



**ISCTBL 2022**  
INTERNATIONAL SCIENTIFIC CONFERENCE

Универзитет „Гоце Делчев“ –  
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Факултет за туризам и бизнис  
логистика

Faculty of Tourism and  
Business Logistics

**Петта Меѓународна Научна Конференција  
Fifth International Scientific Conference**

**ПРЕДИЗВИЦИТЕ ВО ТУРИЗМОТ И БИЗНИС  
ЛОГИСТИКАТА ВО 21 ВЕК  
CHALLENGES OF TOURISM AND BUSINESS  
LOGISTICS IN THE 21ST CENTURY**

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## PANEL SESSION

### **Challenges and implications of COVID-19: reducing disparities and addressing distributional impacts in different sectors**

Session chair: Tatjana Boshkov, Assoc.professor and Dean at Faculty of tourism and business logistics, „Goce Delcev University – Stip, N. Macedonia

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6. Prof. Dr. Kemal Cebeci, Marmara University, Faculty of Economics, Department of Public Finance, Director of MIRDEC, Istanbul, Turkey
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10. Prof. Dr. Kanita Imamović-Čizmić, Ph.D., Department of Legal and Economic Sciences, University of Sarajevo-Faculty of Law, BiH
11. Prof. Dr. Slagjana Stojanovska, Ph.D., Integrated Business Faculty, Skopje, Republic of N. Macedonia
12. Prof. Dr. Slavi Dimitrov Ph.D., Department of Tourism, Deputy Dean of the Faculty of Economics, "St. Cyril and Methodius" University of Veliko Tarnovo, Bulgaria
13. Dr. Žarko Rađenović, Research Associate, University of NišInnovation Center, Serbia
14. Prof. Dr. Boban Melovic, Ph.D., Vice-Dean for international cooperation, Faculty of Economics Podgorica, University of Montenegro

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##### **First session: Business logistics and business administration**

Natasha Miteva, PhD, Vice-Dean for Education, Faculty of Tourism and Business Logistics, Goce Delcev University – Stip, N. Macedonia

##### **Second session: Tourism, hospitality and gastronomy**

Natasha Miteva, PhD, Vice-Dean for Education, Faculty of Tourism and Business Logistics, Goce Delcev University – Stip, N. Macedonia





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**ФАКУЛТЕТ ЗА ТУРИЗАМ И БИЗНИС ЛОГИСТИКА**  
**FACULTY OF TOURISM AND BUSINESS LOGISTICS**

**ПЕТТА МЕЃУНАРОДНА**  
**НАУЧНА КОНФЕРЕНЦИЈА**

**FIFTH INTERNATIONAL**  
**SCIENTIFIC CONFERENCE**

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30 април, 2022, Штип / Shtip, April 30<sup>th</sup>, 2022

## COPING WITH SEASONALITY: EXPLORATORY STUDY OF TOURISM IN OHRID

**Biljana Petrevska**

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### Abstract

Seasonality has been identified as one of the most important influencing factors in tourism development. The presence of seasonality is empirically tested in this study by elaborating Ohrid as the most well-known summer tourism destination in North Macedonia. Standard indicators such as the Gini index, the Seasonality Indicator, and the Coefficient of Variation are computed. The calculated values for two variables, the total number of tourists and the number of foreign tourists that visited Ohrid on a monthly basis from 2000 to 2021, are compared in depth. When the overall number of tourists was investigated, the study found considerable and strong fluctuations within a year with important features and the presence of robust tourism seasonality. On the other hand, international tourism demand is quite stable, with only minor fluctuations over the course of a year, indicating a weak tourism concentration. Based on an in-depth comparative analysis, Ohrid is a 'four-season' attraction for foreigners but not for domestic visitors. As a result, the study outlines the importance of establishing new strategies for attracting domestic tourists, thus shifting their perception from summer to innovative destination. Finally, a discussion is open for creating new image to reposition Ohrid in an overall destination with no seasonality.

