

STATISTICAL ANALYSIS OF SUSTAINABLE DEVELOPMENT OF MODERN ECONOMY

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Abstract

The purpose of this article is to provide a statistical analysis of the sustainable development indicators of the Russian Federation within the framework of the United Nations 2030 Agenda, in particular food security as it relates to Sustainable Development Goal 2 Eradicate hunger, achieve food security and improved nutrition, and promote sustainable agriculture. The importance of solving the problem of food security and healthy nutrition is emphasized. In the course of scientific research, general and special methods of scientific knowledge were applied: analysis, synthesis and comparison, as well as statistical data analysis and visualization.

Keywords: sustainable development, food security, sustainable development indicators

I. Introduction

Sustainable development is one of the most important goals in the economic and geopolitical activities of many countries, reflected in strategic development documents. The Russian Federation, like many countries, has adopted at the state level the UN resolution on sustainable development and ratified the Paris Convention on Climate Change. As part of the implementation of national development goals in the field of green finance and sustainable development, the goals and main directions of sustainable (including green) development of the Russian Federation were approved at the legislative level. The implementation of these areas should contribute to the achievement of objectives related to positive environmental impact, achievement of environmental effect, compliance with the technological indicators of the best available technologies, as well as the absence of significant side effects on the environment (principle "Do Not Significant Harm").

The fundamental principles of Russia's transition to sustainable development were laid down in the Concept of Transition of the Russian Federation to Sustainable Development, adopted by the Decree of the President of the Russian Federation in 1996. [2] Presidential Decree No. 204 of May 8, 2019, defined the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024 [7]. At present, we can speak about the actual focus on achieving the SDGs of twelve national projects and the Comprehensive Plan for Modernization and Expansion of Backbone Infrastructure, implemented to achieve the national goals and strategic objectives of development of the Russian Federation for the period until 2024.

II. Methods

The 2030 Agenda Sustainable Development Goal indicator framework includes 231 indicators divided into three levels (1 - method established and data widely available, 2 - method established

but data limited, 3 - no internationally agreed method). Only 123 indicators (53 %) belong to level 1, the rest are categorized as level 2 [6]. The global indicator framework was developed by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) and harmonized by the United Nations Statistical Commission. Recognizing the difficulty in adopting a global indicator framework that is appropriate for all countries, the 2030 Agenda states that Member States will develop their own national indicators. [5]

The realization of sustainable development is most likely when there is a balance of 3 key components, namely economic growth, social responsibility and environmental balance.

Sustainable growth of the state economy is one of the main conditions for sustainable development of the society. With the growth of GDP, the living standards of the population rise, production expands, employment and wages increase, and the state, in turn, receives more finances to address social and environmental needs.

External challenges that seek to throw our country's economic processes out of balance only provide an incentive to develop a sustainable and secure system of international settlements, shift production chains, develop industry, search for new partners, importers and exporters, investors. At the moment Russia is steadily moving towards building a multicollaborative self-sufficient economic system.

III. Results

The purpose of this study is to analyze the status of implementation of Sustainable Development Goal 2 Eradicate hunger, achieve food security and improved nutrition, and promote sustainable agricultural development in terms of food security.

At present, the Russian Federation has a well-developed legislative framework regulating the food supply of citizens. The Doctrine of Food Security of the Russian Federation (hereinafter referred to as the Doctrine), adopted in 2020, is the document of strategic planning of food security, which reflects the main directions of the state social and economic policy in the field of ensuring food security. The Doctrine guarantees physical and economic accessibility for every citizen of the country to food products that meet mandatory requirements, in amounts not less than the rational norms of food product consumption.

According to the Doctrine, economic accessibility of food is interpreted as "the possibility to purchase food products of proper quality at prevailing prices, in volumes and assortment that correspond to recommended rational consumption norms" [1].

According to the United Nations, in 2019, 690 million people in the world were in a state of hunger, nearly 1 billion people could not afford a nutritious diet, and for another 1 billion people, a healthy diet was out of reach. The dire situation was made worse by the Covid-19 coronavirus pandemic, which starved about 120 million people, bringing the number of hungry people to 811 million in 2020. The world's population is projected to increase to 10 billion by 2050, hence the problem of food supply will become even more acute. The State of Food Security and Nutrition in the World 2022, prepared by the largest authoritative international organizations (FAO, IFAD, UNICEF, WHO, etc.), notes that the world is moving further away from achieving the goals of eliminating hunger, food insecurity and malnutrition in all its forms [4].

