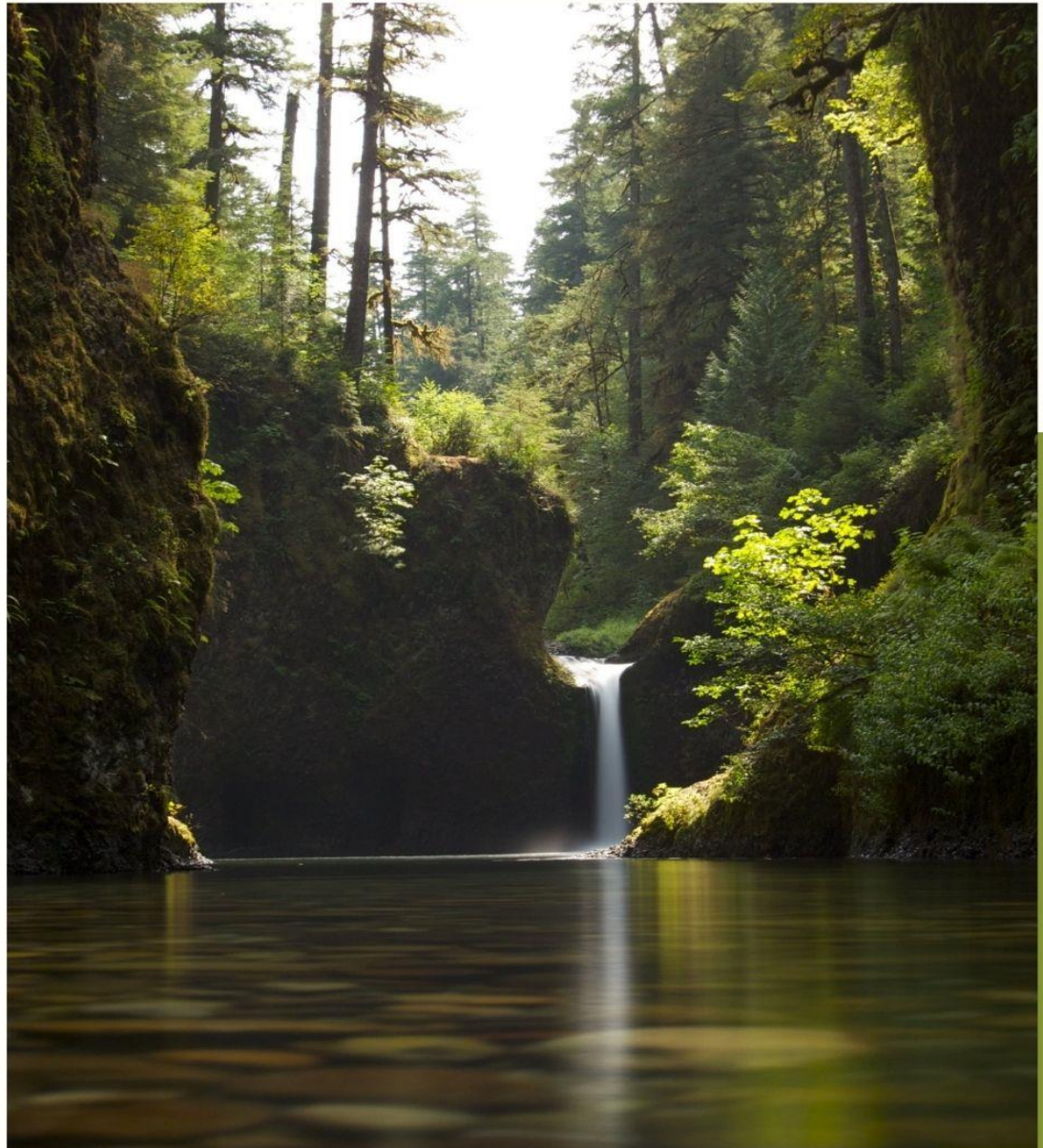


GSSSiS



2024

Zbornik simpozija
GLOBALNI TRAJNOSTNI ZNANSTVENI
SIMPOZIJ V SLOVENIJI 2024 (GSSSiS
2024)

Globalni izzivi, trajnostne rešitve

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Slika na naslovni in hrbtni strani:
 Green and White Minimalist Nature Magazine Cover

Založnik:

Svetovanje in izobraževanje, dr. Andrej Raspor, s. p.
 Dolga Poljana 57
 5271 Vipava, SI Slovenija
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1. elektronska izdaja

Dostopno

http://www.andrejaspor.com/perfectus_zalozba

Kraj in leto izdaje: Dolga Poljana, 2024

Kataložni zapis o publikaciji (CIP) pripravili v Narodni in
 univerzitetni knjižnici v Ljubljani
 COBISS.SI-ID 201119235
 ISBN 978-961-96401-6-6 (PDF)

Recenzenti:

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***Proceedings of the Symposium
GLOBAL SUSTAINABLE SCIENTIFIC
SYMPOSIUM IN SLOVENIA 2024 (GSSSiS
2024)***

Global Challenges, Sustainable Solutions

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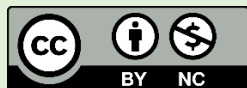
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Images

Image on the Front and Back Cover:
Green and White Minimalist Nature Magazine Cover

Publisher:

