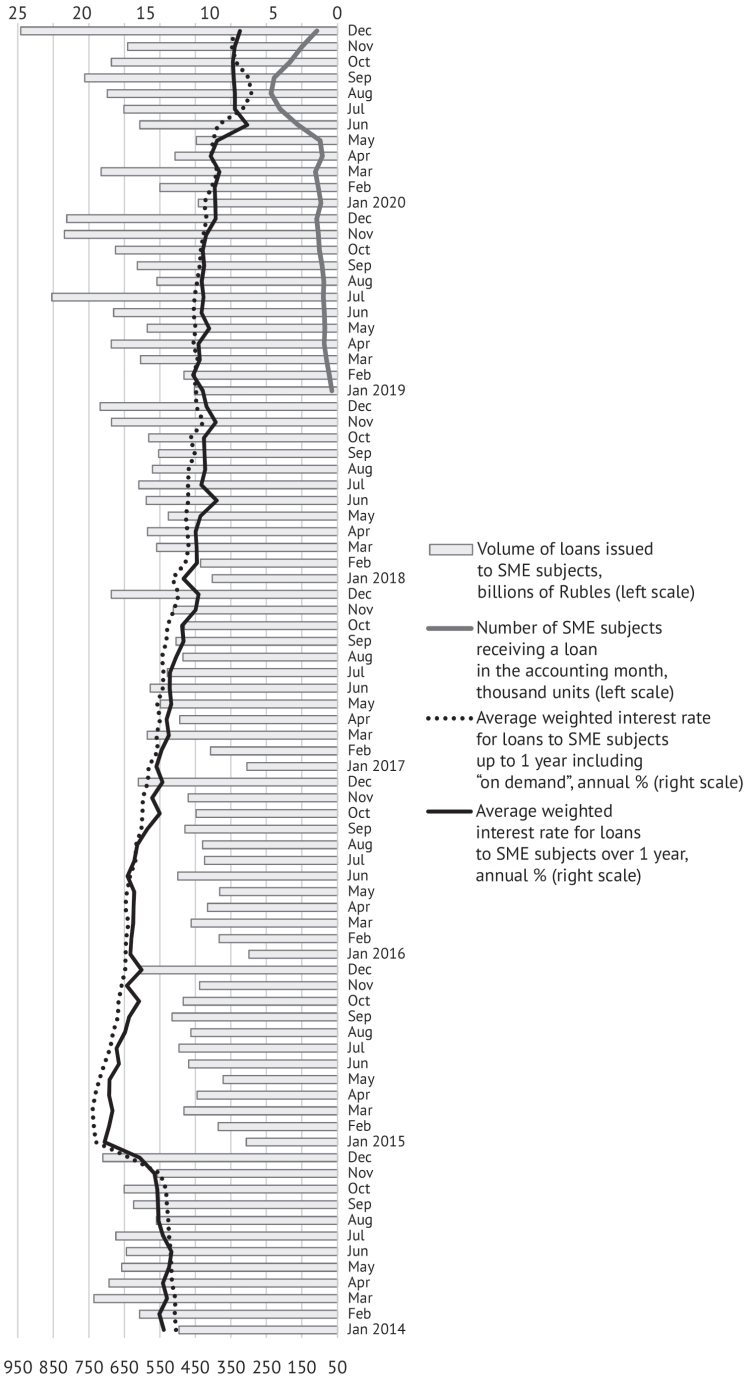


Fig. 39. Average weighted interest rates of credit institutions on loans in rubles (excluding PJSC Sberbank) for SME-non-financial organizations, as well as the volume of issued loans and the number of recipient SMEs

Source: Bank of Russia

the point in new borrowing amid a weak recovery in demand, however, they are forced to take out loans to support their activities.

After a slight peak in March, the volume of loans issued to SMEs and the number of borrowers began to decline sharply due to lockdown restrictions and a drop in demand. Moreover, entrepreneurs feared that they would not be able to repay loans on time and hoped to ride out the crisis without taking additional loans. However, quick recovery in demand did not happen and, therefore, lending started to grow again in August by 25% compared to August 2019, and in September by another 24%. The average loan size decreased from Rub 5.7 million in March 2020 to Rub 2.6 million in August and 2.9 in September. Apparently, SME subjects took advantage of preferential conditions for obtaining loans to secure employment and pay wages, as well as of other programs. In December, the volume of loans provided to SME-non-financial organizations exceeded the record Rub 942 bn for the entire observation period.

