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# Call for Papers Winter Issues 2023 Journal of Environmental Management and Tourism

**Journal of Environmental Management and Tourism** is an open access, peer-reviewed interdisciplinary research journal, aimed to publish articles and original research papers that contribute to the development of both experimental and theoretical nature in the field of Environmental Management and Tourism Sciences. The Journal publishes original research and seeks to cover a wide range of topics regarding environmental management and engineering, environmental management and health, environmental chemistry, environmental protection technologies (water, air, soil), pollution reduction at source and waste minimization, energy and environment, modelling, simulation and optimization for environmental protection; environmental biotechnology, environmental education and sustainable development, environmental strategies and policies.

Authors are encouraged to submit high quality, original works that discuss the latest developments in environmental management research and application with the certain scope to share experiences and research findings and to stimulate more ideas and useful insights regarding current best-practices and future directions in Environmental Management.

Also, this journal is committed to a broad range of topics regarding Tourism and Travel Management, leisure and recreation studies and the emerging field of event management. It contains both theoretical and applied research papers and encourages obtaining results through collaboration between researchers and those working in the tourism industry.

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## The Essence of Green Participatory Budgeting

Małgorzata SIEMIONEK-RUSKAŃ

Department of Banking and Finance, Faculty of Management  
University of Gdansk, Poland

ORCID: 0000-0002-0733-456X

[malgorzata.ruskan@ug.edu.pl](mailto:malgorzata.ruskan@ug.edu.pl)

Anna SIEMIONEK-LEPCZYŃSKA

Department of Corporate Finance, Faculty of Management  
University of Gdansk, Poland

ORCID: 0000-0003-0303-7477

[anna.siemionek@ug.edu.pl](mailto:anna.siemionek@ug.edu.pl)

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**Abstract:** This paper presents a pioneering bibliometric analysis of the literature surrounding green participatory budgeting (GPB), examining research trends from 2002 to October 2024. Utilizing various keyword combinations, a total of 90 relevant articles were extracted from the Web of Science database. The analysis reveals a significant rise in publications beginning in 2017, with peak activity in 2019, indicating growing interest from researchers and policymakers. Key thematic categories identified include Environmental Studies, Urban Studies, and Public Administration, reflecting the interdisciplinary nature of the field. Keyword co-occurrence analysis highlights terms such as 'participatory budgeting,' 'democracy,' and 'governance,' while co-authorship analysis uncovers collaboration networks among researchers across countries. The findings underline the integration of sustainability into participatory budgeting processes and provide a foundation for future research in this important area of public finance. The originality of this study lies in its comprehensive approach to exploring the complexities of GPB and its practical implications for enhancing public engagement and policy development toward sustainable budgeting practices.

The objective of this study is to conduct a bibliometric analysis of the literature on green participatory budgeting and identify research trends, key themes, and co-authorship networks in the field.

Data were extracted from the Web of Science database using various keyword combinations related to GPB. A total of 90 articles published between 2002 and October 2024 were analyzed. The annual publication frequency was recorded, and the data were further analyzed using VOS viewer software to perform keyword co-occurrence and co-authorship analyses.

The analysis reveals a notable increase in publications starting in 2017, peaking in 2019. The leading categories identified include Environmental Studies (23 publications), Urban Studies (16), and Public Administration (15). Keyword co-occurrence analysis indicated that the most frequently occurring terms are 'participatory budgeting,' 'democracy,' and 'governance.' Co-authorship analysis revealed three clusters of collaboration, including countries such as England, Finland, the USA, and China.

The comprehensive analysis of trends and publication frequency provides policymakers with a clearer understanding of the evolving narrative surrounding green participatory budgeting. This insight can drive evidence-based decision-making, allowing them to allocate resources effectively toward sustainable projects that engage citizens.

This paper is pioneering in its systematic bibliometric analysis of green participatory budgeting (GPB) and related topics within academic literature. By synthesizing diverse research outputs over more than two decades, it establishes a foundational understanding of the field, which has previously been overlooked.

**Keywords:** green participatory budget; green participatory budgeting; participatory budget; bibliometric analysis.

**JEL Classification:** H72; Q56; R58.

## Introduction

In recent years, the urgent need to address environmental challenges has prompted a reevaluation of traditional budgeting processes in public governance. Green participatory budgeting (GPB) emerges as a powerful framework that integrates environmental considerations into participatory budgeting practices, enabling communities to influence how public funds are allocated toward sustainable initiatives (Siemionek-Ruskań *et al.* 2022). By engaging citizens in the decision-making process, GPB not only enhances transparency and accountability but also empowers communities to prioritize projects that align with their environmental and social values (Burchard – Dziubińska 2016).

The concept of participatory budgeting has gained traction globally, facilitating direct participation of citizens in financial planning and expenditure. This democratic approach aims to create more inclusive governance by allowing residents to voice their needs and preferences regarding community projects. (Siemionek-Ruskań *et al.* 2024). However, as concerns about climate change and environmental degradation escalate, there is a growing acknowledgement of the need to incorporate sustainability into these processes. GPB seeks to bridge this gap by emphasizing environmental objectives and encouraging the allocation of resources toward initiatives that promote ecological health (Klemens 2022).

Despite the increasing significance of GPB in public finance and governance, there has been a relative lack of comprehensive studies that assess its development and impact within the academic literature. This paper aims to fill this gap through a bibliometric analysis of research on green participatory budgeting, exploring the evolution of scholarly discourse from 2002 to October 2024. The study utilizes the Web of Science database to extract relevant publications and employs VOS viewer software for keyword co-occurrence and co-authorship analyses, providing a thorough understanding of the academic landscape surrounding GPB.

The originality of this paper lies not only in its focus on that area of research but also in its methodological approach, which highlights the complexities and interdisciplinary nature of GPB. By identifying key research trends, themes, and collaboration patterns, this analysis aims to stimulate further inquiry into the intersection of environmental governance and participatory budgeting practices.