Svetovanje in izobraževanje, dr. Andrej Raspor, s. p.
Dolga Poljana 57
5271 Vipava, SI Slovenija
E-pošta: zalozba.perfectus@gmail.com

1st electronic edition

Available at:

http://www.andrejaspor.com/perfectus_zalozba

Place and year of issue: Dolga Poljana, 2024

Katalogni zapis o publikaciji (CIP) pripravili v Narodni in
univerzitetni knjižnici v Ljubljani
COBISS.SI-ID 201119235
ISBN 978-961-96401-6-6 (PDF)

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REGIONAL TOURISM SEASONALITY PATTERNS IN MACEDONIA: A COMPARATIVE ANALYSIS

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Sofija Treneska, student, North Macedonia ⁸⁰

Marija Gjoreska, student, North Macedonia ⁸¹

Extended summary

Intention: The study aims to explore and quantify the patterns of tourist seasonality across different regions in Macedonia, focusing on both domestic and international tourism influences.

Objective: The primary objective is to identify the contributions of various regions to overall tourism seasonality in Macedonia and to understand the role of domestic tourism in shaping these seasonal patterns.

Methodology: The research employs statistical techniques, including the calculation of Gini coefficients and the analysis of tourist overnight data from 2010 to 2023. Lorenz curve analysis is also used to compare the impact of domestic and foreign tourists on seasonality.

Research Findings: The study finds significant regional heterogeneity in Macedonia's tourism industry. The Southwestern and Southeastern regions dominate, contributing over two-thirds of total tourist overnights in 2023. These regions exhibit moderate to high seasonality, influenced by popular destinations such as Lake Ohrid and Lake Dojran. The overall seasonality in Macedonia is moderate to high, with Gini coefficients ranging from 0.42 to 0.47, peaking during the summer months. Domestic tourists have a greater impact on seasonality, particularly in the Southwestern and Southeastern regions.

Scientific Value: This study adds to the scientific understanding of tourism seasonality by providing detailed regional analysis and highlighting the significant role of domestic tourism. It uses robust statistical methods to offer insights into the seasonal patterns of tourist arrivals.

Practical Value: For policymakers and tourism businesses, the study offers practical recommendations to mitigate seasonality. These include promoting off-season attractions, improving infrastructure, and targeting marketing campaigns to encourage year-round tourism.

Research Limitations: The study is limited by its focus on quantitative data, which may not capture the full range of factors influencing tourist behavior. Additionally, the impact of external variables such as economic conditions or political stability is not considered.

Originality: This research is original in its detailed examination of regional seasonality in Macedonia's tourism industry, particularly in highlighting the dominant role of domestic tourists. It provides a nuanced understanding of how different regions contribute to overall tourism seasonality and offers actionable insights for managing these patterns.

Keywords: Tourism seasonality, Macedonia, Ginni Coefficient, Lorenz curve, Statistical regions, tourist overnights

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Introduction

The tourism industry plays a vital role in the global economic development of many countries, fostering cultural exchange, job creation, and infrastructure improvements (Biljan, Trajkov, & Jakupović, 2012). Its economic impact is undeniable, with a contribution exceeding 9.1% to global GDP and generating one in ten jobs worldwide. In 2023, travel and tourism directly contributed 9.9 trillion USD to the global economy (WTTC, 2024). Understanding tourism's complex seasonal patterns within destinations is therefore crucial for maximizing its positive effects. Tourism seasonality is a multifaceted phenomenon with significant consequences for destinations. While it presents challenges, it also offers opportunities for innovation and adaptation. By understanding the causes and impacts of seasonality, and by implementing effective mitigation strategies, destinations can work towards creating a more balanced and sustainable tourism industry.

Macedonia, with its rich historical heritage, natural beauty, and diverse culture, presents a challenging case study for analyzing tourism seasonality. Tourism plays a significant role in the Macedonian economy, and a deeper understanding of seasonal fluctuations can empower stakeholders to develop a more sustainable and resilient tourism industry (Trajkov, Andreeski, & Marinovski, 2019). This paper delves into the complexities of tourism seasonality in Macedonia, employing established metrics to quantify its presence and locate the regions most affected. By unveiling these seasonal patterns, we aim to provide policymakers and tourism businesses with valuable insights for developing effective strategies that extend tourist activity throughout the year, ultimately contributing to Macedonia's long-term tourism growth.

This research uses a multi-pronged approach. We calculate the Gini Coefficient, a well-established measure of seasonality, to quantify the overall seasonal patterns across Macedonia and within distinct statistical regions. The Lorenz curve further visualizes the contribution of domestic and foreign tourists to these seasonal fluctuations. Additionally, we assess the share of domestic and foreign tourist overnights to gain a comprehensive understanding of their influence. Through this multifaceted analysis, we aim to identify the regions most susceptible to seasonal disturbances and the role played by domestic and foreign tourists. These insights will then lead to the establishment of targeted recommendations for policymakers and tourism stakeholders, ultimately fostering a more balanced and sustainable tourism industry in Macedonia.

As the tourism sector continues to evolve, ongoing research will be essential for developing effective strategies to address the challenges and opportunities presented by seasonality.