Traditional challenges for SMEs have been further exacerbated by difficulties arising from the sharp drop in demand and the crisis caused by the spread of the coronavirus infection. According to the polls of the Chamber of Commerce and Industry[1] conducted in April 2020 in 83 subjects of the Russian Federation, 46% of the interviewed entrepreneurs noted that the activities of their enterprises had completely terminated, and 25% of the respondents had incomes dropped by more than 75%. Among major challenges, entrepreneurs noted failure to continue paying rent (58%), take advantage of state support measures aimed for business (55%) and work remotely (47%). However, the preliminary assessment of anti-crisis support measures was also negative: thus, 63% of respondents believe that the proposed measures did not help at all ("other measures are required"), 48% noted the answer "our company does not meet the criteria for receiving the proposed support measures". Entrepreneurs emphasized the need to expand the list of affected industries (76%) and pay subsidies for full remuneration of non-working days to employees (74%), 73% spoke of the importance of introducing rental vacations. In June, the foremost issues related to staff retention (59%) and rent payments (43%). 37% of the interviewed entrepreneurs estimated the approximate period of business recovery at 12 months, 6% noted that they would not be able to restore their business.

4.10.2. Dynamics in the number of SME subjects

According to SME Unified Register, the number of SMEs in August 2020 amounted to 5.59 million units having decreased in comparison with the same period of the previous year by about 250.000 subjects or 4.2% (*Fig 40*). Traditionally, dynamics of the SME development is assessed in August, since due to the specific operation of the SME register, data on enterprises that have ceased their activities or have not submitted their reports are deleted in August. Enterprises that have gone beyond the criteria for classifying them as SMEs are excluded as well. Therefore,

1 CCI "BUSINESS BAROMETER OF THE COUNTRY". Chamber of Commerce and Industry of the Russian Federation 2020. https://tpprf.ru/ru/news/tpp-rf-zapuskaet-novyy-masshtabnyy-spetsialnyy-proekt-biznes-barometr-strany-i355418/

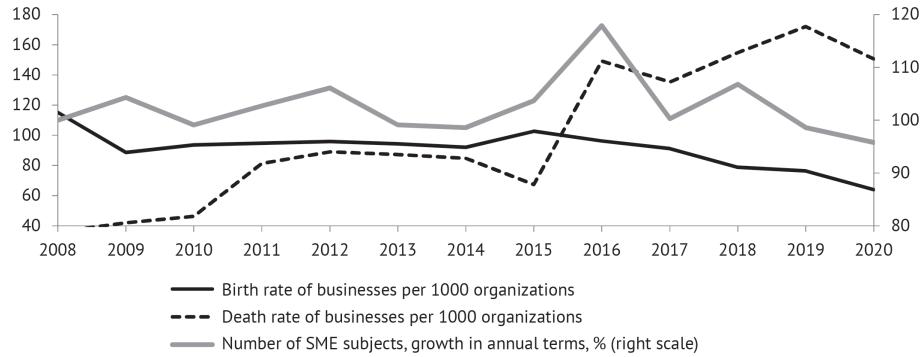


Fig. 40. Dynamics of establishing and liquidating of new organizations and a number of SME subjects

Sources: Rosstat: Unified Register of SME subjects.

business owners do not close their companies in case of termination of activity oftentimes, but wait for automatic exclusion from the FTS registers after 2 years from the date of the last reporting. This is especially typical for less developed regions. Thus, the real scale of the decline in the SME sector will be known only after 1–2 years and in the best case in August 2021.

With regard to individual entrepreneurs (IEs) and legal entities, the SME sector includes 58% of IEs and 42% of legal entities. Major part of this sector consists of microbusiness (95.8%), and it is their number that has dropped most of all compared to August 2019, that is by 4.3%. The number of small enterprises reduced by 3.3%, while medium-sized enterprises grew on the contrary by 5.2%.

