

Tanina, Anna; Tashenova, Larissa; Konyshchev, Yevgeni; Mamrayeva, Dinara;
Rodionov, Dmitriy

Article

The tourist and recreational potential of cross-border regions of Russia and Kazakhstan during the COVID-19 pandemic: Estimation of the current state and possible risks

Economies

Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

Suggested Citation: Tanina, Anna; Tashenova, Larissa; Konyshchev, Yevgeni; Mamrayeva, Dinara; Rodionov, Dmitriy (2022) : The tourist and recreational potential of cross-border regions of Russia and Kazakhstan during the COVID-19 pandemic: Estimation of the current state and possible risks, *Economies*, ISSN 2227-7099, MDPI, Basel, Vol. 10, Iss. 8, pp. 1-27, <https://doi.org/10.3390/economies10080201>

This Version is available at:

<https://hdl.handle.net/10419/328501>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Article

The Tourist and Recreational Potential of Cross-Border Regions of Russia and Kazakhstan during the COVID-19 Pandemic: Estimation of the Current State and Possible Risks

Anna Tanina ¹, Larissa Tashenova ^{2,*}, Yevgeni Konyshev ³, Dinara Mamrayeva ² and Dmitriy Rodionov ⁴

¹ Institute of Industrial Management, Economics and Trade, Graduate School of Public Administration, Peter the Great St. Petersburg Polytechnic University (SPbPU), 194021 St. Petersburg, Russia

² Faculty of Economics, Marketing Department, Karaganda Buketov University, Karaganda 100000, Kazakhstan

³ Geography Faculty, Socio-Economic Geography Department, Perm State National Research University, 614990 Perm, Russia

⁴ Institute of Industrial Management, Economics and Trade, Graduate School of Industrial Economics, Peter the Great St. Petersburg Polytechnic University (SPbPU), 194021 St. Petersburg, Russia

* Correspondence: larissatashenova1988@gmail.com; Tel.: +77-015120348

Abstract: The development of tourism is associated with numerous risks that have a direct and indirect impact on the realization of tourist and recreational potential. In recent years, in addition to internal risks, the importance of external environmental risks (geopolitical and epidemiological) has increased. The COVID-19 pandemic is one of the foremost of these risks, and its effects on the development of regional tourism demands attention. The purpose of the study is to estimate the level of tourist and recreational potential of cross-border regions of the Russian Federation and Kazakhstan, and the possible risks during the COVID-19 pandemic. After the breakup of the USSR, one of the longest land borders in the world was established between Russia and Kazakhstan. The geographical scope of the study includes 12 constituent entities of the Russian Federation and 7 regions of Kazakhstan. Information posted on statistical portals, data from geographical atlases, and specialized websites of the executive authorities were used as the materials for the study. The tourist and recreational potential of the regions of the Russian Federation and Kazakhstan was estimated by the scorecard method, with the assignment of weight coefficients to indicators included in four main clusters: Natural Factors, Cultural and Historical Factors, Social and Economic Factors, and Infrastructure Support of Tourism. Additionally, the experience of studying risks associated with tourism development during the pandemic was summarized. The conclusions reached are indicative of different levels of tourism and recreational potential in cross-border regions of the Russian Federation and Kazakhstan, and the inconsistency of the industry's structure. It was found that the COVID-19 pandemic had increased the number of risks for the realization of tourism and recreational potential, which must be taken into account when making management decisions. The authorities of cross-border regions can use the results of the research to adjust tourism policy under the current restrictions and increased global risks. The application of mechanisms and methods of territorial planning and management will depend on the level of tourism and recreational potential. For regions with high and above-average potential, the emphasis should be on participation in federal projects, the development of cluster initiatives, and the application of a diversification strategy. Regions with medium and low potential should focus on the domestic tourist flow, develop inter-regional cooperation, and focus on the strategy of gaining a competitive advantage.

Keywords: tourist and recreational potential; border areas; tourism; state support measures; COVID-19 pandemic



Citation: Tanina, Anna, Larissa Tashenova, Yevgeni Konyshev, Dinara Mamrayeva, and Dmitriy Rodionov. 2022. The Tourist and Recreational Potential of Cross-Border Regions of Russia and Kazakhstan during the COVID-19 Pandemic: Estimation of the Current State and Possible Risks. *Economics* 10: 201. <https://doi.org/10.3390/economics10080201>

Academic Editor: Robert Czudaj

Received: 30 June 2022

Accepted: 15 August 2022

Published: 18 August 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Many factors affect tourism development in the cross-border region of Russia and Kazakhstan (Mamraeva and Tashenova 2020). The fundamental condition for attracting tourists is the existing tourist potential of the territory. National and local authorities significantly affect the success of territorial tourism resource use. Tourism development in transboundary regions has positive and negative features: the attraction of tourists from neighboring countries, opportunities to sell tourist products in the international and domestic markets, and the need to form an information infrastructure, so it is important to consider that the type of borders may change. For example, because of the USSR's collapse in 1991, the regional borders between republics became national borders. This study considers the advantages of tourism industry development in the context of preserved ties between the authorities and the populations of cross-border regions. Russian tourists are also attracted by the fact that most of Kazakhstan's population speaks Russian.

The authors used modeling to study the region's potential tourism implementation to increase the certainty of actions (including by public authorities) (Ivanova et al. 2020; Volodin et al. 2019). In addition, the authors used various model types to assess the parameters of enterprises and to study the peculiarities of the development of different industries and individual economic processes (Rodionov et al. 2020; Boldyrev et al. 2019; Aletdinova and Bakaev 2019; Chernogorskiy et al. 2018). The use of modeling is necessary for forecasting crisis conditions (Borovkov et al. 2020; Toroptsev et al. 2019). Authors usually use models in the study of tourism types (Tanina et al. 2020) and tourism potential of a territory (Mamraeva and Tashenova 2020).

The activities of tourism organizations and developers in a territory are significantly affected by diverse types of risks. In addition to internal risks related to the activities of an enterprise or industry itself, the development of globalization has increased external risks to the environment, also affecting tourism (Nikolova et al. 2017; Lee et al. 2021a; Istiak 2021; Dimopoulos et al. 2021; Vidishcheva et al. 2020; Sikarwar 2021; Pérez-Rodríguez and Santana-Gallego 2020). The COVID-19 pandemic has proved that the impact of epidemiological risks at the global, national, and regional levels was previously underestimated. The pandemic has affected many economic indicators, including investment in certain regions and their attractiveness as tourist destinations (Rodionov et al. 2021). In fact, tourism has become one of the most affected industries.

This paper aims to assess the current tourism and recreational potential (TRP) of the cross-border regions of Russia and Kazakhstan, and the risks these regions faced during the COVID-19 pandemic. We will complete the following tasks: determine the value of TRP in the cross-border areas of Russia and Kazakhstan, construct a multilayer map based on the assessment results, and identify and analyze the risks of tourism development in the territories considered in the paper.

2. Literature Review

In this study, the authors considered the specific impact of the COVID-19 pandemic on tourism in the cross-border regions of Kazakhstan and Russia. Studies of organizations operating in boundary zones are relatively rare (Shneider et al. 2020; Leukhina et al. 2020).

Cross-border tourism has the following features:

- Forms a necessary part of the process of achieving sustainable development goals in the EU Cross-Border Cooperation (CBC) model;
- Contributes to the implementation of sustainable development goals to a greater extent than national tourism programs, which should be considered in the development of a destination;
- Requires integrated management because cross-border regions have a more complex structure;
- Has the ability to implement joint marketing strategies to increase tourist flow;
- Primarily performs the integrative function of cultural tourism;
- Includes unique types of tourism, such as smuggling tourism;

- Has different degrees of tourist flow penetration into internal territories;
- Should be ready to reorient activities to the domestic market in situations of significant reduction in tourist flow from abroad;
- Has faster recovery time in the post-pandemic era than other tourism sectors.

Currently, there are few studies based on the use of simulation to estimate the impact of the pandemic on tourism in terms of the realization of an area's tourism potential. Most of the published works concern risk perception, changes in the behavior of tourists, or the impact of the COVID-19 pandemic on the tourism industry of a particular area. Among the studies, the following models can be noted: collective risk (Chica et al. 2021), estimation of risks and vulnerability of the economy during COVID-19 (Arbulú et al. 2021), perception of health risks in tourism (Godovykh et al. 2021), perception of the COVID-19 risk when visiting national parks (Park et al. 2022), the relations between perceived risk and willingness to pay for additional safety measures due to the COVID-19 pandemic (Sánchez-Cañizares et al. 2021), the impact of COVID-19 on tourist behavior (Xu et al. 2021), predictors of perceived travel risks (Teeroovengadum et al. 2021), dependence of a company's value on information about the need for social distancing in the hospitality and tourism industry (Im et al. 2021), and changes in risk perception after the COVID-19 pandemic (Chan 2021).

Restrictions imposed due to a need to ensure further travel safety have raised the risks for tourism (Rudyanto et al. 2021; Ruiz-Sancho et al. 2021; Matiza and Slabbert 2022; Tseng et al. 2021; Cheng et al. 2022; Lee et al. 2021a; Lapko et al. 2021; Rather 2021). The tourist flow to almost all countries and regions has decreased, especially in areas with insufficiently realized tourism potential (Lee et al. 2021a; Wu 2021; Shahzad et al. 2022). However, in some areas, tourist flow has decreased to a lesser degree due to the influx of domestic tourists (Joo et al. 2021; Matiza and Slabbert 2022; Zhu and Deng 2020; Wang et al. 2021). That said, it is necessary to consider the behavior of local residents, who fear an increased risk of COVID-19 infection when tourists visit their destinations (Woosnam et al. 2021). The studies conducted show that the impact of the pandemic on tourism has been more destructive than that of previous, mainly economic, crises (Škare et al. 2021). To ensure the realization of the tourist potential of an area, state authorities need to take significant measures to increase tourist flows and to ensure the financial stability of tourism organizations (Villacé-Molinero et al. 2021; Grech et al. 2020; Chan 2021).

