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Abstract: Seasonality, meaning that the vast majority of tourist locations do not distribute arrivals evenly throughout the year, in tourism, it is widely regarded as one of the most crucial problems for the majority of the world's destinations, particularly in terms of sustainability. Nevertheless, despite its importance and that this unbalanced nature has become one of tourism's most distinguishing characteristics, we can say that no globally comparable international measurement of seasonality is currently available. Based on the above-mentioned phenomena, the main objective of the present study and research is to detect and analyse the tourism seasonality of a case study area, the Sopron-Fertő destination (Hungary), using multiple methodologies such as the Gini index, a representative consumer questionnaire and expert interviews. The analysis demonstrates seasonality in tourism demand between 2008–2021, based on which implications on product development and new directions and challenges, influenced by the most recent impacts of the COVID-19 pandemic, are revealed and suggested.

Keywords: seasonality analysis, Gini index, COVID-19, tourism impacts, consumer behaviour survey, Sopron-Fertő destination, Hungary

Absztrakt: A szezonális évtizedek óta a turizmus kutatás és gyakorlat egyik legfelkapottabb témaköréhez tartozik. Ennek következtében a turizmusfejlesztés egyik általános célkitűzése a szezonális csökkentése, amelynek során a desztináció attrakcióit úgy igyekeznek menedzselni, hogy azok látogatottsága és kihasználtsága a nem kiemelt időszakokban a lehető legközelebb kerüljön a kiemelt időszakok látogatottsági értékeihez. Jelen tanulmány és kutatás fő célja, változatos módszertani eszköztár alkalmazásával, a Sopron-Fertő desztináció turisztikai szezonális elemzése, különös tekintettel a legfrissebb változásokra. Az elemzés rávilágít a turisztikai kínálatban fellépő szezonális jelentőségére csakúgy, mint a fellépő fogyasztói magatartás változásaira. Fentiek és a COVID-19 világjárvány komplex hatásai alapján a tanulmány új irányok és kihívások feltárásával a termékfejlesztés terén fogalmaz meg szakmai javaslatokat.

Kulcsszavak: szezonális elemzés, Gini-index, COVID-19, turisztikai hatások, fogyasztói magatartás felmérés, Sopron-Fertő desztináció, Magyarország

Highlights

- Seasonality is a characteristic issue of tourism development in the majority of destinations
- The case study area is the Sopron-Fertő destination (Hungary)
- Seasonality is revealed mainly with the help of the Gini index
- Special emphasis is given to the COVID-19 pandemic and its effects
- Implications on product development and new challenges are revealed

1. Introduction

Seasonality is a fundamental characteristic of tourism for most destinations, as well as a tool demonstrating the availability of natural and man-made attractions to consumers over time (BarOn, 1975, Marton et al. 2019). In the context of this study, we can distinguish between single-season (e.g., Lake Balaton, Hungary) and dual-season (e.g., the Alps) destinations – where pre-, post- and low-season can be identified throughout the year – and, in rare cases, 'non-seasonal' destinations (e.g., the Caribbean) as well. Obviously, one of the general objectives of tourism development is to reduce seasonality, whereby destination attractions are managed in such a way that their visitation and use in non-preferred periods

is as close as possible to the volume of priority periods (Duro & Turrión-Pratts, 2019). An extreme method of this process is the development of a "four-season" offer, where – any certain level of – seasonality will not completely disappear, but the off-season is essentially eliminated (Butler, 1994).

The professional basis for investments and developments designed to reduce seasonality can be provided by quantitative analyses that can detect in an exact way the variation in tourist flows and their characteristic processes within the year. Such methods include mathematical disproportionalities in the season parameters identified by distribution functions since they identify the specific distribution of monthly flows (Fernández-Morales et al. 2016).

As the most important impact of the recent period, the COVID pandemic has had a significant regional and global influence on tourism from 2020 onwards, as well as on different sectors of the economy. In the case of tourism, its characteristics made it highly sensitive to the pandemic, as the sector is generally exposed to time constraints. The whole tourism sector was deformed at global, regional and local levels by the continuous opening-closing provisions, which not only affected the availability of attractions and services but also the macro- and micro-management of individual products (Lau & Koo, 2022). In everyday practice, this meant that consumer behaviour was significantly transformed in time and space due to the constraints, resulting in over-, under- or delayed consumption. Another consequence was that the profitability of certain products declined drastically, as they were static and could not dynamically adapt to changes (Sulyok & Mester, 2014).

Based on the above-mentioned, the following research question has been set: How has the COVID 19 pandemic affected seasonality in the case study area and how it will influence the near future of tourism demand and supply in the Sopron-Fertő destination? Therefore, the objective of the present paper is to investigate all the recent mechanisms of seasonality in a complex approach on a case study area, the Sopron-Fertő tourism region, Hungary. We chose this target area for our case study-based analysis because it is a well-developed region in Hungary, both economically and in terms of tourism, with a poly-profile product structure (Barcza, 2020). Therefore, we set ourselves the sub-objective of firstly analysing seasonality in general from 2008 to 2021, then focusing on the impact of the opening-closing processes of the pandemics on seasonality and the related changes in consumer behaviour patterns, together with their impact on the functioning of tourism at the product level in the region.

