sustainability

MDPI

Article

Impact of the COVID-19 Pandemic on International Tourism Income in Tourism Receiving Countries

Bartosz Korinth

Faculty of Social Sciences, University of Gdańsk, 80-309 Gdańsk, Poland; bartosz.korinth@wp.pl

Abstract: The purpose of this article is to analyze the impact of the COVID-19 pandemic on international tourism income in tourism reception countries, in which the greatest tourist traffic in the world is observed. The analysis was performed on the basis of data obtained from the UNWTO, which was used to create a single-feature classification of subregions (using Hellwig's method) and to create a single-feature classification (using a method based on positional measures) of the most important reception countries, i.e., generating the highest tourist traffic. Based on the research, it was found that the critical range of Hellwig occurred between Northeast Asia and Southeast Asia, North America, the Middle East and Sub-Saharan Africa, and between the Caribbean and South Asia. The largest percentage drops in revenues from international tourism in 2020 in comparison to 2019 occurred in Hong Kong, Malaysia, Greece and Spain. These countries recorded values above the upper quartile, which was −76.23%.

Keywords: COVID-19; economy; international tourism; revenues; UNWTO

Citation: Korinth, B. Impact of the COVID-19 Pandemic on International Tourism Income in Tourism Receiving Countries. *Sustainability* **2022**, *14*, 12550. https://doi.org/10.3390/su141912550

Academic Editors: Juan Ignacio Pulido-Fernández and Yoonjae Nam

Received: 17 August 2022
Accepted: 20 September 2022
Published: 2 October 2022

1. Introduction

Apart from wars, pandemics are one of the main causes of economic and political problems, especially in the modern, highly globalized world [1]. Such problems have arisen, inter alia, as a result of the spread of the SARS-CoV-2 coronavirus around the world, which on 11 March 2020 led the World Health Organization to declare a global COVID-19 pandemic [2]. From that moment on, there has been talk of a global, disruptive crisis that has occurred in all sectors of the world economy [3]. These sectors include agriculture, the energy raw materials industry, secondary sectors (such as processing industries) and the service sector [4] Analysis of the service sector, which before the pandemic (in 2018) accounted for about 65% of the global GDP [5]. and which lost the most as a result of the pandemic [6] is also important. Tourism, which was dynamically developing before the pandemic, was a service sector particularly affected by the pandemic. The crisis at the end of 2019 caused huge losses, especially in international tourism, which was seen as one of the main factors responsible for the spread of the pandemic [7]. As a result, international tourism has become the subject of much social and economic research.

This article is a contribution towards closing the research gap concerning the tools that use the statistical measurement of the impact of a pandemic on international tourism and strives to enrich the existing knowledge in its field. In the studies on the impact of a pandemic on tourism, many research tools have been used so far, including both qualitative and quantitative research. These include, inter alia, surveys of consumers of tourist services in various regions [8]. In the case of statistical methods, scientists have used cluster analysis and descriptive statistics [9], regression models [10], correlation analysis [11] and covariance-based structural equation modeling [12]. Researchers have tried to predict the consequences of the pandemic using various statistical methods, with forecasts based on the ARIMA model [13] or the model developed by Professor Y. Blokhin [14]. As can be seen, none of the above used Helwig's method, so this article is a supplement to the statistical methods used to study the impact of the COVID-19 pandemic on tourism.

The study aims to investigate how the pandemic changed revenues in international tourism in 2020 in comparison to 2019. For this purpose, a statistical method based on Hellwig's method and a statistical method based on positional measures were used. The Hellwig method was the basic method used to select explanatory variables for the econometric model. This method was chosen because it was not used in previous pandemic analyses. This method was aimed at dividing countries based on the critical range; i.e., the largest differences in percentage values between them.

2. Literature Review

In most leading tourism journals, the dominant articles were those that addressed the impact of the COVID-19 pandemic on the accommodation sector. This was dictated by the particular interest of scientists in this sector and, in part, the specialization of journals in this field. Nevertheless, most of the journals in their scientific publications also addressed issues related to the rest of the tourism sectors, and their subject matter was diverse. The accommodation sector, perceived as the most important sector in the tourism industry, has been particularly hard hit by the COVID-19 pandemic. The conducted scientific research indicated that the hotel industry was not fully prepared for the crisis in March 2020 [15], and its effects were tragic for the industry. The largest drops in revenues were recorded in international tourist hotels and five-star hotels [16]. A study of Spanish tourism companies, however, indicated that their financial situation was better than that of small businesses, which was the result of their greater assets accumulated in the pre-crisis period [17]. Quartile regression (QR) conducted by Guo et al. [18] additionally indicated that newer hotels with greater amenities and a better image promoted, among other ways, on the internet, will recover from the crisis faster than the rest.