3. Materials and Methods

The methodology for estimating the tourism and recreational potential of the areas of the Republic of Kazakhstan (RK) and the Russian Federation (RF) includes 9 key stages:

1. Identification of clusters and estimation indicators.

- Cluster 1—Natural Factors (11): average temperature in January, °C; average temperature in July, °C; average annual precipitation, mm; period of seasonal snow cover, days; absolute elevation of terrain relief, m; number of lakes (large, more than 100 sq. km), units; number of rivers (large, over 500 km), units; number of protected areas, units; number of protected plant species, units; number of protected animal species, units; number of natural monuments (of republican significance), units.
- Cluster 2—Cultural and Historical Factors (11): number of historical and cultural monuments (of republican significance), units; number of archaeological monuments (of republican significance), units; number of monuments of urban planning and architecture (of republican significance), units; number of museums, units; number of theaters, units; number of zoos (including petting zoos), units; number of concert organizations, units; number of circuses, units; number of libraries, units; number of movie theaters, units (including those with 2–7 screens); number of entertainment and recreational parks, units.
- Cluster 3—Social and Economic Factors (4): consumer product retail chains, quantity; number of trade markets, units; density of railway tracks, km per 1000 sq. km; length of public hard-surfaced motor roads, km.

- Cluster 4—Infrastructure Support of Tourism (10): number of exercise and sports facilities (including number of ski resorts, rowing clubs, sports arenas, etc.), units; number of primary wellness tourism facilities (sanatorium-and-spa resorts, specialized medical centers, etc.), units; number of five-star hotels, units; number of four-star hotels, units; number of three-star hotels, units; number of accommodations without category, as well as one- and two-star hotels, units; hotel room capacity, units; number of airports, units; number of tourism firms and tour operators, units; headcount of workers in the tourism sector, in thousands.

It should be noted that when calculating the TRP of RF regions bordering the Republic of Kazakhstan, an indicator such as ‘Number of Monuments of Urban Planning and Architecture (of republican significance), units,’ has not been used, because since 2013, they have not been accounted for under this approach; these sites are considered in the category ‘Cultural Heritage Sites.’ It should also be noted that the values for the parameter ‘Number of Zoos’ have been used without taking petting zoos into account.

2. Correlation of weight coefficients with TRP estimation indicators obtained on the basis of an expert estimation conducted by the authors (Mamraeva and Tashenova 2020) when developing the basic methodology underlying this paper. Experts in tourism and recreational geography, representatives of the tourism services market (travel agents and tour operators), and officials from government agencies served as experts. The parameters were estimated using a 5-point scale, where 1 was the minimum and 5 was the maximum score.

3. Calculation of the average country value (ACV) for each indicator, with the exception of the average temperature in January, the average temperature in July, the average annual precipitation, the period of seasonal snow cover, and the absolute elevation of the terrain relief.

4. Attainment of relative values by dividing the indicator’s initial value in the context of previously identified clusters by ACV.

5. Assignment of 0.1 and 2 to the obtained relative value based on the TRP estimation indicator system (Tourist and Recreation Potential) estimation indicators (Table 1).

Table 1. System of TRP Area Estimation Indicators *.

Indicator Name	Scores			Weight Coefficient **
	0	1	2	
Average temperature in January, °C	0–(–8) and (–25)	(–19)–(–14)	(–9)–(–18)	0.06
Average temperature in July, °C	11–15	16–19	20–25	0.06
Average annual precipitation, mm	600–800	400–600	300–400	0.05
Period of seasonal snow cover, days	0–140	140–160	More than 160	0.07
Absolute elevation of the terrain relief, m	0–500	500–1000	More than 1000	0.12
Number of lakes (large, more than 100 sq. km), units	No	1.3≤	More than 1.3	0.12
Number of rivers (large, more than 500 km), units	No	1.2≤	More than 1.2	0.12
Number of SPNRs (Specially Protected Natural Reservations), units	No	1.4≤	More than 1.4	0.13
Number of protected plant species, units	No	1.0≤	More than 1.0	0.06
Number of protected animal species, units	No	1.4≤	More than 1.4	0.08
Number of natural monuments (of republican significance), units	No	1.4≤	More than 1.4	0.14

Table 1. Cont.

	Indicator Name	Scores			Weight Coefficient **
		0	1	2	
CHF (Cultural and Historical Factors)	Number of historical and cultural monuments (of republican (federal) significance), units	No	2.0≤	More than 2.0	0.13
	Number of archaeological monuments (of republican (federal) significance), units	No	2.0≤	More than 2.0	0.13
	Number of monuments of urban planning and architecture (of republican (federal) significance), units	No	1.5≤	More than 1.5	0.12
	Number of museums, units	No	1.8≤	More than 1.8	0.12
	Number of theaters, units	No	1.7≤	More than 1.7	0.08
	Number of zoos (including petting zoos), units	No	1.5≤	More than 1.5	0.08
	Number of concert organizations, units	No	1.4≤	More than 1.4	0.06
	Number of circuses, units	No	1.4≤	More than 1.4	0.08
	Number of libraries, units	No	1.0≤	More than 1.0	0.03
	Number of movie theaters, units (including those with 2–7 screens)	No	1.2≤	More than 1.2	0.05
SEF (Social and Economic Factors)	Number of entertainment and recreation parks, units	No	1.8≤	More than 1.8	0.12
	Consumer product retail chains, quantity	No	1.2≤	More than 1.2	0.17
	Number of trade markets, units	No	1.1≤	More than 1.1	0.16
	Density of railway tracks, km per 1000 sq. km	No	1.6≤	More than 1.6	0.33
IST (Infrastructure Support of Tourism)	Length of public hard-surfaced motor roads, km	No	1.7≤	More than 1.7	0.34
	Number of physical culture and sports facilities (including: number of ski resorts, rowing clubs, sports arenas, etc.), units	No	2.0≤	More than 2.0	0.13
	Number of primary wellness tourism facilities—sanatorium-and-spa resorts, specialized medical centers, etc.	No	1.9≤	More than 1.9	0.13
	Number of 5-star hotels, units	No	1.1≤	More than 1.1	0.09
	Number of 4-star hotels, units	No	1.1≤	More than 1.1	0.08
	Number of 3-star hotels, units	No	1.6≤	More than 1.6	0.12
	Number of accommodations w/o category, as well as 1- and 2-star hotels, units	No	1.4≤	More than 1.4	0.09
	Hotel room capacity, units	No	1.8≤	More than 1.8	0.09
	Number of airports, units	No	1.8≤	More than 1.8	0.11
	Number of tourist companies and tour operators, units	No	1.7≤	More than 1.7	0.09
	Headcount of workers in the tourism sector, in thousands	No	1.6≤	More than 1.6	0.06

* Note—compiled by the authors based on the method of estimating TRP of the areas by D.A. Dirina, E.P. Krupochkina, and E. I. Golyadkina. ** Weight coefficients are calculated based on expert estimations.

6. Multiplication of the obtained values by weight coefficients for each selected parameter of TRP estimation in the context of clusters.

7. Attainment of average values for each cluster in the context of regions based on the arithmetic mean.

8. Attainment of the final integral estimation for each region.

9. Calculation of the final integral estimation.

In general, the entire methodology can be graphically represented as follows (Figure 1):

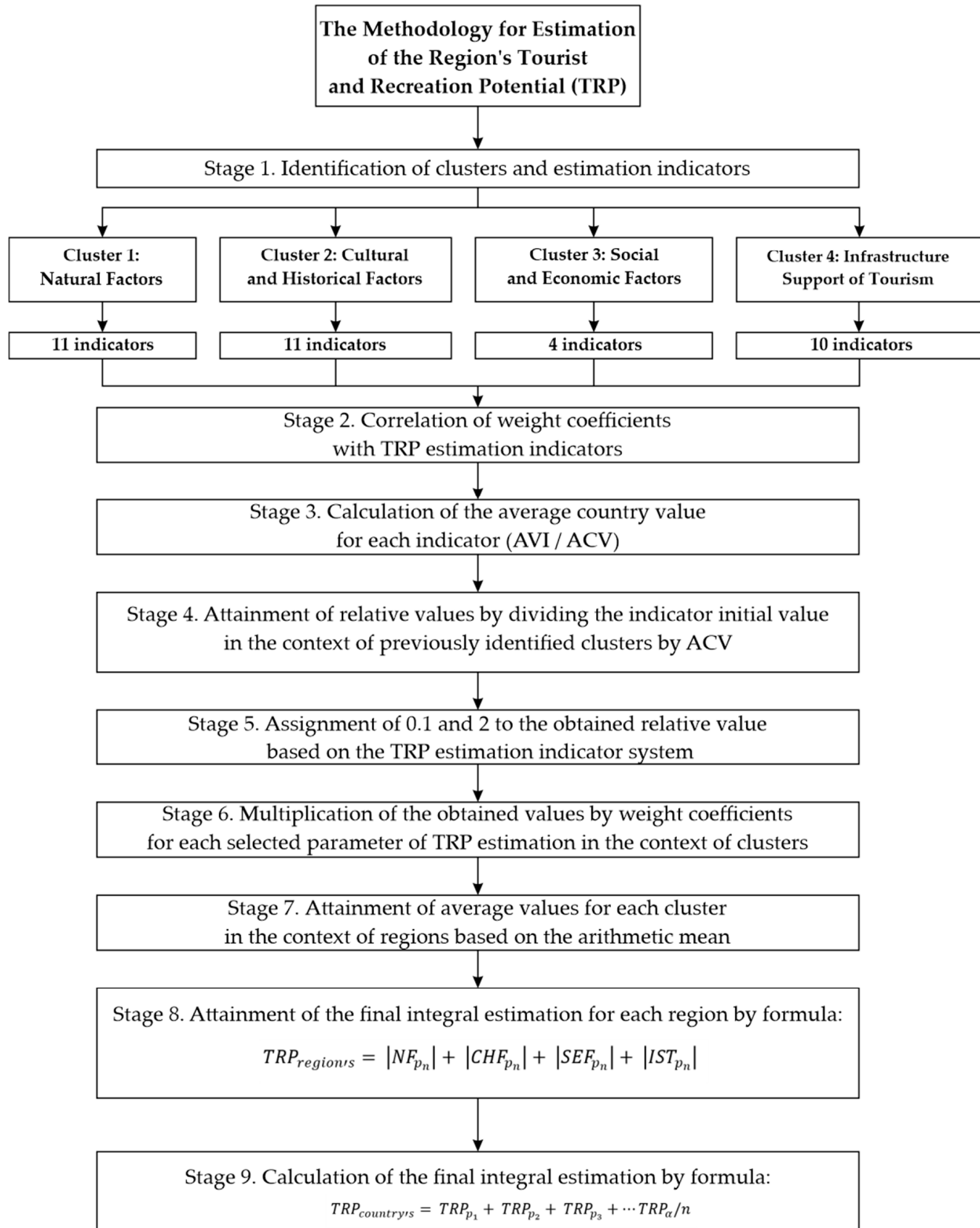


Figure 1. Methodology for Estimating the Regions' TRP. Note—compiled by the authors.