According to FTS, 1.16 million SMEs closed in Russia in the period from August 2019 to August 2020. This indicator is almost two times higher than for the same period of the previous year. Growth is associated with the non-working period, drop in demand, failure to pay rent and tough working rules after lifting of restrictions. Pure shutdown concerned 280.000 enterprises, which is significantly higher than the same indicator for 2018–2019, i.e. 85.000 enterprises. Due to the crisis trends, the number of new companies declined more than in previous years owing to difficulties in registering during the pandemic and lack of development prospects in many sectors. The decrease in the number of liquidated companies compared to 2019 is due to the imposed moratorium on bankruptcy.

The lockdown hit the service sector hard: many restaurants, travel agencies, leisure and entertainment organizations, businesses providing household services (repairs, laundry, dry cleaning, hairdressing and beauty salons), etc. were closed. However, the ratio of liquidated and established companies decreased in 2020 for some types of activities related to the high-tech sector of the economy: finance and insurance, information and communications, etc. Many medium-sized companies in the largest cities massively hired personnel in the field of e-commerce and delivery.

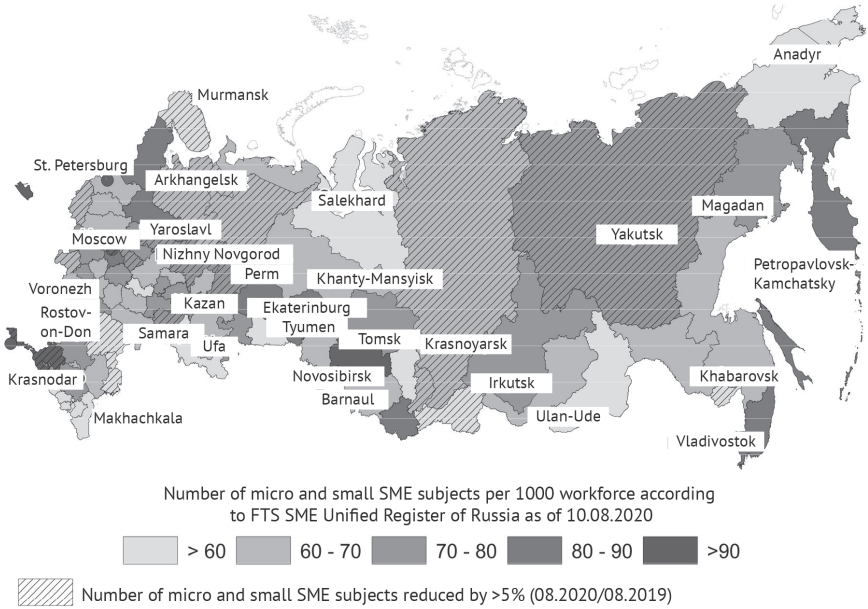


Fig. 41. Density and dynamics of micro and small SME subjects in 2019–2020

Sources: Rosstat; SME Unified Register

On the whole, the reduction in the number of SMEs is expected, but it cannot be called critical. Anti-crisis measures as well as high business digitalization had a certain impact: thus, more than 50% of companies placed their orders on the Internet before the crisis and people willingly used delivery services. During the pandemic, the number of SMEs decreased in many regions by more than 5% (*Fig. 41*), among them Republic of Ingushetia, Jewish autonomous national area, Adygea, Arkhangelsk region, Komi, Tyva, Sakha, Crimea) being the regions with the most vulnerable and underdeveloped entrepreneurial ecosystems[1], as well as the largest agglomerations (Moscow, Perm krai, Samara region).

The latter were marked by the higher share of public services, however, more stringent quarantine measures were introduced there. The reduction in the number of SMEs in Moscow exceeded 5.2%, being higher than the national average (4.2%) and the previous year decline in the region (4.9%).

4.10.3. Employment in SME sector

Actually, small and medium-sized businesses reduce employment during crisis periods, partly go into the shadows, transferring employees to the informal sector to save money. This may not be reflected in the growth of official unemployment

1 *Zemtsov S., Baburin V.* Entrepreneurial ecosystems in Russia's regions //Regional studies – 2019. – No. 2. – P. 4–14.