2. Theoretical background

Seasonality, meaning that the vast majority of tourist locations do not distribute arrivals evenly throughout the year, in tourism it is widely regarded as one of the most crucial problems for the majority of the world's destinations, particularly in terms of sustainability (Duro & Turrión-Pratts, 2020, Marton et al. 2019, Csapó & Trócsányi, 2007). Nevertheless, despite its importance and that this unbalanced nature has become one of tourism's most distinguishing characteristics, we can say that no globally comparable international measurement of seasonality is currently available (Caldeira & Kastenholz, 2020, Duro & Turrión-Pratts, 2019).

The initial research of this complex phenomenon can be dated back to the 1970s when Bar On, R.V. (1975) first used the seasonality range and the seasonality ratio, which are based on the seasonal indices (as percentages) derived from a multiplicative (monthly) model (Coshall et al. 2015). Later researchers of this topic connected the survey of seasonality to the northern, periphery regions focusing on seasonal patterns of tourism arrivals from different regions and countries (Hartmann, 1986; Snepenger et al. 1990, Butler, 1994, 2001, Flognfeldt, 2001, Baum & Lundtorp, 2001), but we can detect analyses of the Mediterranean region's demand anomalies as well (Sutcliffe & Sinclair, 1980; Donatos & Zairis, 1991). The impacts and measure of seasonality were surveyed first at the beginning of the 1990s (Hylleberg, 1992) and this topic became more popular in the 2000s. Although Lundtorp, S. (2001) started to illustrate several methods for measuring seasonality, this calculation of the periodical flow of tourists remained fashionable for researchers who also adapted the Gini Coefficient as a tool for tracing the temporal changes of the demand (Lee et al. 2008, Bigović, 2011, Cisneros-Martínez & Fernandez-Morales, 2015, Fernández-Morales et al. 2016, Roselló & Sansó, 2017).

The theoretical review of Cannas (2012) related to tourism seasonality provides a thorough explanation of one of the most well-known problems of tourism mentioning that, according to Butler, R. W. (1994) seasonality is a temporal imbalance in the phenomenon of tourism, [which] may be expressed in terms of dimensions of such elements as numbers of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment, and admissions to attractions' (Cannas, 2012, 41 refers Butler 1994). On the other hand, Allcock, J. B. (1989) defines it as a concentrated tourism flow in a short period of the year which is a kind of physiological feature of tourism. Baum, T. (1999) describes seasonality as a problem, which should be tackled on different planning, marketing and operational levels. According to the definition of Hirschey et al. (1993) from an economic point of view, there is a rhythmical annual pattern of production, sales, consumption and profitability as indicators. Based on this idea, Frechling, D. C. (1996) appraises seasonality as the cyclical fluctuation of a longer period of time, as the subsequent change of the economic indicators. The general approach of Moore, T. W. (1989, 49) concludes this phenomenon as 'movements in a time series during a particular time of year that recur similarly each year'. Butler, R. W. (2001) argues that the complexity of seasonality pictures well that it has an effect on the whole of the elements of supply, such as marketing (packages, pricing, distribution), labour force market (quality labour force, abilities and their sustainability), finance, business (cash balance, pricing, attracting investments), the owner management (suppliers, mediators) and all the elements of the operation. Out of the comprehensive works dealing with the basic questions, consequences and measurability of seasonality, we can mention Baum, T. and Hagen, L. (1999) and Baum, T. and Lundtorp, S. (2001).

The most widely accepted definition for seasonality has also been provided by Butler (1994, p. 332) emphasizing that seasonality is a "temporal imbalance in the phenomenon of tourism, which may be expressed in terms of dimensions of such elements as a number of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment and admissions to attractions".

As for its major fields of research, a wide range of variables have been published with a focus mainly on natural (basically based on climate, seasons) and institutional causes (such as holidays, school year or cultural events, traditions) (Hartmann, 1986, Fernández-Morales et al. 2016). It is Butler (1994) again identifying five major reasons for seasonality such as 'climate, particularly seasonal variation, human decision factors, notably social, religious or cultural in origin, the sporting seasons, inertia and tradition'. Accepting the point of view of Koenig-Lewis and Bischoff (2005), the major areas for the research of seasonality are the definition of the phenomenon, its measurement methods, causes and impacts, the policy implications and finally consumer behaviour analysis.

According to the climatic definition, Hylleberg, S. (1992, 4) states that 'seasonality is the systematic, although not necessary regular, intra-year movement caused by changes in weather', moreover climate can result further significant alterations in certain destinations (Amengual, A. et al. 2014). Besides weather (temperature), Hylleberg, S. (1992) also mentions the calendar effect (holidays) and timing (school holidays) as the three most important reasons for seasonality indicating that out of them, we can find stable dates, holidays (Christmas), continuously changing, but predictable ones (Easter, Chinese Lunar New Year) and unpredictable ones (such as weather).

The institutionalised reason is more complex and less predictable than the natural one, since it is influenced by culture, religion, ethnic and social factors, the destination, the tourism product or the marketing activities. Butler, R. W. (2001) states that seasonality appears most of all as a problem in tourism which should be handled, however in some circumstances (such as in remote seasonal rural destinations), it can provide a favourable solution in employment, for instance (Flognfeldt, T. 2001). We can also mention among the institutionalised reasons the habits, traditions or the sports seasons so it is obvious that seasonality has been researched from the points of view of sport (Higham, J. and Hinch, T. D. 2002; Kiss, R. 2014) and recreational activities (Hartmann, R. 1986; Butler, R. W. 1994) as well. These researches are highlighting that the uneven distribution at the high season is one of the most convincing problems of recreation and tourism causing ineffectual source utilisation, potential profit loss, social-ecological capacity pressure and administrative difficulties (Manning, R. E. and Powers, L. 1984). The high-

level of tourist fluctuation results in a huge negative impact on the environment which has also been one of the key issues in recent seasonal tourism studies (Cisneros-Martínez, J. D., et al. 2018).