The results of the regions' potential tourism and recreational estimates are presented in a thematic cartogram. The cartogram shows the spatial distribution of territorial entities in Russia and Kazakhstan by volume of tourism and recreational potential. To create it, a specialized cartographic program—Q-GIS—was used. The Russia and Kazakhstan shp files served as a cartographic basis, and the EPSG:5940 projection was used. The results of the tourism and recreational potential estimation were converted from the xsl format to csv, which allowed them to be bound to spatial data from the shp file. Subsequently, the data analysis tool, as well as the style tool, was used to perform the zoning procedure with dasymetric differentiation. Elements of cartographic semiotics have been added to the resulting cartoid: a scale ruler, explanatory notes, and a schematic compass.

4. Results

The following regions of the RF border with Kazakhstan were included in the study: Astrakhan, Volgograd, Saratov, Samara, Orenburg, Chelyabinsk, Kurgan, Tyumen, Omsk, and the Novosibirsk Regions, as well as the Altai Territory and the Republic of Altai.

Table 2 gives a brief description of the regions in terms of tourist attractiveness according to Russia Travel, a national tourist portal.

Table 2. Brief description of the RF's regions in terms of tourism attractiveness.

Region	Brief Description
Astrakhan Region	This is a region with an ancient history, the center of many events reflected in the chronicles of Russia. The land is distinguished by its rich natural diversity, unique ethnic makeup, and cultural potential accumulated over centuries. The region's main city—Astrakhan—proudly bears the titles of Caspian Capital, Keeper of Living History, and Precious Pearl of the Lower Volga Region.
Volgograd Region	This is a land of natural beauty and national traditions. It is the homeland of Ataman Ermak Timofeevich, the conqueror of Siberia, and the popular rebels Stepan Razin and Kondraty Bulavin. It is a cradle of victory in the Great Patriotic War that preserves the memory of the fallen heroes in a mass grave on Mamayev Hill (Mamayev Kurgan). This is an area of archaeological monuments, including an ancient human encampment, Sarmatian villages, Savromat burial grounds, and Golden Horde cities.
Saratov Region	This region is the place of the first landing by cosmonaut Yuri Gagarin. Here, in a moderate continental steppe climate on the banks of the Volga River, Saratov has been standing for more than 400 years. Once a major merchant center in the country, today it is a city of a dozen museums. In the cultural capital of the Volga Region, one can see a unique collection of paintings, including canvases by Aivazovsky and Petrov-Vodkin, or a collection of samovars. Outside the regional capital is the House with a Lion—a unique open-air museum of ancient house paintings and thermal pools.
Samara Region	This region is located in the middle reaches of the Volga River. The regional capital boasts the longest river embankment in Russia and the tallest railway station building in Europe. Samara is also famous for producing the most popular beer in the country. The surrounding landscapes and the local way of life have inspired many famous Russian artists. One of the most picturesque and mystical places of the Samara region is the river bend, Samarskaya Luka. Here, one can see beavers, wild boar, elk, and foxes.
Orenburg Region	This region is located in the very south of Russia, near the border with Kazakhstan. Its outline on the map resembles a flying dragon. The Orenburg region is a land of endless steppes. Here, one can experience a true winter and legendary Russian frost, but travelers will not freeze in these lands: the Orenburg down shawl, a traditional souvenir of the region, will protect them from the cold.

Table 2. Cont.

Region	Brief Description
Chelyabinsk Region	The locals like saying that the Chelyabinsk region is caressed by both subterranean and celestial deities. The famous Ural gems are mined in this region: underground treasures surrounded by fairy tales with which the entire population of the country is brought up. Most recently, in the capital of the region, hundreds of city cameras recorded the fall of a meteorite, which can now be seen in a museum. In addition to gems, there are modern ski resorts and national parks in the mountains of the Southern Urals.
Kurgan Region	This region is called the gateway of Siberia. The Baikal Federal Highway passes through its territory, as does the Trans-Siberian Railway. People come here for walking and educational, cycling, equestrian, automobile, snowmobile, and ski tourism. The Kurgan territory boasts more than a thousand sites included in the list of cultural and historical heritage of the RF.
Tyumen Region	This region is located in the southwestern part of the West Siberian Plain. It is where explorers started discovering new territories in the 16th century and where many travelers start getting acquainted with Siberia today. The only stone Kremlin in Siberia is located in Tobolsk. The region's wooden architectural monuments are diverse—here, one can see the Baroque embodied in wood. Additional artifacts in the region include dinosaur skeletons and ancient human encampments.
Omsk Region	There are more than twenty hunting reserves in the territory of the Omsk region; this is a real paradise for fans of hunting and fishing. Devotees of history will be interested in ancient encampments and settlements, burial mounds, and iconic monuments. Historical sites include Chudskaya Gora, Batakovo Tract, and the mysterious energy village of Okunevo, with its system of five lakes, one of which is fictional.
Novosibirsk Region	The third largest city in Russia, Novosibirsk, is not a tourist center; as a rule, people come here on business. Nevertheless, the city, just like the region, has something to show its guests: the largest zoo in Russia, the scientific center of Akademgorodok (science campus), and a large number of museums and theaters. Ski resorts, Zveroboy Rocks, Barsukov Cave, Karachi Lake, nature reserves, and pine forests are great places for sports, walks, nature observations, and picking mushrooms and berries.
The Republic of Altai	This is a land of mountains, the highest ridges in Siberia, separated by deep river valleys. It is also a land of unique natural areas, many of which are UNESCO World Heritage sites. The magnificent landscapes of the Altai peaks, with many beautiful mountain lakes and glaciers, attract travelers, scientists, climbers, writers, poets, artists, and photographers.
Altai Territory	Here all travelers will find something to their taste: ancient encampments and caves for archaeologists, Altai cheese and Altai honey for gourmands, the Yarovoye Lake and the Belokurikha resort for fans of retreat. For those looking for communion with nature, there are cozy campsites surrounded by snow-capped mountains, ancient pine trees, and clean taiga air.

Note—compiled by the authors according to Russia Travel, a national tourist portal.

The Republic of Kazakhstan, in turn, borders the RF in the regions of West Kazakhstan, Aktobe, Kostanay, North Kazakhstan, Pavlodar, East Kazakhstan, and Atyrau.

Table 3 gives a closer look at each one.

Table 3. Brief description of the Republic of Kazakhstan's regions in terms of tourism attractiveness.

Region	Brief Description
West Kazakhstan Region	This region was established on 10 March 1932. It is located in the northwestern part of the country and shares borders with five regions of the Russian Federation (Orenburg, Astrakhan, Volgograd, Saratov, and Samara). Flat terrain prevails throughout the area. The highest point is Ichka Mountain. There are approximately 200 rivers in the West Kazakhstan region, the three largest being the Ural, the Derkul, and the Chagan. In addition, there are 144 lakes in the region. Chalkar and Rybny Sacryl are among the largest. Cultural, educational, and religious tourism, and tourism for children and young people, are well-developed in the region.
Aktobe Region	This region is located in the western part of the republic and was also established on 10 March 1932. All the rivers flowing through its territory belong to the Caspian Sea basin; the largest of them are the Emba, Or, Ilek, Irgiz, and Turgay. There are more than 150 lakes in the area. One of the most famous tourist sites is the Abat-Baytak sculptural monument dating back to the beginning of the 13th century. Scientists believe that it was erected during the emergence of the Golden Horde. No less famous are the Koblandy Batyr Mausoleum and the Museum of Local Lore. Cultural, educational, medical, geological, ecological, and event tourism are actively developed in the region.
Kostanay Region	This region, located in the north of the republic, was established in 1936 (the territory consists of 196,000 sq km with a population of 879,100). The region has relatively flat terrain. The northern part consists of the southeastern edge of the West Siberian Lowland, and to the south of it is the Turgai Plateau. In the west of the region is the undulating plain of the Trans-Ural Plateau, and in the southeast, the spurs of Sary-Arka. The Turgai Hollow crosses the territory of the Kostanay region from north to south. In the central part of the Turgai Plateau, Sypsynagash Hollow runs from west to east. In the west is Mount Zhitikara; on the Torgai Plateau are the Kargaly, Zhylandy, Kyzbel, and Teke Mountains; at the eastern foot are the Kyzbel and Kyzemshekshoky mountains; and in the southeast are the Hill of Zhylanshykturme and Mount Kayyndyshoky. The Altyn Dala State Nature Reserve, the Naurzum State Nature Reserve, and the Mikhailovsky and Tounsorsky State Nature Reserves are located in the region. The region has the potential for the development of cultural, educational, and nature tourism.
North Kazakhstan Region	This region is located in the northern part of the republic. It was established in 1936. The territory of the region covers 98,000 sq km, and the population is 563,300. The northern half of the territory is represented by the Esil Plain and the southern half by the Kokshetau Upland with the Zhaksy Zhangyztau, Imantau, and Ayyrtau mountains. The most popular sites of the region are Mamlyutsky, Smirnovsky, and Orlinogorsky State Natural Reserves, the State Natural Monuments of Zhanazhol, Serebryanyy Bor, Sosnovy Bor, and Sopka Orlinaya Gora, as well as a spring. Cultural, educational, gastronomic, and active tourism are well-developed in the region (there is a sports arena, a tennis center, swimming pools, fitness clubs, the Kulager racetrack, lakes, sports and recreational complexes, a rope park, as well as a ski complex with a ropeway). Ecological and social tourism and tourism for children and youth hold promise for development.

Table 3. Cont.