In this regard, the need for research to assess the state and develop proposals to ensure food security of the state becomes obvious.

One of the important indicators is the indicator of food independence for staple foods in the country. The Doctrine on Food Security defines the main types of products, where the key ones are: sugar, potatoes, milk and milk products, meat and meat products [1]. According to statistical data, by 2021, food independence is achieved for all types of products except milk and milk products (83.6% of 90%, respectively) [8].

The basic indicators also include the indicator of actual consumption of basic food products by category by the population. According to the data for 2017-2021, the population's consumption of

potatoes and milk and milk products is considered insufficient, as the indicators for these types of food never reached the threshold value (100%) during the entire time period under consideration (Fig.1) [8].

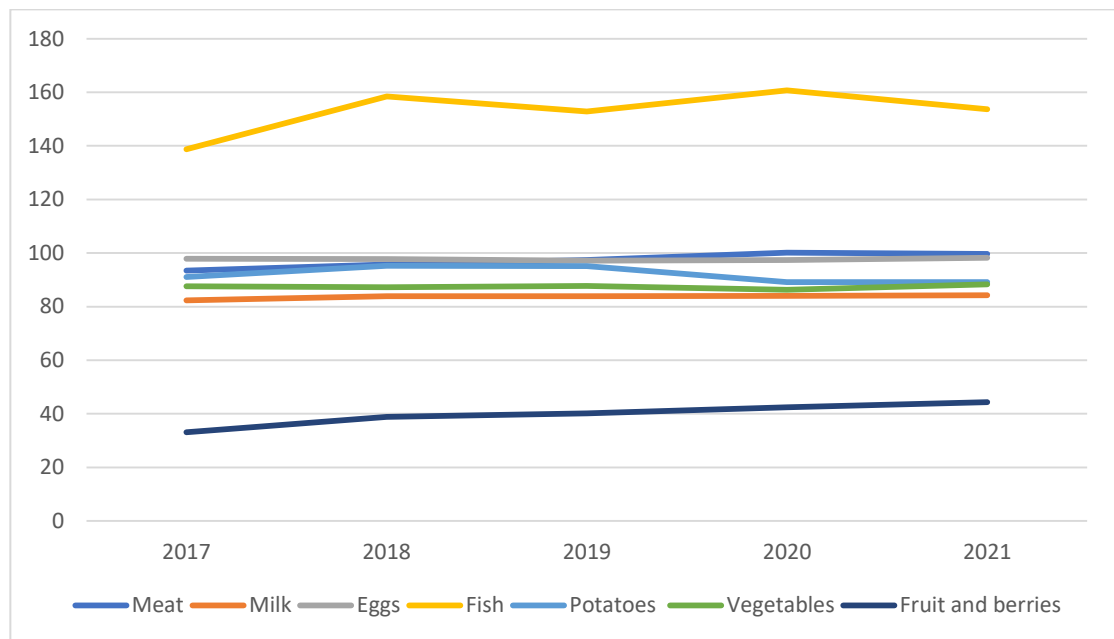


Fig. 1: Consumption of basic foodstuffs by the Russian population, 2017-2021, %

In 2020-2022, the number of business entities decreased by 50,203 units, and if there is a decline in 2021, then in 2022 the same indicator increased from 568,4561 units to 5866,703 units. Of the eight federal districts, six showed a decreasing trend. Only two federal districts have positive dynamics. Thus, the number of business entities increased in the central Federal District by 36,202 units, in the North Caucasus Federal District by 4,794 units, but in Russia as a whole, the number of entities tends to decline (in 2022, there are 50,203 fewer SMB than in 2020).

The largest number of small and medium-sized businesses is observed in the central Federal District: 30.8%; 31.0%; 31.7%, respectively. The Volga Federal District is in second place, although the number of subjects is decreasing: 17.9%; 17.8%; 17.6%, respectively. The situation is approximately similar in three federal districts: North-Western; Southern; Siberian. In them, the number of SMB is 10-12% of the total. Despite the positive dynamics, the smallest number of business entities is observed in the North Caucasus Federal District: 3.4%; 3.4%; 3.5%, respectively.