The COVID-19 pandemic has significantly influenced the choice of accommodation type by tourists [19]. At the expense of the abovementioned hotels, there has been an increase in accommodation based on P2P short-term rental platforms such as Airbnb [20] and accommodation related to outdoor tourism [21], previously omitted in scientific analyses due to them having little importance in the industry in general. The accommodation industry (mainly hotels) undertook a number of actions to remedy their unfavorable situation. Some of them have engaged in activities in the field of corporate social responsibility (CSR) [22]. These activities focused mainly on the provision of accommodation for health workers, although there were many more of these activities [23]. In addition, the accommodation industry tried to develop a number of innovative strategies to protect the health and safety of tourists, and their implementation was considered effective by shareholders [24]. This was also confirmed by Aiello et al. [25] where, using a sample of 1056 travelers, a positive relationship was found between destination safety and the likelihood of accommodation. The literature also devotes a lot of space to the analysis of border controls and the suspension of passenger air traffic. It is indicated that many airlines had to completely close the network of connections between certain countries or reduce it to a minimum. Such action has in turn led to a reduction in the number of employees, the consolidation of some aviation companies [26] and even their collapse [27]. Some airlines have even asked national governments to support the industry in order to prevent possible bankruptcy [28]. The main forms of support were based, inter alia, on preferential loans for airlines and commercial guarantees, as reported by Abate et al. [29]. This was also the case on the European continent, where most airlines applied for government aid in the form of subsidies and loans based on a state guarantee [30]. Noticeable changes also took place in another sector of the tourism industry, namely gastronomy. The literature on the subject indicates that restaurants had to reorganize mainly in terms of the requirements of sanitary law, as de Freitas and Stedefeldt write [31]. The adaptation of these recommendations is reported, among others, by Norris et al. [32], who analyzed the changes in the business model of restaurants, bars and beverage producers during the pandemic using a literature review. These changes were manifested, inter alia, in the elimination of certain menu items, investing in communication platforms and involvement in local government. However,

some restaurants and other eateries based, among other things, on franchise, were less resistant to the pandemic than the rest [33]. The consequence for many of them was the loss of employment and income, which in turn resulted in the loss of millions of jobs [34].

The partial or complete closure of borders and the reduction of air connections between countries had a negative impact on tourism revenues, which were also analyzed using various research methods. Lim and To [35], using quantitative analyses (ARIMA model, correlation and regression analysis), indicated that the pandemic caused a decrease in tourism revenues as a result of a sharp drop in the number of arrivals to Macau. They found that declines in foreign tourism revenues correlated in turn with declining revenues in the gambling industry, which was largely tourist-driven. An interesting study was also carried out by Škare et al. [36] who, based on data from previous epidemics (including SARS in 2002 and H1N1 in 2009), estimated how the COVID-19 pandemic will affect tourism revenues in 109 different regions of the world. They noted that no previous pandemic has resulted in losses more than the one discussed in this article. The literature on the subject additionally indicates the increasing interest in sustainable transport in pandemic times, which is mentioned, for example, by Więckowski [37].

Another aspect important for this study is the analysis of changes in tourist behavior during the pandemic. The abovementioned problems in the entire tourism sector and numerous limitations in crossing the borders have led to changes in tourist destinations. Destination changes, in turn, affected revenues from international tourism. An important study was carried out by Korinth [38] who, using the survey method, showed changes in Polish tourists' choice of destinations. According to the study, tourists gave up for some time travel over long distances, especially to countries outside the European Union. Losses were expected, among other countries, in Turkey, which had recorded continuous increases in foreign tourism every past year. Among the reasons for these changes, he mentioned, were problems with crossing borders, impoverishment of society and the fear of falling ill with the coronavirus and the consequences associated with it. A similar study using the same research method was carried out by Kusumaningrum and Wachyuni [39], who indicated that as a result of the pandemic, an increase in the importance of domestic tourism was noted, which in turn resulted in a decrease in the importance of foreign tourism.

After considering the impact of the pandemic on international tourism, it is worth paying attention to its positive effects. In the literature, much attention has been paid to the protection of the natural environment. Scientists have shown that the COVID-19 pandemic resulted in a decrease in greenhouse gas emissions from tourism [40], especially in transport, which accounts for about 75% of CO_2 emissions to the atmosphere [41]. Sustainable tourism, which is currently experiencing a renaissance, is also of great importance among the positive effects of tourism. Gordon et al. [42] pointed out, that sustainable tourism can bring huge benefits to regional development when mass international tourism is drastically reduced in a pandemic era. Moreover, the literature on the subject expects that in the future the hotel industry will revive in the context of sustainable development [43]. The role of innovation in the tourism sector will also increase, especially in event tourism [44]. All the abovementioned issues raise many questions for international tourism, which is the subject of this article.

3. Materials and Methods

Data obtained from the UNWTO [45] was used to present the economic effects of the COVID-19 pandemic on international tourism. The data covered the percentage change in revenues from tourism in 2020 compared to the previous year. Data was collected based on a division of the world into fifteen subregions and then these were used to create a single-feature classification using a statistical method based on Hellwig's critical range [46].). Its 1968 publication was a significant achievement of Polish statistical thought, as it initiated intensive research in this field [47]. The advantage of this method is the ability to rank objects taking into account certain features of the ordering criteria. Additionally, it is a method that can be used with generally available information systems (e.g., Excel or

Statistica). It is also worth noting that this method is often used as a supplement to other statistical methods—including the construction of the Treynor, Sharpe or Sortinoo indices, used in financial sciences; for example, related to a pandemic [48]. These indices have the same properties as the Czuprow convergence coefficient, which is also used to study the impact of a pandemic [49] but is less labour-intensive. Therefore, this method was chosen.

Hellwig's method puts emphasis on the value differences between the selected variables. Objects from Table 1 have been ordered from those with the lowest value of the selected feature to the highest. Then the distances between them were calculated. The arithmetic mean and the standard deviation of these distances were used to perform the division. The division was made on the basis of the formula:

$$d_k = \overline{x} + kQ_n$$

where:

$\overline{x}$ is the arithmetic mean of distances;

Q_n is the standard deviation of distances;

k is the vividness of the division of the analyzed datasets.

The greater the value, the more vivid the division becomes. For this study, the assumed value of K was = 1/2. K is a constant value assumed depending on the discrepancy between the analyzed numbers. The greater the K, the greater the value of the critical range. Based on the variables described above, the following calculations were made:

$$d_k = 3 + 0.5 \times 3 = 4.5$$

The results of the calculations enabled the division of the analyzed datasets into groups in which the distance between neighboring facilities is greater than 4.5 ($d_k > 4.5$) in the case of the percentage change in tourism income in 2020 compared to the previous year (Table 1). The table shows the 15 UNWTO subregions that have been grouped from those suffering the largest pandemic loss to those suffering the least pandemic loss. The last column shows the difference between the values of the two subregions next to each other.