This paper seeks to contribute to the understanding of green participatory budgeting, advocating for its expanded implementation as a vital tool for achieving environmental sustainability in governance while promoting active citizen participation. Through this bibliometric analysis, we aim to pave the way for future research that continues to explore the potential of GPB in fostering resilient and sustainable communities.

## 1. Literature Review

Based on the academic articles published so far, Milosavljevic *et al.* (2023) were the first to conduct a bibliometric analysis on the topic of participatory budgeting research. However, their study only covered papers published up to 2023 that were indexed in the Web of Science database. They used combination of word: 'participatory budgeting' OR 'participatory budget in their research.

The concept of participatory budgeting (PB) began in the late 20th century as a democratic innovation aimed at enhancing citizen engagement in public governance and financial decision-making processes. (Kimic *et al.* 2024). Originating in Brazil, particularly in Porto Alegre, participatory budgeting has since been adopted in various forms across the globe, demonstrating its ability to empower communities and foster transparency in governance. The integration of participatory budgeting within environmental and sustainability frameworks, termed green participatory budgeting (GPB), has emerged as a critical development in this field, reflecting the pressing need for sustainable solutions in public finance (Bednarska-Olejniczak *et al.* 2020).

Research on PB highlights its potential to democratize fiscal decision-making, where citizens can directly influence budget allocations and project selections, resulting in increased accountability and trust in local governments. As awareness of socio-environmental issues has increased, scholars have begun to explore how PB can serve as an instrument for sustainable development in urban areas (Bassoli 2012).

## 2. Method

The bibliometric analysis was performed in October 2024 by extracting data from Web of Science using the following keyword combinations: (green and 'participatory budget\*') or (green and 'citizen budget\*') or (sustainable and 'participatory budget\*') or (environmental and 'participatory budget\*') or (climate and 'participatory budget\*') or ('green participatory budget\*') or ('environmental budget\* in participatory processes') or ('participatory budget\* and sustainability') or (climate and 'participatory budget\*'). The variety of combinations of key words were used to show the best the complexity of term green participatory budget as well as green participatory budgeting.



1. The originality of this paper stems from the fact that its authors are the first to perform a bibliometric analysis of green participatory budget and green participatory budgeting.
2. By selecting the Web of Science database, researchers guarantee that the insights and evidence gathered from the literature come from reputable and reliable studies. A total of 90 articles were retrieved from the years 2002-2024, and these were exported with full records and cited references. Once the data was collected, it was further analyzed using VOSviewer software.

### 3. Case Study

Participatory budgeting (PB) represents a transformative approach to governance, allowing citizens to directly influence how public funds are allocated. Originating in Porto Alegre, Brazil, in 1989, it has set a global precedent for citizen engagement and fiscal transparency (Baicocchi 2005). With the rise of environmental consciousness, cities like Lisbon have adopted and adapted this model to address sustainability challenges through green participatory budgeting (GPB). This case study explores the evolution and impact of participatory budgeting in Porto Alegre and its transformation into green participatory budgeting in Lisbon.

Porto Alegre, a city with a population of 1.3 million, serves as the most cited example of participatory budgeting. Introduced in 1989, PB in Porto Alegre was designed to empower local citizens and improve transparency in public spending. At its peak in 2002, the process engaged 17,200 citizens who collectively decided the allocation of approximately \$160 million of public funds. The PB process not only facilitated community participation but also significantly impacted socioeconomic conditions in the city. The allocation of funds was guided by criteria that prioritized marginalized communities, creating powerful redistributive impacts that helped to address inequalities in access to public services and infrastructure (Owsiak 2017). The successful implementation of participatory budgeting in Porto Alegre embedded the practice within the institutional framework of municipal governance, drastically changing how the local government interacted with its citizens (Sintomer *et al.* 2008).

In 2008, Lisbon became the first European capital to adopt participatory budgeting on a municipal scale, replicating the principles established in Porto Alegre. By empowering citizens to decide how certain parts of the municipal budget should be spent, Lisbon aimed to strengthen community ties and improve public services. Recognizing the importance of sustainability in urban development, Lisbon transitioned to green participatory budgeting following its recognition as the European Green Capital in 2020. The city's decision to focus its participatory budgeting efforts on environmental proposals was implemented in response to increasing climate change impacts and the need for sustainable urban solutions. The new GPB framework ensures that community-driven projects are geared towards creating a more resilient and environmentally friendly city (Falanga *et al.* 2023).

The GPB process in Lisbon emphasizes not only environmental stewardship but also inclusivity, allowing citizens to propose and vote on initiatives related to sustainable development. This has led to the funding of various projects, including urban green spaces, energy-efficient public buildings, and initiatives aimed at reducing waste.

The transition from participatory budgeting to green participatory budgeting in Lisbon highlights the dual goals of fiscal responsibility and environmental sustainability. By involving citizens in the decision-making process, Lisbon has fostered a culture of engagement and accountability, while also addressing pressing environmental concerns.

In Porto Alegre, the legacy of participatory budgeting continues to offer lessons about the transformative power of citizen engagement. The significant redistributive impacts and institutionalization of the process demonstrate how participatory governance can effectively respond to community needs. In contrast, Lisbon's experience illustrates the adaptability of participatory budgeting principles in addressing contemporary challenges like climate change. The successful integration of environmental goals within the participatory budgeting framework in Lisbon serves as a model for other cities aiming to adopt GPB practices.

The cases of Porto Alegre and Lisbon demonstrate the evolution of participatory budgeting into a tool for environmental governance through green participatory budgeting. By empowering citizens to influence budget allocations, both cities have made significant strides towards creating more equitable and sustainable communities. The lessons learned from these experiences underline the potential of participatory budgeting to reconcile fiscal responsibility with environmental stewardship, encouraging other municipalities worldwide to adopt similar approaches in response to pressing global challenges. As cities continue to grapple with issues related to sustainability and citizen engagement, the frameworks established in Porto Alegre and Lisbon will undoubtedly serve as guideposts for innovation in public governance (Baicocchi 2005).

