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PRELIMINARY IMPACTS OF THE COVID-19 PANDEMIC ON AGRI-FOOD TRADE: CHALLENGES AND DEVELOPMENT SCENARIOS (CASE OF GEORGIA)

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Abstract. The role of agri-food trade in food security and agricultural development is substantiated in the article. There is Assessed food trade challenges, export restrictions and import facilitation during the COVID-19 crisis. The paper examines the changes in supply caused by various factors in the production sector in the agri-food sector, hypothesizing that food demand is relatively stable financially, as well as during various crises.

The paper analyzes the views of scientists on the difficulties caused by the pandemic, on the basis of which two development scenarios are formulated. Opportunities have been identified for the continuation of trade in agri-food products between countries, and there is a reasonable view on the incentives for trade in these products in the short and long term.

In the process of research, through comparative analysis, the indicators of trade in agri-food products of Georgia in the pre-pandemic (2018-2019) and post-pandemic (2020-2021) periods are grouped, positive and negative trade trends are identified. At the same time, based on the results of the global financial crisis and the pandemic, an in-depth analysis of typical and atypical crises has been conducted for the agri-food sector around the world and in Georgia.

Based on the results of the research, a matrix has been compiled to determine the growth and decline rates of trade in agri-food products before and during the pandemic.

The paper draws conclusions and makes recommendations on food trade challenges and trade improvement measures during the COVID-19 crisis.

KEYWORDS: AGRI-FOOD TRADE, EXPORT-IMPORT, COVID-19 PANDEMIC, TYPICAL AND ATYPICAL CRISIS, TRADE BALANCE.

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INTRODUCTION

International trade plays a special role in ensuring global food security and agricultural development. Trade in agri-food products improves access to food, especially its role for import-dependent countries. Based on the relevant statistical information on the Georgian economy, we can conclude that a consumer model of the economy has been established in the country (Papava, 2018).

Trade in food products helps to stabilize food prices, making a wide variety of foods more accessible to consumers (FAO, 2015). Revenues from agri-food exports are an important source of funding for many developing countries (Schmidhuber & Qiao, 2020a). It can be argued that the food trade and the global value chain are directly related to agriculture and the economic development of countries (FAO, 2020d).

The crisis caused by the COVID-19 pandemic has had an unprecedented impact on all costs of human life, with economic and social impacts still continuing as the spread of the disease is not over. In the conditions of this pandemic, we are facing not a classical type, but a qualitatively new global economic crisis, when its causes are not endogenous, but exogenous, i.e. when these causes are generated not in the economy, but provoked by a source outside the economy. Given this factor, both the individual country and the world face the

threat of a "The Coronomic crisis" in a different, atypical, new term from the classic economic crisis (Papava, 2020).

Restrictions on pandemic spread have led to a deep global economic recession, increased poverty, chronic food insecurity, and stalled progress in recent decades. Accordingly, it has become relevant to study changes in the food trade and assess the impact of COVID-19 on food trade (Vickers, Ali, Zhuawu, Zimmermann, Attaallah, Dervisholli, 2020).

In Georgia, over the years, a negative trade balance of trade in agri-food products has been formed. The pandemic has changed this trend.

The study of trade balance trends due to pandemic factors in the field of trade in Georgian agri-food products has a positive impact on the opportunities for improving trade and economic development of agri-food products.

Research objective

The purpose of the study is a comparative analysis of pandemic periods in the field of trade in Georgian agri-food products, to identify the challenges of Covid-19 and develop recommendations for ways to improve trade.

Research Methodology

The paper evaluates various research articles and reviews on trade and export-import of agri-food products under the COVID-19. Also, there are used reports published by FAO, World Trade Organization and databases, websites of relevant national and international organizations, also, data of the Ministry of Environment and Agriculture of Georgia, National Statistics Office. At the same time, the results of the research conducted by the Organization for Economic Cooperation and Development are analyzed on the example of developing countries, as well as the results of the UN Economic Commission's research directly related to Georgia.

Expert methods of analysis, comparison, are used in the research process. Based on the analysis of historical parallel scenarios, a qualitative study has been conducted by examining typical and atypical crises. A matrix system was developed to show the trend of the trade balance of the pandemic periods' phases.

Literature review

In 2020, the spread of COVID-19 shocked the world economy. A large proportion of experts believed that the food crisis could have started in a short time, especially if the global food supply chain had collapsed (Glauber et al., 2020; UN, 2020). The efficient functioning of food markets directly depends on the supply chain (Kharaishvili, Gechbaia, Erkomaishvili, Lobzhanidze & Natsvlishvili, 2021). The first wave of the COVID-19 pandemic in 2020 led to a deep global economic recession and deepened chronic food insecurity in many countries (FAO, 2021).

It is noteworthy that even before the COVID-19 crisis, food supplies were vulnerable, despite insurance, due to climate and disease problems (Shonia, Nozadze, & Mushkudiani, 2021). At the same time, food markets have historically been fragile due to various natural disasters and economic shocks (oil crisis in the 1970s; spread of SARS, Ebola virus, bird flu; swine fever epidemic; food crisis in 2006-2008, etc.). For example, at the end of 2019, China, the largest producer of pork (1/3 of the world market) and the largest exporter, lost 37% of pork fat (Hamid, Yaseen, 2021); Ebola has caused enormous damage to African countries in the production, marketing and trade of agri-food products.

