Economic Access to Food and COVID-19:
New Challenges for the Russian Exclave

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Abstract—The economic access to food is a very sensitive topic and serves as one of the significant criteria for the standard of living of the population, especially during periods of crisis. In this regard, assessing the impact of the COVID-19 pandemic on the food market is of particular interest, especially in border regions, where dependence on imported food is usually significant (in the case of competitive prices) and cross-border shopping trips are typical for consumer behavior. The aim of the study was to identify changes in the economic access to food during the COVID-19 pandemic in a Russian exclave, that is, Kaliningrad oblast. It is characterized by particular vulnerability to crises, low food self-sufficiency and systemic problems in the labor market. The results of the study are based on an analysis of statistical indicators that assess the standard of living of the population and food prices in 2020–2021, as well as the results of a mass survey of the population conducted by the authors in September 2021. The study showed that the impact of the COVID-19 pandemic on the reduction of the economic food availability is expressed in the traditional problems of falling incomes and rising food prices in times of crisis. The most affected groups of the population are low-income residents of the region, including the unemployed, pensioners, and low-skilled workers with a primary or secondary education. The deterioration of their financial situation against the backdrop of outpacing the country’s average inflation rate in the region affects the almost two-fold increase in the proportion of residents of the region (up to 64%) whose food expenditures accounted for more than 40% of income. In the gradients of changes in the economic access to food at the local level, the influence of not only the center-periphery disproportions, but also the factor of the border location has been noted. It defines the periphery of the border municipalities in terms of the standard of living of the population, on the one hand, and a higher level of involvement in foreign economic interaction with neighboring states, on the other. Such features lead to more negative manifestations of the decrease in the economic access to food in municipalities located along the border with Poland.

Keywords: food security, food access, online grocery sector, pandemic, COVID-19, borderland, Kaliningrad oblast

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INTRODUCTION

The consumer market is one of the brightest indicators of transformational processes and various crisis phenomena in the economy and society. The COVID-19 pandemic caused a decrease in the economic activity of the population, as well as a drop in the income and purchasing power of citizens, which in turn affected the economic access to many goods, in particular food. The issue of assessing the intensity of the changes that have taken place in various cities and regions, the relationship of trends with socio-professional, personal, age characteristics of the population, center-peripheral gradients and other factors remains little studied.

For many years, Kaliningrad oblast has been among the top ten regions in Russia in terms of the level and quality of life of the population1; the region remains one of the most attractive subjects of the Russian Federation for immigration (Lialina, 2021; Scherbakova, 2021). At the same time, systemic problems in the development of the territory are obvious, due to its exclave position, which are only exacerbated in the current geopolitical realities. Similar problems apply to the food sector. The economic access to food in the region is affected by a low level of economic security, a higher (compared to the country’s internal regions) dependence on imports, and the sensitivity of the regional economy to changes in the ruble exchange rate against other currencies (Nikifor-

1 Quality of life in Russian regions—Rating 2020, RIArating. https://riaring.ru/infografika/20210216/630194637.html. Accessed February 13, 2022.
Lalia, 2015; Voloshenko, 2021). Lacking significant potential for self-sufficiency in many agricultural crops (primarily fruits and vegetables) due to agro-climatic conditions (Panasin, 2008), as well as due to isolation from the main territory of the country, the region is forced to meet domestic demand for food under a number of restrictions. Among them are the need for the transit of Russian goods through the territories of other states (Belarus, Lithuania, and Latvia) and import dependence (Nikiforova, 2015). Certain positive shifts in the increase in food self-sufficiency in Kaliningrad oblast occurred after 2014, which was described in detail in one of our previous studies (Voloshenko et al., 2022). Active state support for the agro-industrial complex has made it possible to significantly increase self-sufficiency in vegetables, fruits and berries, milk and dairy products, meat and meat products, but Kaliningrad oblast has reached the threshold values determined by the Food Security Doctrine of the Russian Federation only in meat. In addition, food production is still in a weak position, especially in those sectors where, until 2014, there were strong raw material ties with European countries.

The low level of labor productivity and low innovative potential of the region (Voloshenko, 2021), the unsatisfactory level of complexity and competitiveness of manufactured products (Ruus et al., 2020), and the negative foreign trade balance with low export volumes hinder the growth of wages of the population and do not contribute to solving the problem of poverty (Zubarevich and Safronov, 2019b). All this does not lead to an increase in economic access to food.

In this study, economic access to food is understood as the possibility of acquiring food products of proper quality at prevailing prices, in volumes and assortment that correspond to the recommended rational consumption norms. The economic access to food, as the most important part of food security, is subject to decline during periods of crisis due to factors such as rising market prices for food, a decrease in real incomes of the population, and a decrease in the turnover of food retail trade. V.Ya. Uzun came to this conclusion (2020), after analyzing the consequences of the Russian crises of 1998–1999, 2008–2009, 2014–2016. The impact of the COVID-19 pandemic on inflationary processes and household incomes obviously fits into the indicated trends, but has not yet been studied on the example of the food sector in a particular region of Russia. Therefore, the purpose of our study is to identify changes in the economic access to food in Kaliningrad oblast during the coronacrisis.

2 On approval of the Food Security Doctrine of the Russian Federation: Decree of the President of the Russian Federation of January 21, 2020, No. 20. Consultant Plus. http://www.consultant.ru/document/cons_doc_LAW_343386. Accessed February 20, 2022.