#### 4. Research Results

The annual publication frequency provides valuable insight into how research in the field is progressing. Table 1 shows the publication frequency in green participatory budgeting and green participatory budget from 2002 to October 1st, 2024.

Table 1. Frequency of articles about green participatory budgeting by year

Year	Number of articles	Year	Number of articles	Year	Number of articles
2024	5	2016	6	2008	0
2023	10	2015	4	2007	1
2022	5	2014	0	2006	0
2021	11	2013	3	2005	1
2020	9	2012	1	2004	0
2019	12	2011	2	2003	1
2018	8	2010	1	2002	2
2017	7	2009	1		

Source: Authors' own research.

Year 2017 marks the beginning of a rise in publications on green participatory budgeting, with 2019 being the most productive year to date. A growing number of papers were published in 2019 and 2023, indicating increasing interest in the topic from both researchers and policymakers. Publication output in 2020 and 2021 was lower, probably because of the COVID-19 pandemic. It is expected that year 2024 will end with a significant increase in publications number.

Table 2 highlights the top 5 leading categories in the green participatory budget and green participatory budgeting literature. It is noteworthy that environment-related, as well as business and economic categories, dominate, which is to be expected since 'green' is associated with environmental issues, while 'participatory budgeting' and 'participatory budget' are linked to economic and financial themes in public sector.

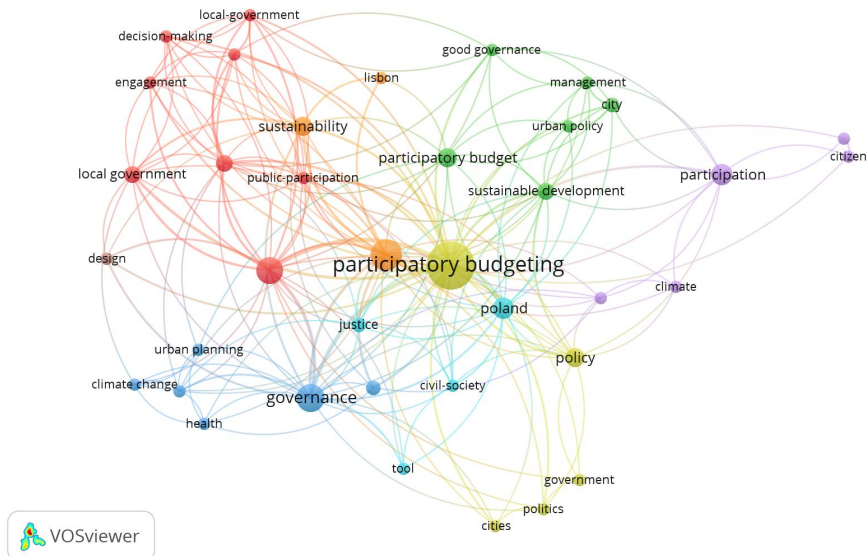
Table 2. The list of selected city GBP projects in Gdansk for year 2024

Category	Number of publications
Environmental Studies	23
Urban Studies	16
Public Administration	15
Environmental Sciences	14
Green and Sustainable Science Technology	13

Source: Authors' own research based on Web of Science database, access date: 1<sup>st</sup> October 2024.

The authors of this paper first explored the key subjects and topics related to green participatory budgeting by conducting a keyword co-occurrence analysis which was presented in Figure 1. The criteria indicated in co-occurrence analysis was 'minimum number of occurrences of a key word is 2'. Out of 244 keywords only 38 met the given criteria.

Figure 1. Keyword co-occurrence analysis

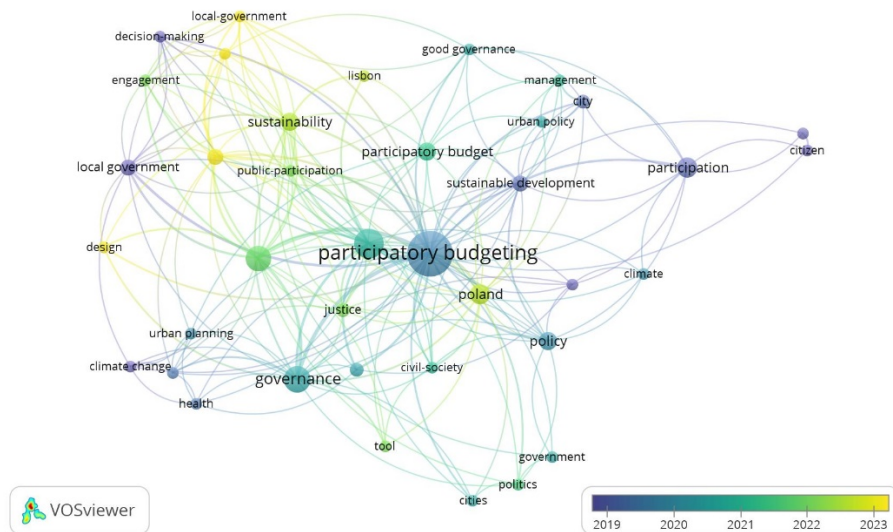


Source: Authors' own research.

The terms that appeared most often are: participatory budgeting (31), democracy (13), governance (11), government (11), citizen participation (10), local government (6), Poland (6), participation (6), participatory budget (5), sustainability (5), policy (5), sustainable development (4).

The emerging trends are illustrated in 7 clusters in the overlay visualization presented in Figure 2.