The current crisis caused by COVID-19 has changed the food trade policy of governments. Changes in business attitudes towards investment flows have changed (Shonia, Mushkudiani, Siradze, 2022). In recent years, for many agricultural sectors, this is the first time that product prices have been affected by changes in demand rather than supply changes caused by various factors in the manufacturing sector (e.g., drought or cyclones) (Greenville, McGilvray, & Black, 2020).

Studies on the impact of COVID-19 on trade in agri-food products have largely analyzed GDP losses. It is also substantiated that during the pandemic, the sale of products in the agri-food sector became more difficult, significant challenges were created due to road closures in the food supply chain, consumers reduced the frequency of purchasing agricultural products, declining incomes, changes in exports and imports (Ben-xi, ZHANG, 2020), slowed down economic and social development.

The spread of Covid 19 poses a serious threat to food safety and the well-being of the population. Exacerbating the problem is the fact that pandemic conditions have created significant obstacles to food supply to both local and global markets. To reduce the negative impact of the pandemic and develop appropriate strategies, it is essential to ensure access to food and price stability (Wasito, Hermawan, Mulyono, Sirnawati, Sihombing, & Ratri, 2021).

The financial chaos caused by the pandemic has also increased the risks of access to food. Disruptions and potential problems in marketing, logistics, and commercial networks have limited access to food in some parts of the world (FAO, 2020c). A study by the World Food Program showed that by 2020, COVID-19 would increase the number of people living in poverty to 265 million. Also, a World Food Program study found that COVID-19 contributes to a 14.3% increase in the incidence of health and social security for children under 5 and middle-income families (WFP, 2020a).

Scientists believe that even if borders are closed, it is necessary to continue trade in agri-food products between countries, moreover, it is necessary to encourage trade in these products in the short term (Headey et al., 2020). It is no less important for countries to reduce export bans and import taxes, as dramatic changes in food prices can be avoided by reducing import tariffs due to low supply of small quantities of food (Headey et al. 2020). As a result, food protectionism should include a variety of taxes, tariffs, non-tariff barriers and restrictions. However, the introduction of this policy will lead to a difference between supply and demand, which may contribute to a sharp rise in food prices in the medium and long term.

According to a 2021 report by the Organization for Economic Cooperation and Development (OECD), the agricultural and food sectors under the Covid pandemic experienced a significant supply chain disruption due to the economic crisis caused by the pandemic and related lock-in measures. However, due to the flexibility of manufacturers and retailers in this sector and the rapid and wide-ranging response of governments, the negative impact on outcomes was not so large (OECD, 2021). As of October 2021, up to 800 events have been implemented by governments in 54 developed and developing countries. At least $ 157 billion has been allocated to the agricultural sector to support these measures, much of which has been spent on food aid (Gruere, & Brooks, 2021) to prevent aggravated delays, absorb supply and demand shocks, and accelerate recovery. By 2022, however, the impact of the COVID-19 pandemic on this sector is projected to diminish, and policymakers will have to shift costs to investments that can enhance the sector's resilience in the long run (AMIS, 2021).

As a result of the Georgian Farmers Association 2020 survey of farmers, Covid Pandemic had a negative impact on their activities in 2019-2020. A total of 175 farmers were interviewed throughout Georgia. The majority of respondents (80%) agree that prices for agricultural and food products have risen, which in turn has led to an increase in demand. Despite the increased prices, 40% of respondents said that they had to postpone loans on the condition of further payment (Georgian Farmers Association, 2020). The 2020 report of the UN Economic Commission also confirms that in about 45% of small and medium-sized enterprises in Georgia, incomes decreased significantly in 2019-2020 (UNECE, 2020).

Trade in agri-food products is an important instrument for developing food markets (Kharaishvili, & Natsvlishvili, 2019). In addition, it is necessary to ensure the continuity of the food supply chain (Kharaishvili, 2017) and to develop marketing strategies (Kharaishvili, Gechbaia, & Mushkudiani, 2019).

The development of trade between countries has a positive impact on the welfare of the population and contributes to improving the economic, cultural and political situation between the countries (Kharaishvili, Gechbaia, Zviadadze, Mushkudiani, & Tsilosani, 2021).

From the very beginning of the pandemic, the FAO noted that small farmers would find it difficult to sell their product, which in turn would reduce their income. However, the problems caused by COVID-19 would significantly affect the poorest and most vulnerable sections of the population and access to food would be severely disrupted (FAO, 2019).

The global impact of the COVID-19 pandemic is widening daily. The pandemic blast has caused extreme insecurity in the agricultural sector. It is therefore crucial to mobilize all available instruments, institutions and stakeholders (FAO, 2020).

Trade in agricultural products poses certain challenges to countries, especially developing ones, however, it also offers significant opportunities to gain a niche in international markets (Kharaishvili, Natsvlishvili, & Lazariashvili, 2020).