Literature review

Tourism seasonality, characterized by fluctuations in tourist arrivals, expenditures, and overall activity throughout the year, is a well-established phenomenon with significant consequences for destinations (Trajkov, Biljan, & Andreeski, 2016). Several definitions of tourism seasonality exist, highlighting its core concept of uneven temporal distribution of tourist activity. Butler defines it as a "temporal imbalance" in tourism, affecting visitor numbers, expenditure, transportation use, employment, and attraction admissions (Cannas, 2012). There are authors that emphasizes the systematic, intra-year movement driven by weather, calendars, and decision-making (Hylleberg, 1992). Manning and Powers (1984) view seasonality as the uneven distribution of tourism use, causing resource inefficiency, profit potential loss, and social and ecological strain.

The causes of tourism seasonality can be broadly categorized as natural and social (Lee, Bergin-Seers, Galloway, O'Mahony, & McMurray, 2008) (Trajkov, Biljan, & Andreeski, 2016) (Kozić, Krešić, & Boranić-Živoder, 2013) (Secăreanu & Firoiu, 2011)

Climate variations significantly influence tourism seasonality. Weather patterns, temperature differences, and precipitation levels impact tourist preferences for certain destinations and activities (Lee, Bergin-Seers, Galloway, O'Mahony, & McMurray, 2008). This is particularly true for destinations offering outdoor activities and those located in areas sensitive to climate change (Trajkov, Biljan, & Andreeski, 2016). Seasonality due to natural factors is generally predictable (Trajkov, Radovic Markovic, & Karadjova, 2022)

Social and institutional factors also contribute to tourism seasonality. Holidays, school breaks, festivals, and other traditional events create surges in tourist activity (Kozić, Krešić, & Boranić-Živoder, 2013). School holidays are a major determinant for many tourists, with some regions staggering holiday schedules to reduce tourism concentration (Ćorluka, 2019). This "institutional seasonality" is relatively predictable compared to natural factors. However, factors like the aging population and changing vacation habits can introduce some long-term unpredictability (Trajkov, Biljan, & Andreeski, 2016) (Trajkov, Radovic Markovic, & Karadjova, 2022). There are authors that further highlight the emerging concern of climate change. Shifting weather patterns have the potential to alter destination choices and influence seasonality trends (Agnew & Viner, 2011).

Tourism seasonality has both positive and negative consequences. Negative impacts can be seen through Underutilized resources during off-peak seasons (Lee, Bergin-Seers, Galloway, O'Mahony, & McMurray, 2008), strained infrastructure and staffing during peak seasons (Biljan, Trajkov, & Jakupović, 2012), uneven economic activity and resource allocation (Kozić, Krešić, & Boranić-Živoder, 2013), potential strain on social services and disruption of local culture during peak seasons, increased pressure on natural resources during peak seasons (Lee, Bergin-Seers, Galloway, O'Mahony, & McMurray, 2008). Positive impacts can be seen through concentrated tourist activity can generate higher revenue during peak seasons (Trajkov, Andreeski, & Marinoski, 2019).

Researchers employ various statistical methods to quantify and analyze seasonality. Trajkov, Biljan and Andreeski (2016) demonstrate how to quantify tourism seasonality using statistical methods. Kozić et al. (2013) delve into methods for analyzing seasonality using the Gini coefficient in Croatia. Secareanu and Firoiu (2011) discuss statistical methods used in analyzing and forecasting tourism activity affected by seasonality. These quantitative approaches are crucial for understanding the extent and patterns of seasonality in different destinations.

Recognizing the downsides of seasonality, researchers propose various strategies for destinations to manage these fluctuations (Cannas, 2012) (Lee, Bergin-Seers, Galloway, O'Mahony, & McMurray, 2008).

Demand-side strategies focus on attracting tourists during off-peak periods through targeted marketing campaigns and special offers (Cannas, 2012). This could involve highlighting the unique benefits of the destination during the shoulder seasons or promoting activities that are less weather-dependent.

Supply-side strategies involve diversifying tourism products and services to cater to a broader range of interests throughout the year (Cannas, 2012). Examples include developing cultural tourism experiences, promoting adventure activities, or focusing on wellness retreats. Destinations can also invest in improving infrastructure and facilities that can be enjoyed year-round, such as indoor attractions, convention centers, or sporting facilities.

Policy and planning strategies encompass developing regulations and long-term plans that encourage more balanced tourism development across seasons. This could involve spreading out major events throughout the year or investing in infrastructure improvements in less-frequented areas. Additionally, fostering collaboration between tourism stakeholders, such as businesses, governments, and local communities, is crucial for successful implementation of these strategies (Cannas, 2012).

Tourism seasonality presents a complex challenge for destinations. A thorough understanding of the causes, impacts, and potential mitigation strategies is crucial for developing a more balanced and sustainable tourism industry. Future research could explore the effectiveness of mitigation strategies across different destinations and contexts, as well as investigate the long-term implications of climate change on tourism seasonality.

Regions in Macedonia

Macedonia's administrative structure incorporates eight statistical regions, established in alignment with the European Union's Nomenclature of Territorial Units for Statistics (NUTS-3) (SSO, 2023). This framework facilitates data analysis and regional development efforts, providing a valuable basis to examine tourism trends and potential in the country. Each region has distinct characteristics, economic drivers, and unique tourism potential, requiring a comprehensive approach to development strategies.