One of the most relied methods on measuring seasonality is provided by the Gini index (Lau & Koo, 2022, Marton et al. 2019) since it represents the seasonal inequalities of tourism flow with a quantitative method (Fernández-Morales, 2003, Bigović 2011, Sulyok & Mester 2014) quantifying the spatiotemporality of travel and tourism distribution (Lau & Koo, 2022). As one of the most recent results suggest, besides the eligibility for quantifying seasonality, the analysis allows destinations to be classified into groups based on the space-time trade-off, revealing insights about spatial concentrators as well as temporal 'sinks' or geographic dispersers that contribute to seasonal intensification (Lau & Koo, 2022).

As for the country of our case study, despite the fact that Hungary's tourism flow is concentrated both in space (Budapest and Lake Balaton) and time (summer peak season), there is only a limited amount of scientific literature dealing with seasonality. Accordingly, the first publication in this context has been published in 1987 dealing with the spatial analysis of trends in seasonality of guest flows in commercial accommodations (Herman, 1987).

The following works have been published only in the new millennium, when Sulyok and Kiss (2006) and most recently Formádi and Varga-Toldi (2020) started investigating seasonality in general in the country, whereas Sulyok and Mester (2014) concentrated on the seasonality of the turnover of commercial accommodations. Dávid and Tóth (2009) published a study on seasonality using the example of a Hungarian mountain range (the Mátra mountains), and Marton et al. (2001) and Marton et al. (2019) investigated thermal and spa tourism as a potential tool for season extension. The most recent publications covered researches on the seasonality of different Hungarian cities (Marton et al. 2017, Barcza et al. 2020) and Lake Balaton, the second most important destination of the country (Sulyok & Fehérvölgyi, 2017, Palasics & Hinek, 2018).

3. Delimitation and tourist profile of the study area

The Sopron-Fertő destination is part of the Western Transdanubia tourism region, belonging to the Transdanubia NUTS1 level region, and within this to the Western Transdanubia (NUTS2 level) Planning-Statistical Region. The region is one of the 11 tourist regions defined by the Hungarian Tourism Agency. The aim of the designation of these areas was to make the provision of tourism services more efficient, to create well communicable and delimitable reception areas, in line with the objectives of the National Tourism Development Strategy 2030 (NTS2030) – Tourism 2.0 strategy⁶.

During our research, we covered a total of 10 settlements (Fertőboz, Fertőd, Fertőhomok, Fertőrákos, Fertőszéplak, Hegykő, Hidegség, Nagycenk, Sarród, Sopron), but we would like to note that after the research was completed, the Hungarian Tourism Agency added 5 more settlements as well (Fertőszentmiklós, Fertőújlak, Röjtökmuzsaj, Simaság, Sopronhorpács) to the region (Figure 1). This, however, would not significantly alter our research results since the majority of the tourist demand is concentrated in Sopron (70%) and a considerable ratio in the mentioned original 10 settlements.

The delimitation is based on the geographical proximity, the common landscape history, the folk traditions and the traditional lifestyle and cultural landscape elements, allowing the creation of a homogeneous tourism product(s) and a near-homogeneous experience(s) (Barcza, 2020). However, it should be noted that in this homogeneity, the border between Hungary and Austria is an artificial dividing line. The destination has also been partially marketed from a tourism perspective in the context of the UNESCO World Heritage area, but there is still untapped potential (Barcza et al. 2020).

⁶ <https://mtu.gov.hu/cikkek/11-turisztikai-terseg-1914>

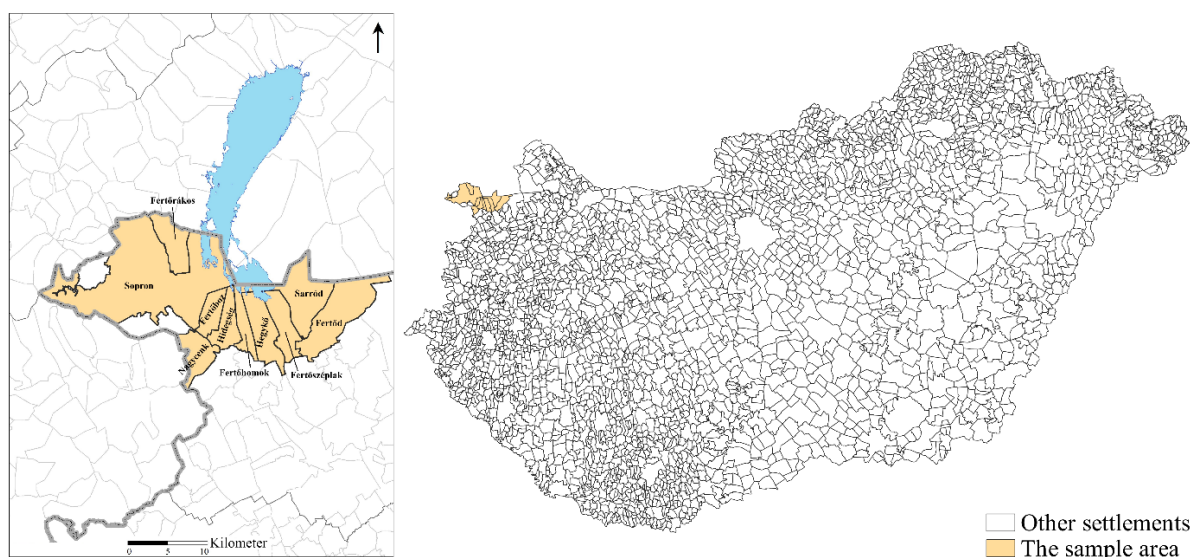


Fig 1. The sample area Ed. by Alpek, L. (2022).