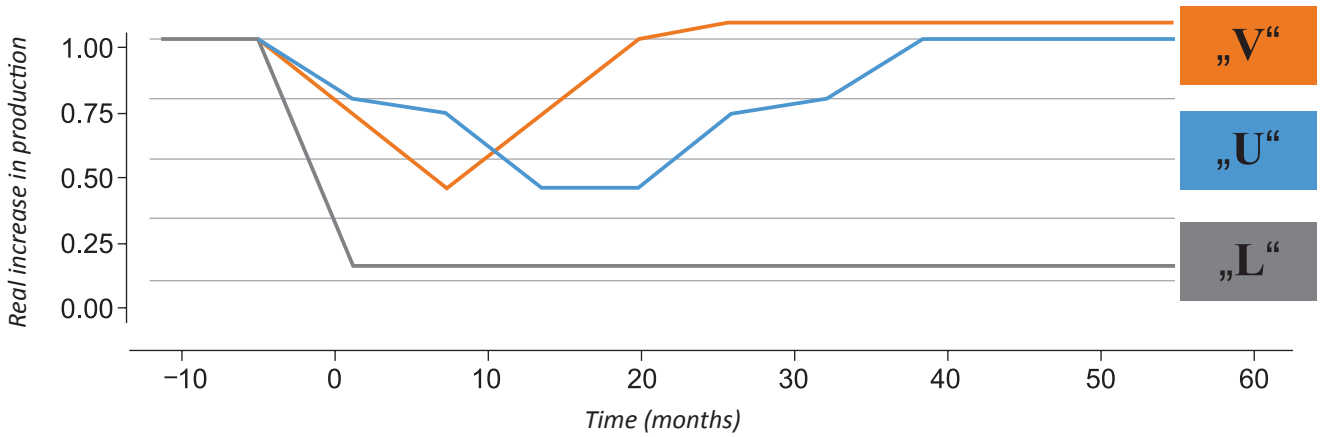
Pessimistic and Optimistic Development Scenarios

The views of scientists and researchers, as well as the assessments of various international organizations on the impact of COVID-19 on industries, including the food industry, economic development, trade in food products can be divided into two groups. Accordingly, we can consider two scenarios for the development of the impact caused by the pandemic:

Pessimistic scenario - The pandemic will have a direct impact on agri-food Production growth and agri-food trade, the negative economic and social consequences will be substantial, visible and lasting for long term;

Optimistic scenario - The effects of the pandemic on agri-food production growth, including trade in agri-food products, will not be significant, the impact will sometimes be neglected, and the export trade losses in a number of developing countries will be small.

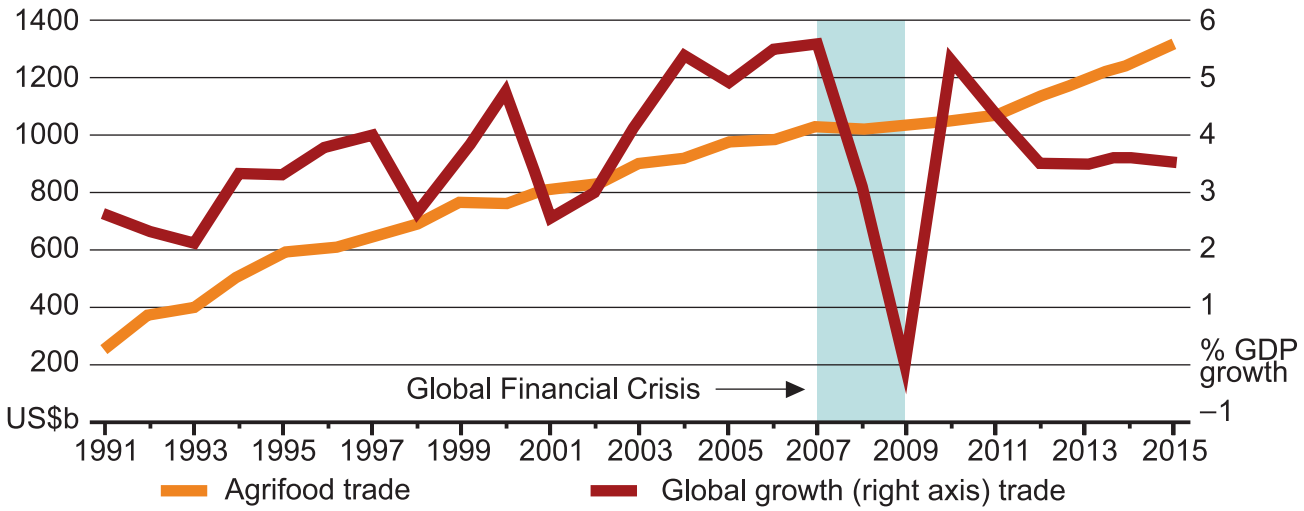
Figure 1. Forms "V", "U" and "L" of economic recovery according to the production growth in months



Created by the authors

Source: V–, U–, L– or W – shaped economic recovery after Covid-19: Insights from an Agent Based Model, https://doi.org/10.1371/journal.pone.0247823 (Sharma, Bouchaud, Gualdi, Tarzia, & Zamponi, 2021)

