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## Polish Domestic Tourism in the Face of SARS-CoV-2 Pandemic

**Abstract:** The paper focuses on the tourism market in the face of the SARS-CoV-2 pandemic. Its aim is to verify whether Polish tourism in this period actually recorded such a significant drop in interest. The research is based on secondary data from the reports of Statistics Poland concerning the use of accommodation facilities in Poland by both Poles and foreign tourists. Accommodation services offered by accommodation facilities constitute one of the basic tourist services included in the tourist market. Verifying their situation in the holiday season 2020 is therefore one of the easiest ways to estimate the impact of the pandemic on the tourism market in Poland. The paper also includes a comparison of data on Polish tourists in 2020 in relation to previous years. The research was conducted with the use of ANOVA analysis of variance.

**Keywords:** tourism, economic sectors, COVID-19, SARS-CoV-2, pandemic

**JEL:** Z31, Z32, Z39, L83

# 1. Introduction

The year 2020 brought many changes to the global economy. The SARS-CoV-2 virus pandemic, colloquially known as the coronavirus or COVID-19 pandemic, which arrived in Poland on 4<sup>th</sup> March, 2020, has affected the daily lives of people in almost the entire world. Its effects are also observed in world financial markets. The Asian Development Bank estimates the economic losses caused by the coronavirus at \$3–6 trillion (Kornith, Ranasinghe, 2020: 987–990). Tourism is undoubtedly one of the sectors of the economy that is most affected by the SARS-CoV-2 virus outbreak. So far defined as one of the most important branches of the economy, generating annually 10% of the world's gross product (Widomski, 2020: 771–779), the tourism industry is currently facing a huge challenge. Lockdowns introduced by many countries, including Poland, limit the possibilities of moving not only beyond the borders of a given country but also within them. The first restrictions introduced in Poland on 15<sup>th</sup> March (ISAP, 2020) resulted in a drastic drop in the number of trips made by Poles in the following months. However, the situation improved somewhat in the summer when the government, observing a decline in the number of positive cases, gradually lifted the previously introduced restrictions. Attempts to improve the situation of Polish tourism were undertaken by the Ministry of Labour, Development and Technology by establishing the so-called *tourist voucher*.<sup>1</sup> By dint of such action, Polish tourism was supposed to bounce back from the bottom. Even though many Poles decided to travel in the summer, the numbers reported by Statistics Poland (GUS, 2020b) did not equal those observed in previous years. In consequence, the industry, which had been characterised by a steady growing trend in the last several years, had to face considerable losses. Furthermore, the second wave of COVID-19, which reached Poland in September 2020, did not improve the situation. The Polish economy, including tourism, had to face other effects of SARS-CoV-2, including the re-introduction of restrictions and the fear caused by an increasing number of infected citizens. However, a preliminary analysis of this situation raises some important questions. First of all, did the pandemic actually result in a significant drop in interest in tourism among Poles in the first half of 2020? How does it compare with previous years? Did lifting the restrictions and the government's strategy improve the situation of Polish tourism in the summer? Finally, did the second wave of the pandemic significantly worsen the situation in this branch of the economy again? The purpose of this paper is to find the answers to the above-raised questions.

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1 'A tourist voucher is a new form of support for Polish families in a situation where the economy is weakened by the COVID-19 pandemic. It amounts to PLN 500 for each child up to the age of 18 and one additional benefit in the form of a voucher supplement, in the amount of PLN 500 for children with a disability certificate. With the help of the voucher, you can make payments for hotel services or tourist events carried out by a tourist entrepreneur or public benefit organization in the country' (Gov.pl, 2020a).