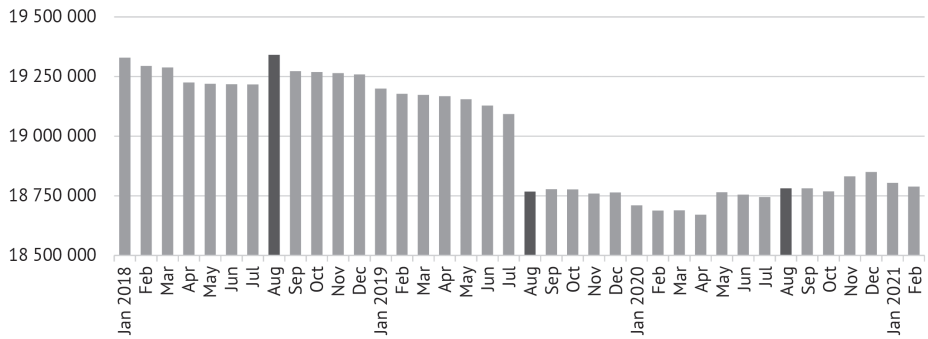


Fig. 42. Number of employed in SME sector including IEs, people

Source: authors' estimates according to SME Unified Register

rates. In 2020, more than 80% of small and medium-sized enterprises[1] optimized their costs due to a decrease in revenues, while 28% reduced salaries, 21% downsized, 22% sent their employees to unpaid leave.

According to SME Unified Register, in 2019 the number of employed in the SME sector decreased by more than half a million. The decrease was partially compensated by registration of the self-employed, payers of professional income tax: thus, for instance, nearly 300.000 people have registered in 2019. In 2020, the number of employed in SME sector has not practically changed (*Fig. 42*). If August 2020 is compared with August 2019, the employment in SME increased by 13.000 and in December by 90.000 people (0.48%). Therewith, according to FTS data as of February 2021, there are 1.7 million self-employed registered in Russia.[2] 82% of the registered self-employed did not have official incomes from entrepreneurial activity, while 42% of self-employed did not have any official incomes one year prior to tax registration. Therefore, that is not to say that the number of self-employed is reinforced exclusively by employees of small and medium-sized business.[3] Taking into account the data on the self-employed, more than 20.38 million people in total can be employed in the business sector early 2021. This exceeds the respective indicator for 2019 by almost 7%.

The growth in employment in this sector is surprising, given that according to Rosstat[4] total employment (aged 15 to 72) in Russia fell from 71.8 million in 2019 to 70.6 million in 2020 (by 1.2 million people), while unemployment rose to 5.6% (+1.0 p.p. compared to 2019).

There are several explanations, why statistics does not reflect the expected serious drop.

1 Index RSBI. URL: https://opora.ru/projects/indeks-opory-rsbi/
2 TASS. Number of self-employed reached 1.7 million in Russia. URL: https://tass.ru/ekonomika/10666369
3 RBC. FTS announced Rub130 billion brought out of the shadow of the self-employed incomes. URL: https://www.rbc.ru/economics/28/08/2020/5f479f9a9a7947f30cef78b0
4 Rosstat. URL: https://rosstat.gov.ru/labour_force?print=1

First, many enterprises did not fire employees but rather cut payroll funds. Thus, according to SberIndex[1], in April-October 2020, the payroll fund changed over 7 months by an average of -5.5% (in October the change was -8.9%, in August only -1.0%). The largest reduction in the payroll fund took place in the sectors of "hotels and public catering" (-12.3% of the trend at the beginning of 2020) and "transportation and storage" (-8.6%). In addition, the state supported maintenance of employment.

Second, some of the companies could repurpose, add a delivery option or open a new division to provide demanded services, i.e. online trading in certain categories of goods, delivery of food, groceries, and more.

Third, information on the average number of employees for the previous calendar year is submitted by organizations to the tax authority no later than January 20 of the current year. Data collection is actually carried out once a year. In 2019, many companies did not see the point in providing particular data or considerably delayed their submission. This resulted in neglecting the number of their employees in the register. Due to the crisis, the companies decided to clarify the data on turnover this year and additionally submit the form on the average number of employed in order to be able to receive state support. Consequently, the number of SME subjects has statistically increased in the register in March-June 2020. Moreover, some companies switched from the category of large to medium-sized, having artificially supplemented the employment in the SME sector. The number of medium-sized companies increased by 5.2%.

According to Rosstat sample surveys, the average number of employees of small companies, excluding microenterprises, decreased the most in education (-43%), travel agencies (-39%), water supply (-31%), electricity (-29%), hotels and catering (-26%), trade (-25%), agriculture (24%) and construction (-23%) in 2017-2020 (in the first half of 2020).