Table 1. Percentage change in revenues from tourism in UNWTO subregions in 2020 compared to the previous year (2019).

Variable Number	UNWTO Subregion	Percentage Change in Revenues from Tourism in 2020 Compared to the Previous Year	Distances (Differences in the Values of One Variable and Another)
X_1	North-East Asia	−78%	-
X_2	South-East Asia	−67%	$X_2 - X_1 = 11$
X_3	Southern Europe	−64%	$X_3 - X_2 = 3$
X_4	Northern Europe	−62%	$X_4 - X_3 = 2$
X_5	Oceania	−61%	$X_5 - X_4 = 1$
X_6	Central America	−61%	$X_6 - X_5 = 0$
X_7	South America	−60%	$X_7 - X_6 = 1$
X_8	Central/Eastern Europe	−59%	$X_8 - X_7 = 1$
X_9	North America	−58%	$X_9 - X_8 = 1$
X_{10}	Middle East	−58%	$X_{10} - X_9 = 0$
X_{11}	Sub-Saharan Africa	−52%	$X_{11} - X_{10} = 6$
X_{12}	North Africa	−50%	$X_{12} - X_{11} = 2$
X_{13}	Caribbean	−49%	$X_{13} - X_{12} = 1$
X_{14}	South Asia	−40%	$X_{14} - X_{13} = 9$
X_{15}	Western Europe	−37%	$X_{15} - X_{14} = 3$

Source: Own study based on UNWTO (2021).

To present the economic effects of the COVID-19 pandemic on international tourism in various countries, data from the UNWTO was studied. It provided information on the percentage change in revenues from international tourism in 2020 compared to the previous year (Table 2). The 20 countries with the highest number of foreign tourists in 2019 were selected for the analysis. It was decided to describe the countries in terms of the share of tourism and travel in total GDP in 2019 and in terms of the percentage change in tourism revenues in 2020 compared to the previous year (2019).

Table 2. Percentage change in revenues from international tourism in 2020 compared to 2019 in the most important reception countries, i.e., generating the highest tourist traffic in 2019.

The Country's Position Considering the Number of Tourists in 2019	Country Name	Total Contribution of Travel and Tourism to GDP in 2019	Percentage Change in Revenues from Tourism in 2020 Compared to the Previous Year
1	France	8.5%	−49.8%
2	Spain	14.1%	−76.1%
3	United States	8.6%	−58.4%
4	China	11.6%	−56.4%
5	Italy	13.1%	−58.1%
6	Turkey	11.0%	−68.3%
7	Mexico	15.0%	−55.8%
8	Thailand	20.1%	−70.0%
9	Germany	9.8%	−43.6%
10	United Kingdom	10.1%	−60.3%
11	Austria	11.0%	−29.7%
12	Japan	7.0%	−76.2%
13	Greece	20.3%	−76.3%
14	Malaysia	11.7%	−80.2%
15	Portugal	17.1%	−55.8%
16	Russian Federation	4.9%	−70.1%
17	Hong Kong (China)	12.0%	−90.6%
18	Canada	6.4%	−58.3%
19	Poland	4.7%	−41.6%
20	Netherlands	10.8%	−45.5%

Source: Own study based on UNWTO (2021).

The data were used to create a single-feature classification using a statistical method based on positional measures. In this classification, quartiles and quintiles are most commonly utilized and less common is the usage of deciles. This is confirmed, among other things, by publications related to tourism and analyzing the way tourists spend their time, for example, in Portugal [50]. This study was based on quartiles, i.e., the division of countries into 4 types, which were determined by: the position of the lower quartile ($Q_1 = \frac{N+1}{4}$), the position of the median ($Me = \frac{N+1}{2}$) and the position of the upper quartile ($Q_3 = \frac{3(N+1)}{4}$), where N is the number of objects in the set. The position of the upper quartile, the median and the lower quartile were used to divide the selected countries into those economically affected by the COVID-19 pandemic (type A, value higher than the upper quartile), those that suffered the least (type D value lower than the lower quartile) and those in the middle (type B and C, values between the upper and lower quartiles). Based on the abovementioned values, the following was calculated:

- Position $Q_1 = \frac{20+1}{4} = 5.25$ (the lower quartile is in the range of values between 5th and 6th countries, therefore the value $Q_1 = x_5 + 0.25 \times (x_6 - x_5) = \mathbf{-76.23}$;
- Position $Me = \frac{20+1}{2} = 10.5$ (the median is between the 10th and 11th country, therefore the value $Me = x_{10} + 0.5 \times (x_{11} - x_{10}) = \mathbf{-58.35}$;
- Position $Q_3 = \frac{3(20+1)}{4} = 15.75$ (the upper quartile is in the range of values between the 15th and 16th countries, therefore the value $Q_3 = x_{16} + 0.75 \times (x_{17} - x_{16}) = \mathbf{-51.30}$.

4. Results

Various statistical methods were implemented to present the economic effects of the COVID-19 pandemic on international tourism, as illustrated in Tables 1 and 2 and in Figure 1. Subregions designated by the UNWTO were characterized by different values of percentage change in revenues from international tourism in 2020 compared to 2019 (Figure 1). The largest decreases were recorded in Northeast Asia (−78%) and Southeast Asia (−67%). The lowest declines were recorded in South Asia (−40%) and Western Europe (−37%). The difference between the initial (x1) and final variables was 41 percentage points. Between the following variables, a relatively large difference was noticeable between Northeast Asia and Southeast Asia (11 percentage points), between the Middle East and Sub-Saharan Africa (6 percentage points) and between the Caribbean and South Asia (9 percentage points).