***Key words:*** *Tourism demand, Foreign tourists, Gini index, Seasonality Indicator, Coefficient of Variation.*

### Introduction

Seasonality, or the variability caused by the seasons, is one of tourism's distinguishing qualities. Due to its severe negative consequences and huge worries among tourism managers and policymakers, it is frequently identified as one of its most unwelcome companions. Seasonality is strongly linked to tourism development since it is defined as a trend that is related to the concentration of tourism flows in a specific time-segment. Such focus for a short period of time causes several limits in the social and physical surroundings, as well as inefficiencies (Getz & Nilsson, 2004; Mitchell & Murphy, 1991). The tourist-led growth theory, on the other hand, claims that tourism may both encourage and cause long-term economic growth (Brida et al, 2010). Furthermore, it promotes tourist planning as a significant problem for each national government (Brida et al, 2011), because they see tourism as a driver for economic growth, implying active engagement in the tourism business (Cheang, 2009). Due to the fact that tourism is driven by demand, it's possible that tourism demand can help with in-depth research of tourist flows. This is extremely useful in the decision-making process and the formulation of tourist strategies (Claveria & Datzira, 2009). As a result, there is widespread recognition of the necessity to investigate and understand the nature of seasonality in order to develop suitable tourist policy and strategy.

The study aims to conduct an in-depth investigation in order to determine whether or not seasonal tourism tendencies exist. Furthermore, it calculates and compares the strengths and dynamics of tourism seasonality in both domestic and international tourism demand. The intention is to identify possible distinctions as a starting point for developing new, tailored methods for attracting domestic vs international tourists. Ohrid is presented as a good example of a well-known summer tourism resort in North Macedonia. The paper is structured in several sections. Following the introduction, a brief literature review addressing the problem of seasonality is offered. As a background material, the growth of Ohrid's tourism is discussed. In the next section, the research design, which includes the methodology, is presented, followed by the key findings and discussion. Conclusion remarks are noted in last section with a warning to tourism's main actors to work on policies and initiatives aimed at changing seasonality patterns in overall tourism demand.

### **Literature review**

Seasonality in tourism, according to a significant body of literature, has to be studied in depth in order to be understood and measured. It is described as a consistent, although not necessarily regular, intra-year movement in economic time series that is typically induced by non-economic factors such as climate variations and religious holiday timing (Thomas & Wallis, 1971). The issue of seasonality in tourism is thoroughly investigated, with both negative and positive consequences discussed. According to academic consensus, seasonality is generated by a transient imbalance in tourism flows driven by several causes (BarOn, 1993 and 1999; Baum, 1999; Baum & Lundtorp, 2001; Butler, 1994; Chung, 2009; Higham & Hinch, 2002; Jang, 2004; Koenig & Bischoff, 2004; Lundtorp, 2001; Rodrigues & Gouveia, 2004; Yacoumis, 1980).

Furthermore, seasonality as systematic fluctuations can occur not just over the course of a year or a semester, but also over the course of a month, a week, or even a single day (Holloway, 1994; Lundberg et al, 1995). In this vein, it is widely acknowledged that seasonality has far more negative consequences on tourism development, which are frequently uncontrollable (Allcock, 1989; Edgell, 1990; Laws, 1991; Snepenger et al, 1990; Szivas et al, 2003). The negative effects in this regard include: Employment (part-time employment, social instability and insecurity, and so forth); Investments (high risks exceeding the law occupancy rate); and Environment (pollution, overcrowding, xenophobia, criminal activity etc.).

Thankfully to numerous approaches for recognizing seasonality, it is now possible to identify and implement actions and activities to cope with and overcome unfavorable tourism impacts. Academicians list the following as the most regularly used methods: extending the season by introducing new tourism products that are not seasonal; using a positive pricing policy; increasing business tourism, and so on (Nadal et al, 2004; Sutcliffe and Sinclair, 1980; Witt et al, 1991). Aside from the vast list of detrimental consequences of seasonal patterns on tourism growth, there is evidence to suggest that seasonality may also have benefits. This is especially true in the fields of sociology and ecology. Specifically, following a severe high season, a long and quiet interval is much needed, particularly for the recovery of the sources and the residents (Butler, 1994; Drakatos, 1987; Grant et al, 1997; Hartmann, 1986).

### **Case study Ohrid (North Macedonia)**

Ohrid (North Macedonia) is a historic city with a population of about 52,000 people and is the most well-known tourist attraction in the country. It is one of Europe's oldest human settlements, and it has been dubbed "Jerusalem of the Balkans" because of its 365 churches (Vankovska and Wiberg, 2003; Petrovski and Talevski, 2004). The Lake Ohrid region has been designated as a transboundary mixed World heritage site due to its natural exceptional value as well as its cultural and historical area (UNESCO, 1979, 1980).

Ohrid's historical heritage and natural resources, as well as its gastronomy and cultural events, have all contributed to the city's tourism demand throughout the years. Ohrid accounted for almost one-third of all tourist arrivals (204,940) and 21% of all international visitors (62,830) in the country in 2021 (State Statistical Office of the Republic of North Macedonia, on-line data).