Region	Brief Description
Pavlodar Region	It was established in 1938 and is located in the north-eastern part of Kazakhstan. The total area of the territory is 124,800 sq km, and the population is 757,000. The region features a plain landscape. The right bank of the Irtysh River is located on the Barabinsk Lowland and the Kulyndyn Plain; the left bank is on the Irtysh Plain; and the southwestern part of the region is home to the hilly area of Sary-Arka, where the Bayanaul, Kyzyltau, Zeltau and other mountains stand out. In the region, there is the Bayanaul SNNP (State National Natural Park), as well as the Yertys-Ormany State Forest Nature Reserve, the Kyzyltau State Nature Reserves, and the floodplain of the Irtysh River. Sports (mainly hiking), water sports, and educational tourism are developed in the region. The region has huge potential for the development of ecological, ornithological, mining, and mineralogical tourism.
East Kazakhstan Region	This region, established in 1932, is located in the territory of East Kazakhstan (283,200 sq km and population of 1,389,600). Mountainous and hilly relief, as well as highly rugged terrain characteristics, are typical for a significant part of the region's territory. In the east are the ridges of the Rudny Altai: Ivanovsky, Korzhinsky, Koksusky, Tigretsky, Ulbinsky, and Obninsky. The ridges of the Southern Altai are Katunsky, Southern Altai, and Sarymsakty, and farther south one will find the Kalbinsky Ridge, the Zaisan Basin, and the Tarbagatai Ridges. The western part of the region is represented by the hilly area of eastern Sary-Arka with the mountains of Hanshyngys, Shyngystau, and Akshatau. Also found in the region are the West Altai and Markakol State Nature Reserves; the Katon-Karagai SNNP; the Semey Ormany State Forest Nature Reserve; Kuludzhunsky, Tarbagataysky, and Nizhne-Turgusunsky State Nature Reserves; the Karatalskiye Peski State Nature Reserve; the Sinegorskaya Pikhtovaya Roshcha State Natural Monument; and the Altai Botanical Garden. Various types of tourism are well-developed in the territory of the East Kazakhstan Region, including rural, beach, water, winter, primary wellness (there are 19 medical centers practicing treatment with specialized facilities), cultural, educational, ecological, sports, and mountain.
Atyrau Region	This region was established in 1938; in the protected areas of the land there is a limestone plateau, which was once the bottom of an ancient ocean. The territory of the region is a semidesert and desert lying in the Caspian lowland plain. The region has a well-developed oil and gas industry. Some of the famous architectural monuments are mausoleums, such as Zhuban-Tam, made of mountain shell rock and crowned with a helmet-shaped dome, as well as Asaly-Koketai, a domed structure with an ornately shaped spire built in 1877. In this region, cultural, educational, water, beach, business, and event tourism have become popular.

Note—compiled by the authors according to tourist portal on VisitKazakhstan and data from tochka-na-karte.ru.

To calculate the TRP value of the border areas, the initial data presented in Appendix A (Table A1) and Appendix B (Table A2) were used in **Steps 1–7**, which are not presented in detail as this technique was previously developed, described in detail and tested by the authors of the article (Mamraeva and Tashenova 2020) as part of the scientific work “Methodological Tools for Assessing the Region’s Tourist and Recreation Potential”, in the context of which the authors do not consider it necessary to describe the intermediate step-by-step stages in detail in this scientific article as they consider the final calculation of the tourism and recreational potential of the cross-border regions of Russia and Kazakhstan to be more important. This article includes a link to a previously published paper using the author’s methodology.

For the calculation of the tourism and recreational potential based on secondary data, the methodology proposed by Dirin, Krupochkin and Golyadkina (Dirin et al. 2014) for a comprehensive assessment of tourism and recreational potential was used. In our interpretation, the methodology is complemented by socio-economic, cultural-historical factors, and sub-factors, as well as a set of parameters for the factor “safety of tourism infrastructure”. All data for the calculations were obtained from statistical information sources for each of the cross-border regions of Russia and Kazakhstan; they are listed in Appendix A (Table A1) and Appendix B (Table A2) to this article. Subsequently, the values obtained were divided into groups of factors, for each of which an integral indicator was calculated. Based on the arithmetically weighted average, the final integral assessment of tourism and recreation potential was then produced for each of the regions of Russia and Kazakhstan under consideration. All steps are shown in detail in Figure 1 (Section 3).

Then, TRP estimation corridors were obtained (Table 4).

Table 4. Obtained TRP estimation steps for the cross-border regions of RF and RK.

Estimation Steps	Cluster 1 (Step—0.023)	Cluster 2 (Step—0.023)	Cluster 3 (Step—0.083)	Cluster 4 (Step—0.023)	TRP Final Value (Step—0.118)
Low Potential (LP)	0.052–0.075	0.042–0.065	0.168–0.251	0.071–0.094	0.402–0.520
Medium Potential (MP)	0.076–0.099	0.066–0.089	0.252–0.335	0.095–0.118	0.521–0.639
Above-Medium Potential (AMP)	0.1–0.123	0.09–0.113	0.336–0.419	0.119–0.142	0.64–0.758
High Potential (HP)	More than 0.123	More than 0.113	More than 0.419	More than 0.142	More than 0.758

Note—obtained based on calculations made.

TRP calculation results are shown in Figure 2 (Step 8).

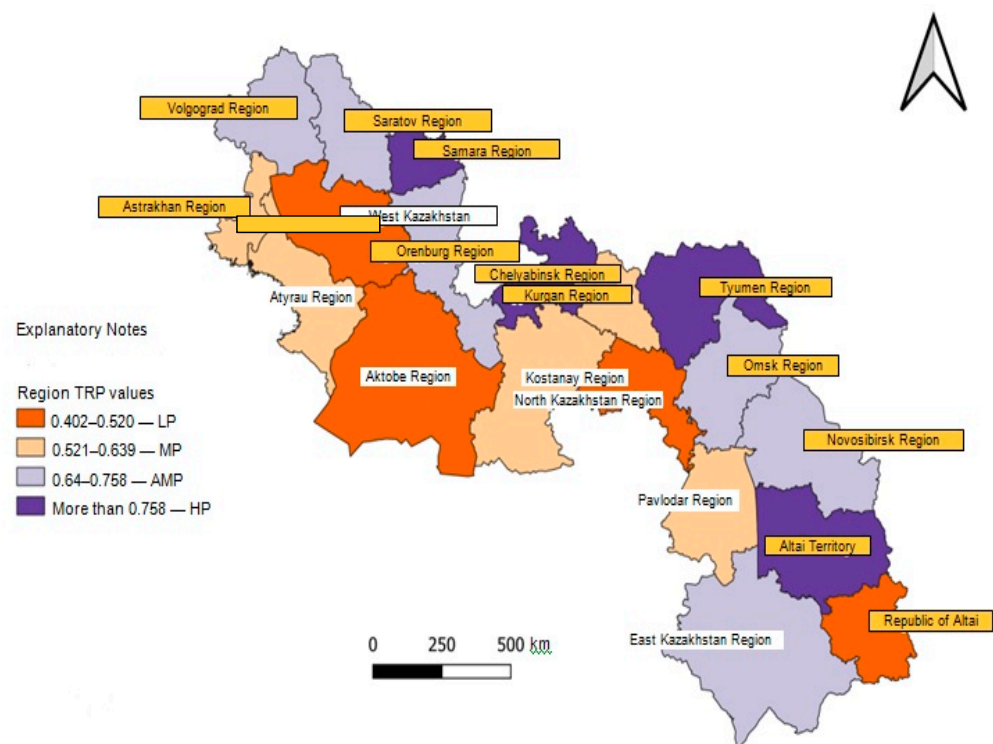


Figure 2. Territorial specificities of tourism and recreational potential of cross-border regions of the RF and RK.

According to our calculations, the following regions have high tourism and recreational potential: Samara, Chelyabinsk, Tyumen, and the Altai Territory. Regions with above-medium potential in the Russian Federation are Volgograd, Saratov, Orenburg, Omsk, and Novosibirsk, while only East Kazakhstan has above-medium potential in the Republic of Kazakhstan. Regions of medium and low potential include Astrakhan, Kurgan, and the Altai Republic in the RF and West Kazakhstan, Aktobe, and North Kazakhstan in the RK.

The interpretation of the results presented in Figure 2 is reflected in Table 5.

Table 5. TRP levels of cross-border areas of the RF and RK (Steps 8–9).

Region	Cluster 1	Cluster 2	Cluster 3	Cluster 4	TRP Final Value
Russian Federation					
Astrakhan Region	LP	MP	MP	AMP	MP
Volgograd Region	MP	AMP	AMP	AMP	AMP
Saratov Region	LP	MP	AMP	MP	AMP
Samara Region	MP	AMP	AMP	HP	HP
Orenburg Region	AMP	MP	AMP	MP	AMP
Chelyabinsk Region	MP	HP	AMP	HP	HP
Kurgan Region	LP	MP	MP	MP	MP
Tyumen Region with ADs (Autonomous Districts)	HP	MP	HP	HP	HP
Omsk Region	MP	AMP	MP	MP	AMP
Novosibirsk Region	AMP	HP	AMP	AMP	AMP
Altai Territory	HP	AMP	HP	AMP	HP
Republic of Altai	AMP	LP	LP	LP	LP
Republic of Kazakhstan					
West Kazakhstan Region	MP	MP	LP	LP	LP
Aktobe Region	MP	MP	LP	LP	LP
Kostanay Region	MP	MP	MP	LP	MP
North Kazakhstan Region	AMP	MP	LP	LP	LP
Pavlodar Region	MP	AMP	MP	LP	MP
East Kazakhstan Region	HP	AMP	MP	AMP	AMP
Atyrau Region	MP	LP	LP	AMP	MP

Note—compiled based on the results of calculations.

In the structure of the tourism and recreational potential of the Russian regions, the values of AMP (35.4%), MP (33.3%), HP (18.8%), and LP (12.5%) prevail. Social and Economic and Infrastructure Support of Tourism are the best-developed clusters. This is where the above-medium potential and medium potential estimations prevail.

As for the TRP levels of the Kazakhstan regions, the highest estimations are MP (42.9%) and LP (35.7%). Cultural and historical factors and natural factors are the best developed clusters in the structure of potential. A low level of social, economic, and infrastructural factors increases the risks of inefficient realization of tourism and recreational potential of the regions.

We have also summarized the studies of tourism-associated risks during the COVID-19 pandemic to obtain the following conclusions applicable at the global level:

- The risks for the tourism industry during the pandemic were collective and depended on compliance with safety recommendations by residents and visitors of certain regions.
- Risks of economic losses in tourism arose regardless of the severity of quarantine restrictions. With strong isolation of the area due to a drop in the tourist flow, there was a threat of tourist organization closures, job losses, a reduction or complete loss of income, and a decrease in tax receipts. With weak isolation of the region, there was risk of infection for the local population and a risk of income decline for the economy.

It is necessary to find a balance between safety requirements during a pandemic and the risk of economic losses. Under these conditions, the support of federal, republican, and regional authorities to organizations of the industries affected by COVID-19 is crucial.