REVIEW OF PREVIOUS STUDIES

The topic of food availability is one of the traditional ones in geography of agriculture. Interest in this issue has increased since the mid-1990s, when during the World Summit on Food Security the physical and economic access to food for the population were officially recorded as indicators of food security. In the future, the topic of social access to food was also included in the current agenda.

The issue of correlation between the role of accessibility and affordability in the consumer behavior of the population is controversial (Le et al., 2015; Leroy, 2015; Ostry and Morrison, 2013; Upton and Cisse, 2016). Most researchers, however, agree that the absence of large supermarkets and the generally poor transport accessibility of large grocery stores limit the consumer to a lesser extent than their income in relation to food prices (Capone et al., 2014; Lin et al., 2014).

In the developed countries of the world, the socioeconomic status of the population is taken as the dominant factor that determines access to food. Ignoring the typical spatial behavior for age and sex groups, for the population with different income levels when assessing the availability of food often leads to an overestimation of the distance factors of food trade objects. Thus, a study in Canadian cities showed that such characteristics of the population as young age and a high level of motorization smooth out the problem of the remoteness of large supermarkets from the place of residence, while the older age of the population and the high density of residential development, on the contrary, emphasize the issue of the presence of retail facilities near one’s place of residence (Wang et al., 2016).

A sharp change in the economic access to food is usually caused by external shocks (Dilley, 2001). In particular, for Russia and its individual regions, a number of studies have been carried out on the transformation of the economic access to food in the period after the 2014 embargo (Konkina, 2019; Reshetnikova, 2020; Ushachev and Kolesnikov, 2021; Vartanova, 2020). During this period, in addition to the growth of differentiation between decile groups in food expenditures, an increase in the gap in terms of qualitative characteristics was also revealed: the composition of the food basket between the “rich” and “poor” population (Konkina, 2019).

Border regions often show certain specifics when exposed to external shocks. As a rule, even in the peripheral border regions, centers of cross-border activity are identified if the adjacent territory is more developed in socioeconomic terms (Druzhinin and Zimin, 2019). In such areas, for example, the transport and logistics infrastructure functions. During crises, when export-import operations usually fall, such centers of cross-border activity fade, merging with the surrounding periphery.
The impact of the coronacrisis on the border areas was determined mainly by institutional factors. Even within countries, the socioeconomic consequences of the COVID-19 pandemic depended on the actions of regional and local authorities (Glezer et al., 2022), and at the level of cross-border contacts, the severity of problems and the speed of their resolution, all the more, were directly related to the decisions of national and municipal authorities (Fedajev et al., 2021; Paul et al., 2022; Stoklos, 2020).

Food security has been threatened during the COVID-19 pandemic due to lockdowns and disruption of supply chains, the economic downturn and restrictions on food trade (Erokhin and Gao, 2020). As a result, food prices have risen, there was a shortage of certain products as a result of supply disruptions, and the monetary income of the population has fallen (Vu et al., 2022). Some countries have also experienced shortages of labor in agriculture due to restrictions on the movement of people (Debuquet, 2020). The most affected category of the population turned out to be low-income citizens (Erokhin and Gao, 2020), low-skilled workers who, for the most part, did not have the opportunity to switch to remote work (Gaudecker et al., 2020), which is also confirmed by studies conducted for Russia (Gimpelson, 2022; Tsvetkov and Dudin, 2020). The high share of imports in food supply has played a key role in reducing the food security of citizens (Erokhin and Gao, 2020). A number of researchers emphasize that the set of consumed products has also changed in favor of cheaper ones and, as a result, of worse quality (Godrich, 2022). Thus, the COVID-19 pandemic is believed to have directly or indirectly affected all four pillars of food security identified by FAO: availability, access, stability, and utilization (Devereux et al., 2020).

Among studies that summarized past changes in food security in a large sample of countries (62), the paper by Bene et al. (2021) stands out. They emphasized that the most significant manifestation of the impact of the pandemic on food security was precisely the decrease in the economic access to food, while for other components (in particular, physical accessibility), adaptability turned out to be much higher (logistics chains were quickly restored, online trade grew rapidly).

In (Dannenberg et al., 2020; Erokhin, 2021; Hillen and Fedoseeva, 2021) the authors have shown that the coronacrisis not only influenced the development of online grocery shopping, but also, importantly, contributed to its active spread in rural areas. The expansion of the online food retail sector is likely to increase not only the physical accessibility of food, but also its economic accessibility by providing competitive prices and a wider range of products compared to offline stores. Although rare studies (Cavallo, 2017; Fedoseeva et al., 2017) report a small positive difference in online-offline food prices, in general most researchers (Cavallo, 2018; Hillen and Fedoseeva, 2021) agree that prices in e-commerce are more flexible compared to offline trading. Moreover, a survey of Amazon-Fresh online price quotations in Los Angeles (Hillen, 2021) conducted at the height of the COVID-19 pandemic showed a slight decrease in the overall price level for some product groups, in contrast to the increase in the consumer price index for food in the United States.

Analysis of access to food is most often based on official statistics on household income and food prices. However, according to FAO, the assessment of food security should not only be based on quantitative information, but also take into account the perception of the population of their ability to purchase food. This is proposed to be done according to the so-called food insecurity scale based on population surveys or household sample surveys during interviews. Such studies are usually done for the country as a whole and do not take into account interregional differences and local features. Sociological studies of food security in Russia are carried out as part of the work of the Center for Agricultural Research of the RANEPA (Trotsuk et al., 2018). As a rule, they are based on a telephone survey of an all-Russian sample, while everyday practices and opinions of residents of specific municipalities are analyzed on the basis of expert interviews in individual regions.