Figure 2. Term occurrence in overlay visualization



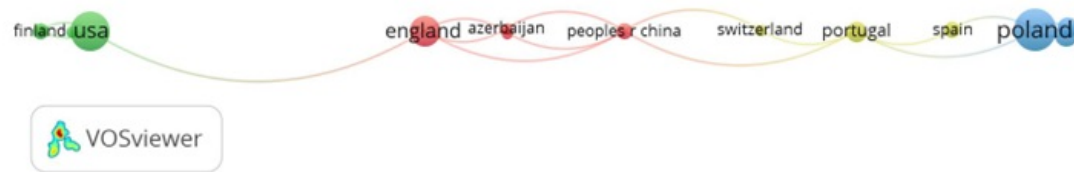
Source: Authors' own research.

Note: These terms have evolved over the years, beginning with local government, decision-making, citizen, participation, city, participatory budgeting, moving to more complex issues related to sustainable development, public participation, justice, sustainability in selected countries on example of Poland and Portugal. In year 2023 phrases such as: design and innovation were added.

To carry out a co-authorship analysis, the authors of this paper investigated how researchers from various countries are connected through shared publications on green participatory budgeting (Figure 3).



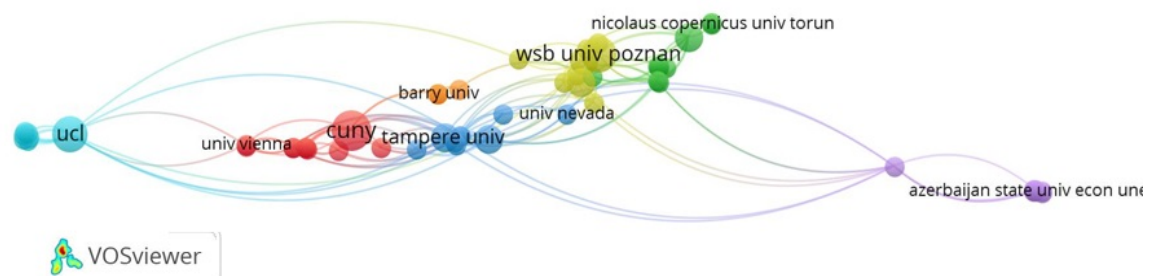
Figure 3. Co-authorship analysis



Source: Authors' own research.

The criteria indicated in co-authorship analysis was: 'minimum number of documents by a country is 2'. And the results were displayed in figure 3. There were 9 countries which fulfilled the above-mentioned criteria divided in 3 clusters namely: cluster 1 (England, Finland, USA, China), cluster 2 (Portugal and Spain), cluster 3 (Czech Republic, Poland, and Ukraine).

Figure 4. Citation analysis



Source: Authors' own research.

The top seven most cited organisations were: Tampere University (total link strength =18), UCL (17), Cuny (16), Univ Utrecht (12), WSB Univ Poznan (12), Univ Lodz (12).

## 5. Discussions

The bibliometric analysis of green participatory budgeting (GPB) presented in this paper offers valuable insights into an emerging and vital area of research that intersects environmental sustainability, public finance, and participatory governance. The significant increase in publications since 2017, particularly the peak in 2019, reflects the growing recognition of GPB as a crucial tool for addressing environmental challenges through public finance mechanisms. This trend suggests that stakeholders, including local governments and civil society, are increasingly aware of the importance of integrating sustainability into budgeting processes. Despite the positive trends, there are challenges associated with GPB implementation that warrant further exploration. The paper identifies gaps in the literature, particularly regarding effective practices in diverse cultural contexts and the impacts of GPB on actual environmental outcomes. Future research could focus on longitudinal studies that track the effectiveness of GPB initiatives over time, providing empirical evidence of success or areas for improvement. The practical implications drawn from the findings emphasize the need for policymakers to consider the role of GPB in fostering sustainable development. Incorporating environmental considerations into participatory budgeting processes not only aligns with global sustainability goals but also enhances local governance by engaging communities in meaningful ways. Policymakers are encouraged to leverage the insights from this study to implement GPB initiatives that reflect community priorities and environmental concerns. This paper contributes significantly to the field of green participatory budgeting by providing a thorough analysis of existing literature and identifying critical trends, themes, and collaborative networks. As GPB continues to evolve, ongoing research and practice must prioritize inclusion, sustainability, and community engagement to navigate the complexities of contemporary environmental and governance challenges.

## Conclusions and Further Research

This study highlights the increasing interest in green participatory budgeting over the past two decades, particularly in the context of sustainability and governance. The findings suggest a complex interplay between environmental policy and participatory budgeting, underlining the need for continued research to promote

sustainable practices in public financial management. Further exploration of collaboration patterns can enhance interdisciplinary approaches in this field.

#### Credit Authorship Contribution Statement

**Małgorzata Siemionek-Ruskań:** Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition.

**Anna Siemionek-Lepczyńska:** Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing, Visualization, Funding acquisition.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Declaration of Use of Generative AI and AI-assisted Technologies

The authors declare that they have not used/ generative AI.

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## Assessing Patterns of Tourism Seasonality in a Mixed Heritage Island Site

Laura SHUMKA

Faculty of Applied Sciences and Creative Industries

Barleti University, Albania

ORCID: 0000-0003-1341-4627

[l.shumka@umb.edu.al](mailto:l.shumka@umb.edu.al)

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**Abstract:** The main purpose of the paper is to make a ground investigation on island integrity and factors that are threatening conservation status. The island itself is part of a protected area *i.e.* National Park Prespa proclaimed in 1999 in Albania, while it holds other important designations as Ramsar site, and Biosphere Reserve. This approach looks primarily on particular impacts caused by tourism seasonality due to climate and geographic location of an iconic small island since it holds one of the regional most spectacular church of Post-Byzantine periods. Further on, the research examines motivation of tourist for visiting the island, considering resources as religion monuments, nature values, landscape and others. Also it examines seasonal patterns in tourism in terms of tourist arrivals mostly via small boats. To that fact, this case of analyze is studied by employing dedicated questionnaire and Gini coefficient along with Seasonality Indicator aiming to cover a time-frame of past ten years.