- The authorities should consider the impact of the pandemic not only in light of the risk to the economy but also in light of the risk to the social and environmental spheres. The pandemic has shown that the authorities must be ready not only to respond quickly to the need to ensure the safety of tourists and local residents but also to mitigate the risks in the social and environmental spheres.
- The behavior of tourists and the generation of tourist flow are influenced not only by actual risks but also by potential exposure to risks when visiting a certain region. The perception of risk can negatively affect an area's image and make it difficult to realize the tourist potential of the region. In this situation, the importance of informing tourists about safety measures to minimize the risk of visiting the region increases.
- The pandemic has increased the number of tourism-associated risks and has shown a need for each person (tourists and personnel of travel companies) to comply with safety requirements (social distancing, use of disinfectants, use of masks, etc.). Before the pandemic, safety in tourism had been provided mainly by organizations of the tourism industry and tourist infrastructure. During the pandemic, travel safety became a problem not only for the tourism industry but also for every tourist and the authorities of the region. However, some destinations and types of tourism (ecological, rural tourism, etc.), as well as remote tourist areas, have experienced increased demand due to the opportunity to leave large cities with an increased risk of COVID-19 infection.

An important aspect of tourism development in the cross-border regions of the Republic of Kazakhstan and the Russian Federation is the consideration and prevention of the following risks:

1. The existing restrictions regarding the use of Visa and MasterCard payment systems will make it difficult to pay for services related to accommodations, food, housing, and transport; it should also be noted that when planning tourist trips, residents of the Republic of Kazakhstan may face a shortage of rubles in second-tier banks and be unable to use Visa or MasterCard, which may lead to reduced consumption of tourist products, as well as to changes in the timing of travel due to the need to search for convenient payment methods. This situation should improve once credit cards become valid in RF territory (for example, the Mir system).
2. The inability to book hotels via the Booking.com online platform creates limitations and difficulties in the planning process and the generation of optimal tourist products. It also increases the amount of time that potential tourists spend searching for suitable facilities and accommodations.
3. Changes in natural and climatic conditions may have an adverse impact on average annual precipitation, the period of seasonal snow cover, and the time period that determines snowmelt, which in turn can lead to intensive flooding of natural tourist areas during spring floods, for example.
4. The shallowing and overgrowth of small lakes (medium and large) that have not been taken into account in the TRP assessment can lead to a reduction in tourist flows in beach tourism development within certain areas. These trends have been observed in a mild form at Sabandykol Lake in Bayanaul State National Natural Park of the Pavlodar Region, North Kazakhstan; at the Sol-Iletsy Lakes in the Orenburg Region; and at Yarovoye Lake in Altai Territory.
5. The weathering of rocks in the areas of tourist destinations, which can lead to destruction of places of interest.
6. The destruction and deterioration of tourism infrastructure and noncompliance with international standards.

7. A low flow capacity in tourist areas, which can potentially lead to over-tourism in the case of an “influx” of incoming tourists, especially during a peak season. Such a situation has been observed for the last five years in Bayanaul National Natural Park and Alakol Lake, located on the Balkhash-Alakol Lowland (on the border of the Almaty and East Kazakhstan regions), and in the territories of Biryuzovaya Katun SEZ in Altai Territory.
8. Existing restrictions due to the COVID-19 pandemic, including mandatory PCR tests when crossing the border (by air transport), masking, registration in the COVID-19 Free Travel Program, and participation in state programs for scanning QR codes for admission to restaurants and entertainment facilities. It should be noted that due to improvements in the epidemiological situation, on 11 March 2022, the Kazakhstan Interdepartmental Commission on Preventing the Spread of Coronavirus Infection decided to cancel mandatory masking outdoors, as well as the use of the Ashyq mobile application (only for regions located in the ‘yellow’ and ‘green’ zones).

5. Discussion

Studies show that the COVID-19 pandemic was one of the most catastrophic events for tourism. The globalization of tourism has started to be considered not only as an advantage but also as a problem due to the significant risk of disease spread within tourist flows. The example of countries and regions actively developing inbound tourism, and therefore most affected due to coronavirus restrictions, clearly shows a need to pay greater attention to all types of risks in tourism. *We highlight the main debatable issues based on the results of the research.*

1. Conventionally, the major risks associated with tourism are economic. The consequences of the pandemic, however, have shown that health risks are also a problem, and have pointed out the need to ensure increased safety for tourists and the local population in order to preserve lives and health. However, there are still no data in the statistical indicators that allow assessment of the impact of the risk of COVID-19 on the development of tourism in cross-border territories. This is due to a lack of data on the movement of tourists after they cross the border, and the lack of a selective study of the purposes for visiting the country. The most accurate information on the movement of tourists is currently provided by mobile operators, but such information is expensive and not available to individual researchers. The solution to the problem of tracking the movement of tourists could be, for example, the use of a “tourist passport”. In this document, the tourist could receive marks at certain destinations, which would allow him to receive discounts and/or souvenirs. A tourist passport has been implemented in a number of destinations and routes in Russia.
2. Restrictions on tourist flows have led not only to economic consequences (a decrease in revenue, investments, and tourism wages) but also to a reinterpretation of the role individual entities play in the generation of tourist flows. Long-term pandemic restrictions have required state support, primarily financial and tax support, to prevent the bankruptcy of tourism enterprises. As part of another study we conducted, we looked at the impact of digital solutions on tourism support by state authorities. This study showed that the efficiency of tourism recovery in the border regions of the Russian Federation and Kazakhstan depends on the completeness and relevance of state information support measures. It should be noted that state support measures (at the federal and regional levels) did not appear immediately. The tourism industry was left to fend for itself with a catastrophic decline in tourist traffic due to border closures during the first few months of the pandemic. In our opinion, it is necessary to foresee possible scenarios for supporting tourism in advance, taking into account the consequences of the COVID-19 pandemic.
3. Significant growth in industry digitalization is another consequence of the pandemic. There are no indicators in the official statistics of either country that reflect the level of digital technology application in tourism. Nevertheless, this factor has a significant

impact on the possibility of realizing the region's tourist potential. This trend has led to a reduction in the revenue of tour operators and travel agents, but allowed tourist service providers to maintain their level of revenue and reduce the drop in tourist flow in the regions. The pandemic has shown that, despite restrictions, the demand for travel has continued. A rapidly changing situation with the introduction of restrictive measures and the COVID-19 infection rate has led to reduced booking depth when buying tourist products, and the growing popularity of last-minute tours. Under these conditions, official information on pandemic restrictions has come into sharp focus.

A pent-up demand has been primarily satisfied in areas where coronavirus restrictions were first lifted (even partially). The example of the tourist flow volume in Turkey after a number of restrictions had been lifted shows the significance of coordination between state authorities, tourism industry organizations, and tourism infrastructure to reduce risks and ensure a safe holiday for tourists. However, these measures should be global or at least coordinated by the authorities of the countries and/or regions with the greatest mutual tourist flows, since the removal of exit restrictions may be offset by remaining entry restrictions. The use of digital technologies in the context of limited social contact has made it possible to rebuild the mechanisms of interaction between tourism organizations and customers. In the context of the removal of coronavirus restrictions, the vast majority of travel agencies used digital technologies as intensively as they had done during the pandemic. It can be said that COVID-19 elicited an active interest in digital services, even among organizations that were not planning to digitize.

4. More than thirty years since the breakup of the USSR and the transformation of the regions in question into border regions, a number of them have taken advantage of their cross-border position in terms of tourism development. The results of the research clearly show that not all regions have been able to realize their potential to the same extent. Reduced transportation costs when visiting neighboring regions (including those in another country) ceased to be a competitive advantage during the pandemic. The popularity of a particular tourist destination during the pandemic has fueled the safety concerns of a number of tourists and increased the risk of a refusal to travel.

Most regions of the Russian Federation located on the border with Kazakhstan belong to the 'semi-periphery' of tourism and recreational potential. Remoteness from the main centers of demand generation (Moscow and St. Petersburg) negatively impacts the realization of the tourist and recreational potential of these regions, which, however, is somewhat compensated for by good transport accessibility and a relatively high level of tourist infrastructure development. In turn, cross-border regions of Kazakhstan are also 'semi-peripheral' regions that, despite the existing tourism and recreational potential, cannot adequately compensate for the negative factors of remoteness and the currently insufficient development of tourism infrastructure. These regions can be invited to consider the possibility of using the EU Cross-Border Cooperation Program to form an integrated plan for the development of cross-border territories.

6. Conclusions

Given the relatively high tourism and recreational potential of the regions of the Russian Federation and the large capacity of the domestic tourism market, the magnitude of the risks from the influence of global factors is lower on the Russian side of the border than on the Kazakhstan side. However, the cross-border location of the regions has significantly increased the risks due to the closure of borders during the COVID-19 pandemic. The introduction of restrictions has led to a decrease in tourist flow and a decrease in the overall efficiency of the implementation of the tourism and recreational potential of cross-border regions. In the context of growing global risks, the general recommendation for

the executive authorities of cross-border regions is to search for new markets within the country and change marketing policies.

In addition, we believe that the strategies and mechanisms for overcoming the crisis will depend on the level of regional tourism and recreational potential. Based on the results of the research, for regions with high potential (Samara, Chelyabinsk, the Tyumen region with autonomous Okrug, and Altai Territory) and above-average potential (Volgograd, Saratov, Orenburg, Omsk, and Novosibirsk), the main mechanism for increasing the efficiency of tourism development is to participate in the national project titled "Tourism and Hospitality Industry." Given the diversity of forms of tourism potential, we recommend choosing a strategy for diversifying tourism activities based on the cluster mechanism.

Regions with medium (Astrakhan and Kurgan) and low potential (Republic of Altai) should be oriented toward the domestic tourist flow, applying the strategy of specialization, and gaining a competitive advantage in the most promising market niche. The efforts of executive authorities should be directed toward the implementation of regional tourism development programs and support for small- and medium-sized businesses. To increase competitiveness, we recommend developing interregional cooperation, which contributes to the formation of a synergistic effect, and an increase in the efficiency of potential realization.

The results of the assessment of the TRP in the regions of Kazakhstan that border Russia confirm the need to improve state policy in the field of regional tourism management, in particular to develop a mechanism for responding to emerging global and local risks. For regions with relatively low potential in terms of tourism infrastructure and socio-economic conditions (West Kazakhstan, Aktobe, and North Kazakhstan), it is necessary to increase entrepreneurial activity by creating acceptable economic conditions and minimizing entry barriers to the tourism market for small- and medium-sized businesses (expansion of the trading network, construction of new hotels and catering facilities, etc.). These activities will increase investment and, as a result, the attractiveness of these regions as tourist destinations, especially since the natural and cultural-historical sub-potentials of the marked areas are rated as average and above average. The use of a follow-the-leader strategy is recommended.

