

The Impact of the COVID-19 Pandemic on the State of Food Security in Russia

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Abstract: An assessing impact of the COVID-2019 pandemic on the agri-food system of Russia in the short, medium and long term has been carried out. The indicators of physical and economic availability of food are analyzed in comparison with the threshold values of the Russian Food Security Doctrine. Regions with a high and catastrophic level of economic availability of food have been identified. Trends in consumer prices for food products have been identified and the causes of food inflation have been determined. The mechanism of the "grain damper" is revealed and its positive and negative impact on food security is determined. It is noted that high risks in the agri-food system will remain in 2022.

1 INTRODUCTION


The new COVID-19 coronavirus infection has caused large-scale shocks in all fields and sectors of the economy. The agrifood sector is no exception, where serious risks have formed and persist in the field of food security and nutrition.


Quarantine measures taken in many countries of the world since March 2020, designed to contain the spread of the disease, create conditions for serious disruptions in the functioning of food systems and a sharp increase in food shortages and hunger. According to Food and Agriculture Organization (FAO) forecasts, "as a result of the pandemic, the number of people facing food insecurity will increase by 83-132 million people... An indirect socio-economic consequence of the pandemic may be a significant deterioration in the food security situation in at least 25 countries around the world." (Analytic Note FAO, 2020). Such catastrophic consequences are typical for poor countries in Africa, Asia, Latin America, dependent on food exports, with a weak development level of their own agricultural production, high differentiation of the population by income level. In developed countries, the impact of the pandemic is manifested by changes in the macroeconomic environment, energy and credit markets, high dynamics of prices for raw materials

and factors of production, and rising inflation. Russian realities have their own peculiarities, where the impact of the global coronavirus infection is superimposed on unfavorable weather conditions in 2021 and changes in the market of agricultural raw materials and food.

2 RESEARCH METHODOLOGY

The dialectical method was used as the methodological basis of the study, which helps to consider the events caused by the COVID-19 pandemic in development and in an inextricable connection between the causes of these events and their consequences, based on factual and statistical materials. Generalization of data on the state of food markets and the agricultural sector on the basis of analysis and synthesis techniques helped to identify common patterns and develop, on the basis of this, recommendations for ensuring food security. The information base of the study was the data of the Federal State Statistics Service, analytical materials from the Ministry of Agriculture in the Russian Federation, information data of the Food and Agriculture Organization (FAO) of the United Nations.

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3 THE RESULTS OF THE STUDY AND THEIR DISCUSSION

Developments since the beginning of 2020 in the research literature, it was reflected as the influence of a natural (or biological) factor on the economic system, with the statement of the fact that the crisis that formed has a non-economic nature (Russian economy (economic overview), 2021). At the first stages of the pandemic, most studies were devoted to the problems of excessive demand in food and consumer markets, as well as the ability of systems to ensure food security without a shortage (Boyacı-Gündüz, 2021; Lusk, 2021). Subsequently, the introduction of isolation regimes gave rise to a surge of research devoted to the search for new forms of providing the population with food, the development of e-commerce (Market report, 2021). The introduction of cross-border restrictions has brought to the first place on the availability of agricultural labor resources (ILO Sectoral brief, 2021, especially seasonal workers at the expense of migrant workers, as well as access issues of agricultural producers to markets (Thilmany, 2021). By the beginning of 2021, comprehensive studies have appeared outlining the full range of problems related to the development of agriculture and ensuring food security (Analytic Note FAO, 2021; World Bank Report, 2021; Beckman, Coutryman, 2021).

Russian scientists did not stand aside, in particular the Institute of Economic Policy named after E.T. Gaidar, and presented an analytical review "The Russian economy in 2020 Trends and prospects" (Russian economy (economic overview), 2021), which highlighted both the problems facing the country in the era of the pandemic, and ways to solve them. Regional researchers did not stand aside. Their articles are devoted to the readiness of regional agriculture to respond to the challenges of the time (Parshukov, 2021).

A comparison of problem areas in Russia and the world helped to state the fact that the level of agricultural production development in most parameters meets the criteria of food security and helps to prevent shortages of basic products (table 1).