**Keywords:** seasonality; sustainability; Gini coefficient; island environment; biosphere reserve; Ramsar site; tourism; conservation.

**JEL Classification:** Q57; I30; C20; C80; Z32.

### Introduction

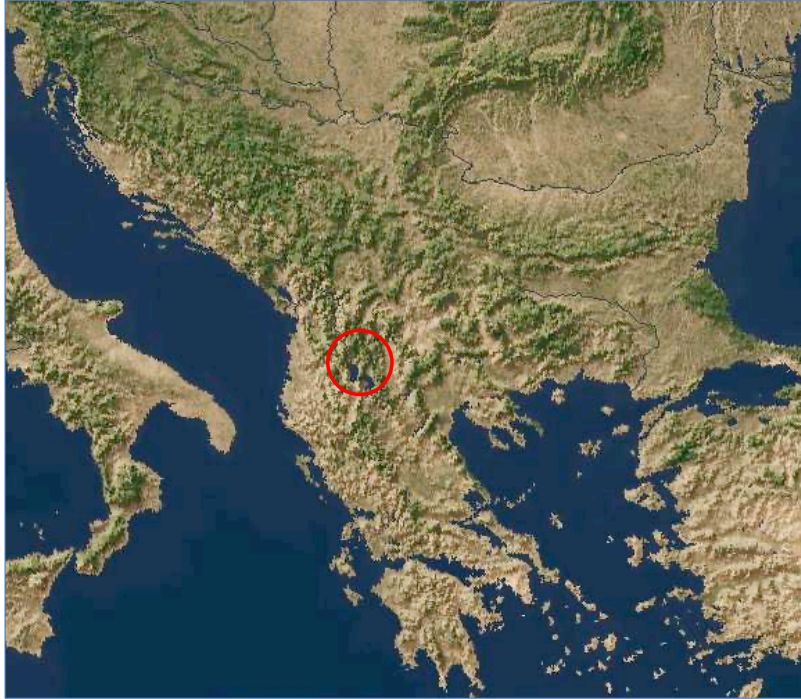
The Prespa Lakes region, which is divided between Albania, Greece and North Macedonia, is a cross-border protected area, established by a joint Declaration of the Prime Ministers of the three neighboring states in February 2000 (Figure 1 and Figure 2). The area is a very important natural forest, due to the biodiversity and endemic species that exist in it. At the same time, the area of Prespa is rich in historical monuments (Shumka, Shumka and Korro 2022). Along the shores of the lake and the hinterland there are prehistoric and medieval settlements, temples and monasteries, as well as rock caves with Byzantine hermitages and chapels, inside of which there are remarkable frescoes (Popa 1998). These hermitages on the shores of Lake Prespa date from the middle of the 13th to the middle of the 16th century, confirming the presence and continuation of Byzantine art and monasticism in the area, even after the fall of Constantinople.

Maligrad is a small island located in Albanian part of Lake Prespa. The single-nave church of the Birth of the Virgin is built in a large cave on the rocky and uninhabited island of Maligrad on the lake of Great Prespa, near the village of Pustec (Dhamo 1964). It is a single-aisled basilica, small in size, covered by a semi-cylindrical arch (Figure 3 and Figure 4). Based on the surviving founding inscriptions, the temple was originally built and painted in 1344/5 by Boyko and his wife Evdokia, together with their children and is a typical example of the time. Being informed from the sources that the art of the wider area of Prespa was directly dependent on Ohrid, an important ecclesiastical center of the time, and influences from well-known workshops that are active, during the 14th century (Thomo 2006; Meksi 2004).

Many animals, especially birds and reptiles, can find microhabitats in the form of rock fissures, plants, and trees. Ancient building ruins from bygone eras provide a wealth of shelter (Sterijovski, Ajić, Tomović and Bonnet 2014). Due to the preservation of Prespa Lake habitats from advanced agriculture and different types of development, significant populations of amphibious Dice Snakes (*Natrix tessellata*), Nose-horned Vipers (*Vipera ammodytes*), and Common Wall Lizards (*Podarcis muralis*) can be found in Maligrad. These species can also be

found in Eastern Europe and on the adjacent mainland. The insular dice snakes show a tendency toward gigantism, while the insular vipers are smaller than the continental populations.

Figure 1. Satellite image of the Prespa Lake with the Balkan region



## 1. Literature Review

For a considerable time, there are discussions on the negative effect of tourism in general and its seasonality in particular, focused on the tourism industry's performance in economic and management aspects (Xie 2020). The most significant sequences lie in nature degradation of the site, that in our case is island environment, while the seasonality character tourism and inefficiency use of facility and resources in an entire year generates particular problems in quality employees [Koenig-Lewis and Bischoff 2005; Pegg, Patterson and Gariddo 2012; Xie 2020; Petrevska 2013; Shumka 2019; Shumka, Perri and Lato 2020).

Figure 2. View of the Maligrad Island within Prespa Lake



Source: Author: L. Shumka.



Island particularities and combined natural and cultural resources are always target of large flux of visitors. So far, in the literature, relatively little attention has been given to the environmental and cultural consequences of seasonal concentration (Xie2020). Meanwhile, the high number of tourist and its seasonality discrepancy can be damaging to the natural environment in terms of erosion, vegetation, wildlife, and waste (Turrión-Prats and Duro 2018; Shumka 2022). On the other hand, this tourism pattern is directly affecting the local population and authorities of the protected areas and their satisfaction levels. Following the above complexity including economic, social and environmental impacts of seasonality, we can draw a statement that seasonality is one of the issues related to tourism sustainability and island environment integrity.