## 2. Literature review

Since the beginning of March 2020, when COVID-19 reached Poland, several valuable articles analysing the situation of Polish tourism in the face of the pandemic have been published. The authors drew attention to the economic effects suffered by entrepreneurs in the tourism industry (Walas, Kruczek, 2020: 79–95) and the tourist preferences of Poles in that period (Widomski, 2020: 771–779). However, those papers focused only on large cities that rely mainly on foreign tourists. Therefore, Polish regional tourism, which, according to Statistics Poland, so far comprised 80% of domestic tourists, was not adequately discussed in the current research. The topic of travelling in the time of the pandemic and how cultural tourism is changing under the influence of a spreading virus was discussed by participants at Gniezno Forum of Cultural Tourism Experts (von Rohrscheidt, Plichta, 2020). However, they mainly focused on health safety during travels. The subject of the coronavirus impact as an immediate threat on the condition of the Polish tourism economy was described by Panasiuk (2020: 55–70). He concentrated on activities that may support tourism in the long term.

Considerations on the short-term and long-term effects of SARS-CoV-2 for the entire economy, including tourism, were additionally addressed by Wąsiński and Wnukowski, emphasising the essence of international cooperation in this difficult period (Wąsiński, Wnukowski, 2020: 1–2). On the other hand, Niewiadomski writes about the temporary deglobalisation process, which will allow tourism to revive again after the pandemic. He claims that if only the opportunities created by the temporary tourist stagnation are exploited, this branch has a chance for even greater development (Niewiadomski, 2020: 651–656). However, for the time being, this is just wishful thinking.

It is worth pointing out that the pandemic impact on tourism is not only considered by Polish but also foreign researchers. This problem was discussed in a special issue of *Tourism Geographies*. Nevertheless, most of the articles published there focus on speculations about the future of tourism in a post-pandemic reality. Authors indicate the need for transformation that the tourism industry will have to undergo (Benjamin, Dillette, Alderman, 2020: 476–483) and also the essence of its self-regeneration. The latter is understood by local support of tourism-related entities (Ateljevic, 2020: 467–475) and gradual lifting of travel bans (Hall, Scott, Gössling, 2020: 577–598). A local return to normal is expected to re-energise the economy. Moreover, the issue of returning to ‘normality’ in the sphere of international tourism is also raised in relation to the invention of the vaccine (Hall, Scott, Gössling, 2020: 577–598; Prideaux, Thompson, Pabel, 2020: 667–678). Same as Niewiadomski, the researchers write about the chances of tourism in the post-pandemic world (Brouder, 2020: 484–490; Higgins-Desbiolles, 2020: 610–623; Prideaux, Thompson, Pabel, 2020: 667–678). They also present

the strategy of fighting the virus in the sphere of tourism, highlighting the importance of the government's actions in this area (Koh, 2020: 1015–1023; Yeh, 2020: 1–7). Gössling, Scott and Hall (2021: 1–20) suggest that travel bans, stay-at-home campaigns and border closures could be the reason for the drop in tourism. A small group of publications concentrate on the current state of tourism. These include the analysis of A. Carr concerning New Zealand tourism (Carr, 2020: 491–502) or V. Kumar's research describing the present state of tourism in India (Kumar, 2020: 179–185). Furthermore, the current influence of SARS-CoV-2 on the tourism of Nepal was described by N. Ulak (2020: 50–75). Additionally, M.R. Farzanegan et al. have proven a significant relationship between the decline in international tourism and the emerging cases of COVID-19 (Farzanegan et al. 2020: 1–6). Nonetheless, there are without doubt very few such articles compared to the number of papers examining the post-pandemic reality including also those written by A. A. Lew et al. (2020), U. Stankov, V. Filimonau and M.D. Vujičić (2020: 703–712) or S. Polyzos, A. Samitas and A.E. Spyridou (2020: 1–13).

Besides scientific studies, reports published by Statistics Poland are undoubtedly a valuable source of information on the impact of COVID-19 on the Polish tourism market. Table 1 presents the percentage decrease in the number of tourists for individual months of 2020 in relation to 2019.