The most important tourism products of the region are cultural tourism (urban tourism, castle tourism), followed by trips based on natural values and heritage (Lake Fertő, Fertő-Hanság National Park, Sopron Hills) and medical tourism (Sopron).

In terms of overnight stays, the most important foreign markets in the Sopron-Fertő region are Austria, Germany and Czechia. In terms of total number of overnight stays, the busiest settlements in the Sopron-Fertő region are Sopron, Hegykő, Fertőrákos, Röjtökmuzsaj, Fertőd, Sarród, Hidegség, Fertőszentmiklós, Fertőboz and Nagycenk⁷.

4. Methodology

Our study is based on a complex methodology, which has taken the authors step by step from analysis to conclusion. As a first step, the authors analysed the seasonality of the region and its variation using the Gini index which has been widely used to measure tourism seasonality, as it provides an indicator to represent seasonal inequalities in tourist flows (Fernandez-Morales, 2003, Nadal et al., 2004), Fernandez-Morales & Mayorga-Toledano, 2008, Bigović, 2011, Sulyok & Mester, 2014).

The Gini coefficient expresses the degree of inequality between the values of a frequency distribution. The distribution is represented by the average (or total) income of a country's population divided into deciles, for example, according to classical analysis. If the Gini coefficient calculated from the income distribution is zero, each decile has the same average income and is therefore perfectly equal. If the Gini coefficient is 1, then inequality is maximal, with only one decile having all the income. The higher the inequality, the higher the value of the Gini index (Gini, 1912).

The index can be calculated using the Lorenz curve representing the inequality (Figure 2). The value of the Gini index (G) is the ratio of the line of equality (the line 45°) to the area (A) enclosed by the Lorenz curve in relation to the area of the whole triangle (A+B), i.e., $G=A/(A+B)$ (Figure 2). Since we measure the distribution on both axes with values between 0 and 1, the area of the quadrilateral is 1 and the area of A+B is 0.5. Accordingly, $G=A/0.5$, rearranged to $G=2A$, i.e., the value of the Gini index is twice the area (A) enclosed by the line 45° and the Lorenz curve.

If the variable of interest is discrete rather than continuous (e.g., population divided into deciles is also a discrete variable), the area under the Lorenz curve can be approximated as the sum of the areas of the trapezoids fitting the curve, i.e., the approximate area B is the sum of the areas of the grey trapezoids a+b+c+d+e+f.

⁷ <https://mtu.gov.hu/cikkek/sopron-fert-turisztikai-terseg-1928>

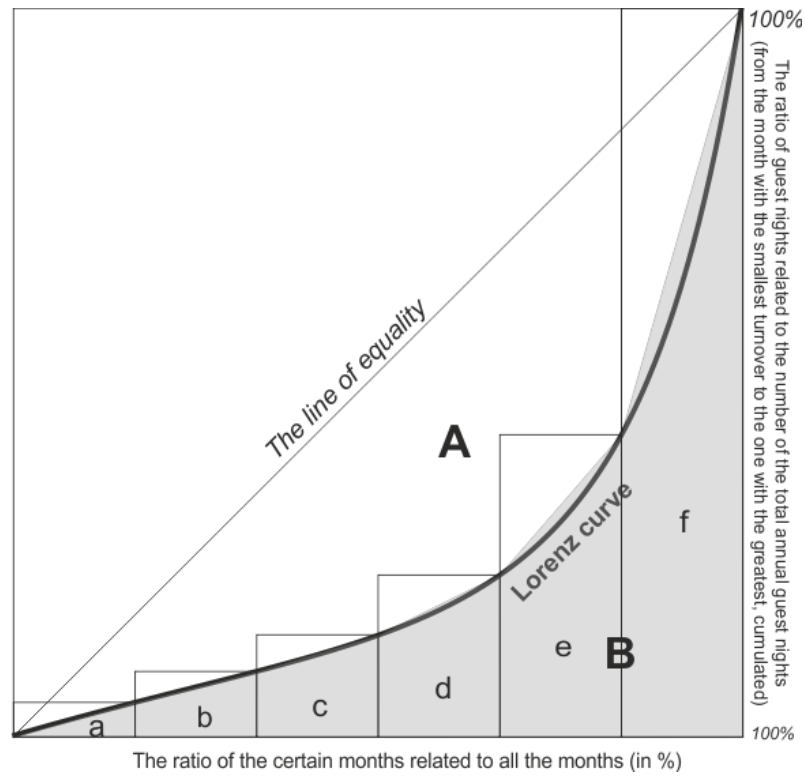


Fig 2. Estimation of the area under the Lorenz curve with trapezoids when the frequency variable is discrete. Source: own editing

For overnight stays, we estimate the disparity due to seasonality on the basis of 12 monthly series. We use the following formula to calculate the Gini index (Sulyok and Mester 2014):

$$G = 1 - \sum_{i=1}^{12} (X_i - X_{i-1}) \cdot (Y_i + Y_{i-1})$$

where:

X_i is the cumulative share of months out of 12 months of the year;

Y_i is the share of cumulative overnight stays in months ranked in ascending order by the number of overnight stays in the total overnight stays in the year.