- Вардарски / Vardar**
 1. Велес / Veles
 2. Градско / Gradsko
 3. Демир Капија / Demir Kapija
 4. Кавадарци / Kavadarci
 5. Лозово / Lozovo
 6. Неготино / Negotino
 7. Росоман / Rosoman
 8. Свети Николе / Sveti Nikole
 9. Чашка / Chashka
- Источен / East**
 10. Берово / Berovo
 11. Виница / Vinitsa
 12. Делчево / Delchevo
 13. Зрновци / Zrnovci
 14. Карбинци / Karbinci
 15. Кочани / Kochani
 16. Македонска Каменица / Makedonska Kamenska
 17. Пехчево / Pehchevo
 18. Пробиштип / Probishtip
 19. Чешиново - Облешево / Cheshinovo - Obleshevo
 20. Штип / Shtip
- Југозападен / Southwest**
 21. Вевчани / Vevchani
 22. Дебар / Debar
 23. Дебрица / Debritsa
 24. Кичево / Kichevo
 25. Македонски Брод / Makedonski Brod
 26. Охрид / Ohrid
 27. Пласница / Plasnitza
 28. Струга / Struga
 29. Центар Жупа / Centar Zhupa
- Југоисточен / Southeast**
 30. Богданци / Bogdanci
 31. Босилово / Bosilovo
 32. Валаново / Valandovo
 33. Василево / Vasilevo
 34. Гевгелија / Gevgelija
 35. Дојран / Dojran
 36. Конче / Konche
 37. Ново Село / Novo Selo
 38. Радовиш / Radovich
 39. Струмица / Strumitsa
- Пелагониски / Pelagonia**
 40. Битола / Bitola
 41. Демир Хисар / Demir Hisar
 42. Долени / Dolneni
 43. Кривопаштани / Krivopashtani
 44. Крушево / Krushevo
 45. Могила / Mogila
 46. Новаца / Novatsi
 47. Прилеп / Prilep
 48. Ресен / Resen
- Полошки / Polog**
 49. Боговиње / Bogovinje
 50. Брвеница / Brvenica
 51. Вратчиште / Vratschiste
 52. Гостивар / Gostivar
 53. Желино / Zhelino
 54. Јегуновце / Jegunovtze
 55. Маврово и Ростуше / Mavrovo and Rostushe
 56. Тетово / Tetovo
- Североисточен / Northeast**
 58. Кратово / Kratovo
 59. Крива Паланка / Kriva Palanka
 60. Куманово / Kumanovo
 61. Липково / Lipkovo
 62. Ранковце / Rankovtze
 63. Старо Нагоричане / Staro Nagorichane
- Скопски / Skopje**
 64. Аеродром / Aerodrom
 65. Арачиново / Arachinovno
 66. Бутел / Butel
 67. Гази Баба / Gazi Baba
 68. Горче Петров / Gorche Petrov
 69. Зелениково / Zelenikovo
 70. Илинден / Iinden
 71. Карпош / Karposh
 72. Кисела Вода / Kisele Voda
 73. Петровец / Petrovets
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 75. Сопиште / Sopište
 76. Студеничани / Studenichani
 77. Центар / Centar
 78. Чаир / Chai
 79. Чучер - Сандево / Chucher - Sandevo
 80. Шито Овчепаше / Shuto Orizari



Figure 1: Statistical regions of Macedonia
 (SSO, 2023)

The table 1 provides a breakdown of Macedonia's eight regions, highlighting their primary economic drivers and the significance of tourism within each region. We can see highlights for the major industries that contribute to the regional economy and the role tourism plays in each region, highlighting the unique attractions and experiences that attract visitors. The table serves as a comprehensive overview of the economic drivers and tourism potential across Macedonia's diverse regions.

Table 1: Regions in Macedonia
 (own interpretation)

Region	Economic Drivers	Tourism Importance
Skopje	Trade, Finance, Government Services	- Gateway city for exploring other regions - Historical landmarks (Old Bazaar, Kale Fortress) - Lively nightlife scene
Polog	Agriculture (fruits, vegetables, dairy), Hydropower, Textiles	- Adventure tourism (Šara Mountains) - Cultural exploration (Tetovo's painted mosques) - Winter sports (Popova Šapka ski resort)
Pelagonia	Agriculture (wheat, vegetables, fruits, tobacco), Food Processing, Textiles, Tourism, Energy (thermoelectricity production, coal reserves)	- Historical significance (Heraclea Lyncestis, Bitola's Ottoman architecture) - Krusevo and Pelister (winter tourism). - Wine tourism (wineries with tours and tastings) - Agrotourism experiences. - Prespa lake (summer tourism).
Eastern	Forestry, Mining, Tourism Production of rice, textile industry	- Natural beauty (mountains, forests) - Spa tourism (Kozovica) - Potential of development of winter and alternative tourism
Southeastern	Agriculture (fruits, vegetables), Wine Production, Tourism	- Dojran lake (summer tourism). - Relaxation and health (Strumica's thermal springs) - Local delicacies and cultural experiences

Southwestern	Tourism (Lake Ohrid), Agriculture, Energy (hydropotential). Lush forests.	- Lake Ohrid (UNESCO World Heritage Site) - Cultural immersion (historic city of Ohrid) - Outdoor adventures (Galicica National Park). - Thermal water springs near Debar
Northeastern	Agriculture, Mining, Meat and dairy processing industry. Tourism (emerging)	- Natural beauty (Osogovo Mountains) - Cultural experiences (traditional villages, Osogovo monastery) - Rural hospitality
Vardar	Agriculture (fruits, vegetables, grapes), Wine Production, Energy (TPP Negotino). Manufacture and processing of ferronickel	- Wine tourism experiences - Day trips from Skopje - Potential for cultural tourism development (Stobi)

This regional heterogeneity not only presents opportunities for targeted development strategies but also warrants consideration of tourism seasonality. While research suggests Macedonia may not experience significant seasonal fluctuations in tourist arrivals overall, some regions might exhibit more pronounced peaks. For example, Polog's Šar Mountains National Park might see higher tourist numbers during winter for skiing, while the Southern regions with Lake Ohrid and Prespa National Park could attract more visitors during the summer months.