Table 1. Percentage decrease in the number of tourists for individual months of 2020 in relation to 2019

Month	Percentage decrease in relation to 2019
March	65.0
April	96.5
May	88.1
June	62.7
July	33.2
August	25.7

Source: own elaboration<sup>2</sup>

Reports of Statistics Poland (Table 1) show that the largest drop in the number of tourists took place in April 2020, amounting to as much as 96.5% loss compared to 2019, which is unquestionably related to the travel ban introduced that month in Poland. On the other hand, the analyses of Statistics Poland have a key flaw – they only concern the quotations from 2020 in relation to 2019. It is worth remembering that tourism was on a long-lasting growing trend which achieved its peak in 2019. Therefore, these analyses do not provide a full view of the situation, as it should also be considered in relation to earlier years.

2 Based on the data contained in reports of Statistics Poland (GUS, 2020a).

### 3. Data and methods

Based on current knowledge, it seems reasonable to conduct the research on data that directly concern the activity of Polish domestic tourists in recent years. Such information was included in the reports published by Statistics Poland on the number of domestic tourists staying in tourist accommodation establishments with ten or more beds in Poland, aggregated monthly from January to September.<sup>3</sup> The period under consideration is seven consecutive years from 2014 to 2020.

One-way analysis of variance (one-way ANOVA) was chosen as the investigating method to compare the average number of Polish domestic tourists over the years. It was assumed that the observations constituted a set of functional data (analogous to the correlated biological or geological data) that had been collected independently and on that basis it was possible to use one-way ANOVA. The one-way ANOVA was applied here also due to the fact that the analysis was aimed only at the verification of how the analysed number of tourists had changed in relation to previous years, and not what additional impact the individual months for which the data were collected could have had. This choice was also justified by a relatively small sample size and the fact that the investigated time series was not complete (data from October, November and December were missing for the measurements to be a consistent annual representation). Collected observations can be treated as functional data, transformed into numbers and analysed performing classical ANOVA according to T. Mrkvička et al. (2020: 433). The ANOVA assumptions were verified using the Jarque-Bera test (normal residual distribution) and the Bartlett test (equality of variance in subgroups). The post-hoc verification was performed by Tukey's test.

Tukey's HSD test is based on the studentised range distribution (Benjamini, Brown, 2002: 1580). Unlike ANOVA, which shows only if results are significant overall, it will show exactly where differences lie. For measurement or analysis, the HSD for each pair of means was calculated by using the below presented formula (Nanda et al., 2021: 60):

$$HSD = \frac{M_i - M_j}{\sqrt{\frac{MS_w}{N}}},$$

where:

$M_i - M_j$  is the difference between the pair of means (to calculate this,  $M_i$  should be larger than  $M_j$ );

$MS_w$  – is the Within Mean Square of the group;

$N$  – is the number in the group.

The significance level was established as  $\alpha = 5\%$ .

3 Based on the data contained in statistical statements of Statistics Poland (GUS, 2020a).

## 4. Results

The study was divided into three stages related to the government's policy concerning counteracting the SARS-CoV-2 pandemic as well as to the holiday season in July and August. Phase one included data from January to June 2020. At that time, the coronavirus was slowly spreading throughout Poland as part of the first wave of infections. On 15<sup>th</sup> March, the government introduced the first lockdown, closing schools, restaurants, and shopping centres. Moreover, a domestic travel ban was imposed, and the country's borders were also closed. The restrictions were in force until mid-July, but first restrictions started to be lifted in May (Gov.pl, 2020b; Olszewska, 2020). Clearly rising numbers of tourists in that period can be observed for 2020 in Figure 1.