Our analysis based on the Gini index was carried out on the basis of the commercial accommodation data of the municipalities of the Sopron-Fertő destination. The data on the number of guests in commercial accommodation establishments were downloaded from the Information Database of the HCSO (Hungarian Central Statistical Office). For the analysis, we used the available data on the number of nights spent in commercial accommodation on a monthly basis. A finer analysis at the level of municipalities was not possible, because in small settlements with very few commercial accommodation units, the HCSO does not publish data in order to avoid identification (e.g., among others, Fertődoboz, Fertőd, Fertőszéplak and in some months Fertőrákos were such settlements in 2021).

The starting point for our second step was a representative sample of 2,000 people in 2019 (representativeness was determined on the basis of official tourism statistics from previous years: number of tourists, accommodation and seasonality), which examined the complex consumer behaviour of the region and thus serves as a reference for our present study for the period before COVID. The spatial frame of the sampling was the area of the study as described above (Figure 1). The data collection covered the season of stay (winter, spring, summer, autumn) and several factors related to the parameters of tourist activity, as well as elements related to the choice of accommodation and thematic motivations of the visitor population. In this context, the seasonal patterns of tourists' accommodation choices and

motivations were assessed, which provided an opportunity to analyse seasonal changes and shifts in the focus of their activity. In order to ensure the most effective implementation of the questionnaire survey, the questionnaires were distributed to a number of accommodation, catering and tourism service providers, and were also distributed to various events, and to professional organisations (Sopron Tourist Information Office, Tourist Destination Management Organisation) who also participated in the implementation. The questionnaire could be completed on paper and online. The questionnaires were available in Hungarian, English and German. From the 2019 survey, we highlighted the questions on seasonality, which we used for statistical analysis, so that we could determine significant correlations.

Cross-tabulation analysis was used to determine the dimensions of some variables and the significance of their relationships such as to explore the presence or absence of relationships between the choice of accommodation, travel motivations and the time of travel, as well as their qualitative and quantitative parameters. All variables included in the cross-tabulation analysis were measured on a qualitative, nominal scale.

In all cases, the presence or absence of relationships was assessed at a 5% significance level. The test of relationships was based primarily on the chi-square test statistic, but (given the limitations of the chi-square test) the Cramer's V and the Contingency Coefficient were also examined. In testing the nature of the relationships, we ensured that in no case did the proportion of cells with an expected value less than 5 exceed 20%. Significant relationships within the cross-tabulation were explored using Adjusted Standardised Residuals (AR). If the value of the indicator was equal to or above +2, it was considered that the relations under consideration were significantly related, in line with the recommendations in the literature; if the value was -2 or below, they were definitely not related. In the analysis of the adjusted standardised residuals, we also kept a constant eye on the chi-square statistics of the relationship between the indicators under study (Sajtos & Mitev, 2007).

As a final step, the results were compared with the tourism trends during the COVID period, to detect changes in the sector and in tourism consumer behaviour, also supplemented with interviews with tourism managers and tour operators in the region. Eight of these interviews were conducted (two with the heads of municipal and destination management organisations, three with managers of high-end hotels and three with operators of key attractions) with the aim to identify the contextual elements of the area's seasonality processes that could not be identified from the questionnaire and other sources.

5. Results

Over the past 13 years, the seasonality of commercial overnight stays in the Sopron-Fertő region has been fluctuating, and so the Gini index has been detected, apart from a few exceptional years, between 0.15 and 0.25, indicating a moderate concentration of overnight stays, which is also in line with the national (Hungarian) seasonality of overnight stays. However, there were two years, 2020 and 2021, when the Gini index indicated a significant concentration. In both years, the closures due to the Covid outbreak forced hotels to close, especially in the spring and autumn periods, and the associated travel restrictions did not allow hotels to accommodate guests, especially foreigners. The impact of the closures is of course strongly reflected in the evolution of the Gini index, which more than doubled from 2019 to 2020 and further increased in 2021 (Figure 3).

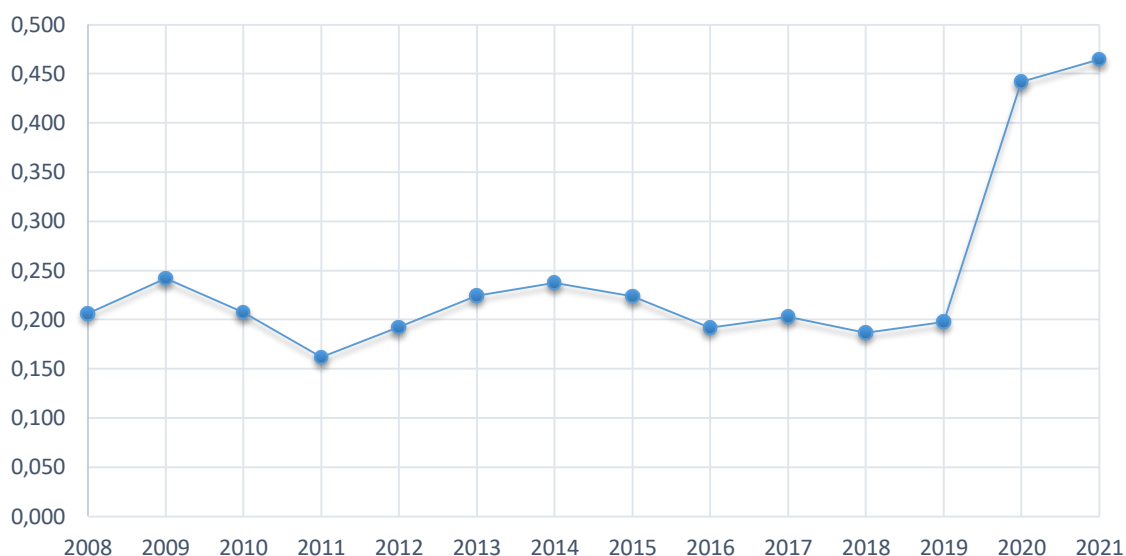


Fig 3. Evolution of the Gini index in the Sopron-Fertő region. Source of data: HCSO Information database, own editing