Table 1 gives some stylised information about tourism data for Ohrid for the period 2000-2021. With the exception of 2001 (Macedonian war conflict), stagnation in 2010 (World economic crisis), and 2020 and 2021(COVID pandemic), there is a clear increasing tendency throughout the sample. Domestic visitors dominated international tourists until 2013, when the balance shifted due to government policies and subsidies aimed at boosting and increasing inbound tourism. Foreign visitors accounted for 60% of overall tourism arrivals in 2019, right before the COVID outbreak.

Table 1. Tourism arrivals in Ohrid, 2000-2021

Year	Total tourists	Foreign tourists
2000	209,828	56,318
2001	97,757	11,499
2002	163,428	25,517
2003	175,810	39,390
2004	152,174	37,522
2005	165,965	49,564
2006	167,394	52,640
2007	181,310	57,456
2008	202,104	61,683
2009	189,699	67,441
2010	165,109	59,896
2011	178,277	75,547
2012	183,335	83,485
2013	191,504	100,109
2014	197,196	109,078
2015	219,944	125,468
2016	234,361	127,010
2017	275,613	160,588
2018	296,046	178,312
2019	322,573	191,930
2020	142,826	13,772
2021	204,940	62,830
Average	196,236	79,412

Source: State Statistical Office of the Republic of North Macedonia (on-line database)

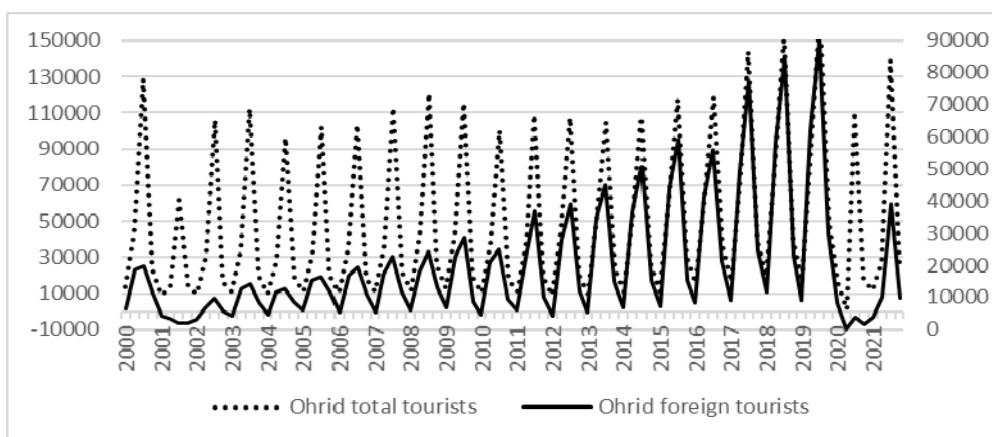


Figure 1. Quarterly distribution of flows for Ohrid, total and foreign tourists, 2000-2021  
 Source: State Statistical Office of the Republic of North Macedonia (on-line database)

Figure 1 shows the total number of tourists and international tourists who visited Ohrid from 2000 to 2021 divided by quarters. Quarter 3 (which includes the summer months of July, August, and September) appears to have the highest number of visits, both total and foreign. As a result, it symbolizes the high season. This might be explained by the fact that tourism demand is at its peak in Quarter 3 due to a number of variables. In particular, during these months, the use of vacations and ferries is at its peak (institutional factor), the weather is bright and sunny (natural element), and visitors' personal tastes and attitudes are on display (other factors).

In general, Ohrid has a typical profile as a summer destination, with tourism serving as the primary source of revenue for the local economy. This causes a slew of issues, particularly during the high season (July-September), when Ohrid's physical and social carrying capacity hits a breaking point (Petrevska and Collins-Kreiner, 2017 and 2019; Ohrid SOS, 2019). So, tourism-based economy supported by seasonality patterns (Petrevska and Nikolovski, 2018; Petrevska, 2013 and 2015) put Ohrid to anthropogenic pressure particularly in terms of heavy traffic, congestion, and costal exploitation (UNESCO, 2019).

### Methodology

The study is based on the computation of several commonly used statistical indicators, from which a single yearly estimate of seasonality's extent is generated. This is done in order to determine whether or not counter-seasonal policies should be implemented and from which approach. The Gini index (G), the Seasonality Indicator (SI), and the Coefficient of Variation (CV) are used to calculate the seasonal concentration of tourism demand. Values are calculated for two main variables, the total number of tourists and the number of foreign tourists that visited Ohrid on a monthly basis during 2000-2021. The data is provided by a secondary source, in this case from the on-line data base of the State Statistical Office of the Republic of North Macedonia.