According to the most correct August data of the SME Unified Register, the number of employed declined in 61 out of 85 regions, however, in no region did the reduction rate exceed 7%. The number of employed in the Chechen Republic, Dagestan, the city of Moscow, Leningrad, Moscow, Yaroslavl, Kaliningrad regions has grown.

According to Rosstat, the share of informal employment in Russia increased from 12% in 2010 to 20.6% in 2019 (*Fig. 37*). It was expected that during the coronacrisis it would continue growing, since during crises SMEs cut employment and switch employees to the category of individual entrepreneurs and self-employed, classified according to the Rosstat methodology as informal employment. However, according to the latest data[2] the number of informally employed during the pandemic and lockdown reduced almost by million: from 14.5 million people in March 2020 to 13.57 million in June, and its share reached 19.4% of the total number of employed. The informal employment is more common in

1 SberIndex. Change in the amount of payroll fund. 2020. URL: https://sberindex.ru/ru/dashboards/izmenenie-obema-fot?partition=6

2 Finexpertiza. Stepping out of the shadows: informal employment during the pandemic reduced by almost a million. URL: https://finexpertiza.ru/press-service/researches/2020/vykhod-iz-teni-zanyatost/.

a number of southern and poorly developed regions marked by low households' incomes, high unemployment and high share of agriculture (Crimea – 34.1%, Krasnodar krai – 33.5%, Astrakhan region – 32.1%; Republic of Ingushetia – 55.1%, Chechen Republic – 55.0%, etc.). The lowest informal employment is evidenced in the wealthy regions: Moscow (3.8%), Chukotka autonomous national area (3.9%), Yamalo-Nenets autonomous national area (4.4%), Khanty-Mansi autonomous national area (7.3%), Sankt-Petersburg (8.4%). Reduction in informal employment can be associated with economy "whitewashing" taking place as a result of anti-crisis business support measures, introduction of a tax on entrepreneurial income and growth in number of forced entrepreneurs.

4.10.4. SME turnover

According to SberIndex[1], there is an evidenced failure in the overall dynamics of consumer spending (*Fig. 43*) in April-May 2020 and a gradual recovery to the level of the previous year that started at the end of June. Since October 2020, there has also been a negative trend in consumer spending associated with the second wave of the coronavirus pandemic. The largest reduction in household spending compared to the same period last year concerned the cost of air tickets, hotels, beauty salons / massage / SPA, cafes and restaurants. However, consumer spending grew in certain categories since April 2020: for example, "household appliances and electronics" in May-November 2020, "medicines and medical supplies" since mid-July 2020, "clothes, shoes and accessories" in July-October 2020, "computers and software" from mid-April 2020, grocery shops from the end of March 2020, as well as some other categories.

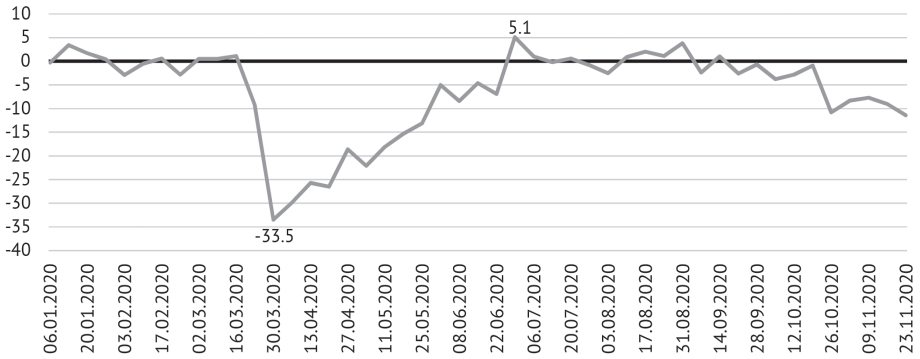


Fig. 43. Consumer spending on goods and services relative to the same week of 2019, %

Source: SberIndex. Changes in consumer spending. URL: https://sberindex.ru/ru/dashboards/verizmenenie-trat-po-kategoriyam

1 Sberbank Analytics. URL: https://www.sberbank.ru/ru/about/issledovaniya?fbclid=IwAR07JkTLIMaojuOSDge5H3FeqVGXt0GIZBlGqd9frQcRV1T2n62UR0wN7UU