Figure 2. Trade in agri-food products during the global financial crisis



Source: https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1030341/0

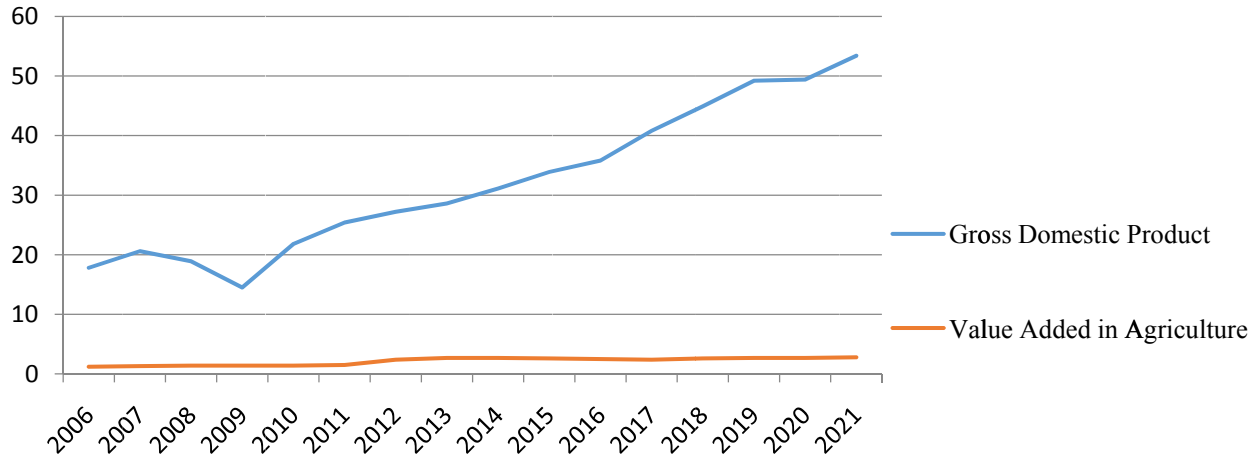
Pessimistic scenario of economic development created by the pandemic, according to which additional external shocks will lead to less growth in global demand in the future, including for agri-food products. In the medium term, the pessimistic scenario implies the assumption that economic recovery will be difficult to achieve and that production potential will also be reduced. In case of a pessimistic scenario in Georgia, the average real economic growth rate in 2021-2024 will be 2.5% (Budget Office of the Parliament of Georgia, 2021).

The second view follows an optimistic scenario of development. In the medium term, the optimistic scenario implies increased global demand and high economic growth. In case of an optimistic scenario in Georgia, the average real growth rate of the economy in 2021-2024 will be 7.2% (Budget Office of the Parliament of Georgia, 2021).

It should also be noted that by 2020 there was an informal consensus among analysts. According to them, the crisis would have been mostly "U" or "L" shape, which means incomplete and delayed recovery. Such expectations of recovery were mainly related to the 2008-2009 crisis analogue. Nevertheless, current developments point to a much faster recovery approaching the "V" shape. This type of recovery indicates a significant increase in the second quarter of 2021, both compared to 2020 (29.9%) and 2019 (12.7%). Consequently, as the V-shaped recovery process progresses, the economy will move closer to a long-term sustainable level faster than was expected at the beginning of the pandemic period (MOF, 2021) (see Figure 1).

According to our hypothesis, a pandemic in the trade of food products in Georgia, despite a number of impediments and restrictions, could not have a substantially negative impact. Based on the above-mentioned, we studied the indicators of trade in agri-food products of Georgia in the periods before the pandemic (2018-2019) and after the pandemic (2020-2021). We have taken into account that the trade

Figure 3. Value Added in Gross Domestic Product and Agriculture, 2006-2021, Billion GEL



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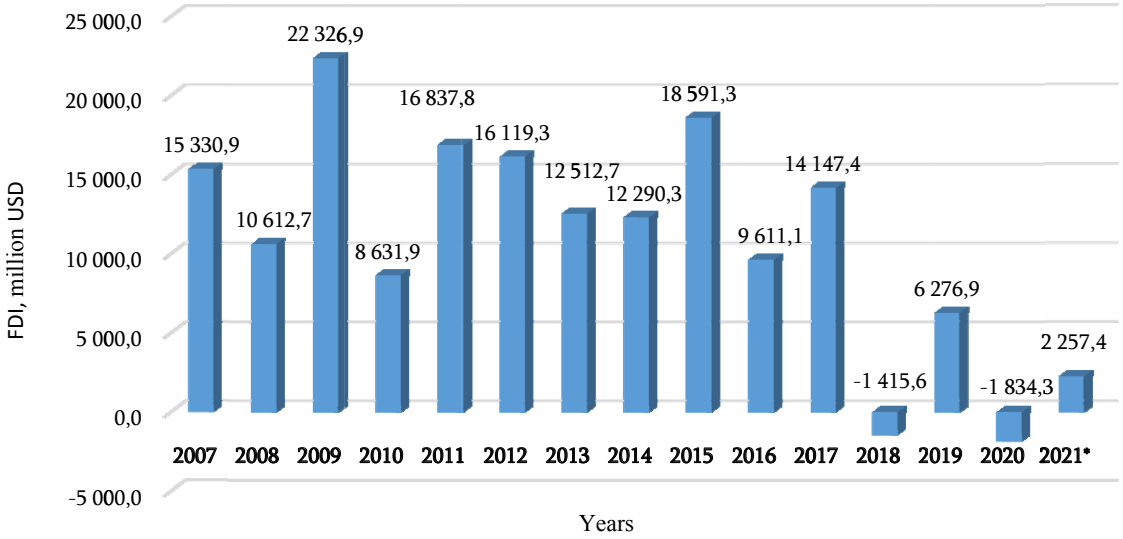
Source: National Statistics Office of Georgia

Figure 4. Foreign Direct Investment in Agriculture, Georgia, 2007-2021, Million USD



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Source: National Statistics Office of Georgia

rates are sometimes different in terms of quantity and value, which leads to trading at different prices of products, often at low prices. There was no significant difference in the study periods in this regard, therefore, we presented trade in products in quantitative terms.