Understanding these potential variations in tourism seasonality empowers stakeholders to develop region-specific strategies. Extending the tourist season in specific regions could involve promoting shoulder seasons with targeted campaigns or developing alternative activities. For instance, highlighting the cultural offerings of Skopje or the wine tourism experiences in Vardar during the off-season months could attract a new segment of travelers, ultimately contributing to a more balanced and sustainable tourism industry across Macedonia.



Figure 2: Map of main tourist resources in North Macedonia
(SSO, 2023)

Methodology

The study examines the intriguing dynamics of tourist seasonality in Macedonia, using a robust statistical approach and established metrics. The methodology adopted in this research can be categorized into three key components: data acquisition, seasonality measurement, and regional analysis.

The foundation of this research is based on the acquisition of reliable and comprehensive data for tourists overnights in Macedonia and in regional areas. This data, based on the number of tourists overnights recorded in each month throughout the year, serves as the basis for further analysis. Main source is database of the State statistical office (SSO, MAKSTAT, 2024).

The Gini coefficient is used to calculate the extent of tourist seasonality in Macedonia and its various regions. Named after the Italian statistician Corrado Gini, this powerful tool allows researchers and policymakers to gain a clear understanding of the distribution of tourist overnights throughout the year.

The Gini coefficient ranges from 0 to 1. A value close to 0 indicates low seasonality, signifying a relatively even distribution of tourist overnights across all months. Conversely, a value approaching 1 signifies high seasonality, suggesting a significant concentration of tourist overnights in specific months with substantial dips in others.

Base model is used for the purpose of this research (Trajkov, Biljan, & Andreeski, 2016)

$$G = \frac{2}{n \sum_{i=1}^n (x_i - y_i)} \quad (1)$$

- n – number of months
- x_i – rank of the months (1/12, 2/12, 3/12, ..., 12/12)
- y_i – cumulative relative frequency of tourist arrivals in rank by ascending order

In conjunction with the Gini coefficient, the Lorenz curve is used to illustrate the distribution of tourists overnights. This curve plots the cumulative percentage of tourist overnights on the y-axis against the cumulative percentage of months on the x-axis. The ideal scenario is a diagonal line, representing a perfect distribution of tourist arrivals throughout all months. Deviations from this diagonal line, with a pronounced upward curve, indicate a higher degree of seasonality, signifying a greater concentration of tourist arrivals in specific months.

To construct the Lorenz curve, we calculate the cumulative relative frequency (y_i) of tourist overnights for each month. First, we put the tourist overnight data for each month in ascending order, from the month with the fewest overnights (X_1) to the month with the most (X_{12}). Then, we calculate the share of total tourist overnights for each month (S_i):

$$S_i = X_i / X_t \quad (2)$$

- (X_i) number of tourist overnights
- (X_t) total number of tourist overnights for the entire year

We use this data to calculate cumulative share (Y_1). Starting from the first month ($i = 1$), we calculate the cumulative share (Y_1) of tourist overnights by summing the share (S_i) of each month (i) with the previous cumulative share (Y_{i-1}):

$$Y_1 = \Sigma(S_i) = S_1 \quad (3)$$

$$Y_i = Y_{i-1} + S_i \quad (\text{for } i > 1) \quad (4)$$

This Y_i gives you the cumulative share of tourist overnights up to that month (i).

At the end we convert to Percentages by multiplying the cumulative share (Y_i) for each month by 100 to express it as a percentage (Li):

$$Li = Y_i * 100 \quad (5)$$

The resulting values (Li) represent the Lorenz curve data points, which can be plotted against the cumulative percentage of months (expressed as percentages of the year) to visualize the Lorenz curve.

The research focuses on the Gini coefficient and Lorenz curve analysis at a regional level in Macedonia. This allows us to identify variations in seasonality patterns across different regions. By analyzing tourist overnight data specific to each region, we can not only assess the degree of seasonality within each region but also compare these regional patterns to understand the overall tourism condition in Macedonia. Additionally, the data is further segmented to determine between domestic and foreign tourists overnights. This allows us to investigate the influence of domestic tourism on overall seasonality patterns.

Results

This comprehensive study examines the intriguing dynamics of tourist seasonality in Macedonia, using a robust statistical approach. By calculating Gini coefficients and analyzing tourist overnight data, the research indicates the contributions of various regions to the overall tourism seasonality in Macedonia, unveiling seasonal patterns, and highlights significant influence of domestic tourism.