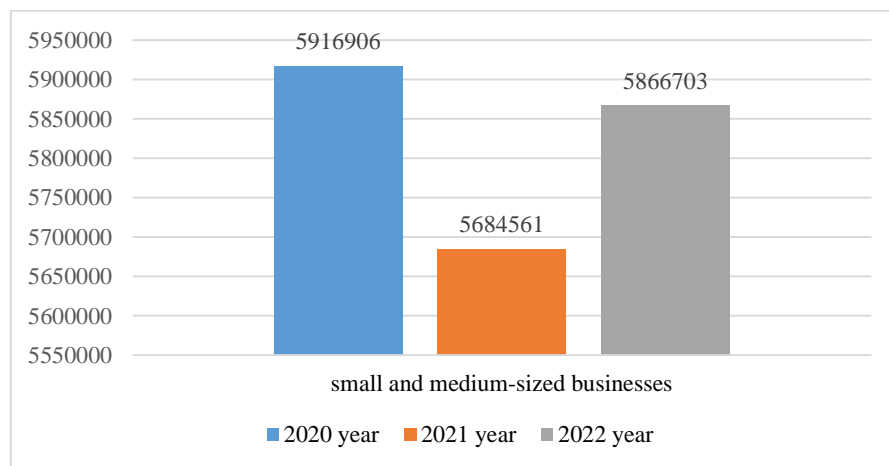


Fig. 2: Dynamics of the number of small and medium-sized businesses in the Russian Federation for 2020-2022 (units).

Achieving food security depends directly on the affordability of food, which brings to the fore such indicators of the country's economic life as the price index for food products and the share of the population with incomes below the subsistence minimum.

Regarding the food price index, there is an upward trend in the index after 2019 due to the coronavirus pandemic and the unstable economic situation both in the country and in the global arena (Fig.2) [8].

An important indicator is also the indicator of the share of the population with incomes below the subsistence minimum, which, according to statistical data, shows a high level of poverty in the Russian Federation (Fig.3) [8].