To prove our hypothesis, we used two approaches:

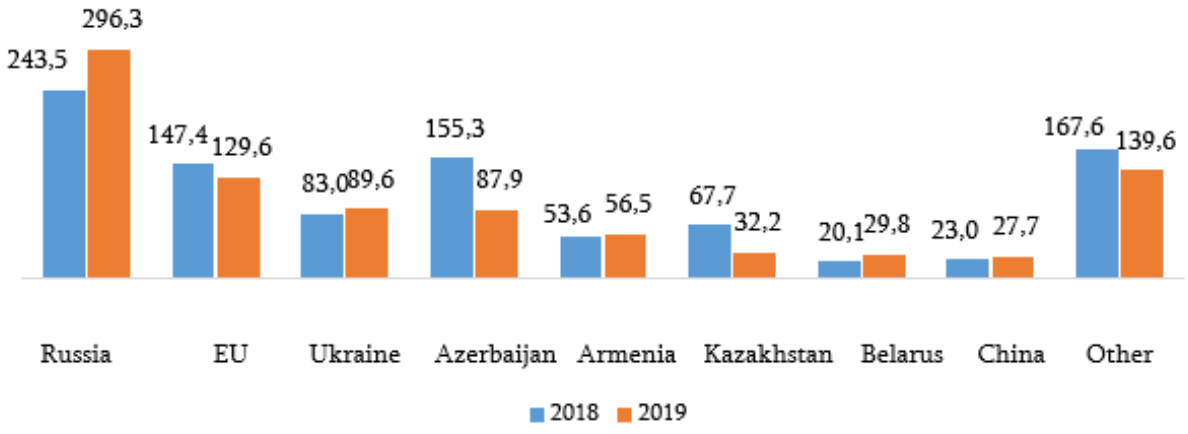
Qualitative - based on a comparison of typical and atypical economic crises;
Quantitative - Based on pre-pandemic and post-pandemic statistical comparative analysis.

On the one hand, based on a comparative analysis of typical and atypical economic crises, we considered an example of food demand sustainability observed during the typical 2007-2008 global financial crisis. On the other hand, we analyzed the consequences of the atypical economic crisis caused by the pandemic, compared to the period before the crisis, for the agricultural sector of Georgia (see Figure 2).

As the diagram shows, trade in agri-food products has been stable over the years, despite the financial crisis of 2007-2008 had a significant negative impact on global growth. A similar conclusion can be made on the basis of a comparative analysis of gross domestic product and value added in agriculture in Georgia (see Figure 3).

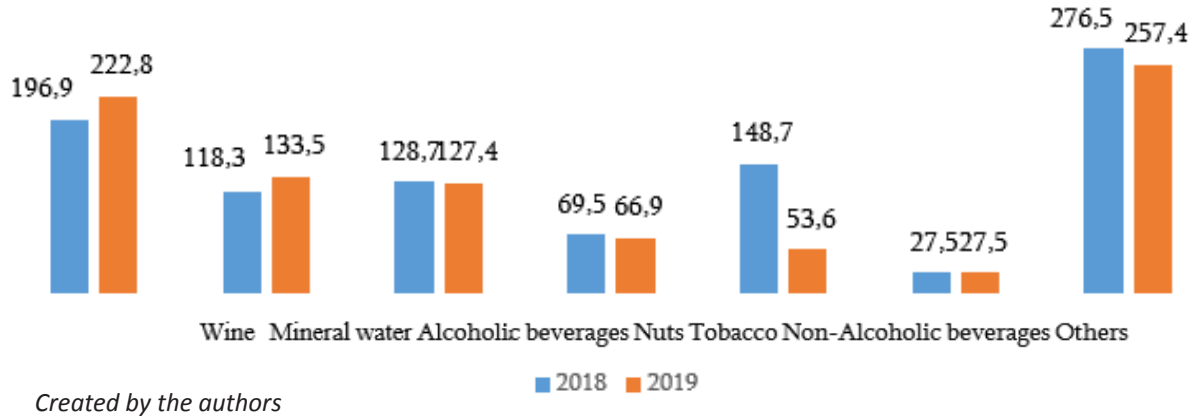
Thus, the financial and coronomic crises are fundamentally different from each other, but in terms of maintaining the resilience of the agricultural sector in the light of the crisis, the situation is similar. In particular, in the first year there is a decrease in trade in agricultural products, and in subsequent years, first with decreasing marginal returns, and then increasing with increasing marginal returns. As in the case of a typical crisis, for in-depth analysis, we measured the changes in macroeconomic parameters in Georgia against the background of these two types of crisis. It turned out that the difference is fixed in the real data of foreign direct investment. However, it should also be noted that the recent 2021 pandemic crisis has also seen an increase in foreign direct investment in the agricultural sector, making it possible to make optimistic forecasts, all the more so against the back-

Figure 5. Exports by major countries, 2018-2019, million USD



Source: National Statistics Office of Georgia

Figure 6. Exports of major agri-food products, 2018-2019, million USD



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Source: National Statistics Office of Georgia

drop of economic growth forecast data (see Figure 4).