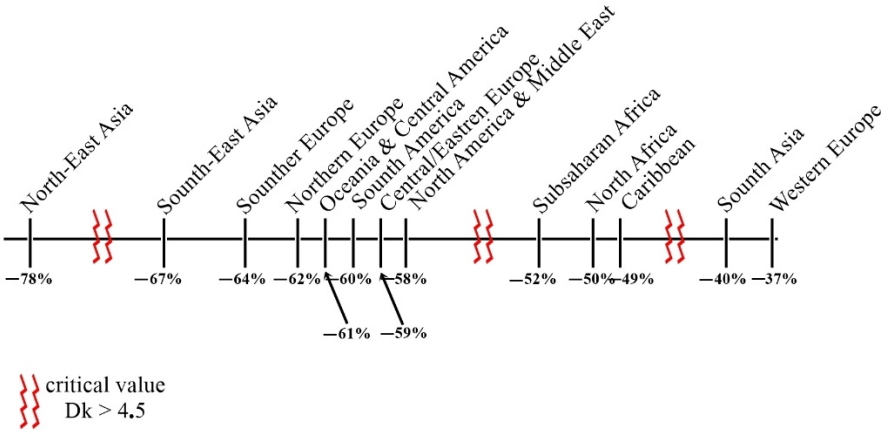

Figure 1. Subregions according to UNWTO, divided by Hellwig's critical range.

Figure 1 shows that Hellwig's critical range occurred between Northeast Asia and Southeast Asia, North America, the Middle East and Sub-Saharan Africa, and between the Caribbean and South Asia. When analyzing the situation presented in Figure 1, it should also be noted that the largest decline in tourism revenues was recorded in Northeast Asia. The smallest drop in tourism revenues was recorded in South Asia and Western Europe. Both of these subregions designated by the UNWTO were separated from the rest of the subregions by Hellwig's critical range. It should also be noted that the largest group of countries was characterized by a decrease in revenues from tourism in 2020 from 67% to 58% compared to the previous year.

Among the twenty countries analyzed in Table 3, four recorded value above the upper quartile (Type A): Hong Kong (percentage change in revenues from international tourism in 2020 compared to 2019 at −90.6%), Malaysia (percentage change −80.2% from the previous year), Greece (−76.3 %) and Spain (−76.1%). The declines characteristic of this group may have resulted from a relatively high level of economic constraints. It is also worth noting that in this group of countries the share of tourism in the overall GDP was relatively large and amounted to more than 10%. Due to the fact that Hong Kong was the leader in the ranking, Greece and Spain suffered the greatest losses, as the share of tourism in these countries was the largest among the rest.

Table 3. Percentage change in revenues from international tourism in 2020 compared to 2019 in the most important reception countries, broken down by upper quartile, lower quartile and median.

Country Type Due to Single-Feature Classification	Country Name	The Country's Position Considering the Number of Tourists in 2019	Percentage Change in Revenues from International Tourism in 2020 Compared to 2019	
Type A	Hong Kong (China)	17	−90.6%	
	Malaysia	13	−80.2%	
	Greece	14	−76.3%	
	Spain	2	−76.1%	**Q1 = −76.23%**
Type B	Japan	12	−76.2%	
	Russian Federation	16	−70.1%	
	Thailand	8	−70.0%	
	Turkey	6	−68.3%	
	United Kingdom	10	−60.3%	
	United States	3	−58.4%	**Me = −58.35%**
Type C	Canada	18	−58.3%	
	Italy	5	−58.1%	
	China	4	−56.4%	
	Mexico	7	−55.8%	
	Portugal	15	−55.8%	**Q3 = −51.30%**
Type D	France	1	−49.8%	
	Netherlands	20	−45.5%	
	Germany	9	−43.6%	
	Poland	19	−41.6%	
	Austria	11	−29.7%	

Source: Own study based on UNWTO (2021).

Countries with a percentage change in income from international tourism in 2020 compared to 2019 below the third quartile were mostly Western European countries: France, the Netherlands, Germany, Poland and Austria (Type D). These declines oscillated between −49.8% and −29.7%. Much smaller declines than in the case of the previous group may result from a relatively lower number of foreign tourists and types of economic constraints. Among them, Poland suffered the least, which is also due to the small share of tourism in the country's overall GDP, amounting to less than 5% in 2019. This is the result of the fact that tourist traffic in Poland is dominated by domestic tourists. Country localization issues may be noticeable here. France, the Netherlands, Germany, Poland and Austria as a result of EU economic integration and the functioning of the single market have emerged from the pandemic with fewer losses.

The remainder of the analyzed countries were placed between the first and third quartiles and were classified successively as type C (values between the third quartile and the median) to type B (values between the median and the first quartile). These are countries where international tourism has suffered moderately. Among the countries from group B and C, Thailand deserves the most attention. The country recorded declines in international tourism at the level of −68.3%, but the share of foreign tourism in generating GDP was relatively large and amounted to more than 20% in 2019. It must therefore be concluded that this is the country that suffered the most in this group.

5. Discussion

The results obtained in this article confirm previous studies that concerned the unfavorable situation of international tourism in European countries located in the Mediterranean [51]. In the case of this geographical region, it is worth noting that in Italy the situation was not completely bad, as indicated by earlier forecasts, due to a very large number of COVID-19 cases in 2020 [52]. The results obtained in this article also show large declines in revenues in the Asian countries of Malaysia and Hong Kong. This is confirmed by the research of Deyshappriya and others [53], who indicated that among Asian countries such as Malaysia, Sri Lanka and Vietnam, incomes in the second quarter of 2020 decreased by as much as 100%. Analyzing the abovementioned time range, the authors also pointed to large drops in income from tourism in Thailand and Japan, which in turn were in a much better position according to this research paper than Malaysia and Hong Kong. This is

probably related to the correlation between the size of the tourism sector and the politicians' relationship to the pandemic, as reported by Khalid et al. [54].