Despite the atypical cause of the economic crisis of 2020, the patterns of differentiation of Russian regions in terms of the dynamics of socioeconomic development during this period turned out to be quite standard in general (Kuznetsova, 2021). We assume that intraregional differences could deviate from the usual trends, especially in border regions. In addition, the coronacrisis could not typically affect the purchasing power of the population and its consumer preferences, since the decrease in income or the loss of its source was of a sudden nature for certain categories of the population. We will consider these processes in our study based on the example of the food market of the Russian exclave.

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3 World Food Programme. The Market Monitor. https://www.wfp.org/publications/market-monitor. Accessed May 20, 2022. Food and Agriculture Organization of the United Nations Novel Coronavirus (COVID-19). http://www.fao.org/2019-ncov/q-and-a/impact-on-food-and-agriculture/en/. Accessed May 20, 2022.

4 World Trade Organization Members Discuss Impact of COVID-19 on Developing Economies’ Participation in World Trade. https://www.wto.org/english/news_e/news20_e/devel_26may20_e.htm. Accessed May 20, 2022.

5 Monitoring food security and nutrition in support of the implementation of the Agenda for Sustainable Development until 2030. https://cdn.wfp.org/wfp.org/publications/report_wfp_fao_food_2030.pdf. Accessed July 3, 2022.
MATERIALS AND METHODS

The assessment of the economic access to food was carried out in two stages. The first stage included an analysis of indicators characterizing the standard of living of the population and food prices in 2020–2021 (Table 1). Comparison of key indicators was carried out relative to the average values for the Northwestern Federal District and Russia as a whole.

The second stage of the analysis of changes in the economic access to food during the COVID-19 pandemic was based on the results of a sociological survey of residents conducted in September 2021. The purpose of the survey was to identify the impact of restrictions related to countering the spread of the COVID-19 pandemic on the food preferences of the population and food expenditures in residents of Kaliningrad oblast. The survey involved 1,019 respondents, including 55% women and 45% men.

For the survey, a stratified, three-stage, quota sample was used with a random selection of households along the survey route. The stratification of the territory of Kaliningrad oblast, based on the population, economic specialization, availability of transport infrastructure, consisted in the allocation of the following zones (Fig. 1):

1. a regional center: Kaliningrad;
2. coastal municipal districts: Zelenogradsky, Pionersky, Svetlogorsky, Yantarny and Baltiysky urban districts;
3. municipalities oriented towards the city of Kaliningrad: Guryevsky and Svetlovsky urban districts;
4. municipalities of the center of the region: Gvardeisky, Chernyakhovsky, Gusevsky and Polessky urban districts;
5. municipalities bordering Lithuania: Nemansky, Nesterovsky, Krasnoznamensky, Slavsky and Sovetsky urban districts;
6. municipalities bordering Poland: Ozersky, Prawdinsky, Bagrationovsky, Mamonovsky and Ladushkinsky urban districts.

At the first stage of the sample, the number of respondents in the zone was determined in accordance with their share in the general population. At the second stage of the sample, the survey points were specified taking into account the size of the urban and rural population in each zone. At the third stage, quotation was made for the number of respondents for each survey point by sex and age in accordance with the proportion of age and sex groups in the general totality, that is, the adult population of Kaliningrad oblast.

When formulating the questionnaire, the following research questions were posed:

1. How has the financial situation of the population changed during the COVID-19 pandemic and how has the share of food expenditures changed during this time?
2. Has the COVID-19 pandemic, according to the population, affected the pricing of food products in the region?
3. How has the consumer behavior of the population regarding food products changed in the context of the COVID-19 pandemic (did mobility restrictions affect, did online services become more frequent)?

Table 1. Indicators to analyze changes in economic access to food

| Sphere                  | Indicator                                                                 | Periodicity                        | Unit of measurement | Source                                                                 |
|-------------------------|---------------------------------------------------------------------------|------------------------------------|---------------------|-----------------------------------------------------------------------|
| Standard of living      | Real amount of monetary income of the population*                         | Quarterly                          | %                   | Unified Interdepartmental Statistical Information System and statistical book Socioeconomic situation of federal districts |
|                         | Share of food products in the structure of household consumption expenditures | Average per year                   | %                   | Statistical book Social status and standard of living of the population of Russia |
|                         | Purchasing power of average per capita monetary income of the population  | Average per year                   | Commodity equivalent of average per capita monetary income**    | Unified Interdepartmental Statistical Information System               |
| Consumer prices         | Consumer price index for food products (excluding alcoholic beverages)     | Monthly, by December of the previous year | %                   | Unified Interdepartmental Statistical Information System               |

* In accordance with the Methodological Provisions for the Calculation of Indicators of Monetary incomes and Expenses of the Population, approved by Order no. 465 of Rosstat of July 2, 2014, as amended on November 20, 2018. ** The commodity equivalent is understood as the quantity of any one product (service) with specific consumer properties, which can be purchased, provided that the entire amount of monetary income will be directed only for these purposes.
Comparison of statistical data with the population's real perception of their own incomes and food prices, in our opinion, will allow a comprehensive approach to the issue of assessing the economic access to food. In addition, sociological data will help level out the shortcomings and lack of official statistical information, especially when identifying local specifics.