The Gini coefficient is frequently used to describe seasonality in the tourism industry (Arnold, 2008; Bigovic, 2012; Black, 2002; Fernández-Moralez, 2003, Fernández-Moralez & Mayorga-Toledano, 2008; Grabler, 1997; Lee, 1996; Lee & Kang, 1998; Lim & McAleer, 2008; Nadal et al, 2004; Sutcliffe & Sinclair, 1980; Wöber, 1997; Yacoumis, 1980). Various methods for determining G have been identified in this regard (Xu, 2003). Its value ranges from 0 to 1, with higher G indicating greater disparity, such as seasonality in tourism, and lower G indicating greater inequity. The G may be 0 only if all 12 data are the same, indicating that the distribution is equal throughout the year. On the other hand, the maximum value of G to be 1 can only be obtained if 11 data are 0 and just one data (month) is nonu-null. This study uses a common equation to determine G on an annual basis (Eq. 1).

$$G = 2/n \sum_{i=1}^{n-1} (x_i - y_i) = 2/n[(x_1 - y_1) + (x_2 - y_2) + \dots + (x_n - y_n)] = 2/n[\sum_{i=1}^{n-1} x_i - \sum_{i=1}^{n-1} y_i] \quad (1)$$

Whereas:

$n$  denotes number of months;

$x_i$  denotes rank of the months (1/12, 2/12, ..., 12/12); and

$y_i$  denotes cumulative relative frequency of tourist arrivals in rank by ascending order.

The Seasonal Indicator is a new way to quantify experimentally observed tourist seasonality tendencies. It is usually calculated as the inverse of the Seasonality Ratio (Wanhill, 1980; Yacoumis, 1980). Its value spans from 1/12 to 1, with a higher SI indicating a lack of variability throughout the year, i.e. seasonality in tourism, and a lower SI indicating the opposite. The SI is derived using a conventional equation in this study (Eq. 2).

$$SI = \frac{y_0}{y_n} \quad (2)$$

Whereas:

$y_0$  denotes the average number of tourist arrivals per year; and

$y_n$  denotes the highest number of tourist arrivals in the particular year.

The Coefficient of Variation illustrates how visitor numbers fluctuate throughout the year. Furthermore, it expresses each series' dispersion about its yearly mean as a percentage of that mean. This metric is especially useful for analyzing dispersion between data sets with differing standard deviations and averages. It may accept any number of values, starting with zero. When the value is low, the distribution is considerably more homogeneous, and the average is much more representative. Despite the ease with which it may be calculated, it may be difficult to interpret the findings correctly (Donatos & Zairis, 1991; Drakatos, 1987; Lundtorp, 2001; Yacoumis, 1980). The CV is calculated using a conventional equation (Eq. 3).

$$CV = \frac{s}{\bar{y}} \quad (3)$$

Whereas:

$s$  denotes the standard deviation; and

$\bar{y}$  denotes the mean of the observations in the particular year.

### Results, analysis, and discussion

Table 2 shows statistics on the seasonality of overall and international tourism demand for the case of Ohrid. It is interesting to see how the results alter when examining the existence of seasonality in both total and international demand.

G values for total tourism demand ranged from 0.4067 to 0.6116, with an average value of 0.4846 over the studied period 2000-2021. It is worth noting that the computations relating to the G index are nearly identical (with the exception of 2020 and 2021 due to the COVID-pandemic). Even more, the computed values are nearly constant, with little changes, and are extremely close to the margin of 0.5, implying a high level of seasonality. Furthermore, the high G values indicate that Ohrid's existing distribution of total tourism demand is significant. The concentration of total tourist arrivals points to a strong imbalance and large disparity, indicating a high tourism seasonality with distinct features. As a result, the high peaks in the third quarter, particularly in July and August, have the ability and strength to have substantial, in-depth effect. The estimated values for SI for total demand vary from 0.2071 to 0.4129, with an average of 0.3151. The computed values are relatively close to zero, indicating that there is a lot of variation within a year and that overall tourism has a significant seasonality. Finally, the estimated CV values

ranged from 77% to 145.8%, with an average of 104.8%, meaning that the standard deviation is greater than the mean value. A high CV indicates a high amount of dispersion.