The smallest percentage drops in tourism revenues in 2020 compared to 2019 were recorded in Poland, the Netherlands, Austria, Germany and France (values below the third quartile). In the case of the abovementioned countries, prior predictions were confirmed, i.e., that international tourism was strongly dependent not so much on the pandemic itself, but on the response of individual governments to this pandemic. Such a relationship has been confirmed by, among other things, studies covering the central part of Europe [55] and Asia and Africa [56]. One of the reasons for a relatively smaller decline in revenues from tourism in European countries is the pursuit of a common policy against COVID-19's spread. On 13 October 2020, the EU Member States adopted the recommendations of the Council of the European Union on restricting free movement [57]. Some of them began to use, inter alia, digital passenger location cards. In turn, the common policy has led to a relatively greater increase in tourism revenues, especially compared to Asian countries.

In the literature on the subject, a lot research has been devoted to the economic effects of the COVID-19 pandemic on international tourism, and a relatively large number of different research methods have been used. For example, Jaipuria et al. [58] analyzed the impact of a pandemic on the market finance in international tourism using the method of artificial neural networks (ANN). An important study on the impact of the COVID-19 pandemic on foreign tourism is that by Korinth and Wendt [59]. In their work, the authors focused only on the area of Europe, but taking into account the fact that among the 20 inbound tourism countries, half of them are located in Europe, the work seems to be important. The authors used five variables from the UNWTO and Eurostat (European database) in their work. The data were standardized and used to build the Perkal index. This research confirmed the disproportionate effects of the COVID-19 pandemic, which are also notable according to this study. They indicated that Spain and Greece were the countries with the lowest Perkal rate (i.e., those most affected by the pandemic). This was confirmed by the research carried out in this study, because both of these countries were in group A, where the decline in foreign tourism revenue amounted to more than −76.23%. The method used in this study is a good complement to those presented above and could be successfully included in the catalogue of research methods used to analyze the impact of the COVID-19 pandemic on international tourism.

Government responses to the pandemic are also an important point to discuss. From the beginning, after diagnosing the epidemiological threat, governments decided to impose restrictions on their citizens. These included, among others, maintaining social distancing, remote working or bans on gatherings of more than 50 people. The restrictions also affected foreign tourism. The vast majority of countries decided to close their borders or introduce restrictions on crossing them [60]. Among the countries analyzed in this article that ordered complete border closures in March 2020 were Spain and Poland. Entry bans on citizens of certain countries were introduced by Austria (closing borders with Germany, Italy, Switzerland, Liechtenstein, Slovenia and Hungary) and Greece (closing borders with Albania and North Macedonia). Germany introduced border controls. However, when analyzing the reactions of governments, it should be noted that these regulations changed over time [61]. During the course of the pandemic, some countries have sometimes reduced and sometimes increased restrictions.

When discussing the impact of a pandemic on international tourism, it is also worth noting that the economic consequences are of a different nature. An example is employment and wages in the tourism sector. The World Travel and Tourism Council warned in March 2020 that 50 million jobs in the global travel and tourism sector could be at risk as a result of the COVID-19 pandemic [62]. The consequences of the pandemic have also varied spatially. This article focused on data for entire countries, but we should also pay attention to the local context. For example, this study shows that Spain lost the most in terms of international tourism income. However, these losses did not spread throughout the country and were dependent on local conditions. Duro et al. [63], while building the index of

tourism susceptibility to COVID-19, indicated that the place that suffered the greatest losses was the Balearic Islands, which are characterized by the high dependence of their GDP on tourism, the greatest seasonality and placing great importance on international tourism.

6. Conclusions and Limitations

This work focused on the analysis of the percentage change in revenues from international tourism in 2020 compared to the previous year, which illustrated the economic consequences of the COVID-19 pandemic for the global economy. Based on the conducted research, it should be stated that the subregion with the relatively highest percentage decrease in revenues from international tourism in 2020 compared to the previous year was North-East Asia. This subregion was separated from the rest of Hellwig's critical range, which indicates that this decline was significantly greater than for the rest of the subregions.

In addition, it should be noted that type A countries (with a decline in tourism revenues of more than −76.23% in 2020 compared to the previous year) were mostly those whose position in terms of the number of tourists in 2019 was below the top ten. The exception was Spain, which in 2019 was in second place in terms of the abovementioned variable. It should therefore be pointed out that this is the country that suffered the most economically due to the pandemic. In contrast, the situation in Italy was not as bad as expected in the early pandemic studies. This fact is interesting because Italy and Spain have a similar share of tourism in overall GDP. Perhaps this was caused by the actions of the Italian government, which tried very hard to encourage tourists to visit the country. An example of such an action is the program of the Sicilian government, which at the end of April 2020 decided to pay extra for tourist accommodation on the island and return half of the cost of their flights.

The countries that were in the relatively best situation as a result of the COVID-19 pandemic were those located in the central and western parts of Europe (including Poland with a decrease of −41.6% and Austria with a decrease of −27.9% in 2020 compared to the previous year). It is worth noting that in the case of Poland, tourism is not an important component of the country's overall GDP (it was only 4.7% in 2019 and it was the lowest of all twenty analyzed countries'). It should therefore be pointed out that the economic effects of the pandemic on foreign tourism on this continent were very diverse. Differences in the economic consequences of the pandemic also result from different government responses to the pandemic. For example, the Polish government responded to a pandemic differently from the German government.