Since 2000, there has been an increase in production for all major types of agricultural products, with the exception of milk and dairy products. The level of self-sufficiency in grain, potatoes, meat and meat products exceeds the standard, is close to the standard for vegetables, below the standard for fruits and berries, milk and dairy products. The category "fruits and berries" has been included in the food security doctrine since 2020. It is assumed that the filling of the Russian market will be facilitated by the "roadmap" for the accelerated development of fruit and berry production until 2023, which provides for the achievement of food security thresholds for production and consumption. The continuing problems in the dairy subcomplex of the agroindustrial complex, despite the special attention from the Ministry of Agriculture, do not help ensuring the country's food independence. Given that during the pandemic, many countries are aimed at self-sufficiency and may impose restrictions on the export of products, the issue of import substitution, especially for milk and dairy products, continues to be relevant.

In the new Food Security Doctrine, the economic accessibility of food is considered through the ability of the population to meet the need for food products in accordance with rational norms that meet modern requirements of a healthy diet (On the approval of the Food Security Doctrine: Decree of the President of the Russian Federation No. 20 dated 21/01/2020).

Table 1: Agricultural production and the level of self-sufficiency in the Russian Federation.

Products	Production in Russia, kg per capita			The level of self-sufficiency, %			
	2000	2010	2020	2000	2010	2020	Standard
Grain (without processed products)	447	427	912.4	104.0	94.5	169.9	>95
Potato	201	129.5	133.6	102.7	77.0	95.3	>95
Vegetables	74	77.1	105.3	88.2	78.8	88.8	>90
Fruits and berries	20.2	16.9	29.6	28.3	27.0	42.6	>60
Milk and dairy products	220.5	220.6	219.6	88.3	80.4	84.5	>90
Meat and meat products	30.4	36.2	76.5	97.2	72.3	99.6	>85
Eggs (pcs.)	233.0	285.4	306.1	88.3	80.4	84.5	-

Note: compiled according to the Federal State Statistics Service

Table 2: Economic accessibility of food.

Types of products	Rational norm*	Actual consumption of food products on average per capita per year, kg			Economic accessibility of food, %		
		2000	2010	2020	2000	2010	2020
Meat and meat products	73	45	69	75	61.6	94.5	102.7
Milk and dairy products	325	215	245	240	66.1	75.4	73.8
Egg, pcs.	260	229	270	283	88.1	103.8	108.8
Fish and fish products	22	no data available	no data available	20	-	-	90.9
Sugar	8	35	39	39	437.5	487.5	487.5
Vegetable oil	12	9.9	13.4	13.9	82.5	111.6	115.8
Potato	90	109	95	86	121.1	105.6	95.5
Vegetables and melons	140	79	98	107	56.4	70.0	76.4
Fruits and berries	100	32	57	61	32.0	57.0	61.0
Bread products	96	117	120	116	121.9	125.0	120.8

*In accordance with the orders from the Ministry of Health in the Russian Federation No. 614 dated 08/19/2016, No. 1276 dated 12/01/2020/.

The data given in table 2 indicate that in a difficult 2020, the diet of the average citizen of the country was the closest to rational, but nevertheless its imbalance remains, expressed by focusing on carbohydrate, cheaper components to the detriment of protein. To assess the economic availability of food, it is also advisable to consider the share of food purchase costs in the overall structure of household spending: 2000 year – 47.6%

- 2010 – 29.6 %
- 2015 – 30.4%
- 2018 – 30.2 %
- 2019 – 29.7 %
- 2020 – 33.2 %.

The population of the country spends a third of its budget on food, while food is considered economically affordable if the share of food costs does not exceed 20% of the total final consumption if less than one third of income is spent on food, then the level of accessibility can be considered average, over one third, but less than 50% is high; over 50% is critical. For comparison, the figure in Germany is to 8.25%, France – 10.1%, Italy – 12.2%, the UK - 6.3%, the United States - 5.7%, Canada – 7.3%, and Japan - 12.3% (according to the OECD in 2017).

The share analysis of food purchase expenses in the total structure of household expenditures in the context of the federal districts in the Russian Federation is shown in Figure 1 and shows that in addition to the Central Federal District, in all other districts the share of food costs exceeds 30%. And it should also be noted the regions where this indicator is high or has a critical level:

- the Central Federal District – the Bryansk region - 40.2%, the Smolensk region - 46.0%, the Ryazan region - 42.3%;
- the Southern Federal District - Sevastopol – 48.8%, the autonomous Republic of Crimea - 44.2 %;
- the North Caucasus Federal District – the Republic of Dagestan - 50.0%, the Republic of Ingushetia - 64.6%, the Karachay-Cherkess Republic - 43.1%, the Republic of North Ossetia-Alania - 40.7%;
- the Volga Federal District - the Republic of Mordovia - 43.6 %;
- the Siberian Federal District – the the Novosibirsk Region - 41.6%;
- the Far Eastern Federal District – the Chukotka Autonomous Region - 41.3%.