The evolution of the Gini index is represented by the Lorenz curve described in the methodology chapter. Figure 4 shows that the concentration rate was relatively mild between 2008 and 2019 and then increased significantly in the last two years of the period under study, so that the area enclosed by the Lorenz curve and the equality line "doubled" (Figure 4). We do not know yet how the concentration will evolve in 2022, but as there have been no new closures, one can expect that it will be much more favourable than in the first two years of the epidemic, bringing the index and the curve back to values close to those observed in previous years (Figure 4).

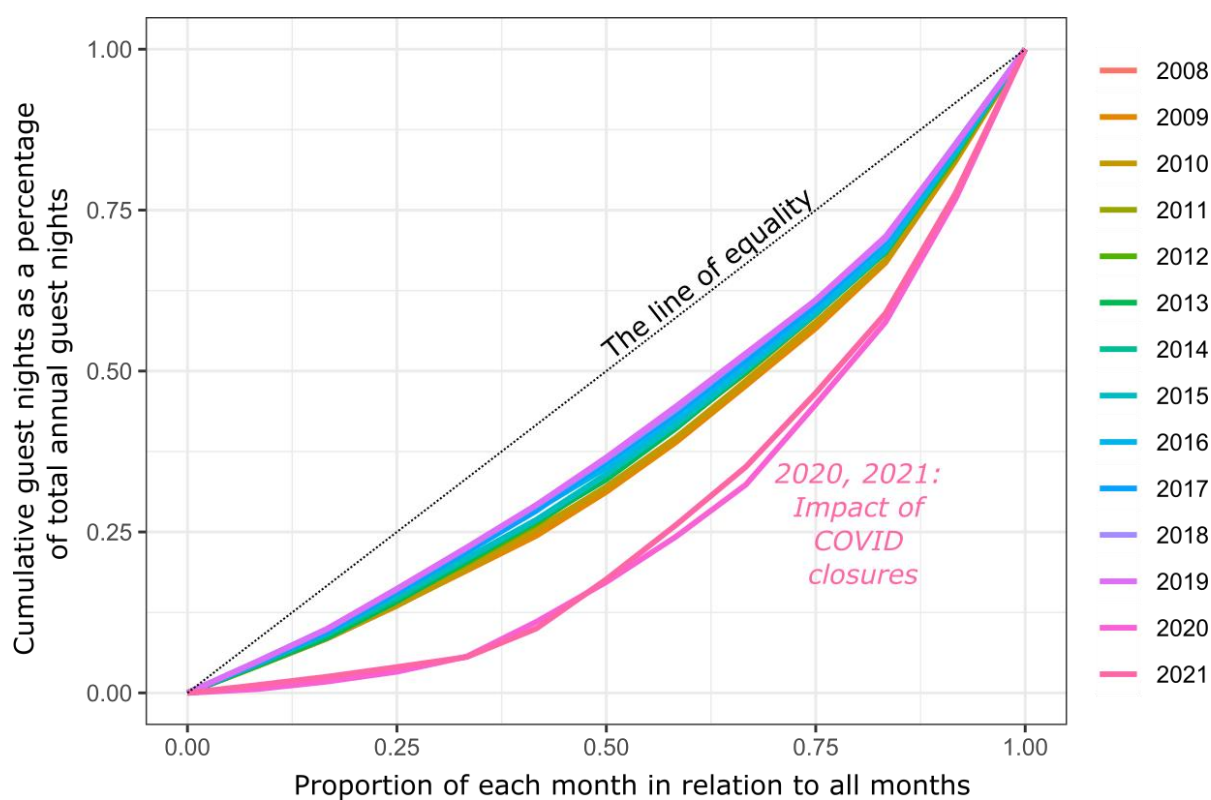


Fig 4. Lorenz nodes representing the distribution of overnight stays per month in the Sopron-Fertő region between 2008 and 2021. Source of data: HCSO Information database, own editing

The trend in monthly guest nights is also a good indicator of seasonality. The number of overnight stays in the commercial accommodation establishments of the Sopron-Fertő region was around 80,000 in season and around 20,000 out of season during the period under review (Figure 5). The data showed that the high season is the summer period, mainly July and August, while May-June and September-October are the "shoulder seasons" or "elbow seasons", which in Hungarian practice are called the pre-season and the post-season. The winter and early spring months are the off-season, but even in this period, December performs (slightly) better due to the winter holidays. Although the Gini index suggests that seasonality is moderate, peak season guest nights can be up to four times the off-season, with a significant impact on the occupancy and performance of commercial accommodations. It is also worth noting that the 2020–2021 period does not follow the pattern of the previous periods, with the data series clearly showing the effects of the spring closures and the 2020 autumn epidemic wave (Figure 5).