Table 2. Summarized seasonality data for Ohrid, total and foreign tourists, 2000-2021

Year	G		SI		CV	
	Total	Foreign	Total	Foreign	Total	Foreign
2000	0.4958	0.2638	0.2973	0.5972	110.9	47.0
2001	0.5003	0.2662	0.2419	0.5700	124.5	40.3
2002	0.5419	0.2636	0.2557	0.5440	125.9	46.7
2003	0.5126	0.2513	0.2815	0.6153	118.3	45.8
2004	0.5101	0.2703	0.2754	0.6172	117.9	44.8
2005	0.4926	0.2726	0.2748	0.6434	112.9	44.4
2006	0.5014	0.2636	0.2862	0.6282	112.5	46.9
2007	0.5026	0.2952	0.2780	0.5758	114.1	50.2
2008	0.4958	0.3186	0.3115	0.5031	108.0	55.1
2009	0.4997	0.3607	0.3037	0.4915	109.9	64.7
2010	0.4888	0.3550	0.3117	0.5147	107.0	61.6
2011	0.4892	0.3919	0.3094	0.4630	104.3	71.9
2012	0.4841	0.3831	0.3380	0.5046	98.3	72.7
2013	0.4747	0.3878	0.3501	0.5127	93.1	74.2
2014	0.4454	0.3781	0.3701	0.4856	86.5	73.3
2015	0.4446	0.3963	0.3594	0.4647	86.0	75.6
2016	0.4015	0.3634	0.4129	0.5432	77.0	66.3
2017	0.4225	0.3832	0.3983	0.4854	80.0	70.9
2018	0.4097	0.3840	0.3923	0.4741	79.0	71.3
2019	0.4067	0.3739	0.4092	0.5129	77.4	70.5
2020	0.6116	0.5096	0.2071	0.2821	145.8	107.0
2021	0.5306	0.4828	0.2680	0.3149	116.1	98.1
Average	0.4846	0.3461	0.3151	0.5156	104.8	63.6

Source: Author's calculations

The same basic statistical indicators are calculated when analyzing the presence and dynamics of seasonality patterns in international tourism demand. With an average value of 0.3461 for the sampled period 2000-2021, the G coefficient ranges from 0.2513 to 0.5096 (for 2020, which may be disregarded as non-representative owing to COVID-pandemic safety travel limitations). According to the statistics, the intra-year monthly changes in foreign visitor arrivals remain steady during a 22-year period. The presence of very moderate seasonality may be inferred from the fact that estimates relating to G are below the margin of 0.5. If we omit the years when the COVID pandemic was very severe, the average G value is 0.3311. Such a low value demonstrates that Ohrid is unconcerned about the existing distribution of international tourism demand. The relative balance and equality in terms of international visitor arrivals may be seen. As a result, when it comes to international tourism development, the high peaks in July and August lack the capacity and strength to make a significant impact. This implies a conclusion that foreign visitors to Ohrid are not primarily interested in it as summer destination with favorable weather conditions, which means the city has the potential to develop as a "four-season" attraction.

The second metric was computed. SI calculated values ranging from 0.2821 to 0.6172, with a mean of 0.5156. Because all computed data is much above zero, one may claim that minor

fluctuations within a year indicating a fragile tourism concentration. The CV, which quantitatively assesses the stability of international tourism demand distribution, is the last indicator. With an average of 63.6%, it ranges from 40.3% (low owing to the war conflict in North Macedonia in 2001) to 107% (very high due to COVID-pandemics in 2020). The numbers are higher than the threshold of 35-40%, indicating a non-homogeneous distribution and implying that the average is no longer representative.

All computed data show that international tourism demand is quite consistent over the course of a year, with only slight changes, resulting in low international tourism concentration. This suggests that Ohrid might be marketed as a destination for all seasons resistant to seasonality.

### Conclusion

By evaluating seasonality from different approaches, the study illustrates its dynamics for Ohrid as the same most visited summer resort in North Macedonia.

When looking at total tourism demand, there are significant fluctuations within a year and a considerable tourism seasonality. When examining international tourist demand, however, weak tourism concentration with minor fluctuations over the course of a year is identified. These findings highlight the need of developing different models for attracting both domestic and international tourists. Domestic tourists will, without a doubt, continue to be drawn to the Lake Ohrid and sunny weather as primary attractions. As a result, their personal preferences will always project an image of Ohrid as a summer destination. Therefore, marketers and tourism policy makers may create new strategies for offering Ohrid as an innovative destination. On the other hand, Ohrid is promoted to international visitors as a "four-season" attraction, which is the only way out of its transformation into a resilient destination with zero seasonality.

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