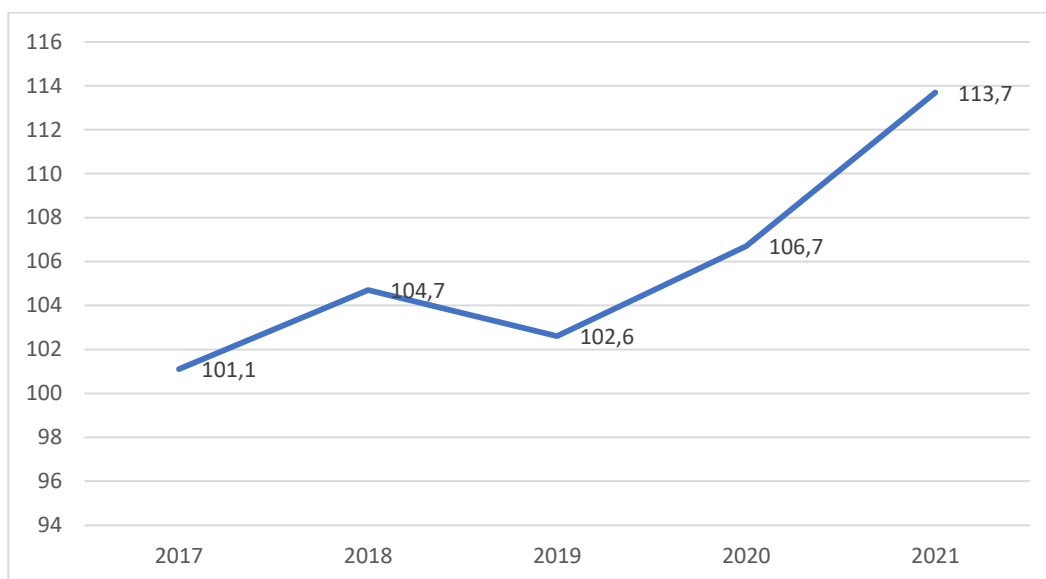


Fig. 3: Food commodity price index, 2017-2021, %

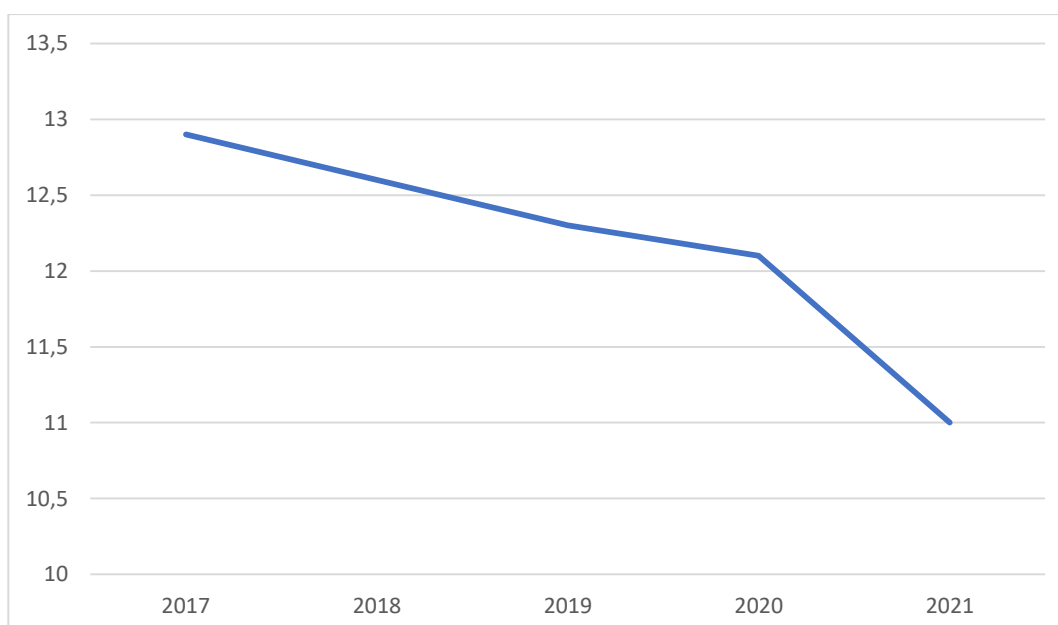


Fig. 4: Share of population with cash income below the subsistence minimum, 2017-2021, %

The dynamics of the share of imported food products in the commodity resources of food retail trade is characterized by multidirectional nature and trends (Fig.4) [8].

The threshold value (no more than 25%) is not exceeded only in the period 2017-2018 (there was a significant reduction in the share due to the launch of food import substitution policy in response to the imposed sanctions).

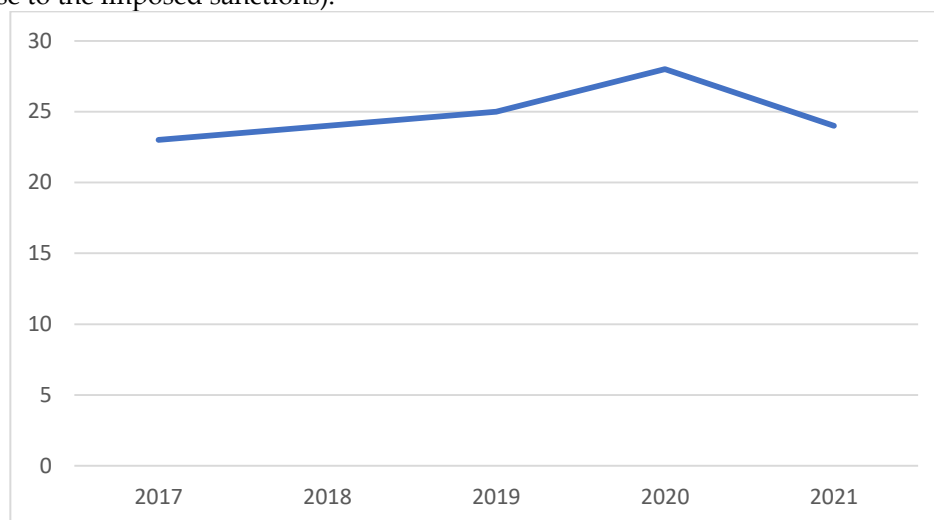


Fig. 5: Share of imported food products in the commodity resources of food retail trade, 2010-2021, %

Despite the fact that for the five-year period under consideration from 2017 to 2021, the dynamics of the predominant part of the indicators is more positive, the following challenges and threats to food security can be traced.

1. Food price inflation and the dynamics of world food prices. Since 2020, there is an increase in prices not only for food produced in Russia, but also imported from abroad. Thus, in January-February 2022, there is an increase in raw milk prices (the price increased from 28,000 rubles/t to 32,776 rubles/t in 3 months), as a result of which the prices of dairy products increased due to high prices of feed and imported equipment [8].