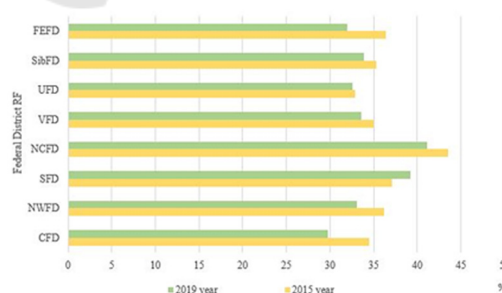


Figure 1: The share of food purchase expenses in the total structure of household expenditures by federal districts of the Russian Federation.

One of the reasons for the high economic availability of food is the low level of the population income. In particular, the gap with the average

Russian value in terms of per capita income is most pronounced in the regions of the North Caucasus Federal District - 2.1 times in the Republic of Ingushetia, 1.9 times in the Karachay-Cherkess Republic, 1.4 times in the Republic of North Ossetia-Alania.

A decrease in real incomes and a drop in the purchasing power of the population will be associated with a decrease in demand for food, and the trends of 2019-2020, which are associated with a decrease in the consumption of bread, cereals and potatoes and an increase in the consumption of meat and dairy products, vegetables and fruits, may be suspended in 2021.

Among the main reasons for the increase in cost of food in 2020-2021 note the increase in food prices (figure 2).

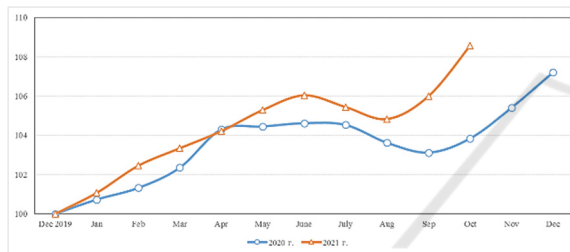


Figure 2: Consumer price index for food products in % to December of previous year.

The trigger for the increase in food prices in 2020 year was an increase in production costs caused by a change in the composition of the labor force due to restrictions on the use of migrant labor, changes in the supply chains of raw materials, an increase in the cost of imported components (feed, fertilizers, packaging, etc.), the need to provide workers with personal protective equipment, disinfection of premises and production facilities.

In 2021, new factors were added to these factors, namely: a decrease in production volumes due to adverse weather conditions and a difficult epizootic situation in animal husbandry (by 3.4% in 8 months of 2021), as well as increased interest of Russian producers in world markets, where there is an upward price trend, to the detriment of Russian market.

According to the Federal Customs Service, in 2020 Russia exported 79 million tons of agricultural products and food worth \$30.7 billion, which is 20% more than in 2019. The largest share in the value volume by the end of 2020 was taken by exports of grain (33.5%), fish and seafood (17.4%), fat and oil products (16.2%), in the export structure are also significant products of the food and processing industries (14.7%) and other agricultural products

(14.4%). In 2021, export growth trends continued – in 10 months, the volume of exports amounted to \$30.3 billion, approaching the annual figures of 2020.

The impact of exports on food security is manifested in the increase in prices of products for which Russia is integrated into the world market as an exporter (grain, sunflower oil, sugar). Thus, in 2020, prices for soft wheat varieties (SRW, USA) increased by 7.8% to \$227.7/ton, futures prices on the Chicago Stock Exchange increased by 12.5% to \$204/ton. In the first half of 2021, prices for soft wheat varieties added another 4.9% relative to the beginning of the year, in June they exceeded the level of the same period in 2020 by 31.4% (report of the Ministry of Economy, 2021). The cost of Russian wheat for delivery in October is at the level of \$305 per ton, in November - \$307 per ton. The stabilization of prices on the Russian grain market is designed to ensure the export duty on wheat (from October 6 to 12, 2021 is \$ 57.8 / ton), as well as a tariff quota for export outside the territory of the EAEU member states. The grain damper mechanism, introduced on June 2, 2021, helps regulating the supply and price of grain on the Russian market ensuring food security.

The essence of the mechanism is as follows: if the world price of wheat is up to \$200 per ton, the duty is not charged, and at a higher one it is 70% of the difference between the world and the base price of \$ 200/ton. For barley and corn, the price level, not subject to export duty, is \$185 per ton. The higher the export price, the more funds are cut off by the duty. The "grain damper" involves the return of funds received through the collection of export duties to farmers in the form of subsidies.