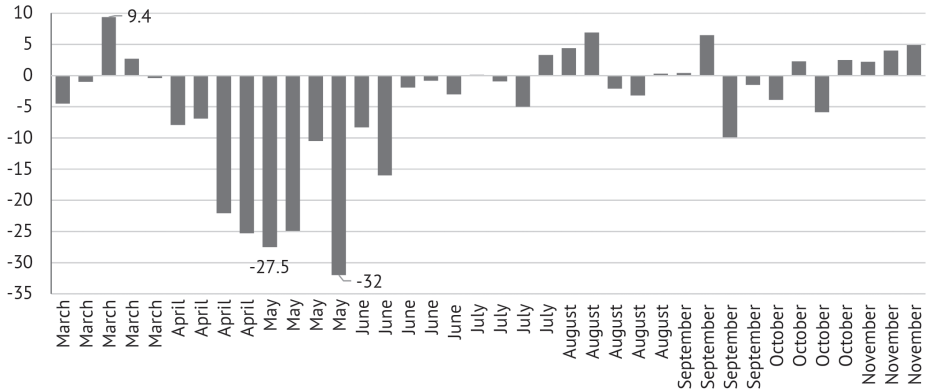


Fig. 44. Dynamics of SMEs billings in 2020 relative to the same week in 2019, %

Source: SberIndex (Change in the business turnover, 2020).

In April-June 2020, a significant decrease was observed in the turnover of small and medium-sized businesses (*Fig. 44*). Thus, at the end of May, the decline in turnover compared to the corresponding week of 2019 constituted a record 32%. In July and the first half of September 2020, there was a slight revival in the activity of small businesses explained by the implementation of the deferred household demand. In the fall, on the eve of the New Year holidays, there was a steady upward trend in SME turnover.

The level of demand remained significantly lower compared to the previous year in tourism and sports/entertainment industries: in June 2020, the turnover drop has been registered in these industries by 86.1 and 50.6% respectively.

SberIndex[1] determined 10 sectors of economy showing growth in earnings: insurance, clothing industry, manufacture of paper and paper goods, forestry, publishing, information technologies, software development, textile production, R&D and vehicle trade.

* * *

Shrinking SME sector has a negative impact on the entire economy. According to our econometric estimates, only due to a decrease in the number of small enterprises by 4.3%, the GRP of Russian regions could have decreased by 0.22-0.67% in 2020 (according to estimates based on our model[2]).

The crisis has clearly shown that the future of a significant number of small and medium-sized businesses is associated with digitalization and knowledge-

1 SberIndex. Top 10 fully operational sectors of economy. URL: https://sberindex.ru/ru/researches/top-10-sectorov-economiki-zarabotavshikx-v-polnuyu-silu

2 Zemtsov S., Smelov Yu. Factors of regional development in Russia: geography, human capital or regional policy//Journal of the New Economic Association. 2018. No. 4 (40), p. 84–108.

intensive sectors: for example, delivery, online services, Internet banking, etc. Many of these sectors experienced a significantly smaller drop in turnover (and even growth in summer), and also maintained and in some cases increased the employment. In the very same industries, there was a smaller decline in the number of companies.

Implementation of long-term support measures is required for further sustainable development of SME sector. A complete digitalization of public services has to be organized as well as the intended transformation of the business climate. It is necessary to focus the attention of federal and regional authorities on reducing the digital divide in the regions through the development of ICT infrastructure and increasing the level of digital literacy among the population and entrepreneurs. It is required to build stable networks of business agents in regions and cities taking into account their characteristics, and to improve business environment.[1] The established ecosystem of entrepreneurship is more resistant to changes in the Russia macroeconomic situation than the individual enterprises. The use of an ecosystem approach to the development of entrepreneurial competencies helps, among other things, to reduce the unemployment rate in the long term due to the switch of potential unemployed to entrepreneurial activity. The regions need retraining programs for the unemployed aimed at mastering digital technologies and teaching entrepreneurship, and it is also necessary to envisage counseling for potential unemployed when they are selecting a new profession and to assist in their employment.

1 *Zemtsov S., Chepurenko A., Barinova V., Krasnoselskikh A*. New entrepreneurial policy for Russia after the crisis 2020 //Voprosy economiki. 2020. – No. 10. – p. 44–67.