This article enriches the current knowledge about the impact of the COVID-19 pandemic on international tourism. Two statistical methods were used in the study, and both worked properly. Its results will allow the reader to know where the pandemic affected foreign tourism the most, and where least. Such knowledge is necessary above all for travel agencies which, when planning to introduce new tourist offers in the future, will be able to see where the risk of loss will be the lowest. This study may be additionally extended to include the use of other available statistical methods and the analysis of the situation of foreign tourism in other countries that were not included in the analysis.

When analyzing the conclusions of this study, it is worth paying attention to its limitations. The first is the choice of the time range. The work is based on a comparative analysis of two periods, 2019 and 2020. The year 2020 was not compared with others, for example 2018 or 2017. Probably the percentage values compared to 2019 in the analyzed countries would differ, but this difference would not be significant (e.g., Greece had a decrease in tourism income in 2020 compared to 2019 of −76.3%, and compared to 2018 it was −77.6%). Despite small differences, however, this is a certain limitation of this research. The second limitation of the research is the spatial scale. In this article, only 20 countries generating the greatest tourist traffic in the world were analyzed. However, the pandemic has had a different impact on tourism in countries where it is much less important in generating income (for example, island countries, very often heavily dependent on international tourism, have not been taken into account). The consequences of the pandemic

for tourism are also different on regional and time scales (the pandemic started at different times in different countries). These are issues that require further research.

Funding: The APC was co-funded by the University of Gdańsk.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Supporting information can be downloaded at: https://doi.org/10.18111/wtobarometereng. Data obtained from the UNWTO was used for both selected research methods in this article.

Acknowledgments: The author would like to thank the anonymous reviewers for their helpful comments. The author also would like to thank his research supervisor—Jan Andrzej Wendt (University of Gdańsk, Poland) for his support and valuable advices.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Elbe, S.; Buckland-Merrett, G. Data, disease and diplomacy: GISAID's innovative contribution to global health. *Glob. Chall.* **2017**, *1*, 33–46. [CrossRef] [PubMed]
2. WHO. Statement on the Second Meeting of the International Health Regulations (2005) Emergency Committee Regarding the Outbreak of Novel Coronavirus (2019-nCoV). 2020. Available online: https://web.archive.org/web/20200131005904/https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meet-ing-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov) (accessed on 1 July 2021).
3. Auzan, A.A. The economy under the pandemic and afterwards. *Popul. Econ.* **2020**, *4*, 4–12. [CrossRef]
4. Nicola, M.; Alsafi, Z.; Sohrabi, C.; Kerwan, A.; Al-Jabir, A.; Iosifidis, C.; Aghae, M.; Aghaf, R. The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *Int. J. Surg.* **2020**, *78*, 185–193. [CrossRef] [PubMed]
5. Baldwin, R.; Di Mauro, B.W. *Economics in the Time of COVID-19: A New eBook*; Centre for Economic Policy Research: London, UK, 2020; pp. 2–3. Available online: https://voxeu.org/article/economics-time-covid-19-new-ebook (accessed on 28 June 2021).
6. Espitia, A.; Mattoo, A.; Rocha, N.; Ruta, M.; Winkler, D. Pandemic trade: COVID-19, remote work and global value chains. *World Econ.* **2022**, *45*, 561–589. [CrossRef] [PubMed]
7. Hoarau, J.F. Is international tourism responsible for the outbreak of the COVID-19 pandemic? A cross-country analysis with a special focus on small islands. *Rev. World Econ.* **2022**, *158*, 493–528. [CrossRef]
8. Hallaj, Z.; Bijani, M.; Abbasi, E.; Valizadeh, N.; Mohammadi, M. Tourism Development During the Pandemic of Coronavirus (COVID-19): Evidence From Iran. *Front. Public Health* **2022**, *10*, 881381. [CrossRef]
9. Palazzo, M.; Gigauri, I.; Panait, M.C.; Apostu, S.A.; Siano, A. Sustainable Tourism Issues in European Countries during the Global Pandemic Crisis. *Sustainability* **2022**, *14*, 3844. [CrossRef]
10. Rutynskyi, M.; Kushniruk, H. The impact of quarantine due to COVID-19 pandemic on the tourism industry in Lviv (Ukraine). *Probl. Perspect. Manag.* **2020**, *18*, 194. [CrossRef]
11. Fu, Y.K. The impact and recovering strategies of the COVID-19 pandemic: Lessons from Taiwan's hospitality in-dustry. *Cogent Soc. Sci.* **2020**, *6*, 1829806. [CrossRef]
12. Zaman, U.; Raza, S.H.; Abbasi, S.; Aktan, M.; Farías, P. Sustainable or a butterfly effect in global tourism? Nexus of pandemic fatigue, covid-19-branded destination safety, travel stimulus incentives, and post-pandemic revenge travel. *Sustainability* **2021**, *13*, 12834. [CrossRef]
13. Korinth, B. Implications of Covid-19 on tourism sector in Poland: Its current state and perspectives for the future. *Tour. Recreat. Res.* **2021**, 1–5. [CrossRef]
14. Iastremska, O.; Kononova, O. Forecasting of the tourism industry development and the COVID-19 pandemic consequences: Geographical and international orientation. *Three Seas Econ. J.* **2021**, *2*, 54–61. [CrossRef]
15. Wong, I.A.; Ou, J.; Wilson, A. Evolution of hoteliers' organizational crisis communication in the time of mega disruption. *Tour. Manag.* **2021**, *84*, 104257. [CrossRef]
16. Lin, Y.C.; Chen, C.M. How do hotel characteristics moderate the impact of COVID-19 on hotel performance? Evidence from Taiwan. *Curr. Issues Tour.* **2021**, *25*, 1192–1197. [CrossRef]
17. Crespí-Cladera, R.; Martín-Oliver, A.; Pascual-Fuster, B. Financial distress in the hospitality industry during the Covid-19 disaster. *Tourism Management* **2021**, *85*, 104301. [CrossRef]
18. Guo, L.; Liu, K.; Song, Y.; Yang, Z. Recovering hotel room sales during the COVID-19 pandemic: Lessons from OTA information using the quantile regression approach. *Curr. Issues Tour.* **2022**, *25*, 94–114. [CrossRef]
19. Bresciani, S.; Ferraris, A.; Santoro, G.; Premazzi, K.; Quaglia, R.; Yahiaoui, D.; Viglia, G. The seven lives of Airbnb. The role of accommodation types. *Ann. Tour. Res.* **2021**, *88*, 103170. [CrossRef]