In addition, from February 1 to June 30, 2021, an export duty on soybeans was in effect — 30% of the customs value, but not less than €165 per ton (before that, the export of soybeans was not taxed), and from July 1, 2021 to August 31, 2022, the amount of the duty on soybeans is 20% of the products cost, but not less than \$ 100 per ton.

Additionally, a damper was installed for the export of sunflower oil. From September 1, 2021 to August 31, 2022, a floating export duty of 70% is in effect. It is charged from the difference between the base price (\$1 thousand/ton) and the indicative price (the arithmetic mean of market prices for the month), reduced by the amount of the correction factor (\$ 50 per ton). All these measures are aimed at regulating prices in the Russian market.

The main positive aspect of the damping mechanism is that the introduction of duties led to a reduction in the impact of rising world prices on Russian prices, which reduced purchase prices for

processors, as well as for livestock breeders and eventually contributed to the stabilization of prices in the Russian market. But at the same time, according to the calculations of the Institute for Research and Expertise of Vnesheconombank (VEB), the lost revenue of agricultural producers in 2021/2022 may amount to \$2.3 billion and will lead to a reduction in production and its technical and technological equipment, a decrease in exports and its competitiveness, loss of world market share (VEB report). According to researchers and practitioners, the duty may be effective as an emergency measure, but in the long term, another mechanism is needed to smooth out the negative impact of rising prices, for example, food aid.

In general, the pandemic has led to comprehensive changes in the food system, which manifested themselves differently in different time periods (figure 3).

Initial impacts (2020)	Medium-term impacts (2021)	Long-term impacts (2022-2023)
<ul style="list-style-type: none"> •High demand for food •Disruptions in food supply chains •Lack of labor force from among migrant workers •Compliance with sanitary and anti-epidemic safety measures at work •Increase in production costs •Falling real incomes of the population, changing diets in favor of carbohydrate-containing products •Activation of food exports 	<ul style="list-style-type: none"> •Rising prices for factors of production •The increase in food prices on the Russian market, especially for imported and export-oriented products •Reducing the economic availability of food •The global economic downturn and the impact of macroeconomic indicators on the country's food system •Incomes reduction of agricultural producers 	<ul style="list-style-type: none"> •Reducing production growth rates •Decrease in investment activity due to the rise in the cost of credit resources •Changing the structure of agricultural production •Reducing exports due to the using instruments of state regulation for the Russian market •Food inflation

Figure 3: The impact of the Covid-19 pandemic on the agrifood system in the short, medium and long term.

The continuing threats of the coronavirus infection spread do not give reason to believe that 2022 will be a year of recovery growth. On the contrary, with continuing trends, a further decline in real incomes of the population will continue with a change in the structure of food consumption, at the same time, a reduction in growth rates and a decrease in investment activity may occur on the part of production.

4 CONCLUSION

1. The modern agrifood system of Russia is self-sufficient in order to provide the country's population with most food products. According to the Global Food Security Index in 2020 (GFSI, 2021), Russia

ranks the 24th in the global food security index with 73.7 points, rising by 12 positions compared to 2019;

2. In 2020, the level of economic availability of food decreased, caused by a drop in real incomes of the population, an increase in prices on the food market;

3. Due to the fall in real incomes, a decrease in the purchasing power of the population, respectively, and the demand for food, it is expected that the positive dynamics in the structure of consumption associated with a decrease in the proportion of carbohydrate-containing components in favor of protein, will stop;

4. The increase in prices for agricultural raw materials and food is caused by an increase in production costs due to the need to comply with sanitary and epidemic measures, a reduction in the employment of migrant workers, an increase in prices for factors of production;

5. The increase in prices on the Russian market also occurred under the influence of food prices on the foreign market. In 2020, the World Food Price Index (FAO) increased by 3.1% compared to 2019, and by October 2021 it reached 133.2 points, which is 17.4% higher compared to the beginning of the year. In Russia, prices for commodity groups, according to which the country is integrated into the world market as an exporter (grain, sunflower oil) and importer (vegetables and fruits), increased more significantly;

6. In order to curb the growth of food prices, export duties on grain, oilseeds and sunflower oil were introduced in 2021. Since Russian prices for them correlate with world prices, the task of duties is to protect Russian consumers from a sharp rise in the price of products on the global market. At the same time, duties reduce the profitability of agricultural producers and demotivate export operations;

7. Due to the identification of new strains of SARS-CoV-2 coronavirus, threats to food security in 2022 remain and will be primarily associated with a drop in the incomes of agricultural producers.

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