To conclude, it is also worth looking at the overall trend in the number of nights spent in commercial accommodations in the Sopron-Fertő destination. The annual number of overnight stays increased from 400,000 in 2008 to 454,000 in 2010, while falling to 345,000 before 2019, with a fluctuating performance. It then virtually collapsed in 2019, due to the impact of closures caused by the epidemic, falling to 166,000, which did not increase significantly in 2021 (181,000). Looking at the seasonal peaks, it can be seen that in August 2010, the number of overnight stays in the region under study was close to 90,000, while in August 2019 it was below 70,000.

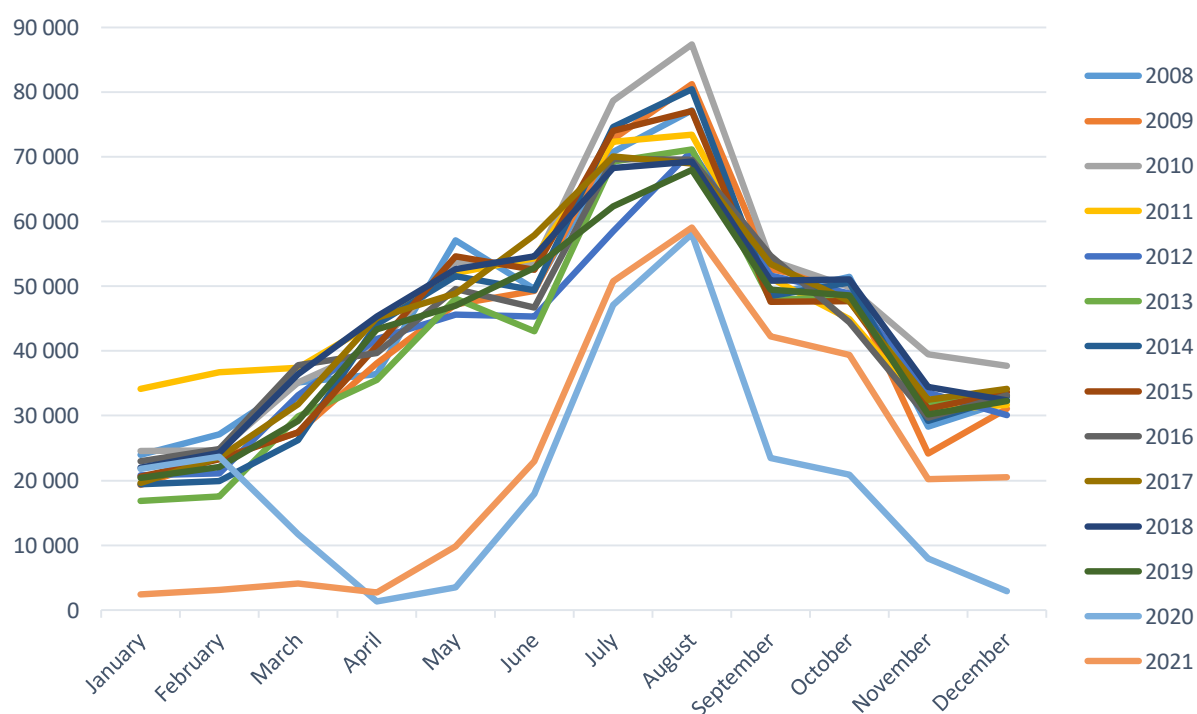


Fig 5. Monthly evolution of the number of commercial nights in the Sopron-Fertő region (2008–2021). Source of data: KSH Information database, own editing

Based on the analysis of nights spent in commercial accommodations in the Sopron-Fertő destination, the following trends can be outlined:

- In the analysed area, seasonality has been similar to the national (Hungarian) pattern over the last decade and a half.
- The data on the number of guests in commercial accommodations in the Sopron-Fertő region showed a slowly decreasing and stagnating guestflow year by year.
- In the Sopron-Fertő destination, the Gini index has fluctuated slightly over almost the last two decades.

- Based on the analysis of the monthly guest nights in the destination, three periods can be identified: pre-season, high season, low season and off-season, which is in line with the general Hungarian experience.
- The Gini index shows a moderate seasonality, but the difference between high season and off-season turnover can be up to four times higher in terms of monthly guest nights.
- Overnight stays and seasonality have been significantly increased by closures due to the COVID epidemic, with the forced closure of hotels halving the number of overnight stays in the region in 2020 and 2021.

Along with the increase in seasonality shown by the Gini index, the characteristics of consumption have naturally changed over time, as tourist services were inaccessible during the years of COVID due to closures. Thus, if we take the results of the authors 2019 representative questionnaire results as a basis, we basically find that the preferred periods for certain products, accommodation and services, and the motivation to travel to them, have practically disappeared, as tourism has stopped during this period. Table 1 clearly shows that some accommodation types have a significantly detectable preference for non-summer, i.e., high season. This is confirmed, for example, by the fact that nearly 62% of those staying in tourist and student accommodation arrived in the study area in autumn.

Tab 1. Relationship between travel time and choice of accommodation (2019). Source: own editing

Type of accommodation		Date of travel				Total
		Summer	Autumn	Spring	Winter	
Other	n	12	10	2	0	24
	AR	0.6	1.6	-1.0	-1.9	
Village accommodation	n	49	28	9	6	92
	AR	1.8	0.6	-1.5	-1.8	
In a hotel	n	347	236	159	118	860
	AR	-3.2	-0.1	3.5	1.1	
Camping	n	37	24	7	2	70
	AR	1.5	1.3	-1.3	-2.5	
Pension	n	310	155	93	94	652
	AR	2.0	-2.7	-0.9	1.5	
In the home of a relative, a friend	n	48	18	7	16	89
	AR	1.9	-1.6	-2.0	1.5	
Private home rented from owner	n	16	12	6	5	39
	AR	-0.4	0.5	0.0	0.0	
Tourist hotel, student hostel	n	19	42	7	0	68
	AR	-2.8	6.4	-1.2	-3.2	
Private home rented from a travel agency	n	9	1	3	3	16
	AR	1.0	-1.9	0.4	0.7	
Total	n	847	526	293	244	1910

*AR – Adjusted Residual.