The importance of protected areas state and connectivity is recognized in global biodiversity targets adopted by the world's governments (Saura, *et al.* 2017). In 2010, the parties to the United Nations Convention on Biological Diversity (CBD) adopted a Strategic Plan for Biodiversity for the 2011–2020 periods, including the twenty Aichi Biodiversity Targets (CBD, Decision UNEP/CBD/COP/DEC/X/2 Adopted by the Conference of the Parties to the Convention on Biological Diversity at Its Tenth Meeting Convention on Biological Diversity (CBD), 2010). Apart from increasing the protected areas network to at least 17% it refers to 'effectively and equitably managed, ecologically representative and well-connected systems of protected areas' (CBD, Decision UNEP/CBD/COP/DEC/X/2 Adopted by the Conference of the Parties to the Convention on Biological Diversity at Its Tenth Meeting Convention on Biological Diversity (CBD), 2010). The Albanian trends in terms of protected areas coverage is in line with that of international community. Recent analyses (Shumka, Papastefani, Shumka, and Mali 2023) reveal that the Government of Albania has approved a System of Environmentally Protected Areas. Currently the area of the Network of Protected Areas (NPA) of Albania reaches 504,826.3 ha, or 21% of the total area of the country. Of the total area, the Coastal and Marine Protected Areas constitute 119,224.7ha, or 23.6% of the total surface of the NPAs of the country, of which 13,261.2ha is only marine area. Also, 98,180.6ha, are with the status of Ramsar areas, which cover 3.42% of the total area of the country.

Figure 3. The church of the Birth of the Virgin built in a island cave



Source: Author: L. Shumka.

## 2. Methods and Data Sources

This survey had two main aims: (i) to perform a tourism flow analysis of existing tours by investigating the intentions/interests of visitors, and (ii) to assess the seasonality patterns of tourism oriented to island environment that host important natural and cultural resources. The survey also considered how organized tours might consider including the heritage of other religions, both tangible and intangible.

In order to achieve these objective two particular tools were employed: (i) dedicated semi-structured questionnaire and (ii) following measuring method that is needed in order to describe and analyze the seasonal concentration in tourism. To that fact the (Nadal, Font, and Rosselló 2004), the Gini coefficient has been used.



The Gini coefficient is 'a statistical measure of inequality' (Lundtorp 2001), and 'is derived from the Lorenz curve' (Lundtorp 2001). Precisely, the Lorenz curve is a graphical representation of inequality while the Gini coefficient is a measure for this inequality. As explained by (Bigovic 2012), for a complete equality (*i.e.*, the same number of tourist arrivals or tourist overnight stays every month), which is an extreme situation, the Lorenz curve would be a straight line (*i.e.*, represents 45° equality line) and it becomes more curved as inequality rises (Black 2020). On the other side, the Gini coefficient is a number between 0 and 1 (*i.e.*,  $0 \leq G \leq 1$ ). The larger the Gini coefficient, the greater the inequality and the smaller the Gini coefficient, the lower the inequality. In this survey, the Gini coefficient on yearly basis is calculated upon standard equation:

$$G = 2/n \sum_{i=1}^n (xi - yi) = \frac{2}{n} [(x1 - y1) + (x2 - y2) + \dots + (xn - yn)] = \frac{2}{n} [\sum_{i=1}^n x1 - \sum_{i=1}^n y1]$$

whereas:

$n$  denotes number of months;

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

$yi$  denotes cumulative relative frequency of tourist visiting island in rank by ascending order.

This study uses monthly data on Maligrad island visitors transferred through small boats from different location along the Lake Prespa shore from Prespa National Park authority for the period of 2014 to 2023.

Figure 4. Mural frescoes within interior of church of the Birth of the Virgin



Source: Author: L. Shumka.

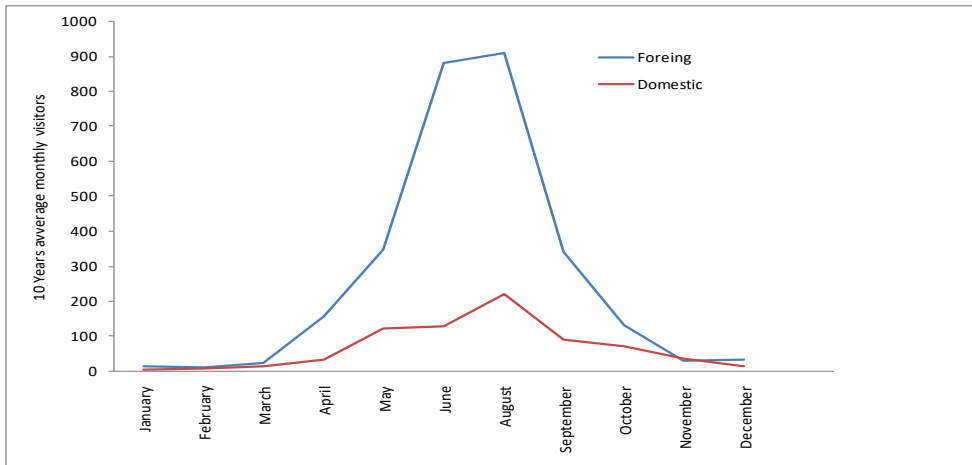
#### 4. Research Results

Following the data of visitors spending a day in Maligrad Island for the period of 2011 to 2023 (excluding the COVID 19 years of 2019 and 2021), the average yearly number is 3587 tourist, out of which 2858 were foreigners and 729 domestic. The average value numbers of seasonal pattern of tourists visiting Maligras Island is presented in Figure 5. According to local statistics between 2011 and 2023, the Prespa tourists' hotel overnight stays increased by about ten times. But, looking to the limited capacity only 10% of the total foreign and domestic tourist overnight within survey focus area.