2. Insufficient level of solvent demand of a significant part of the population for food (low real incomes of the majority of the population, increase in social material stratification). The share of the population with income below the subsistence minimum in 2020 is 12.1%, exceeding the threshold of 10% (Fig. 3). Note that the real disposable income of the population in 2020 in Q2 decreased by 8%, reaching the lowest value for the interval 2014-2020. [8].

3. Change in the structure of consumption of basic foodstuffs (Fig.1). According to Rosstat data, the consumption of such foodstuffs as sugar, meat products has become higher than the norm in recent years, while the consumption of milk and dairy products, as well as potatoes has decreased.

4. Unacceptable level of consumption of some basic products by the population, as well as consumption of other products in excess of the norm, which leads to deterioration of the health status of the population. Despite the positive dynamics in the consumption of certain groups of food products by the Russian population, the nutrition of the population is unbalanced. Statistical data confirm that the consumption of potatoes and dairy products necessary for health is insufficient (62% and 80% for 2020, respectively) (Fig.2). At the same time, the consumption of sugar, meat and meat products is above the norm (129.2% and 121.1% for 2020).

5. Economic accessibility to all citizens of the Russian Federation of the necessary volume and quality of all basic types of foodstuffs that does not meet safety standards. This is due to the discrepancy between the real income of the population, as well as the share of the population with income below the subsistence minimum and the increasing prices for some food products.

In the long term, challenges will be related to every sphere of life and functioning of the economic system.

The goal of reaching the indicators of self-sufficiency established in the Doctrine is to ensure food independence of our state and increase economic and national security, which is of great importance in the current circumstances.

In recent years, some criterion indicators of food independence have been achieved, including at the expense of government support programs provided to the agro-industrial complex, but a number of problems have not yet been solved. Achievement of the established planned criteria in the sphere of agro-industrial complex will be possible, among other things, by solving certain existing problems related to the sale of agricultural products and export-import operations. The development of information and advisory support system for agricultural producers, especially small enterprises, will have a positive impact on their activities in general. Solving the set tasks and achieving the planned criterion indicators of self-sufficiency, especially in the field of food, will ensure Russia's full independence.

According to the Doctrine, the products produced by domestic agricultural producers should be of high quality, environmentally friendly and economically and physically accessible to the entire population of the country.

Russian companies in the agricultural sector are operating efficiently. Profitability amounted to 25.6 % (the target is 15.3 %). Let us consider the resource supply of basic foodstuffs in the Russian Federation in 2013-2021. Over the past eight years, grain imports have significantly (by 86.7%) decreased and exports have more than doubled (Fig.5) [8]. The production of meat and meat products is increasing in the country. Every year the volume of personal consumption and export of meat increases (Fig. 6) [8]. Production volumes of milk and dairy products increased, at the same time there was an increase in exports and a decrease in imports (Fig.7) [8]. In the first half of 2022, the production of raw (by 1.6%) and dried milk (by 28.1%), cheese (by 5.7%) and butter (by 11.0%) increased.