Regions with average tourist potential (Kostanay, Pavlodar, Atyrau) and above-average potential (East Kazakhstan) should focus not only on the development of domestic but also on inbound tourism, mainly increasing throughput from cross-border regions. These areas, taking into account the level of tourism infrastructure development and the presence of a variety of natural, cultural, and historical sites, should apply a strategy for diversifying tourism products, as well as a strategy for intensifying commercial efforts, developing a regional tourist brand, and a strong advertising campaign to promote regional tourism.

With regard to the limitations of the study, we note that there is some dependence on the availability and accessibility of certain statistical information, as well as on the choice of parameters and assessment indicators in the methodology developed by the authors. Despite this, future studies could continue to examine the tourism and recreational potential of other regions of the analyzed countries. Further studies could also be directed toward the research and development of competitive regional tourism products.

The results of the research showed that the tourism and recreational potential of the cross-border regions of Russia is mainly estimated at above-average and average levels, while for the corresponding regions of Kazakhstan it is estimated at an average level. At the same time, the existing limitations indicated by the factors and parameters included in the analysis should be taken into account. In general, it is important to note that the methodology presented for assessing TRP is adaptive and allows for comprehensive research. Consequently, it determines directions for improving the infrastructure and socio-economic security of tourism, and helps develop competitive tourism products, depending on the availability of natural and cultural resources.

It should also be noted that the authors' future research will also be related to the study of the specifics of risk assessment in tourism.

Author Contributions: Conceptualization, A.T., L.T., Y.K., D.M. and D.R.; methodology, A.T., L.T., Y.K., D.M. and D.R.; software, L.T., Y.K. and D.M.; validation, A.T., L.T., Y.K. and D.M.; formal analysis, A.T., L.T., Y.K. and D.M.; investigation, A.T., L.T., Y.K. and D.M.; resources, A.T., L.T., Y.K. and D.M.; data curation, A.T., L.T., Y.K. and D.M.; writing—original draft preparation, A.T., L.T., Y.K. and D.M.; writing—review and editing, A.T., D.M. and D.R.; visualization, L.T., Y.K. and D.M.; supervision, A.T., L.T., Y.K., D.M. and D.R.; project administration, L.T., Y.K., D.M. and D.R.; funding acquisition, D.R. All authors have read and agreed to the published version of the manuscript.

Funding: This research was partially funded by the Ministry of Science and Higher Education of the Russian Federation under the strategic academic leadership program "Priority 2030" [(Agreement 075-15-2021-1333 dated 30.09.2021)].

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Initial Data for TRP Value Calculation for the Cross-Border Regions of Russia.

Indicator	Astrakhan Region	Volgograd Region	Saratov Region	Samara Region (Borders Only at One Point)	Orenburg Region	Chelyabinsk Region	Kurgan Region	Tyumen Region with ADs (Autonomous Districts)	Omsk Region	Novosibirsk Region	Altai Territory	Republic of Altai
Average temperature in January, °C	−3.6	−5.9	−7.5	−13.8	−11.7	−14.6	−18	−15	−16.8	−18.9	−16.1	−13.7
Average temperature in July, °C	25.6	24.6	22.6	20.7	23.2	19.6	19	19	19.6	19.1	19.9	18.9
Average annual precipitation, mm	222	450	550	372	380	529	400	480	400	464	448	731
Period of seasonal snow cover, days	First snow cover in the first half of December, which can melt several times during the winter. Its depth is shallow—only about 4–10 cm.	100	100	138	145	160	155	145	185	160	180	200
Absolute elevation of the terrain relief, m		161.9	358.6	370	381.2	667.6	1406	210	1895	150.4	502	2490
Number of lakes (large, more than 100 sq. km), units	1	1	0	0	0	0	0	2	2	4	2	1
Number of rivers (large, more than 500 km), units	0	1	0	0	1	0	0	12	2	4	4	0
Number of SPNRs (Specially Protected Natural Reservations), units	56	58	92	215	336	155	123	139	27	82	121	58
Number of protected plant species, units	143	46	306	286	183	230	208	173	188	179	212	180
Number of protected animal species, units	187	143	253	272	138	182	156	142	197	157	146	135
Number of natural monuments (of republican significance)/in RF, SPNRs, units	3	5	2	4	3	4	0	9	1	2	5	4

Table A1. Cont.

Indicator	Astrakhan Region	Volgograd Region	Saratov Region	Samara Region (Borders Only at One Point)	Orenburg Region	Chelyabinsk Region	Kurgan Region	Tyumen Region with ADs (Autonomous Districts)	Omsk Region	Novosibirsk Region	Altai Territory	Republic of Altai
Number of historical and cultural monuments (of republican (federal) significance), units.	44	66	61	110	37	18	19	53	10	10	34	0
Number of archaeological monuments (of republican (federal) significance), units	98	1227	98	25	1287	292	708	1094	1202	639	2263	117
Number of monuments of urban planning and architecture (of republican (federal) significance), units	Since 2013, the list has not been maintained in the Russian Federation; they are included in the category of Cultural Heritage Sites											
Number of museums, units	19	40	27	38	32	46	23	18	40	39	69	7
Number of theaters, units	4	11	11	16	7	16	3	4	10	10	7	1
Number of zoos (including petting zoos), units.	0	0	0	1	0	1	0	0	1	1	0	0
Number of concert organizations, units	4	7	2	5	1	4	1	1	6	5	6	3
Number of circuses, units	2	1	2	1	1	2	0	1	1	1	0	0
Number of libraries, units	238	599	920	735	897	819	514	468	773	860	960	157
Number of movie theaters, units (including those with 2–7 screens)/in RF, number of movie installations (unit, the indicator value for the year)	8	71	0	29	106	64	65	7	90	82	111	0
Number of entertainment and recreation parks, units/in RF, of culture and recreation	0	6	1	2	0	10	0	0	3	11	5	0
Consumer product retail chains, quantity	9828	26,847	27,300	37,581	23,050	35,545	13,037	39,800	17,956	28,475	31,075	3365

Table A1. Cont.

Indicator	Astrakhan Region	Volgograd Region	Saratov Region	Samara Region (Borders Only at One Point)	Orenburg Region	Chelyabinsk Region	Kurgan Region	Tyumen Region with ADs (Autonomous Districts)	Omsk Region	Novosibirsk Region	Altai Territory	Republic of Altai
Number of trade markets, units	8	37	28	16	15	16	3	16	13	10	20	2
Density of railway tracks, km per 1000 sq. km	128	143	228	256	117	203	104	17	53	85	86	0
Length of public hard-surfaced motor roads, km	4078	16,653.4	17,259.9	17,959.8	20,664.6	21,370.1	9601.7	23,280.6	14,109.3	20,579.9	35,343.7	4604.5
Number of physical exercise and sports facilities (including number of ski resorts, rowing clubs, sports arenas, etc.), units	1312	3928	3177	4181	3908	5516	2165	5896	3997	3565	4690	325
Number of primary wellness tourism facilities—sanatorium-and-spa resorts, specialized medical centers, etc./in RF, number of sanatorium-resort organizations	3	23	23	39	27	43	19	30	16	34	38	2
Number of five-star hotels, units	3	3	0	3	2	2	0	0	0	0	1	2
Number of four-star hotels, units	6	12	9	18	5	21	4	16	5	19	10	5
Number of three-star hotels, units	11	35	38	67	26	31	4	66	16	19	21	10
Number of accommodations w/o category, as well as one- and two-star hotels, units	10	18	16	35	13	19	7	46	12	20	25	7
Hotel room capacity, units/in RF, number of rooms in collective accommodation facilities	6841	10,922	8955	18,400	6905	18,964	2987	18,051	7053	12,817	12,886	4278

Table A1. Cont.

Indicator	Astrakhan Region	Volgograd Region	Saratov Region	Samara Region (Borders Only at One Point)	Orenburg Region	Chelyabinsk Region	Kurgan Region	Tyumen Region with ADs (Autonomous Districts)	Omsk Region	Novosibirsk Region	Altai Territory	Republic of Altai
Number of airports, units/in RF, international only	1	1	1	1	2	2	1	1	1	1	1	0
Number of tourism companies and tour operators, units.	115	165	169	327	118	348	60	474	182	307	171	28
Headcount of workers in tourism sector, in thousands	0.937	0.418	0.349	0.845	0.234	0.856	0.128	0.803	0.489	0.939	0.371	0.094
Headcount of workers in collective accommodation facilities in RF regions, in thousands	3.175	4.24	4.718	9.166	4.375	8.517	2.791	10.618	4.242	6.476	8.71	1.257

Note—compiled according to data from the following sources:

1. Great Russian Encyclopedia [Electronic resource]. URL: <https://bigenc.ru/> (accessed on 21 January 2022).
2. Federal list of tourist sites [Electronic resource]. URL: <https://xn----7sba3acabbldhv3chawrl5bn.xn--p1ai/> (accessed on 22 December 2021).
3. Federal State Statistics Service [Electronic resource]. URL: <https://rosstat.gov.ru/compendium/document/13295> (accessed on 22 January 2022).
4. Unified interdepartmental information and statistical system [Electronic resource]. URL: <https://www.fedstat.ru/indicator/55126> (accessed on 22 January 2022).
5. Federal Air Transport Agency of Russia [Electronic resource]. URL: <https://favt.gov.ru/deyatelnost-ajeroporty-i-ajerodromy-mezhdunarodnye-ajeroporty/> (accessed on 18 January 2022).
6. Regions of Russia. Socio-economic indicators. 2021: P32 statistical collection/Rosstat.-M., 2021, 1112p.
7. Voronin, V.V. Geography of the Samara Region/V.V. Voronin, V. A. Gavrilenkova; Voronin V. V., Gavrilenkova V. A.; State educational institution of additional professional education (advanced training) of specialists Samara Regional Institute for Advanced Studies and Retraining of Educational Workers.—Samara: GOU SIPKRO, 2008, 265p. ISBN 978-5-7174-0408-2.
8. Geography of the economy of the Saratov region/I.A. Ilchenko, L.V. Makartseva, Yu.V. Preobrazhensky, O.A. Tsoberg.—Saratov: IC “Science”, 2018, 99p. ISBN 978-5-9999-3083-5.
9. Nature of the Novosibirsk region: electronic textbook/T.A. Gorelova, N.V. Gulyaeva, V.M. Kravtsov, Yu.V. Kravtsov; Federal Agency for Education, Novosibirsk State Pedagogical University, Institute of Natural and Social and Economic Sciences, Department of Physical Geography.—Novosibirsk: Novosibirsk State Pedagogical University, 2010, 160 p.
10. Ivanishcheva, N.A. Geography of the Orenburg region: textbook/N.A. Ivanishcheva, I.Yu. Filimonova, Zh.T. Sivokhip.—Orenburg: LLC “Agency” Press”, 2020, 121p.