Prespa nature and lake are including island and coastal small chapels and castles are the most popular attractions for international tourists to visit the area. Although the weather conditions in region favors boat transfers mostly during spring-summer time than in the rest of the year it is very clear the sharp decrease after the June, July, and August. Further on traditional and summer vacations favors the inequality among different months. This leads to around 70% of the international tourists visit Maligrad in the summer season between May and September every year (Figure 5). Figure 5 shows the demeaned monthly hotel overnight stays for the Prespa area mostly due to total foreign tourists, respectively, between 2011 and 2023. A strong seasonal pattern with a

peak in the summer months can be obviously observed, considering that 90% of the foreign tourists are from the neighboring European countries.

Figure 5. Average value numbers of seasonal pattern of tourists visiting Maligras Island



The analysis of the guided tours or small boat transferring smaller groups found a considerable concentration in just a few tourist destinations in the Prespa area, with the central focus on post-Byzantine church of Maligrad Island. As a result, there was a lack of expansion into other locations with other priceless destinations that could have been included in additional heritage tourism programs. 80% of visitors to the region expressed interest in the region's religious traditions and values (Figure 6).

Figure 6. The purposes of visits for 800 sample tourists visiting Maligrad Island during June-August 2022 and 2023

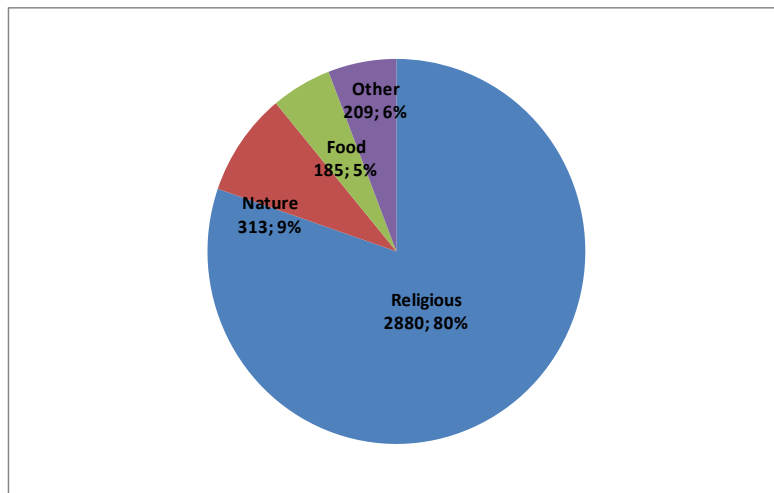
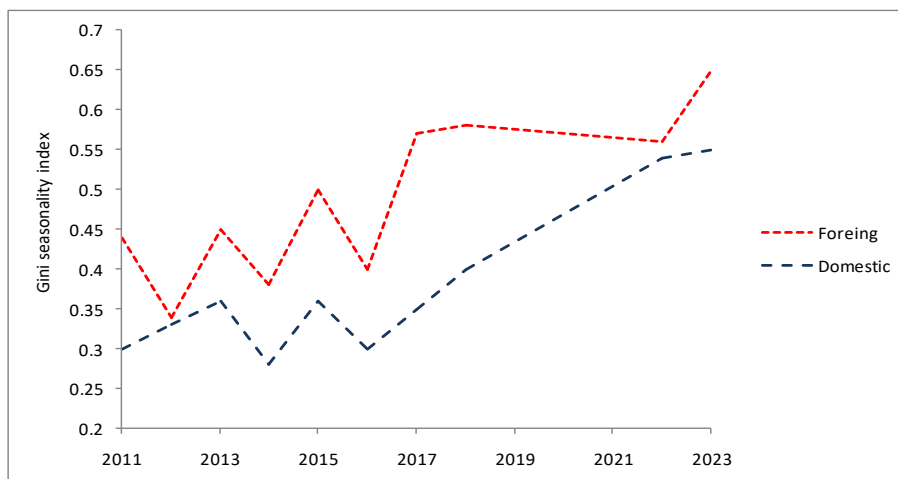


Figure 7. Change of seasonal concentration in the Maligrad Island tourist expressed through Gini coefficient



The calculated values for G for the sample period are presented in Figure 7. It is noticeable similarities in the value during the past ten years with an increase of seasonality within last six years. So, with regards to the Gini coefficient, the values spread between 0.32 and 0.65. The average value of G for the period 2011-2023 is 0.53.

## 5. Discussions

Within last three decades the intensification of land-use and tourism development poses significant threats to biodiversity directly through the disturbance, alteration and fragmentation of ecosystems and habitat loss, and indirectly through the disruption of supporting ecological processes. Further on, the protected areas offer refuges for species and ecosystems; they do not function in isolation from surrounding natural or human-dominated landscapes.

The followings are the major threats that affect habitat and species connectivity in different protected areas of Albania (including Prespa National Park where Maligrad island is one of the most important components): (i) Dam construction, energy and mining projects; (ii) Transportation and service corridors; (iii) Residential and commercial development; (iv) Tourism; (v) Natural systems modification; (vi) Biological resources use; (vii) Alien and invasive species; (viii) Pollution; (ix) Climate change and severe weather; (x) Agriculture and aquaculture; (xi) Deforestation; (x) Forest Fires etc. The energy infrastructure such as constructions of dams and mining are among the frequently present threats to PAs and with a high impact, compared to other threats. For the most frequent level one threat, *i.e.* biological resource use threats, natural system modifications, etc., seems to have again a high impact.

In case of Maligrad Island, the seasonality is one of the main challenges to the biodiversity and cultural monuments conservation and also to sustainable development of the local economy. In our case study of the Maligrad Island tourism flow, tourism demand is highly skewed toward the summer season. Following (Bigovic 2012; Su, *et al.* 2023; Butler 1994), a critical problem to be solved in both academy and practice is to find the causes and solutions of the seasonal concentration [Baron 1975; Rudihartmann 1986; Mourdoukoutas 1998; Mowforth and Munt 2015). Our survey highlights the importance of local economic plans, which should be further integrated into management planning, in determining the seasonal pattern of a tourism destination. This is because tourists' responses to the cost differential between peak and off-peak seasons vary depending on their economic circumstances, in addition to the island's well-known values, landscape features, climate, and institutional factors.