20. Muschter, S.; Caldicott, R.W.; von der Heidt, T.; Che, D. Third-party impacts of short-term rental accommodation: A community survey to inform government responses. *J. Sustain. Tour.* **2020**, *30*, 1102–1121. [CrossRef]
21. Ma, S.; Craig, C.A.; Feng, S. Camping climate resources: The camping climate index in the United States. *Curr. Issues Tour.* **2020**, *24*, 2523–2531. [CrossRef]
22. Shin, H.; Sharma, A.; Nicolau, J.L.; Kang, J. The impact of hotel CSR for strategic philanthropy on booking behavior and hotel performance during the COVID-19 pandemic. *Tour. Manag.* **2021**, *85*, 104322. [CrossRef]
23. Gürlek, M.; Kılıç, İ. A true friend becomes apparent on a rainy day: Corporate social responsibility practices of top hotels during the COVID-19 pandemic. *Curr. Issues Tour.* **2021**, *24*, 905–918. [CrossRef]
24. Sharma, A.; Shin, H.; Santa-María, M.J.; Nicolau, J.L. Hotels' COVID-19 innovation and performance. *Ann. Tour. Res.* **2021**, *88*, 103180. [CrossRef]
25. Aiello, F.; Bonanno, G.; Foglia, F. On the choice of accommodation type at the time of COVID-19. Some evidence from the Italian tourism sector. *Curr. Issues Tour.* **2020**, *25*, 1–5. [CrossRef]
26. Budd, L.; Ison, S.; Adrienne, N. European airline response to the COVID-19 pandemic–Contraction, consolidation and future considerations for airline business and management. *Res. Transp. Bus. Manag.* **2020**, *37*, 100578. [CrossRef]
27. Tsionas, M.G. COVID-19 and gradual adjustment in the tourism, hospitality, and related industries. *Tour. Econ.* **2020**, *27*, 1828–1832. [CrossRef]
28. Foo, L.P.; Chin, M.Y.; Tan, K.L.; Phuah, K.T. The impact of COVID-19 on tourism industry in Malaysia. *Curr. Issues Tour.* **2021**, *24*, 2735–2739. [CrossRef]
29. Abate, M.; Christidis, P.; Purwanto, A.J. Government support to airlines in the aftermath of the COVID-19 pan-demic. *J. Air Transp. Manag.* **2020**, *89*, 101931. [CrossRef]
30. Albers, S.; Rundshagen, V. European airlines' strategic responses to the COVID-19 pandemic (January–May 2020). *J. Air Transp. Manag.* **2020**, *87*, 101863. [CrossRef]
31. de Freitas, R.S.G.; Stedefeldt, E. COVID-19 pandemic underlines the need to build resilience in commercial res-taurants' food safety. *Food Res. Int.* **2020**, *136*, 109472. [CrossRef]
32. Norris, C.L.; Taylor, S., Jr.; Taylor, D.C. Pivot! How the restaurant industry adapted during COVID-19 restrictions. *Int. Hosp. Rev.* **2021**, *35*, 132–155. [CrossRef]
33. Song, H.J.; Yeon, J.; Lee, S. Impact of the COVID-19 pandemic: Evidence from the US restaurant industry. *Int. J. Hosp. Manag.* **2021**, *92*, 102702. [CrossRef] [PubMed]
34. Dube, K.; Nhamo, G.; Chikodzi, D. COVID-19 cripples global restaurant and hospitality industry. *Curr. Issues Tour.* **2021**, *24*, 1487–1490. [CrossRef]
35. Lim, W.M.; To, W.M. The economic impact of a global pandemic on the tourism economy: The case of COVID-19 and Macao's destination-and gambling-dependent economy. *Curr. Issues Tour.* **2021**, *25*, 1258–1269. [CrossRef]
36. Škare, M.; Soriano, D.R.; Porada-Rochoń, M. Impact of COVID-19 on the travel and tourism industry. *Technol. Forecast. Soc. Change* **2021**, *163*, 120469. [CrossRef]
37. Więckowski, M. Will the consequences of COVID-19 trigger a redefining of the role of transport in the development of sustainable tourism? *Sustainability* **2021**, *13*, 1887. [CrossRef]
38. Korinth, B. The impact of COVID-19 on foreign travel plans of Polish tourists in 2020. *Studia Perieget.* **2020**, *32*, 59–69. [CrossRef]
39. Kusumaningrum, D.A.; Wachyuni, S.S. The shifting trends in travelling after the COVID-19 pandemic. *Int. J. Tour. Hosp. Rev.* **2020**, *7*, 31–40. [CrossRef]
40. Nagaj, R.; Žuromskaitė, B. Tourism in the Era of Covid-19 and Its Impact on the Environment. *Energies* **2021**, *14*, 2000. [CrossRef]
41. Koçak, E.; Ulucak, R.; Ulucak, Z.Ş. The impact of tourism developments on CO_2 emissions: An advanced panel data estimation. *Tour. Manag. Perspect.* **2020**, *33*, 100611. [CrossRef]
42. Gordon, R.; Wadim, S.; Elena, K. Sustainable tourism in the digital age: Institutional and economic implications. *Terra Econ.* **2021**, *19*, 141–159.
43. Napierała, T.; Birdir, K. Competition in Hotel Industry: Theory, Evidence and Business Practice. *Eur. J. Tour. Hosp. Recreat.* **2020**, *10*, 200–202. [CrossRef]
44. Janiszewska, D.; Hannevik Lien, V.; Kloskowski, D.; Ossowska, L.; Dragin-Jensen, C.; Strzelecka, M.; Kwiatkowski, G. Effects of COVID-19 infection control measures on the festival and event sector in Poland and Norway. *Sustainability* **2021**, *13*, 13265. [CrossRef]
45. UNWTO World Tourism Barometer. 2021, Volume 19; 1–42. Available online: https://www.e-unwto.org/loi/wtobarometereng (accessed on 3 February 2022). [CrossRef]
46. Hellwig, Z. Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom ich rozwoju oraz zasoby i strukturę wykwalifikowanych kadr. *Przegląd Stat.* **1968**, *4*, 307–326.
47. Bąk, A. Linear ordering of objects using Hellwig and TOPSIS methods-a comparative analysis. *Pr. Nauk. Uniw. Ekon. We Wrocławiu* **2016**, *426*, 22–31. [CrossRef]
48. Venugopal, M.; Sophia, S. Examining Sharpe Ratio, ASR, Sortino, Treynor and Info Ratio in Indian Equity Mutual Funds during the Pandemic. Malathy Venugopal and Sharon Sophia, Examining Sharpe Ratio, ASR, Sortino, Treynor and Info Ratio in Indian Equity Mutual Funds during the Pandemic. *Int. J. Manag.* **2020**, *11*, 1267–1279. [CrossRef]