**RESULTS AND DISCUSSION**

*Economic Access to Food in Kaliningrad Oblast: Quantitative Measurement*

The dynamics of indicators of monetary incomes of the population, salaries of employees and pensions demonstrates a significant deterioration in the standard of living of the population of Kaliningrad oblast during the COVID-19 pandemic. The fall in real monetary incomes of the population in Russia and in the whole of the Northwestern Federal District of the Russian Federation continued throughout the second—fourth quarters of 2020 and the first quarter of 2021 (Fig. 1). In the westernmost region of the country, a decrease in income was recorded as early as the first quarter of 2020. This may partly be due to the consequences of the closure of the state border with neighboring states on March 15, 2020, the most noticeable for that part of the population whose income was associated with crossing borders (Yemelyanova and Lyalina, 2020). Part of the population of the region, whose income was associated with the supply and resale of food products from abroad, temporarily lost the opportunity to earn money. The gap in real disposable monetary income of the population with indicators for the Northwestern Federal District reached 6% at the beginning of 2020 and 3% in the second quarter. The narrowing of the gap is explained by a faster drop in the value of the indicator for the Northwestern Federal District and the Russian Federation in the second quarter relative to Kaliningrad oblast. Subsequently, there is a convergence of the graphs for the region, the Russian Federation and the Northwestern Federal District and, in general, the same dynamics of the indicator until the third quarter of 2021, when there was a noticeable decline in the dynamics of real monetary incomes of the population of Kaliningrad oblast. During this period, in the region, against the backdrop of another increase in the incidence of COVID-19 among the population, the regional government tightened measures to counter the spread of the pandemic, which affected catering, tourism and public transport activities, that is, industries with a peak of economic activity in the summer months.  

In nominal terms, the average per capita monetary income of the population in the second quarter of 2021 amounted to RUB 30.9 thous., in the third quarter of 2021—to RUB 31.8 thous. The regional values of the indicator are more than 21% behind the national average and by 26% from the average level in the Northwestern Federal District.

The main source of monetary income of the population is income from employment, in the total volume of which, in turn, about three-quarters is the wages of employees of organizations. In the dynamics of the real wages of employees of the organizations of Kaliningrad oblast, there are differences from the country-wide values. In general, the dynamics of real wages in
the region is lower than those for the Northwestern Federal District and the Russian Federation; the growth of the indicator in the region has always been lower, and the fall has been deeper. If before the pandemic in 2019, the drop in real wages in the region corresponded to the downward dynamics in the whole country and district, although negative values were not recorded here (unlike in the region), then in 2020–2021, the change in the indicator in the region was different. While real wages showed growth, albeit with changes in its pace, on average in the Russian Federation and the Northwestern Federal District during the COVID-19 pandemic, in the westernmost region of the Russian Federation, the decline in real wage growth that began in the second quarter of 2020 spiraled into a drop in the fourth quarter of 2020 and the first quarter of 2021. Further growth in real wages in the region turned out to be somewhat slower compared to the average values for the Russian Federation and the Northwestern Federal District: 102% versus 103–104%.

In nominal terms, the average monthly accrued wages of employees in large, medium-sized, and small organizations in the third quarter of 2021 amounted to RUB 40.9 thous., in the second it was RUB 41.4 thous. The pay gap in relation to workers in other regions of Russia exceeded 27%, and in relation to workers in the regions of the Northwestern Federal District it was 35%.

The growth rate of the real size of pensions for residents of Kaliningrad oblast, as well as for residents of other regions of the country, has been slowing throughout the entire period of the COVID-19 pandemic; starting from the second quarter of 2021 there has been a drop in real pensions that was more tangible than the average for the Russian Federation and Northwestern Federal District. According to statistics, the average size of the assigned pension in Kaliningrad oblast as of October 1 amounted to RUB 15.1 thous., which is 14% lower than the average for the Northwestern Federal District and 5% lower than the average for the Russian Federation.

Such changes in the monetary incomes of the population do not contribute to a fundamental improvement in the situation with the inequality of income distribution among the population and the fight against poverty. The poverty rate in 2020 in Kaliningrad oblast remained at the level of 13.5%, which exceeds the average indicator for Russia by 1.4 percentage points (in the Russian Federation 12.1% in 2020). The income bias towards the top 20% of the population with the highest incomes persists. Thus, the share of income of the 20% that are the wealthiest residents of Kaliningrad oblast have is 42% (on average in the Russian Federation it is 46%).

The growth in real monetary incomes of the population of Kaliningrad oblast in the second and third quarters of 2021 occurred against the backdrop of significantly increased inflation (Fig. 2). The first noticeable jump in prices occurred in February (109%) and persisted until the seasonal decline in prices in July. In September, a new acceleration of inflation began in line with countrywide trends with the peak value of the consumer price index for food products in October–November 2021 reaching 12% compared to the corresponding period of the previous year. The dynamics of the indicator relative to the values in the country is noteworthy: while in 2020 it was possible to contain the outstripping inflation growth within the average level for the country (with the exception of August 2020), in 2021 regional inflation remained above the national average for almost the entire year.

The fall in household incomes and rising inflation in the Russian exclave led to an increase in the share of food products in the structure of household consumption expenditures. At the same time, Kaliningrad oblast, standing out in its less favorable structure of expenditures in previous years relative to the average level in the Northwest and Russia as a whole (Zubarevich and Safronov, 2019a), in 2020 showed only a 1% increase in the share of food expenditures by 2019, with 5% growth in the Russian Federation and 4% in the Northwestern Federal District (Table 2). It is likely that the increase in this indicator in the Kaliningrad exclave will continue in 2021, which will correspond to the peculiarities of the response of the westernmost region to the crisis in the past (2014–2016).