Appendix B

Table A2. Initial Data for TRP Value Calculation for the Cross-Border Regions of Kazakhstan.

Factor and Sub-Parameters		Atyrau Region	West Kazakhstan Region	Aktobe Region	Kostanay Region	North Kazakhstan Region	Pavlodar Region	East Kazakhstan Region	AVI
NF (Natural Factors)	Average temperature in January, °C	−8 (−11)	−14	−20.8	(−13.8)–(−16.1)	(−12.8)–(−17.4)	(−14.9)–(−17.0)	(−16)–(−20)	-
	Average temperature in July, °C	+24 (+25)	+25	+23.7	20.0–23.6	20.3–21.9	19.1–20.6	16–23	-
	Average annual precipitation, mm	100–200	325	213–250	388	349	454	477	-
	Period of seasonal snow cover, days	70–90	86–142	89–161	105–160	129–154	150–165	142	-
	Absolute elevation of the terrain relief, m	(−27.16)–223 Av.: 125	100–657 Av.: 378	100–200–657 Av.: 379	250–320	100–200	115–200	500–600; 2800–3600	-
	Number of lakes (large, more than 100 sq. km), units	1	1	1	3	2	5	3	1.4
	Number of rivers (large, more than 500 km), units	4	1	6	2	3	1	1	1.2
	Number of SPNRs (Specially Protected Natural Reservations), units	3	3	2	5	16	5	12	7
	Number of protected plant species, units	16	36	61	1112	831	58	4322	1873
	Number of protected animal species, units	30	20	32	783	312	90	1662	606
	Number of natural monuments (of republican significance), units	3	3	2	-	1	12	1	2

Table A2. Cont.

Factor and Sub-Parameters		Atyrau Region	West Kazakhstan Region	Aktobe Region	Kostanay Region	North Kazakhstan Region	Pavlodar Region	East Kazakhstan Region	AVI
CHF (Cultural and Historical Factors)	Number of historical and cultural monuments (of republican (federal) significance), units	4	5	9	5	3	7	16	14
	Number of archaeological monuments (of republican (federal) significance), units	-	1	-	-	-	1	2	3
	Number of monuments of urban planning and architecture (of republican (federal) significance), units	2	4	6	5	3	6	14	10
	Number of museums, units	17	9	19	10	13	11	17	15
	Number of theaters, units	1	2	2	4	3	3	2	4
	Number of zoos (including petting zoos), units	-	-	3	-	-	1	1	0.5
	Number of concert organizations, units	2	3	1	1	1	1	2	2
	Number of circuses, units	-	-	-	-	-	-	-	0.25
	Number of libraries, units	144	366	237	344	321	230	306	231
	Number of movie theaters, units (including those with 2–7 screens)	2	7	2	5	3	4	6	6
	Number of entertainment and recreation parks, units	2	5	7	9	6	4	11	9

Table A2. Cont.

Factor and Sub-Parameters	Atyrau Region	West Kazakhstan Region	Aktobe Region	Kostanay Region	North Kazakhstan Region	Pavlodar Region	East Kazakhstan Region	AVI
Hotel room capacity, units	3216	1751	2010	2287	1824	3090	10,919	4285
Number of airports, units	2	1	1	1	1	1	4	1
Number of tourist companies and tour operators, units	25	40	31	34	22	41	30	79
Headcount of workers in the tourism sector, in thousands	4.5	6.4	4.7	5	3.1	6	8.7	6.5

Note—compiled according to data from the following sources:

1. stat.gov.kz
2. Agroclimatic Resources of the West Kazakhstan Region: scient. and appl. ref./Institute of Geography LLP, Astana, 2017, 128p;
3. Agroclimatic Resources of the Actable Region: scient. and appl. ref./Institute of Geography LLP, Astana, 2017, 136p;
4. Agroclimatic Resources of the Kostanay Region: scient. and appl. ref./Institute of Geography LLP, Astana, 2017, 139p;
5. Agroclimatic Resources of the Pavlodar Region: scient. and appl. ref./Institute of Geography LLP, Astana, 2017, 127p;
6. Agroclimatic Resources of the North Kazakhstan Region: scient. and appl. ref./Institute of Geography LLP, Astana, 2017, 125p;
7. Hydrology.—Astana: The official Internet resource of Kazhydromet RSE of the Ministry of Energy of the Republic of Kazakhstan. [Electronic Source]. URL: <https://kazhydromet.kz/ru> (accessed on 31 January 2022);
8. The Law of the Republic of Kazakhstan “On Protection and Use of Historical and Cultural Heritage Sites” No. 1488-XII dated 2 July 1992 (as amended and supplemented as of 24.05.2018)//Paragraph Information system [Electronic source].—E-data—[Astana, 2018];
9. Tourism of Kazakhstan. 2016–2020: Stat. ref./Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. Bureau of National Statistics, Nur-Sultan, 2021, 101p;
10. Culture in the Republic of Kazakhstan. 2016–2020: Stat. ref./Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. Bureau of National Statistics, Nur-Sultan, 2021, 130p;
11. Retail and Wholesale Trade in the Republic of Kazakhstan. 2016–2020: Stat. ref./Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. Bureau of National Statistics, Nur-Sultan, 2021, 279p;
12. Transport in the Republic of Kazakhstan. 2016–2020: Stat. ref./Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. Bureau of National Statistics, Nur-Sultan, 2021, 119p.

References

- Aletdinova, Anna, and Maxim Bakaev. 2019. Intelligent Data Analysis and Predictive Models for Regional Labor Markets. In *Digital Transformation and Global Society*. Communications in Computer and Information Science. Edited by Daniel A. Alexandrov, Alexander V. Boukhanovsky, Andrei V. Chugunov, Yuri Kabanov, Olessia Koltsova and Ilya Musabirov. Cham: Springer International Publishing, vol. 1038, pp. 351–63. [\[CrossRef\]](#)
- Arbulú, Italo, Maria Razumova, Javier Rey-Maqueira, and Francesc Sastre. 2021. Measuring Risks and Vulnerability of Tourism to the COVID-19 Crisis in the Context of Extreme Uncertainty: The Case of the Balearic Islands. *Tourism Management Perspectives* 39: 100857. [\[CrossRef\]](#) [\[PubMed\]](#)
- Boldyrev, Yuri, Sergey Chernogorskiy, Konstantin Shvetsov, Anatoly Zherelo, and Konstantin Kostin. 2019. A Mathematical Model of Regional Socio-Economic Development of the Russian Arctic Zone. *Resources* 8: 45. [\[CrossRef\]](#)
- Borovkov, Aleksey I., Marina V. Bolsunovskaya, Aleksei M. Gintciak, and Tatiana Ju Kudryavtseva. 2020. Simulation Modelling Application for Balancing Epidemic and Economic Crisis in the Region. *International Journal of Technology* 11: 1579. [\[CrossRef\]](#)
- Chan, Chung-Shing. 2021. Developing a Conceptual Model for the Post-COVID-19 Pandemic Changing Tourism Risk Perception. *International Journal of Environmental Research and Public Health* 18: 9824. [\[CrossRef\]](#) [\[PubMed\]](#)
- Cheng, Yun, Sha Fang, and Jie Yin. 2022. The Effects of Community Safety Support on COVID-19 Event Strength Perception, Risk Perception, and Health Tourism Intention: The Moderating Role of Risk Communication. *Managerial and Decision Economics* 43: 496–509. [\[CrossRef\]](#) [\[PubMed\]](#)
- Chernogorskiy, Sergey, Konstantin Shvetsov, and Vladimir Parkhomenko. 2018. Two Prediction Models for Some Economic Indicators of the Russian Arctic Zone. In *Proceedings of SAI Intelligent Systems Conference (IntelliSys) 2016*. Lecture Notes in Networks and Systems. Edited by Yaxin Bi, Supriya Kapoor and Rahul Bhatia. Cham: Springer International Publishing, vol. 15, pp. 358–67. [\[CrossRef\]](#)
- Chica, Manuel, Juan M. Hernández, and Jacques Bulchand-Gidumal. 2021. A Collective Risk Dilemma for Tourism Restrictions under the COVID-19 Context. *Scientific Reports* 11: 5043. [\[CrossRef\]](#)
- Dimopoulos, Dimitri, Dorothy Queiros, and Cina Van Zyl. 2021. Perspectives on the Impact of External Risks on the Future of Dive Tourism at a High Latitude Reef Complex in the Indian Ocean Region. *Journal of the Indian Ocean Region* 17: 178–204. [\[CrossRef\]](#)
- Dirin, D., E. P. Krupochkin, and E. Golyadkina. 2014. Methods of integrated assessment of the tourist and recreational potential of the region. *Geography and Nature Management of Siberia* 18: 64–78.
- Godovykh, Maksim, Abraham Pizam, and Frida Bahja. 2021. Antecedents and Outcomes of Health Risk Perceptions in Tourism, Following the COVID-19 Pandemic. *Tourism Review* 76: 737–48. [\[CrossRef\]](#)
- Grech, Victor, Peter Grech, and Stephanie Fabri. 2020. A Risk Balancing Act—Tourism Competition Using Health Leverage in the COVID-19 Era. *International Journal of Risk & Safety in Medicine* 31: 121–30. [\[CrossRef\]](#)
- Im, Jongho, Jewoo Kim, and Joon Yeon Choeh. 2021. COVID-19, Social Distancing, and Risk-Averse Actions of Hospitality and Tourism Consumers: A Case of South Korea. *Journal of Destination Marketing & Management* 20: 100566. [\[CrossRef\]](#)
- Istiak, Khandokar. 2021. Risk, Uncertainty and the Tourism Sector of North Africa. *African Development Review* 33: 329–42. [\[CrossRef\]](#)
- Ivanova, Marina, Tatiana Yakovleva, and Tamara Selenteva. 2020. The Models of Information Asymmetry in the Context of Digitization of Government. In *Proceedings of the International Scientific Conference—Digital Transformation on Manufacturing, Infrastructure and Service*. Saint Petersburg: ACM, pp. 1–6. [\[CrossRef\]](#)
- Joo, Dongoh, Wenjie Xu, Juhee Lee, Choong-Ki Lee, and Kyle Maurice Woosnam. 2021. ‘Residents’ Perceived Risk, Emotional Solidarity, and Support for Tourism amidst the COVID-19 Pandemic. *Journal of Destination Marketing & Management* 19: 100553. [\[CrossRef\]](#)
- Łapko, Aleksandra, Ewa Hacia, Roma Strulak-Wójcikiewicz, Kevser Çınar, Enrico Panai, and Lovorko Lučić. 2021. Eco-Friendly Tourism Decision Making During COVID-19—Sailing Tourism Example. *Sustainability* 14: 134. [\[CrossRef\]](#)
- Lee, Chien-Chiang, Godwin Olasehinde-Williams, and Seyi Saint Akadiri. 2021a. Geopolitical Risk and Tourism: Evidence from Dynamic Heterogeneous Panel Models. *International Journal of Tourism Research* 23: 26–38. [\[CrossRef\]](#)
- Leukhina, Maya, Tatyana Kudryavtseva, and Anton Tikhomirov. 2020. Analysis of Factors of Cross-Border Cooperation in Order to Increase the Competitiveness of Small and Medium-Sized Enterprises in Saint-Petersburg. In *Proceedings of the 2nd International Scientific Conference on Innovations in Digital Economy: SPBPU IDE-2020*. Saint Petersburg: ACM, pp. 1–9. [\[CrossRef\]](#)
- Mamraeva, Dinara Gabitovna, and Larissa Tashenova. 2020. Methodological Tools for Assessing the Region’s Tourist and Recreation Potentia. *Economy of Region* 16: 127–40. [\[CrossRef\]](#)
- Matiza, Tafadzwa, and Elmarie Slabbert. 2022. Tourism Reset: Reimagining South African Domestic Tourism in the Era of Covid-19. *Tourism Review International* 26: 103–20. [\[CrossRef\]](#)
- Nikolova, Liudmila Vasilevna, Dmitriy Grigorievich Rodionov, and Natalya Vladimirovna Afanasyeva. 2017. Impact of Globalization on Innovation Project Risks Estimation. *European Research Studies Journal* 20: 396–410.
- Park, Jinah, Serene Tse, Sherry D. B. Mi, and Haiyan Song. 2022. A Model for Cross-Border Tourism Governance in the Greater Bay Area. *Journal of China Tourism Research*, 1–25. [\[CrossRef\]](#)
- Pérez-Rodríguez, Jorge V., and María Santana-Gallego. 2020. Modelling Tourism Receipts and Associated Risks, Using Long-Range Dependence Models. *Tourism Economics* 26: 70–96. [\[CrossRef\]](#)
- Rather, Raouf Ahmad. 2021. Monitoring the Impacts of Tourism-Based Social Media, Risk Perception and Fear on Tourist’s Attitude and Revisiting Behaviour in the Wake of COVID-19 Pandemic. *Current Issues in Tourism* 24: 3275–83. [\[CrossRef\]](#)