Thus, in contrast to the financial crisis, the current period is a relatively complex and crisis involving all spheres of public life. However, to confirm our hypothesis that the above conclusion does not hinder the development of an optimistic scenario, we will analyze the indicators of trade in agri-food products.

Pandemic showed that in 2019, 889.2 million USD worth of agri-food products were exported from Georgia, which is 8% less compared to the same period in 2018. The analysis of the indicators by countries revealed that Exports of agri-food products to EU countries decreased in 2018-2019 (by 12%), mainly due to the decrease in exports of alcoholic beverages (see Figure 5).

The following positive trends were observed in the export of agri-food products: in the period before the pandemic, exports increased the most in Russia, Belarus, Ukraine, Saudi Arabia, China, Germany and Moldova. Exports of agri-food products decreased to the following countries: Azerbaijan, Kazakhstan, Iran , Turkey, Spain, Uzbekistan, France, the Netherlands, Peru and Austria.

The study of indicators by main export products showed that if we do not take into account the export of cigarettes and tobacco (mainly re-exports) in the export of agri-food products from Georgia, in the pre-pandemic period the export of agri-food products increased by 3% (see Figure 6).

In terms of exports by products, the following positive trends were noted: increased exports of wine, mineral and fresh water, live sheep, citrus, tobacco, pears. Among the negative trends, exports of cigarettes, mutton, live cattle, fish oil and fishmeal decreased.

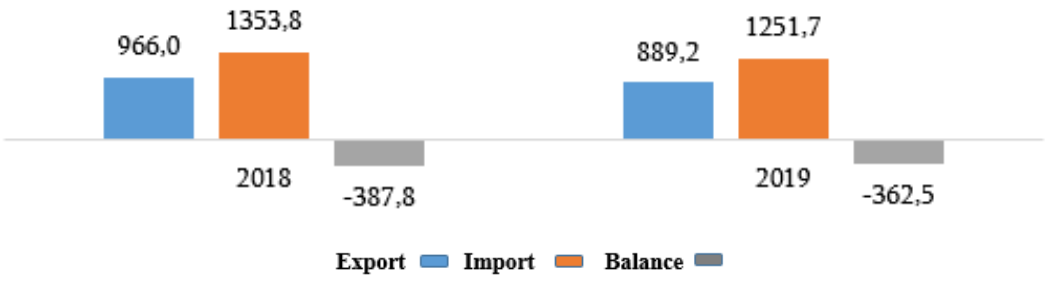
In 2019, agri-food products worth USD 1,251.7 million were imported, which is 7.5% less than the same period in 2018. In 2018-2019, tobacco increased significantly; Import of alcoholic beverages, citrus, frozen fish and meat and meat food by-products, salted, dried or smoked. During the same period, compared to other products, significantly reduced cigarettes, ethyl alcohol, nuts (mainly pistachios), wheat, Sugar and Copton and other solid waste (obtained by extraction of soybean oil) Import.

Based on the comparative analysis of exports-imports in 2018-2019, as in previous years, the trade balance is negative (see Figure 7).

In 2019, compared to the previous year, the negative trade balance is reduced by 9.6%. Thus, in the run-up to the pandemic (2018-2019) it should be noted that the negative trade balance has decreased, however, in a separate parameter study we establish that both exports and imports have decreased. Consequently, this positive trend is due to the decrease in imports.

As for the export-import data during the pandemic period (2020-2021), in 2021 from Georgia exported to 1 143 Million USD of value Agri-food products , which is 21 % more than 2020 in a similar way indicator. Countries analysis of

Figure 7. Trade balance of agri-food products, 2019, million USD



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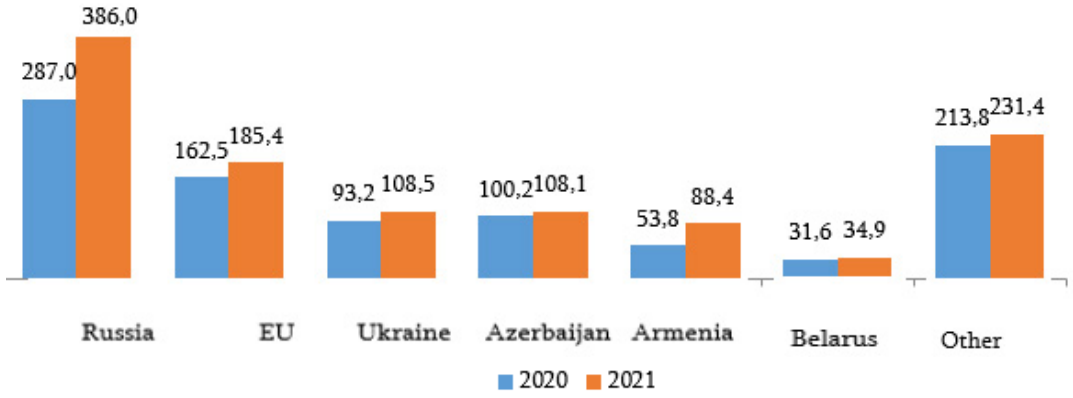
Source: National Statistics Office of Georgia

Figure 8. Exports by major countries, 2020-2021, million USD



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Source: National Statistics Office of Georgia

trade figures for agri-food products by country has also shown that exports to almost all countries have increased (see Figure 8).