The increase in the share of food products in household consumption expenditures was caused by a decrease in the purchasing power of the population’s monetary income. Residents of the region in 2020 had a higher purchasing power of income relative to the population of the country as a whole only in 5 positions out of 165 food products, a year earlier this was 6 (Fig. 3). These are mineral and drinking water, potatoes, cultured milk products in general and sour cream separately, as well as live and chilled fish. For a num-

Table 2. The share of food expenditures in the structure of household consumption expenditures, %

| Territory                      | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Russian Federation             | 33.2  | 33.9  | 37.3  | 37.7  | 36.1  | 35.2  | 34.6  | 37.0  |
| Northwestern Federal District  | 33.3  | 32.2  | 36.8  | 35.9  | 34.3  | 34.1  | 33.6  | 35.0  |
| Kaliningrad oblast             | 36.4  | 39.0  | 41.8  | 43.6  | 40.7  | 40.4  | 41.5  | 41.8  |

Source: The Social status and standard of living of the population of Russia statistical books.
number of goods, there is an increase in the lag of the region from the average level for the Russian Federation. The reason most often was a noticeable increase in the purchasing power of monetary incomes of the country’s population as a whole, while the purchasing power of the incomes of the residents of the region increased less significantly or even decreased. The increase in the purchasing power of the incomes of the residents of Kaliningrad oblast contributed to a significant (more than 20%) reduction in the lag from the average Russian values only for such items as turkey meat, cottage cheese, milk, butter, beets, buckwheat.

Spatial disproportions in the region today remain both in the level of socioeconomic development and economic development of urban districts, and in terms of the living standards of their residents. The highest wages according to business entities (excluding small businesses) are typical for the municipalities of the western part of the region, classified as Kaliningrad urban agglomeration (Fedorov et al., 2017), where the main production and social potential of the region is concentrated, transport, services and infrastructure are most developed (Table 3). These are, first of all, the regional capital Kaliningrad, coastal districts with the exception of the Baltiisky, and municipalities oriented towards Kaliningrad. For most other municipalities located in the central and eastern parts of the region, in the first year of the COVID-19 pandemic (2020), there was a reduction in the lag from the regional average in terms of nominal wages. This was partly because these urban districts with a higher share of agriculture in the employment structure were less affected by the lockdown and the fall in wages.

Among other municipalities, the border area with Poland is characterized by the smallest lag from the average value for the region, which, however, slightly increased in 2020. The border area with Lithuania, on the contrary, having a more significant gap in wages with other (primarily western) municipalities of the region, in 2020 reduced the lag from the average regional level. Such successes were provided, among other issues, by the support of the regional Government in providing concessional loans to small and medium-sized businesses under the Vostok program.7 According to statements8 of the regional Government, the average monthly wage of employees of organizations in the eastern part of the region increased by 6.5% against the planned 5%. The level of wages of residents of the central municipalities of the region in 2020 practically did not change and remained at a low level.

Changes in business conditions and daily life due to the restrictions imposed to counter the spread of the COVID-19 pandemic have had a significant impact on the standard of living of the population of the westernmost region of Russia, recorded by statistical indicators. The most sensitive consequences, of course, are the fall in the purchasing power of the population’s monetary income and the increase in the share of food in the structure of household expenditures due to the reduction in the population’s monetary income and high growing inflation for food products.

7 The Vostok program involves the provision of a loan in the amount of RUB 2 to 50 mln at 1% per annum for investment purposes for small and medium-sized businesses in the eastern municipalities of the region in order to attract investment and create new jobs in cities and villages with low economic activity. The loan term is set at seven years, and for borrowers working in agriculture, it is increased to 10 years.

8 Regional authorities double funding for the integrated development of the eastern territories. Website of the Government of Kaliningrad Oblast. https://gov39.ru/press/243825/?phrase_id=288908. Accessed May 16, 2022.
Fig. 3. The purchasing power of monetary income of the population of Kaliningrad oblast in 2020 and 2019 relative to the average level in Russia (expressed in terms of the commodity equivalent of average per capita monetary income).
Assessment of Economic Access to Food by the Population of Kaliningrad Oblast during the COVID-19 Pandemic

The decline in the income of the population recorded by official statistics and the fall in the purchasing power of the population in the estimates of the population turned out to be even deeper in a number of cases.

The impact of the COVID-19 pandemic on the change in the financial situation of families was critical, despite the fact that 46% of the respondents noted that their income remained at the same level. The greatest financial stability was shown by the incomes of respondents with higher education (incomplete, complete, or several), or, on the contrary, with a primary or incomplete secondary education. Among the latter are mainly people at ages of 18–24, schoolchildren, and students who are actively entering the labor market.

Table 3. The wages of employees and unemployment rate in the municipalities of Kaliningrad oblast in 2018–2020