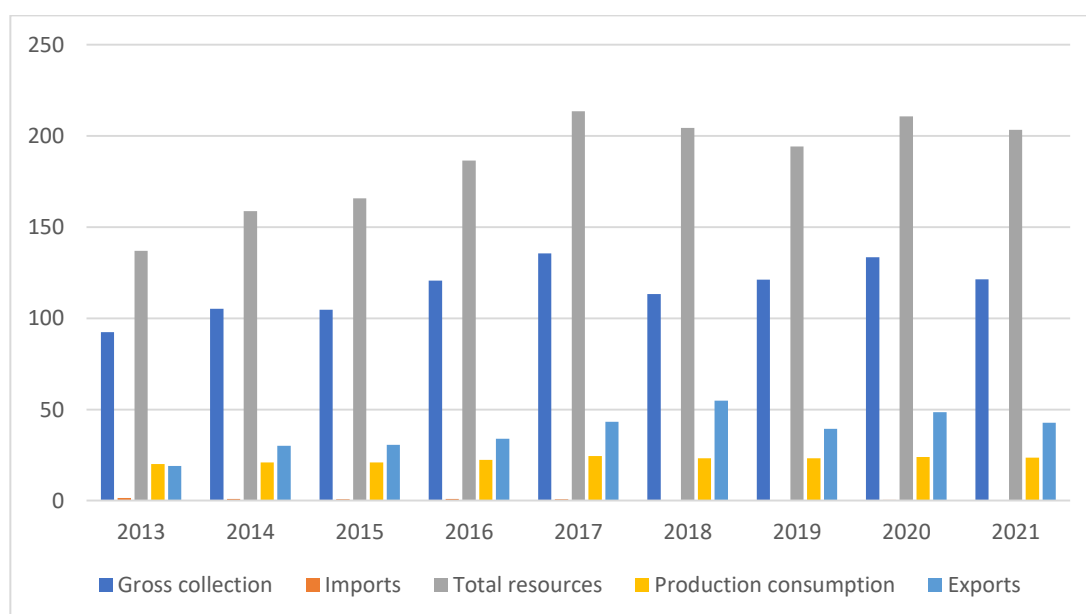


Fig. 6: Resource supply of the Russian Federation with grain (without processed products) in 2013-2021, mln tons

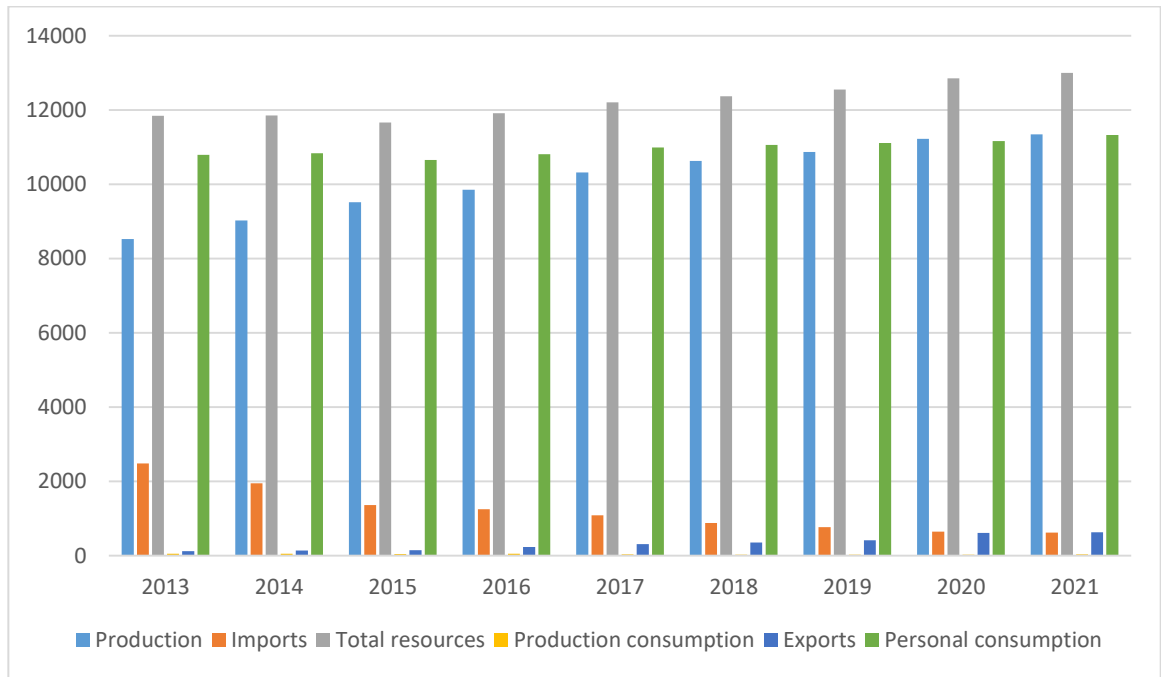


Fig. 7: Resource supply of the Russian Federation with meat and meat products in 2013–2021, thousand tons.