- Rodionov, Dmitry, Liudmila Nikolova, Natalia Abramchikova, Maria Velikova, and Kalubi Rawlings Jerry Mazuba. 2020. Development of the Analysis Model of Innovative Projects Efficiency Management in the Context of Digitalization. In *Proceedings of the 2nd International Scientific Conference on Innovations in Digital Economy: SPBPU IDE-2020*. Saint Petersburg: ACM, pp. 1–7. [\[CrossRef\]](#)
- Rodionov, Dmitriy G., Evgenii A. Konnikov, and Magomedgusen N. Nasrutdinov. 2021. A Transformation of the Approach to Evaluating a Region's Investment Attractiveness as a Consequence of the COVID-19 Pandemic. *Economies* 9: 59. [\[CrossRef\]](#)
- Rudyanto, Rudyanto, Rudy Pramono, and Juliana Juliana. 2021. Perception of Knowledge of the Risk of the COVID-19 Pandemic Regarding Touring Intentions and Tourism Travel Recommendations. *Journal of Environmental Management and Tourism* 12: 929. [\[CrossRef\]](#)
- Ruiz-Sancho, Salvador, Maria José Viñals, Lola Teruel, and Marival Segarra. 2021. Security and Safety as a Key Factor for Smart Tourism Destinations: New Management Challenges in Relation to Health Risks. In *Culture and Tourism in a Smart, Globalized, and Sustainable World*. Springer Proceedings in Business and Economics. Edited by Vicky Katsoni and Ciná van Zyl. Cham: Springer International Publishing, pp. 511–22. [\[CrossRef\]](#)
- Sánchez-Cañizares, Sandra M., L. Javier Cabeza-Ramírez, Guzmán Muñoz-Fernández, and Fernando J. Fuentes-García. 2021. Impact of the Perceived Risk from Covid-19 on Intention to Travel. *Current Issues in Tourism* 24: 970–84. [\[CrossRef\]](#)
- Shahzad, Syed Jawad Hussain, Thi Hong Van Hoang, and Elie Bouri. 2022. From Pandemic to Systemic Risk: Contagion in the U.S. Tourism Sector. *Current Issues in Tourism* 25: 34–40. [\[CrossRef\]](#)
- Shneider, Alexandra, Tatiana Kudryavtseva, and Igor Dukeov. 2020. Cross-Border Cooperation as a Factor in Increasing the Efficiency of Small and Medium-Sized Enterprises of St. Petersburg. In *Proceedings of the International Scientific Conference—Digital Transformation on Manufacturing, Infrastructure and Service*. Saint Petersburg: ACM, pp. 1–7. [\[CrossRef\]](#)
- Sikarwar, Ekta. 2021. Time-Varying Foreign Currency Risk of World Tourism Industry: Effects of COVID-19. *Current Issues in Tourism* 24: 887–91. [\[CrossRef\]](#)
- Škare, Marinko, Domingo Riberio Soriano, and Małgorzata Porada-Rochon. 2021. Impact of COVID-19 on the Travel and Tourism Industry. *Technological Forecasting and Social Change* 163: 120469. [\[CrossRef\]](#) [\[PubMed\]](#)
- Tanina, Anna, Evgeny Konyshov, and Kamilya Tsahaeva. 2020. Agritourism Development Model in Digital Economy. In *Proceedings of the 2nd International Scientific Conference on Innovations in Digital Economy: SPBPU IDE-2020*. Saint Petersburg: ACM, pp. 1–6. [\[CrossRef\]](#)
- Teeroovengadam, Viraiyan, Boopen Seetanah, Eric Bindah, Arshad Pooloo, and Isven Veerasawmy. 2021. Minimising Perceived Travel Risk in the Aftermath of the COVID-19 Pandemic to Boost Travel and Tourism. *Tourism Review* 76: 910–28. [\[CrossRef\]](#)
- Toroptsev, E. L., A. S. Marahovskiy, and A. V. Babkin. 2019. Complex Modeling of the Economic Systems Stability. *IOP Conference Series: Earth and Environmental Science* 272: 32175. [\[CrossRef\]](#)
- Tseng, Kuan-Chieh, Hsiao-Hsien Lin, Jan-Wei Lin, I-Shen Chen, and Chin-Hsien Hsu. 2021. Under the COVID-19 Environment, Will Tourism Decision Making, Environmental Risks, and Epidemic Prevention Attitudes Affect the People's Firm Belief in Participating in Leisure Tourism Activities? *International Journal of Environmental Research and Public Health* 18: 7539. [\[CrossRef\]](#)
- Vidishcheva, Evgeniya, Yuriy Dreizis, Andrey Kopyrin, and Marina Gunare. 2020. Identifying the Risks Impacting on the Sustainable Development of a Tourism Area. Edited by W. Strielkowski, E. Animitsa and E. Dvoryadkina. *E3S Web of Conferences* 208: 5018. [\[CrossRef\]](#)
- Villacé-Molinero, Teresa, Juan José Fernández-Muñoz, Alicia Orea-Giner, and Laura Fuentes-Moraleda. 2021. Understanding the New Post-COVID-19 Risk Scenario: Outlooks and Challenges for a New Era of Tourism. *Tourism Management* 86: 104324. [\[CrossRef\]](#)
- Volodin, Aleksandr, Maxim Ivanov, Mikhail Djanelidze, and Aleksandr Sokolitsyn. 2019. An Analytical Model of Economic Inequality in the Russian Regions and Its Correlation with the Global Trend in the Digital Economy. In *SPBPU IDE '19: Proceedings of the 2019 International SPBPU Scientific Conference on Innovations in Digital Economy*. New York: Association for Computing Machinery, pp. 1–4. [\[CrossRef\]](#)
- Wang, Xin, Ivan Ka Wai Lai, Quan Zhou, and Yu He Pang. 2021. Regional Travel as an Alternative Form of Tourism During the COVID-19 Pandemic: Impacts of a Low-Risk Perception and Perceived Benefits. *International Journal of Environmental Research and Public Health* 18: 9422. [\[CrossRef\]](#)
- Woosnam, Kyle Maurice, Zachary Russell, Manuel Alector Ribeiro, Tara J. Denley, Camila Rojas, Erin Hadjidakis, Joseph Barr, and Jackson Mower. 2021. 'Residents' Pro-Tourism Behaviour in a Time of COVID-19. *Journal of Sustainable Tourism* 30: 1858–77. [\[CrossRef\]](#)
- Wu, Chien-Hung. 2021. A Study on the Current Impact on Island Tourism Development under COVID-19 Epidemic Environment and Infection Risk: A Case Study of Penghu. *Sustainability* 13: 10711. [\[CrossRef\]](#)
- Xu, Linlin, Li Cong, Geoffrey Wall, and Hu Yu. 2021. Risk Perceptions and Behavioral Intentions of Wildlife Tourists During the COVID-19 Pandemic in China. *Journal of Ecotourism*, 1–20. [\[CrossRef\]](#)
- Zhu, Hui, and Fumin Deng. 2020. How to Influence Rural Tourism Intention by Risk Knowledge During COVID-19 Containment in China: Mediating Role of Risk Perception and Attitude. *International Journal of Environmental Research and Public Health* 17: 3514. [\[CrossRef\]](#) [\[PubMed\]](#)