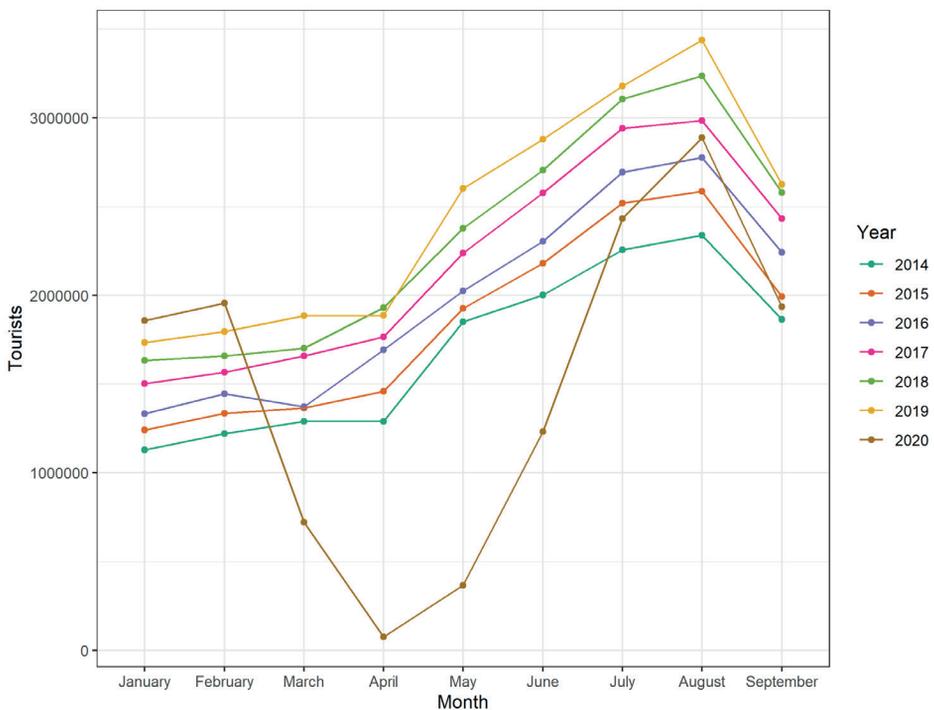


Figure 1. Number of domestic tourists staying in tourist accommodation establishments with ten or more beds in Poland in 2014–2020 by month

Source: own elaboration

The decreasing number of positive cases and the so-called *tourist voucher*, introduced in mid-July by the Ministry of Labour, Development and Technology, was meant to encourage Poles to travel again. The phase two sample was extended by these two summer months. According to the data presented in Table 1 and

Figure 1, it can be seen that the number of Polish citizens travelling during that period was slowly catching up to the numbers observed in previous years. Unfortunately, when looking at the data from September, it should be noted that the number of domestic tourists in Poland dropped again. Phase three of this study covered all months from January to September 2020, when the second wave of the pandemic reached Poland (Medonet.pl, 2020) and restrictions were re-introduced (Medexpress.pl, 2020).

#### 4.1. Phase I

The first half of 2020 was characterised primarily by a slowdown in the economy due to the lockdown introduced in Poland. The impact of the travel ban is particularly visible for April 2020 (Figure 1). The decrease in the number of tourists was undoubtedly influenced by social moods, such as ostracism towards citizens from regions with more COVID-19 cases, as well as social anxiety. The significance of those differences in relation to the previous years was confirmed by the analysis of variance. ANOVA results presented in Table 2 unequivocally allow us to conclude that the average number of tourists in the individual years 2014–2020 was significantly different from each other at the significance level of  $\alpha = 5\%$  (the verification of ANOVA assumptions is presented in Table 3). The post-hoc analysis done by Tukey's test (Table 4) shows that significant differences can be observed in the comparison of the average for the same periods of time for 2020 and 2019 (an average decrease of 1,096,160 tourists per month) and 2020 and 2018 (an average decrease of 966,195 tourists per month). Thus, the results of phase one analysis allow us to answer the first of the research questions stated in the introduction. The SARS-CoV-2 pandemic, through the first lockdown and because of the fear of a previously unknown virus, caused a significant decrease in the number of domestic tourists in Poland in the first half of 2020, not only referring to 2019, which was reported by Statistics Poland, but also in relation to 2018.