49. Klein, M.; Gutowska, E.; Gutowski, P. innovations in the t&l (transport and logistics) sector during the COVID-19 pandemic in sweden, germany and poland. *Sustainability* **2022**, *14*, 3323. [CrossRef]
50. Correia, A.; Kozak, M.; Gonçalves, F.F. Why do tourists spend extravagantly in Portugal? A binary logistic re-gression by quartiles. *Tour. Plan. Dev.* **2018**, *15*, 458–472. [CrossRef]
51. Moreno-Luna, L.; Robina-Ramírez, R.; Sánchez, M.S.O.; Castro-Serrano, J. Tourism and Sustainability in Times of COVID-19: The Case of Spain. *Int. J. Environ. Res. Public Health* **2021**, *18*, 1859. [CrossRef]
52. Corbisiero, F.; Monaco, S. Post-pandemic tourism resilience: Changes in italians'travel behavior and the possible responses of tourist cities. *Worldw. Hosp. Tour. Themes* **2021**, *13*, 401–417. [CrossRef]
53. Deyshappriya, N.P.; Sammani, U.G.O.; Minuwanthi, R.W.V.K. Impact of COVID-19 on Tourism Sector of Asia & Pacific Countries Evidence from 20 Asia-Pacific Countries. 2021. Available online: https://ssrn.com/abstract=3780713 (accessed on 3 February 2022).
54. Khalid, U.; Okafor, L.E.; Burzynska, K. Does the size of the tourism sector influence the economic policy response to the COVID-19 pandemic? *Curr. Issues Tour.* **2021**, *24*, 2801–2820. [CrossRef]
55. Korinth, B. The impact of political decisions on the tourist accommodation occupancy-Central Europe in the time of the COVID-19 pandemic. *Geogr. Cassoviensis* **2021**, *15*, 27–36. [CrossRef]
56. Seyfi, S.; Hall, C.M.; Shabani, B. COVID-19 and international travel restrictions: The geopolitics of health and tourism. *Tour. Geogr.* **2020**, 1–17. [CrossRef]
57. The Council of European Commission. Draft Council Recommendation on a Coordinated Approach to the Restriction of Free Movement in Response to the COVID-19 Pandemic, 11689/1/20. 2020. Available online: https://data.consilium.europa.eu/doc/document/ST-11689-2020-REV-1/en/pdf (accessed on 3 February 2022).
58. Jaipuria, S.; Parida, R.; Ray, P. The impact of COVID-19 on tourism sector in India. *Tour. Recreat. Res.* **2021**, *46*, 245–260. [CrossRef]
59. Korinth, B.; Wendt, J.A. The impact of COVID-19 pandemic on foreign tourism in European countries. *Pr. Kom. Geogr. Przemysłu Pol. Tow. Geogr.* **2021**, *35*, 186–204. [CrossRef]
60. Rosik, P.; Komornicki, T.; Duma, P.; Goliszek, S. The effect of border closure on road potential accessibility in the regions of the EU-27. The case of the COVID-19 pandemic. *Transp. Policy* **2022**, *126*, 188–198. [CrossRef]
61. Devi, S. Travel restrictions hampering COVID-19 response. *Lancet* **2020**, *395*, 1331–1332. [CrossRef]
62. World Economic Forum. This is How Coronavirus Could Affect the Travel and Tourism Industry. Available online: https://www.weforum.org/agenda/2020/03/world-travel-coronavirus-covid19-jobs-pandemic-tourism-aviation/ (accessed on 24 August 2022).
63. Duro, J.A.; Perez-Laborda, A.; Turrion-Prats, J.; Fernández-Fernández, M. COVID-19 and tourism vulnerability. *Tour. Manag. Perspect.* **2021**, *38*, 100819. [CrossRef]