Macedonia's tourism industry exhibits a pronounced regional heterogeneity. The Southwestern and Southeastern regions emerge as undisputed leaders, collectively responsible for over two-thirds (66.3%) of total tourist overnights in 2023 (see figure 3). This dominance is likely due to the presence of attractive natural values such as Lake Ohrid, a UNESCO World Heritage Site renowned for its natural and historical significance, and Lake Dojran, another attractive natural lake especially during summer period.

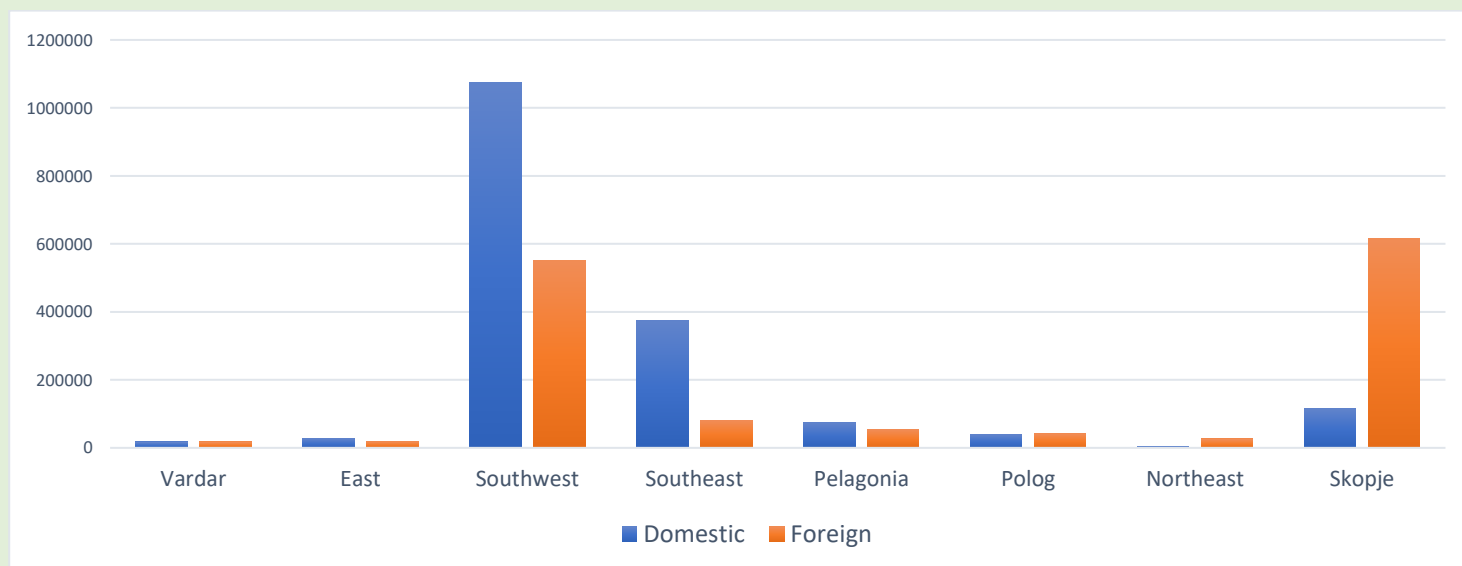


Figure 3. Tourist overnights in Macedonia, regional distribution, year 2023

(own interpretation based on data retrieved from SSO, MAKSTAT, 2024)

The Gini coefficient, as a metric used to quantify seasonality, supports our findings on the dominant influence of Southwestern and Southeastern region on the overall seasonality in Macedonia. Both regions exhibit moderate to high seasonality. In general, overall seasonality in Macedonia is moderate to high (gini = 0.42 to gini = 0.47). The overall seasonality is slightly decreasing the decade before the covid crises, but slightly increasing after the covid crises. The Southwestern region's Gini coefficient reached a peak of 0.67 pre-COVID, while the Southeastern region reached 0.56 (see table 2). These values suggest a pronounced concentration of tourist arrivals during the summer months, potentially driven by the attraction of the abovementioned lakes and their surrounding natural excellence.

Table 2: GINI INDEX, overall and regional distribution, period 2010 – 2023,

(own calculations)

Year	Total	Vardar	East	Southwest	Southeast	Pelagonia	Polog	Northeast	Skopje
2010	0.4722	0.2233	0.0891	0.6690	0.4090	0.3442	0.2642	0.1481	0.1368
2011	0.4683	0.2315	0.0992	0.6510	0.3717	0.5094	0.2821	0.1765	0.1570
2012	0.4513	0.2612	0.1023	0.6399	0.3511	0.4259	0.3285	0.2262	0.1429
2013	0.4335	0.1336	0.1401	0.6256	0.3899	0.4149	0.3498	0.1789	0.1483
2014	0.4354	0.2457	0.1048	0.6048	0.4568	0.4080	0.2519	0.1509	0.1700
2015	0.4481	0.2640	0.0910	0.6091	0.4989	0.4624	0.3132	0.2446	0.1594
2016	0.4177	0.2730	0.1710	0.5743	0.4971	0.3756	0.2338	0.2209	0.1261
2017	0.4153	0.2993	0.1114	0.5652	0.4967	0.3407	0.2728	0.2263	0.1710
2018	0.4177	0.2727	0.0917	0.5634	0.5502	0.2958	0.2295	0.1447	0.1315
2019	0.4157	0.2364	0.1003	0.5653	0.5063	0.3116	0.2338	0.1600	0.1542
2020	0.6176	0.4138	0.3162	0.7400	0.6301	0.4494	0.4581	0.4750	0.4065
2021	0.5338	0.4123	0.1365	0.6851	0.6277	0.3189	0.2926	0.2774	0.2107

2022	0.4552	0.2505	0.1259	0.6087	0.5607	0.2641	0.2609	0.2579	0.1925
2023	0.4407	0.2365	0.0980	0.5996	0.5493	0.2653	0.1767	0.2101	0.1721

The analysis gives us an inside view that not all regions fit the prevailing seasonal trend. Skopje region, as the second tourist region in Macedonia, with dominant foreign overnights, has a lower rate of seasonality (Gini coefficient up to 0.19).