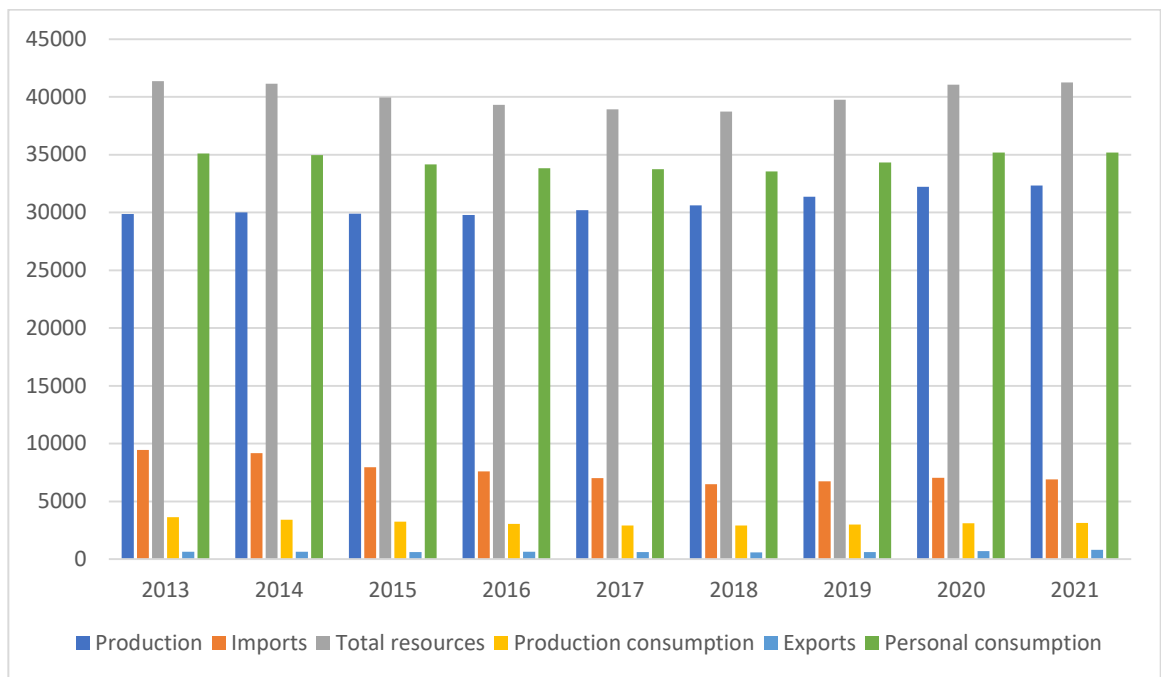


Fig. 8: Resource supply of the Russian Federation with milk and milk products in 2013–2021, thousand tons.

Imports of fish and other seafood decreased by 28.9% and continue to decline in 2022-2023. Production and exports increased by 76.9 % by 2021 (Fig.8) [8].

Information on the resource supply of the Russian Federation with fruits and berries in the period under consideration is presented in Fig.9 [8].