Table 2. ANOVA test results for data from the first half of 2020

F	P-value
3.474	0.0085

Source: own elaboration

Table 3. Results of tests verifying the ANOVA assumptions for data from the first half of 2020

Assumption	Test	Distribution	Statistics	P-value
Normality	Jarque-Bera	$\chi^2$	1.8752	0.3916
Homogeneity of variance	Bartlett	$K^2$	5.5064	0.4807

Source: own elaboration

Table 4. Tukey's test results for data from the first half of 2020

	2020	2019	2018	2017	2016	2015
2019	-1,096,160.50					
	0.0068					
2018	-966,195.80	129,964.70				
	0.0230	0.9992				
2017	-849,886.70	246,273.80	116,309.20			
	0.0627	0.9736	0.9996			
2016	-660,720.30	435,440.20	305,475.50	189,166.30		
	0.2480	0.7124	0.9273	0.9932		
2015	-549,925.30	546,235.20	416,270.50	299,961.30	110,795.00	
	0.4568	0.4648	0.7523	0.9330	0.9997	
2014	-428,581.30	667,579.20	537,614.50	421,305.30	232,139.00	121,344.00
	0.7269	0.2375	0.4838	0.7420	0.9804	0.9994

Source: own elaboration

## 4.2. Phase II

In the next phase of the research, the set of observations was extended to include data from July and August. As it was summer holiday in Poland, the government lifted the previously introduced restrictions and additionally encouraged citizens to travel by offering a *tourist voucher*. Success of that strategy was confirmed by the results of the analysis of variance, included in Table 5. Assuming a significance level of 5%, we have no grounds to reject the null hypothesis of the equality of means in the compared years ( $p$ -value = 0.0641). The results of the verification of ANOVA assumptions are presented in Table 6. This means that after the collapse of tourism in the first half of 2020, two months of increased domestic tourist movement resulted in a significant improvement in the situation of tourism in Poland. Taking into account the two additional months, the average monthly number of domestic tourists for 2020 did not differ statistically from other analysed years. Moreover, tourists were not discouraged by the day-to-day increase in the number of coronavirus cases in August (a total of 21,684 cases of the disease in August, more than twice as many as in April – 10,566, when tourist movement practically stopped). This confirms the author's assumptions that the main reason for the decline in tourist movement was not only fear but the inability to travel due to restrictions and the government's guidelines.

Table 5. ANOVA test results for data including July and August 2020

F	P-value
2.15	0.0641

Source: own elaboration

Table 6. Results of tests verifying the ANOVA assumptions for data including July and August 2020

Assumption	Test	Distribution	Statistics	P-value
Normality	Jarque-Bera	$\chi^2$	1.8752	0.3916
Homogeneity of variance	Bartlett	$K^2$	5.5064	0.4807

Source: own elaboration

### 4.3. Phase III

The summer period, which filled the tourist industry with slight optimism, had to give way to autumn when the second wave of the coronavirus pandemic reached Poland. The increasing number of positive cases (at the time record-breaking 1,587 cases reported on 25<sup>th</sup> September, 2020), the change of the Minister of Health, and thus the strategy of fighting the pandemic, influenced Polish society. Tourism started to collapse again, as shown in Figure 1. This is also confirmed by the ANOVA result (Table 7) for the sample with data from January to September (p-value < 5%). The test assumptions were verified on the basis of the results presented in Table 8. This time, Tukey’s test (Table 9) shows a significant difference in the comparison only for the pair of 2019 and 2020 (in phase one, significant differences were observed in two pairs: 2019/2020 and 2018/2020). The beginnings of the second wave of the pandemic, despite the monthly number of COVID-19 cases exceeding 20,000 since August, did not bring such a drastic decline in tourist movement as it was the case during the first spring wave. The reasons for that outcome can be seen in the restrictions and the government’s policy again (this time not as drastic as in April, as it did not take into account the travel ban).