It can be attributed to its role as a central hub and a gateway to other regions, attracting foreign tourists throughout the year for cultural activities such as exploring the Old Bazaar and visiting historical landmarks such as Kale Fortress. Pelagonia region presents an intriguing case study. While it previously exhibited high seasonality (Gini coefficient up to 0.51 in 2011), likely due to the presence of the Pelister ski center or Prespa Lake, this has steadily declined in recent years, reaching a moderate to low level (Gini coefficient 0.26) post-COVID.

This shift suggests a potential shift in tourist patterns or a need to explore alternative attractions in the region to extend the tourist season. Investigating the reasons behind the decline in winter tourism at Pelister and exploring the development of alternative winter sports or off-season activities could be valuable areas for future research.

For a deeper understanding and analysis, we have calculated the values of Lorenz curve to determine which structure of tourists has a higher impact on overall seasonality. The graph results and values of Lorenz curve show that domestic tourists have a greater impact on overall seasonality compared to foreign tourists (see Figure 4).

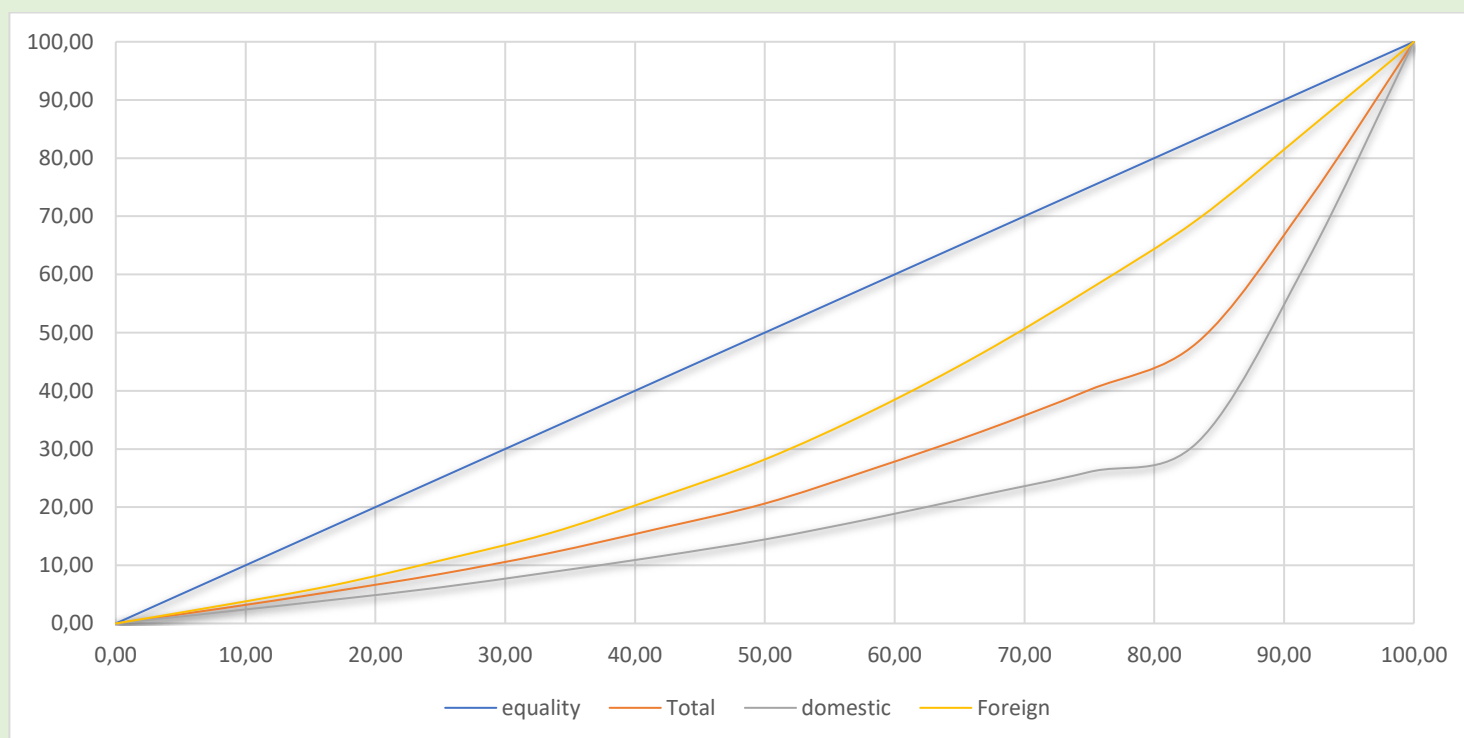


Figure 4. Lorenz curve on domestic and foreign tourist overnights seasonality in Macedonia
(own calculations and interpretation)

While Macedonia welcomes international visitors, a surprising trend emerges – domestic tourists constitute the driving force behind tourist seasonality (figure 4). Notably, domestic tourists account for a substantial majority (55%) of all tourist overnights in 2023 (Figure 5). In the Southwestern and Southeastern regions, an even more prominent domestic presence is observed, as the dominant drivers of overall seasonality. Here, domestic tourists comprise two-thirds (2/3) and four-fifths (4/5) of overnight stays, respectively (Figure 3).