In 2021, agri -food of products basic export markets are : Russia (386 million USD), EU (185.4 million USD), Ukraine (108.5 million USD), Azerbaijan (108.1 million USD), Armenia (88.4 million USD) and Belarus (34.9 million USD).

During the pandemic agri-food of products export of the European Union in countries (by 14%) was increased, which basically conditioned exports of hazelnuts, wine, mineral and fresh waters' increase. It should be noted that the companies producing fresh and mineral waters in the period 2020-2021 tried their best to maintain product prices at the expense of reducing the profit margin in the domestic market (Lobzhanidze, 2021). The following pros in the export direction trends were revealed: in 2021, compared to the previous year agri-food of products significant increases in the value of exports were recorded in Russia (34%) , Armenia (64%) , Ukraine (16%) , Italy (53%), Saudi Arabia (89%) and Azerbaijan (8%).

Among the negative trends in exports are: the pandemic period agri-food of products significant decrease in export value observed in Turkey and Kazakhstan (19%) and (10%,) respectively.

Basic products according to the export figures in 2020-2021 were as follows (see Figure 9).

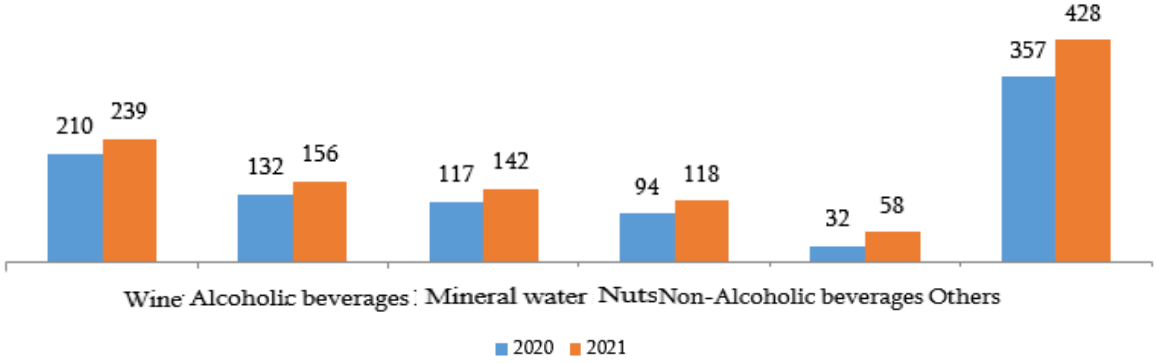
Basic products According to the following pros of exports Trends revealed: Significant during the pandemic period Growth Wine (14%), non-alcoholic carbonated beverages are mentioned (85%), exports of mineral and fresh water (22%), nuts (mainly nuts) (26%), alcoholic beverages (18%) and potatoes (16 times) .

In addition to the above products, in 2021, compared to the previous year, exports of the following products increased: peach and apple (35%), mandarine (19%), blueberries (49%), herbs (By 28%), tomatoes (58%), watermelon (slightly), honey (recorded a record export - 657 thousand USD, exports were made to 19 countries, including EU countries: France, Bulgaria, Czech Republic and Germany).

Negative noteworthy from the trends: Significant during the pandemic period decrease, whatever Exports of fish oil, butter, MRP frozen meat, fish meal, and frozen fish were observed.

The following trends were observed in the import of agri-food products: During the pandemic, the volume of imports increased by 11 %. During the study period margarine, chocolate products, cigarettes, sugar, tobacco substitutes and wheat flour were significantly increased in the same period, with other products relatively, that the import of wheat, onions, frozen fish, apples and citrus was significantly decreased.

Figure 9. Exports of basic products, 2020-2021, million USD



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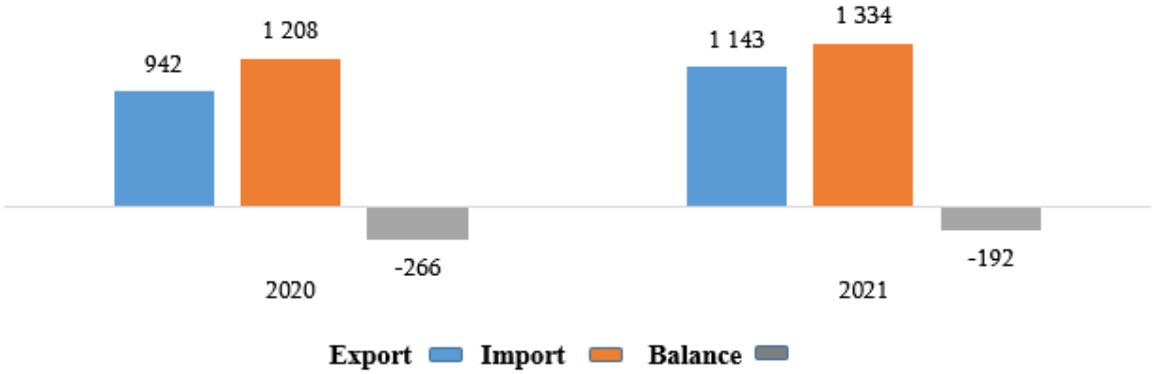
Source: National Statistics Office of Georgia

Figure 10. Trade balance of agri-food products during the pandemic, 2021, million USD



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Judging by the trade balance of agri-food products, it can be said that the negative trade balance is still maintained (see Figure 10).