Table 7. ANOVA test results for data including September 2020

F	P-value
2.617	0.0262

Source: own elaboration

Table 8. Results of tests verifying the ANOVA assumptions for data including September 2020

Assumption	Test	Distribution	Statistics	P-value
Normality	Jarque-Bera	$\chi^2$	1.8752	0.3916
Homogeneity of variance	Bartlett	$K^2$	5.5064	0.4807

Source: own elaboration

Table 9. Tukey's test results for data including September 2020

	2020	2019	2018	2017	2016	2015
2019	-951,387.00					
	0.0385					
2018	-829,082.90	122,304.10				
	0.1042	0.9996				
2017	-688,972.10	262,414.90	140,110.80			
	0.2682	0.9754	0.9992			
2016	-491,197.60	460,189.40	337,885.30	197,774.60		
	0.6634	0.7271	0.9187	0.9944		
2015	-349,007.80	602,379.20	480,075.10	339,964.30	142,189.80	
	0.9063	0.4262	0.6866	0.9165	0.9991	
2014	-197,187.70	754,199.30	631,895.20	491,784.40	294,009.90	151,820.10
	0.9945	0.1777	0.3681	0.6621	0.9571	0.9987

Source: own elaboration

## 5. Discussion and conclusions

Taking into consideration the results of the analysis, it has been clearly confirmed that the SARS-CoV-2 virus pandemic has had a major impact on the tourism industry. The collapse of this branch of economy in the spring months (March, April and May) led to statistically significant differences in the number of domestic tourists not only in relation to 2019 but also to 2018. The main reasons for such ratings should not be seen in the fear of the unknown virus but in the restrictions (previously noted by Gössling et al.) and the government's policy and guidelines (already highlighted in Yeh's work). This is confirmed by the results of the other two phases of this study. Despite the number of new COVID-19 cases in Poland being twice as high in August as in April, the number of Poles travelling around the country significantly increased. A reasonable explanation for this situation could be only the lifting of restrictions and the government's assurance that the situation was under control, along with the *tourist voucher* as an incentive to travel. The same conclusions confirm the results for phase three. The change in the government's strategy, the reintroduction of restrictions, although weakened, as well as the information about the coronavirus return resulted in a statistically significant drop

in the number of Polish domestic travellers. However, the differences were not as big as those observed in the first half of the year.

This paper fills the previously identified research gap regarding Polish domestic tourism during the pandemic, not only for large cities, which rely mainly on foreign tourists. It also opens up an opportunity to revise the topic once the data for the last three months of 2020 are available. The number of COVID-19 cases increased at the end of the year. In October, the proportion of positive coronavirus tests averaged 18%, rising to 40.5% in November. According to Statistics Poland, the highest percentage of positive SARS-CoV-2 tests (59%) was recorded on 16<sup>th</sup> November, 2020.<sup>4</sup> This allows us to assume that the crisis in the tourism industry will only deepen, especially taking into account the restrictions on accommodation establishments. As already mentioned by Hall et al. as well as Prideaux et al., only a vaccine is a real chance for tourism, as its rollout will lead to the lifting of the current restrictions and will result in changing the government's policy regarding travel.

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## Polska turystyka krajowa w obliczu pandemii SARS-CoV-2

**Streszczenie:** Artykuł skupia się na tematyce rynku turystycznego w obliczu pandemii SARS-CoV-2. Jego celem jest zweryfikowanie, czy polska turystyka w tym okresie faktycznie odnotowała tak znaczący spadek zainteresowania. Badania oparte są na danych wtórnych pochodzących z raportów Głównego Urzędu Statystycznego, dotyczących wykorzystania baz noclegowych w Polsce zarówno przez Polaków, jak i turystów zagranicznych. Usługi noclegowe oferowane przez bazy noclegowe stanowią jedną z podstawowych usług turystycznych wchodzących w skład rynku turystycznego. Zweryfikowanie, jak wyglądała ich sytuacja w okresie wakacyjnym 2020, jest więc jedną z najprostszyc możliwości oszacowania wpływu pandemii na rynek turystyki w Polsce. Praca obejmuje również porównanie danych dotyczących polskich turystów w 2020 roku w odniesieniu do lat ubiegłych. Badania przeprowadzono na podstawie analizy wariancji ANOVA.

**Słowa kluczowe:** turystyka, sektory gospodarcze, COVID-19, SARS-CoV-2, pandemia

**JEL:** Z31, Z32, Z39, L83

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	<p>Received: 2021-02-17; verified: 2021-05-23. Accepted: 2021-06-30</p>
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