This itself had a drastic impact on tourism in the region, as the average annual consumption volume of previous years would have had to be met during the high season, which is impossible given the volume and capacity of accommodation. It can be further compounded by the fact that the potential consumer volume of the past has already declined due to safety risks, but new consumer groups have become interested due to the "tourism boom" following the closures (Csapó & Törőcsik, 2019).

Even so, the region has been affected by this phenomenon as a multiple disadvantage, with a cumulative reduction in the number of consumers and, in addition, there was no availability of products and services during the preferred period. This, in part, despite the decline in cumulative numbers, has led to temporary 'over-tourism', as confirmed by expert interviews.

If we look at travel motivation before the pandemic, it is clear from Table 2 that few significant values were found for open periods during the COVID, and some factors peaked specifically during the period of closures.

Tab 2. Relationship between travel time and motivations (2019). Source: own editing

Motivation and its presence or absence			Date of travel				Total
			Summer	Autumn	Spring	Winter	
City visit	None	n	448	306	158	149	1061
		AR	-2.3	1.6	-0.6	1.8	
	Have	n	425	229	142	101	897
		AR	2.3	-1.6	0.6	-1.8	
Active recreation (e.g., cycling)	None	n	618	402	247	197	1464
		AR	-3.6	0.2	3.3	1.6	
	Have	n	255	133	53	53	494
		AR	3.6	-0.2	-3.3	-1.6	
Learning, study trip	None	n	856	505	283	247	1891
		AR	3.2	-3.3	-2.3	2.1	
	Have	n	17	30	17	3	67
		AR	-3.2	3.3	2.3	-2.1	
Use of health or beauty services	None	n	844	499	291	237	1871
		AR	2.2	-3.0	1.3	-0.6	
	Have	n	29	36	9	13	87
		AR	-2.2	3.0	-1.3	0.6	
Sport and hobbies	None	n	777	496	294	235	1802
		AR	-4.4	0.7	4.1	1.2	
	Have	n	96	39	6	15	156
		AR	4.4	-0.7	-4.1	-1.2	
Total		n	873	535	300	250	1958

*AR – Adjusted Residual.

6. Discussion

Based on the above demonstrated results, we can conclude that the recent changes in tourism due to COVID led to structural problems within the sector for several tourism products. One of these is cultural tourism, as Sopron, for example, which is the centre of the region, is a classic class trip destination, and the demand segment for this type of tourism has practically disappeared, due to distance learning and the restrictions for the time period for this type of travel.

The other typically distorted product is health tourism, including dental and plastic tourism, for which Sopron and its region is one of the prime locations due to its professional supply and spatial allocation close to the Austrian border. Although this product nominally produces a low volume of tourists to the destination, but it is a market leader in terms of profitability. It should be noted that, according to experts' opinion, this type of tourism product became partially available in the second year of

the pandemic, despite the restrictions, but this area has a very low capacity and its decline is therefore drastic.

The third most affected product group is tourism related to education and training, which is also not large in volume, nevertheless also shows a significant willingness to spend in its segments, so there is also a noticeable loss of value for the region.

The fourth area is the set of tourism products that concern part of active tourism, sports tourism and water tourism, as these products are affected by the concept of partially or totally deferred demand, so that a certain amount of "over-tourism" has also developed in this respect due to capacity constraints.

Based on recent expert interviews with tour operators and tourism managers in the region, three main visitor segments have been identified as characteristic to the recent changes in tourism: the first are the "travel at all costs", who travel as soon as possible despite any difficulties or risks; the second category are the "safety players", who are only willing to travel if they feel maximum safety; while the third group are the "compromise seekers", who have changed their travel habits and are looking for less crowded and more natural destinations during the pandemic.

7. Conclusion

As is typical for tourist destinations in general, but to a different extent, tourism in the Sopron-Fertő tourist region is also highly dependent on seasonality. In addition to the general issue of seasonality, our study has also highlighted the extent to which a drastically changed macroeconomic factor, the COVID pandemic, makes the seasonality of a region, and thus one of its socio-economic foundations, vulnerable.

One of the main messages of our study is the demonstration for the need to find new ways for tourism destinations and their service providers through different management methods, as threats to tourism may recur periodically in parallel with the current pandemic.

Furthermore, not only do tourism operators need to develop a high degree of flexibility or new procedural methods in management, but they also need to do so in the light of changing consumer behaviour. It is clear that the accessibility and/or limitation of destinations is not only bringing about quantitative changes in the life of destinations, but also new consumer patterns.

Based on the above mentioned, it is clear that as long as tourism is affected by the COVID externalities, seasonality cannot return to its natural process, and thus the supply side of the sector will have to continue a kind of crisis management, while most of them will be faced with continuous additional costs and/or loss of revenue. The consequence of this will be a restructuring of service providers, depending on which firms have gone bankrupt and which have adapted well.

It also should be highlighted that the change in travel motivations identified during the pandemic can be considered temporary and that, once the epidemic has completely disappeared, consumption behaviour will most probably return to its original pattern, thus reactivating seasonality.

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