|                     | Wage, RUB* | Number of unemployed per 1000 population, people** |
|---------------------|------------|---------------------------------------------------|
|                     | 2018 | 2019 | 2020 | 2020 | 2018 | 2019 | 2020 | 2020 | 2019 | 2020 |                     |
|                     |      |      |      |      |      |      |      |      |      |      |                     |
| \(\text{Regional center—Kaliningrad}\) | 42450 | 45584 | 48184 | 1.06 | 1.25 | 1.24 | 3.5  | 4.5  | 55.2 | 12.3 | 0.65 | 1.05 |
| \(\text{Coastal municipalities}\) |      |      |      |      |      |      |      |      |      |      |                     |
| Zelenogradsky urban district | 42096 | 43615 | 46696 | 1.07 | 1.19 | 1.20 | 3.8  | 4.7  | 31.1 | 6.6  | 0.68 | 0.59 |
| Pionersky urban district | 38367 | 39116 | 44403 | 1.14 | 1.07 | 1.14 | 5.1  | 5.8  | 39.7 | 6.8  | 0.84 | 0.75 |
| Svetlogorsky urban district | 39540 | 36604 | 35651 | 0.97 | 1.00 | 0.92 | 4.7  | 5.2  | 39.2 | 7.5  | 0.75 | 0.74 |
| Yantarny urban district | 49143 | 52477 | 54606 | 1.04 | 1.44 | 1.41 | 4.1  | 3.2  | 44.6 | 13.9 | 0.46 | 0.85 |
| Baltiiskiy urban district | 28184 | 30378 | 32109 | 1.06 | 0.83 | 0.83 | 4.5  | 5.2  | 25.6 | 4.9  | 0.75 | 0.49 |
| \(\text{Municipalities oriented towards Kaliningrad}\) |      |      |      |      |      |      |      |      |      |      |                     |
| Guryevsky urban district | 38914 | 43623 | 44058 | 1.01 | 1.19 | 1.13 | 8.4  | 4.8  | 60.2 | 12.5 | 0.70 | 1.14 |
| Svetlovsky urban district | 54465 | 54792 | 56878 | 1.04 | 1.50 | 1.46 | 7.9  | 9.1  | 36.4 | 4.0  | 1.32 | 0.69 |
| \(\text{Municipalities of the center of the region}\) |      |      |      |      |      |      |      |      |      |      |                     |
| Gvardeisky urban district | 30036 | 31960 | 33307 | 1.04 | 0.87 | 0.86 | 8.8  | 11.2 | 49.9 | 4.5  | 1.62 | 0.95 |
| Chernyakhovsky urban district | 28960 | 30557 | 32564 | 1.07 | 0.84 | 0.84 | 8.6  | 9.6  | 48.5 | 5.1  | 1.39 | 0.92 |
| Gusevsky urban district | 28959 | 29624 | 31130 | 1.05 | 0.81 | 0.80 | 4.5  | 9.5  | 37.5 | 3.9  | 1.38 | 0.71 |
| Polessky urban district | 27642 | 29864 | 34093 | 1.14 | 0.82 | 0.88 | 12.3 | 13.5 | 55.2 | 4.1  | 1.96 | 1.05 |
| \(\text{Municipalities bordering Lithuania}\) |      |      |      |      |      |      |      |      |      |      |                     |
| Nemanovsky urban district | 32420 | 34500 | 37590 | 1.09 | 0.94 | 0.97 | 22.6 | 18.3 | 60.4 | 3.3  | 2.65 | 1.15 |
| Nesterovsky urban district | 31511 | 33909 | 36662 | 1.08 | 0.93 | 0.94 | 16.2 | 16.1 | 60.2 | 3.7  | 2.33 | 1.14 |
| Krasnoznamensky urban district | 29288 | 31777 | 34487 | 1.09 | 0.87 | 0.89 | 29.6 | 22.9 | 93.1 | 4.1  | 3.32 | 1.77 |
| Slavsky urban district | 26642 | 29099 | 32585 | 1.12 | 0.80 | 0.84 | 12.2 | 15.3 | 84.7 | 5.5  | 2.22 | 1.61 |
| Sovetsky urban district | 30739 | 32690 | 35214 | 1.08 | 0.89 | 0.91 | 7.6  | 6.2  | 64.6 | 10.4 | 0.90 | 1.23 |
| \(\text{Municipalities bordering Poland}\) |      |      |      |      |      |      |      |      |      |      |                     |
| Ozersky urban district | 32803 | 34552 | 35914 | 1.04 | 0.94 | 0.92 | 28.9 | 20.5 | 86.9 | 4.2  | 2.97 | 1.65 |
| Pravdinsky urban district | 35222 | 37860 | 41041 | 1.08 | 1.04 | 1.06 | 10.5 | 15.2 | 51.8 | 3.4  | 2.20 | 0.98 |
| Bagrationovsky urban district | 37766 | 41732 | 43495 | 1.04 | 1.14 | 1.12 | 5.2  | 5.3  | 46.9 | 8.8  | 0.77 | 0.89 |
| Mamonsky urban district | 28415 | 29876 | 30863 | 1.03 | 0.82 | 0.79 | 8.4  | 7.8  | 51.9 | 6.7  | 1.13 | 0.98 |
| Ladushkinsky urban district | 28298 | 30225 | 32677 | 1.08 | 0.83 | 0.84 | 3.7  | 8.8  | 38.3 | 4.4  | 1.28 | 0.73 |
| \(\text{Average by municipalities}\) | 34689 | 36420 | 38703 | 1.06 | –    | –    | 6.2  | 6.9  | 52.7 | 7.6  | –    | –    |

* Average monthly wage of employees of enterprises (excluding small businesses). ** Number of officially registered unemployed per 1000 working-age population at the end of the year.

Source: Archive materials of Kaliningradstat.
A significant deterioration in the financial situation was more often noted among the unemployed; more than half of the unemployed surveyed indicated a reduction in family income. Most likely, this category includes residents of the region who were left without work during the coronacrisis and registered their official status as unemployed (Zubarevich and Safronov, 2020), which is confirmed by earlier conclusions about the growth of official unemployment in the region (Yemelyanova and Lyalina, 2020). The change in the financial situation was described in a similar way by workers, trainees and salespeople, employees and technical performers, and military personnel. At the same time, respondents with a secondary level of education (general or special) were under the greatest risk.