Pre-pandemic and pandemic periodic matrix analysis revealed that despite the pandemic, a positive trend was observed due to the 2021 data (see Table 1).

It should be noted that the negative balance of the trade balance in agricultural products is characterized by a downward trend. In 2021, compared to 2018, the negative balance is almost 2 times lower, which is clearly seen in the diagram based on the matrix (see Figure 11).

The development of this trend was somehow facilitated by state support, companies operating in the Georgian market were offered several types of benefits during the separate waves of the pandemic in Georgia (Lobzhanidze, 2021). Based on the order of the Government of Georgia (N185) of March 23, 2020, the state allocated GEL 10 million to subsidize the prices of imported products to ensure the stabilization of prices for 9 agri-food products. These 9 products are: pasta, rice, buckwheat, oil, sugar, wheat, wheat flour, milk powder, beans. Of these, almost half (48.78%) of the subsidy came from wheat (MOF, 2021).

CONCLUSIONS AND RECOMMENDATIONS

Despite the delivery chains challenges in agri-food sector, especially in 2020 first half, most of the sector shocks were easily eliminated. According to the OECD study, the average total farm income for emerging economies was increased in 2020 and the sector was the most productive or least economically affected in a few countries. At the same time, limited measures and regulations have affected the food security of many low- and middle-income or unemployed consumers.

In response to the COVID-19 pandemic and related constraints, many governments have reacted swiftly to the domino effect to maintain the functioning of agricultural supply chains, including by designating agriculture and food as essential sectors and easing trade restrictions to ensure international cooperation.

Based on the analysis, the following recommendations were developed:

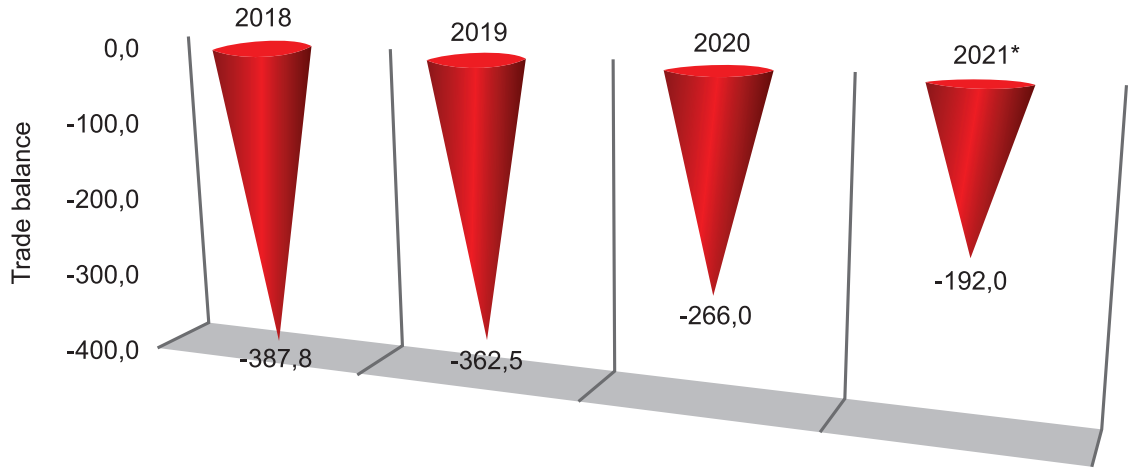
- Coordinated management of the problems caused by the COVID-19 pandemic by the decision-makers involved in the process - the medical sector, farmers, business representatives, policy makers, consumers, the community;
- The pandemic has revealed that the methods and methodologies of analysis in economic science need to be revised. This may include encouraging trade digitalisation, developing rural health and infrastructure, regulating and restructuring the supply chain;
- The pandemic has shown that the agri-food sector has been relatively resilient to the crisis, reducing the risks associated with future expansion and export growth;

Table 1. Covid-19 pre-pandemic and during pandemic periodic matrix on the example of agri-food trade in Georgia, 2018-2021

	Pre-pandemic (2018-2019)	During the pandemic (2020-2021)
Change in Export	7.95%	21.34%
Change in Import	7.54%	10.43%
Change in Balance	6.52%	27.82%

Compiled by the authors
Source: National Statistics Office of Georgia

Figure 11. Balance of trade in agricultural products in Georgia, 2018-2021



Created by the authors
Source: National Statistics Office of Georgia

- The COVID-19 pandemic has most clearly identified supply chain risks, therefore it is most noteworthy to review the supply chain in this sector;
- Development of services in accordance with international standards is necessary for long-term viability in the food production sector;
- It is necessary to develop an economic development plan to determine long-term results, even through the formulation of several development scenarios and the optimal mobilization of economic resources.

The COVID-19 pandemic underscored the urgency of the agricultural and applied economics professions, creating a huge opportunity to make a substantial contribution to vital decisions. Thus, timely and effective cooperation in the face of a typical or atypical crisis is a kind of commitment to the world community.

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