This compelling evidence suggests that domestic travel patterns, potentially reflecting a preference for summer vacations near scenic lakes and engaging in outdoor activities, play a critical role in shaping overall tourist seasonality in Macedonia. Further research into the socio-demographic characteristics and travel motivations of domestic tourists could provide valuable insights for targeted marketing campaigns and product development.

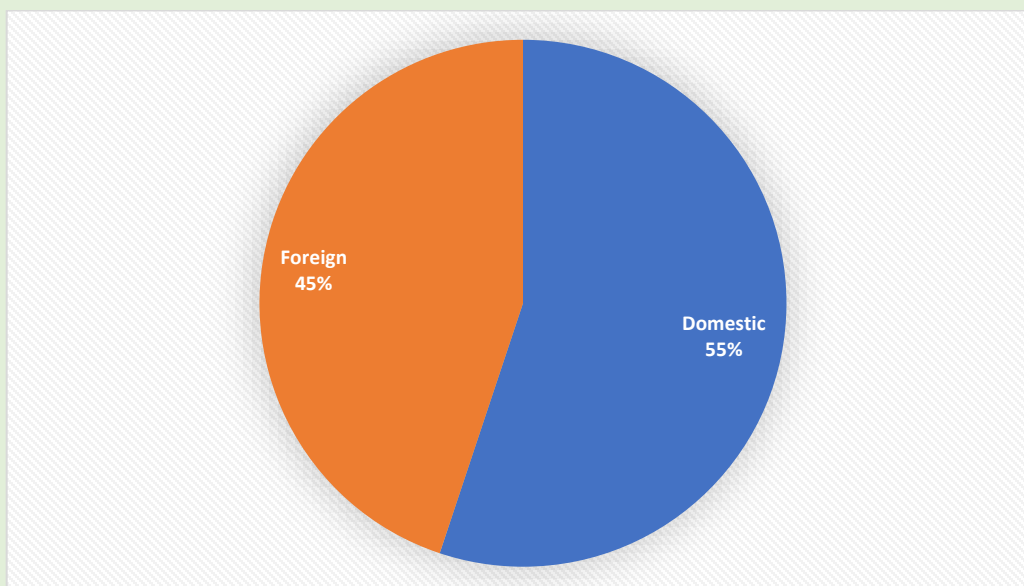


Figure 5: Structure of tourist overnights in Macedonia, 2023
(own calculations)

Understanding the interaction between regional variations, seasonality patterns, and the dominant role of domestic tourism is important to have informed policy decisions and strategic interventions aimed to more balanced and sustainable tourism across the country. Targeted promotional campaigns or events strategically placed during lower seasons (spring and fall) could encourage domestic tourists to explore Macedonia beyond the peak summer months.

Additionally, a deeper investigation into the motivations and preferences of domestic tourists can provide valuable insights for policymakers and tourism businesses. Furthermore, exploring the development of alternative attractions and activities in regions with high seasonality, such as promoting cultural heritage tourism or agrotourism experiences, could help distribute tourist arrivals more evenly throughout the year. By implementing these strategies, Macedonia can achieve a growth in tourism industry in the following period.

Conclusions and recommendations

This study used strong quantitative techniques to investigate seasonality within Macedonia's tourism industry. The Gini coefficient and Lorenz curve analysis were utilized to assess the level of seasonality across different geographical regions. The findings revealed a pattern of moderate to high seasonality throughout the country, with the Southwestern and Southeastern regions exhibiting the most significant fluctuations. This seasonal activity coincides with the presence of popular tourist destinations such as Lake Ohrid and Lake Dojran, which experience a rise in visitor arrivals during the summer months.

The Lorenz curve analysis suggests that domestic tourists play a more significant role in driving seasonal fluctuations compared to foreign visitors, particularly in the Southwestern and Southeastern regions. This highlights the importance of domestic tourism within Macedonia.

To extend the season in the Southwest and Southeast regions, the policymakers and business need to develop attractions and activities that appeal to a wider range of interests beyond just natural beauty. This could include cultural events, historical tours, or outdoor activities suitable for different weather conditions. They need to encourage domestic tourists to explore other regions of Macedonia throughout the year. This can be achieved through targeted marketing campaigns highlighting the unique offerings of each region across all seasons.

Also, to manage peak season crowds and ensure a sustainable tourism model, country needs to consider infrastructure improvements around popular destinations like Lake Ohrid and Dojran Lake. This could involve enhancing public transportation, waste management systems, and promoting responsible tourism practices among visitors. By focusing on these recommendations, Macedonia can create a more balanced tourism industry that benefits all regions and minimizes the negative impacts of seasonality.

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