The crisis period was associated with a significant increase in the stratification of society: residents of the region, who described the financial situation of their families as very bad and poor, experienced a drop in income (most often a significant one), while the other part of the population with a very good or good financial situation over the past year increased its own income (Fig. 4).

According to the survey, the proportion of the population whose food expenditures accounted for more than 40% of income increased over the year from 38 to 64% (Fig. 5). More than 60% of the respondents began to spend more than 60% on food (there were 3 times more such residents of the region than a year earlier).

The maximum share of food expenditures, more than 60%, is inherent in the cohort of people with the lowest incomes (pensioners, the unemployed, and agricultural workers). Food expenditures of 40–60% of income are more typical for the 25–44-year-old cohort. This group most often includes housewives, employees and technicians, workers, trainees, salespeople, military personnel and law enforcement officers. A total of 20–40% of food expenditures is more often spent by people at ages of 18–24 years, that is, a group of pupils and students, as a rule, with financial support from their parents or educational institution. Most often, a relatively low share of food expenditures (20–40%), as expected, is also noted in the group of heads of enterprises and entrepreneurs, specialists and heads of departments, and military personnel. At the same time, over the past year, a “gradual” downward shift in the distribution of the population of certain age groups by the share of food expenditures is obvious. Thus, if in the cohorts of the population at ages of 25–34 and 35–44, the group of the population with a share of food expenditures of 30–40% prevailed a year earlier, today it is 40–60%, etc.

Some territorial disproportions are also noted (Fig. 6). In general, the share of food expenditures is lower in the regional center, Kaliningrad, where the income of the population is traditionally higher than in other municipalities of the region (with the exception of certain municipalities, for example, the single-industry urban-type settlement of Yantarny). Over the past year, the share of food expenditures by residents of border municipalities has increased significantly more than in other municipalities of the region. Thus, in the border area with Lithuania, the share of the population with food expenditures of more than 60% increased by more than 5 times, in the border area with Poland, by almost 9 times, to 27 and 35%, respectively (the average increase for the sample was 3 times). A more than two-fold increase in the proportion of residents with a share of food expenditures over 40% was also noted in municipalities oriented towards Kaliningrad.
The reasons for the change in the share of food expenditures can be different: incomes have decreased, food prices have risen, or spending has generally decreased. Of those who experienced an increase in food expenditures, 31% associated it with a drop in family income.

About 80% of the respondents in Kaliningrad oblast believe that the COVID-19 pandemic affected the rise in food prices, while 70.5% noted that the increase was significant. More than one-third of the region’s residents at ages of 45 and older noted a significant increase in prices as the main barrier to the purchase of food products. In terms of employment, among those who paid significant attention to the price increase, workers and salespeople stood out (more than 81% of respondents felt the price increased due to the COVID-19 pandemic), pupils and students (more than 88%), and pensioners (80%).

The increase in food prices in the region due to the impact of COVID-19 pandemic was more noticeable for rural residents (more than 86% of the surveyed rural residents considered the COVID-19 pandemic a significant factor). The population of the municipalities bordering Poland, which, before the COVID-19 pandemic, had close interaction with the neighboring state, including when purchasing foreign goods, noted a significant increase in food prices during the coronavirus crisis more often than residents of other parts of the region (87% versus 70.5% on average for the sample).

The COVID-19 pandemic affected the typical consumer behavior of the population. The period of mass restrictions on visiting public places (primarily shops), the introduction of a ban on leaving the house for certain categories of people, the lockdown of April—May 2020 was associated by one-third of the respondents in Kaliningrad oblast with difficulties in buying food products. Of these, one-third were citizens with a very poor or poor financial situation of the family. More often than others, these were representatives of the lowest-income categories of the population, that is, the unemployed and pensioners, as well as agricultural workers, who stand out for their low wages. Among the significant difficulties were direct freedom of movement’s restrictions and physical distancing (for example, for residents over 65 years old) (15.9%). This problem was most acutely felt by rural residents, who poorly adapted to the online trading format due to age characteristics, Internet access, and other factors.

A change in the range of products in retail outlets was also cited as a problem for typical consumer behavior, namely the lack of imported products (for 11.2% of the respondents) and necessary goods in general (6.7%), which was also associated with a temporary disruption of supply chains. The largest share of respondents who noted these options was the population in a difficult financial situation, which is explained, as a rule, by the lower cost of many imported products and, accordingly, the orientation of residents with low incomes to them.

The food market adapted to the restrictions in a number of ways, including the expansion of the online commerce segment with home delivery. According to the survey, almost 13% of respondents used the services of online food sales services. The most active in online shopping were citizens of young ages, that is, those 18—34 years old, pupils and students, entrepreneurs and specialists, and heads of departments. Access to such services is still most in demand among citizens with higher education and a good financial situation.

In April 2020, a food delivery service was launched in the region by the largest SPAR chain store, the conditions for purchasing at Sbermarket were simplified, and the network of OZON order pick-up points was
expanded at the expense of remote municipalities of the region. At the same time, for the vast majority of respondents (81%), buying food products in regular stores and supermarkets remained the main way to purchase goods during the period of self-isolation. About 3% of the respondents were forced to use assistance in purchasing goods from both relatives and social security. Such assistance was requested most often by pensioners (10% among the group).

According to the survey, food delivery services were mainly used by residents of Kaliningrad and coastal municipalities: 21 and 11%, respectively, in the sample structure by zone (the average for the sample was 13%). Among them, the majority combined traditional ways of buying goods in supermarkets and using online services.