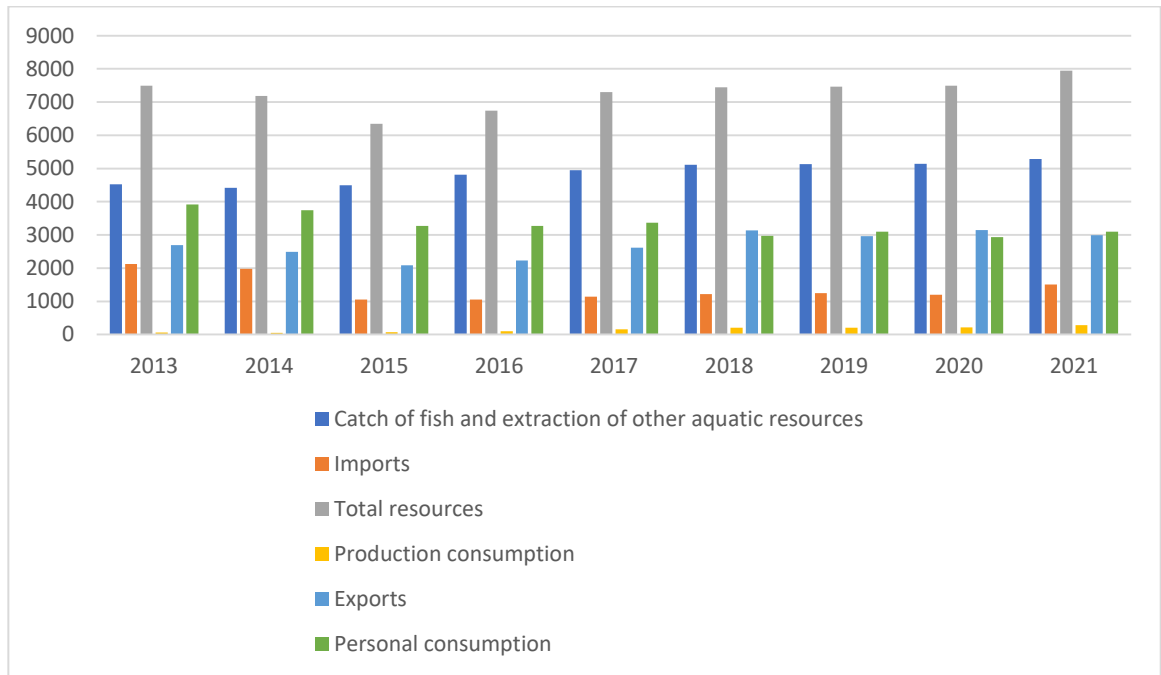


Fig. 9. Resource supply of the Russian Federation with fish and fish products in 2013-2021, thousand tons in live weight

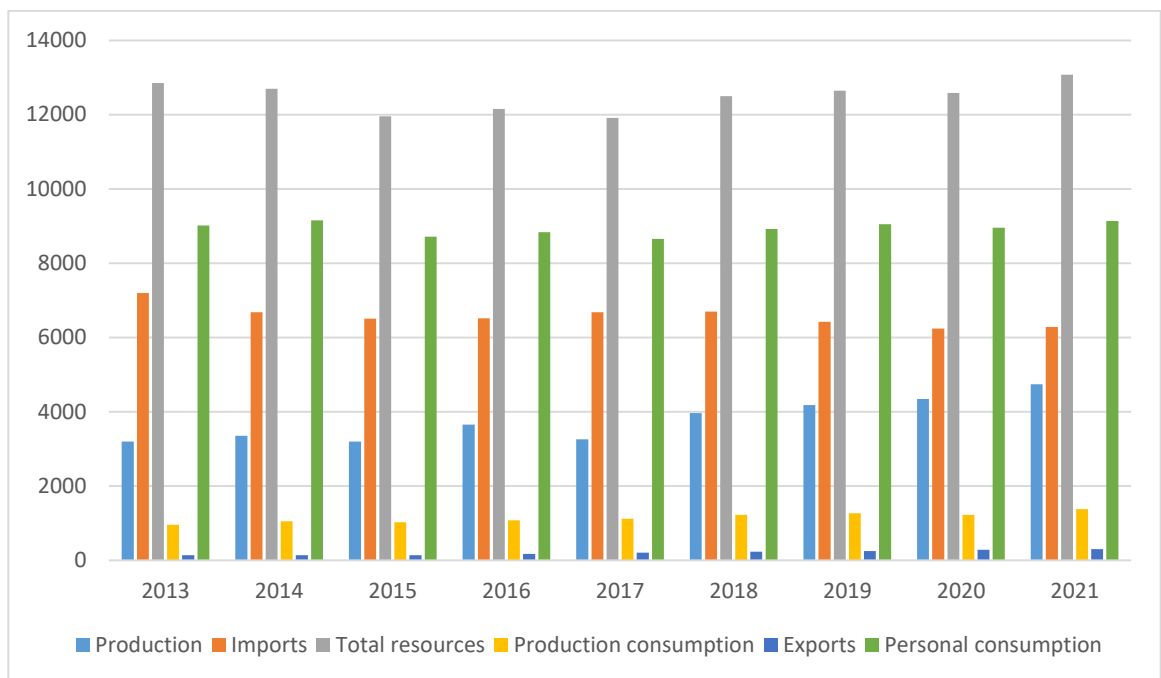


Fig. 10. Resource supply of the Russian Federation with fruits and berries in 2013-2021, thousand tons.

Nevertheless, the volume of state subsidies and financial support is low. For example, in the European Union, subsidies amount to about 30% of the cost of production, while in Russia - 3%. The OECD determines the overall level of financial support to agribusiness through the indicator "total support assessment". Russia ranks 5th in this respect. The state support per 1 ha of arable land in Russia is 35 USD, in the European Union countries - 800 USD, in China - 1500 USD, in Switzerland - 1400 USD [3].

IV. Discussion

Thus, ensuring a high level of food security, overcoming challenges and threats in this area of economic security directly depend on the level of involvement of the state in this area, on the state policy and a set of measures to reduce risks in the food sector. Achievement of results and positive effect is possible only with proper state and regional control over the implementation of all officially adopted measures to improve the food security situation and achieve its planned level by 2030.

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