The impact of the COVID-19 pandemic on the choice of buying food products online in the vast majority of cases turned out to be long-term; the same 13% of respondents, after the lifting of the self-isolation regime and the partial lifting of restrictions, continued to use delivery services at the same frequency or more often. Thus, the territorial coverage of online trading services has obviously expanded, while they did not play a significant role in improving the economic access to food for peripheral municipalities, since the consumer behavior of the residents of these urban districts is very conservative (due to a lower level of education, reduced Internet access compared to the western part of the region).

Thus, more than 50% of the respondents in the border area with Poland and municipalities oriented towards the regional center experienced significant difficulties in purchasing food products during the COVID-19 pandemic. In the first case, the reason probably is the high proportion of the population with low incomes due to the extremely low level of wages in municipalities and increased unemployment (Table 3). Bagrationovsky urban district, on whose territory three of the four auto crossing point on the Russian–Polish border are located (the Mamonovo I auto crossing point, the Mamonovo II multidirectional auto crossing point, and the Bagrationovsk multidirectional auto crossing point), entered the top five
municipalities with the sharpest jump in official unemployment, by almost 9 times (Table 3). A significant part of the population of the municipality was employed in areas of activity related to border crossing. The closure of the border made it almost impossible to purchase food in a neighboring state, both for one’s own needs and for resale. For the municipalities bordering Poland, the importance of Polish goods in consumption remained even after the food embargo of 2014. The share of the population of these territories purchasing food that fell under sanctions in 2014 did not practically decrease (compared to the period before 2014, it decreased by 3 percentage points and the average for the region was 15 percent points) and remains at a high level of 40%. In the second case, in municipalities oriented towards the regional center, the decisive role was played by high employment (50–60%) of the population in the sectors most affected during the COVID-19 pandemic: manufacturing, trade and logistics. In 2020, in this group of urban districts, the unemployment rate increased by an average of 8.8 times (in the region, by an average of 7.6 times), in the Guryevsky urban district, where two-thirds of the population of the zone lives, it rose by more than 12 times (Table 3).

CONCLUSIONS

An analysis of the impact of the COVID-19 pandemic on the economic access to food made it possible to identify both a number of features that are very typical for any regional economy and some local features of the Russian exclave.

The economic access to food during the COVID-19 pandemic has decreased significantly, primarily for the unemployed and pensioners, low-skilled workers with primary or secondary education, such as workers, trainees, employees with a poor or very poor financial situation. They adapted poorly both to the changing labor market and to the spread of online shopping, which in some cases allows buying goods at better prices. At the same time, the presence of higher education directly correlated with less vulnerability to crises, since it, amongst other things, provided more opportunities for remote employment.

Municipalities in the zone of influence of the regional capital, which are oriented towards servicing it, found themselves in the zone of the greatest drop in economic access to food due to the unfavorable structure of the economy in terms of crisis susceptibility, and, as a result, a significant increase in the level of official unemployment.

Even before the COVID-19 pandemic, residents of the Russian exclave could only purchase products at favorable prices (that is, prices below the Russian average) for which the region had achieved self-sufficiency (for example, fish). In the context of the COVID-19 pandemic, this trend has continued, while the gap between Kaliningrad oblast and the average level in the Russian Federation in terms of the purchasing power of income for a wide range of food products has increased. According to respondents, the share of food expenditures approached almost critical levels and for 30% of the population amounted to 60%.

The hypothesis that external shocks are of particular importance for food markets in border regions, since cross-border shopping trips are typical for consumer behavior, has been partially confirmed. Since 2014, the consumer behavior of the residents of Kaliningrad oblast has undergone significant changes due to the ban on the import of certain food products into Russia from the EU and a number of other countries. However, the data of our sociological survey confirm that the residents who were used to traveling abroad for food, continued to do so. The opportunity to buy Polish goods inside the region, although sold illegally, has been preserved in many places. If the frequency of consumption, for example, of Polish products, has decreased, then this is due not so much to the embargo, but to a decrease in the purchasing power of the population. At the same time, the COVID-19 pandemic left no alternative for residents of Kaliningrad oblast, who are accustomed to Polish products, than to switch to analogues available on the market. Residents of the border areas turned out to be more vulnerable than others to the risks of suspension of deliveries of products from neighboring countries, both due to the loss of employment (in the field of trade in imported goods) and due to the lack of cheaper foreign-made goods. This trend is clearly seen in the municipalities that have a state border with Poland (for example, in the Bagrationovsky urban district).

Thus, the intermunicipal differentiation of Kaliningrad oblast in terms of changes in the economic access to food in the context of the COVID-19 pandemic is associated not only with center-peripheral differences, but also with the intensity of the influence of the border factor. The municipalities remote from Kaliningrad along the Russian—Polish and Russian—Lithuanian borders are generally characterized by peripheral development, a larger pay gap compared to the western agglomeration-centered territories of the region. The focus on foreign economic cooperation with a neighboring state (primarily Poland), which is manifested both in consumption patterns (a high share of imported goods) and in the employment structure of residents of these municipalities (trade in imported food products), during the COVID-19 pandemic has become one of the key factors in reducing the economic access to food. Given the impossibility of buying cheaper food products in a neighboring state, residents of these territories experience an outpacing increase in the share of food expenditures against the background of a reduction in income (including from the resale of imported goods) and rising food prices. The factor of the border location turned out to be less significant for residents of the Russian border with
Lithuania due to the lesser importance of foreign economic relations with the neighboring state in everyday life, including due to the less favorable difference in the cost of food in Russia and Lithuania (after the country joined the euro area in 2015).

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**CONFLICT OF INTEREST**

The authors declare that they have no conflicts of interest.

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