Regarding the impacts of tourism development, the data show that seasonality in terms of intra-year monthly variations in tourist arrivals is constant during the 12 year period. Due to fact that research calculations referring Gini coefficient are close to the margin of 0.5, one may conclude presence of seasonality in tourism. So, the higher than 0.5 value of G shows that current distribution of tourism demand for the sample period, has a meaning for the Maligrad Island.

Beyond its theoretical implications, the study's conclusions are useful in practice since they provide advice to rural tourism households and the local government officials in charge of managing protected areas. Given that excessive diversification will result in inefficiencies and dilute overall income benefits, nature-oriented and rural tourism guides and households are advised to conduct a thorough analysis of their available resources and caring capacities versions before making decisions about seasonal strategy. At various points during the seasonality of tourism, local authorities ought to implement tailored initiatives. At various points during the seasonality of tourism, local authorities ought to implement tailored initiatives. Labour market interventions are required during peak seasons, when tactics like 'Extending Working Hours' and 'Increasing Staffing Input' are crucial. Enhancing the quality and availability of seasonal wages can involve investments in training programs, nature guides focused on the preservation of cultural and natural values, and limitations on low-paying but high-intensity jobs. Support for non-tourism sectors is required during the off-season, when persistence in tourism may not be the only effective strategy. This includes spearheading the creation of cooperatives or collective operation initiatives (including protected areas and tourism organizations), which allow rural tourism households to increase the number of people who purchase off-season agricultural products and handicrafts.

## Conclusions and Further Research

This paper aims to emphasize the importance of seasonality as one of the major factors that from one side affects the Islands integrity and profound limits for tourism development. Following this, a brief overview is presented on reasons for the most examined negative effects of visitors to natural and cultural values of the island.

Due to the strong seasonality, there is no balance in local tourism development. During the main season there is overuse of resources (*i.e.*, number of tourists highly exceeds the carrying capacity limit). Accordingly, the tourist product sustainability is under threat during the peak season. The solution to this problem lays in proper management of this activity, professional guidance by the management authorities and clear integration into management planning of the protected area. The degree of seasonality should be approximately adequate to the destination carrying capacity limit and island integrity in terms of both biodiversity and cultural heritages. This study showed that there is no theoretical basis for the existence of seasonality with significant patterns, especially during the summer. Therefore, this investigation disentangles the existence of seasonal concentration in a small area with significant influence and rejects such an approach in a scientific manner. This paper has additional significance and contribution because it is the first attempt to assess seasonality of tourism demands within protected areas in Albania.

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### Credit Authorship Contribution Statement

**Laura Shumka:** Writing original draft, Writing, review and editing, Methodology, Data analysis.

### Declaration of Competing Interest

The author declares that she has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Declaration of Use of Generative AI and AI-Assisted Technologies

The author declares that she has not used/ or used generative AI (a type of artificial intelligence technology that can produce various types of content including text, imagery, audio and synthetic data).

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## Village-Based Waste Management System: The Study Case in Borobudur Sub-District, Indonesia

Siti WAHYUNINGSIH  
Research Center for Environmental and Clean Technology, Serpong, Indonesia  
ORCID: 0000-0002-8371-2622  
[siti090@brin.go.id](mailto:siti090@brin.go.id)

Tuti SUSILOWATI  
Health Service of Magelang Regency, Magelang, Indonesia  
[tutisusilowati2908@gmail.com](mailto:tutisusilowati2908@gmail.com)

Hadi ASHAR  
Research Center for Public Health and Nutrition, Cibinong, Indonesia  
ORCID: 0000-0001-8123-5925  
[hadi024@brin.go.id](mailto:hadi024@brin.go.id)

Avry PRIBADI  
Research Center for Applied Zoology, Cibinong, Indonesia  
ORCID: 0009-0006-0317-6660  
[avry0001@brin.go.id](mailto:avry0001@brin.go.id)

Teguh SATYAJI  
The Regional Development Planning Agency of Magelang Regency, Indonesia  
[guhse16@gmail.com](mailto:guhse16@gmail.com)

SUKAMSI  
The Regional Development Planning Agency of Magelang Regency, Indonesia  
[masukamsi@gmail.com](mailto:masukamsi@gmail.com)

PURWATI  
The Regional Development Planning Agency of Magelang Regency, Indonesia  
[laras0733@yahoo.com](mailto:laras0733@yahoo.com)

Dhanik ERNAWATI  
Research Center for Environmental and Clean Technology, Serpong, Indonesia  
The Regional Development Planning Agency of Magelang Regency  
[rayrafasya@gmail.com](mailto:rayrafasya@gmail.com)

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**Abstract:** Waste problems are challenges for tourism areas, including the Borobudur sub-district. To mitigate these problems, the central government and state-owned enterprises built temporary landfills, or TPS 3R, in 12 of the 20 villages in the Borobudur sub-district. This study observes the TPS 3R's effectiveness in the Borobudur sub-district in reducing household waste unloading in a final landfill. The TPS 3R is the local government program to manage waste problems in residential areas. The Ministry of Public Works and Housing and state-owned enterprises built the TPS 3R in the Borobudur sub-district, which was then activated and operated by the village government. On one side, the TPS 3R burdens the village authorities and the environmental regulatory agency to manage and supervise the TPS 3R. Despite that, the involvement of some village authorities at the managerial level results in a financial burden for TPS 3R. TPS 3Rs are self-sufficient with less

support from the local authorities, which affects the worker's welfare. Accordingly, the TPS 3R tends to raise the levy fee annually to cover daily activities. In addition, the absence of SOP and the managers' lack of experience in waste management resulted in some infrastructure being idled. However, the TPS 3R effectively minimizes household waste unloading to a final landfill.

**Structured abstract.** This study aims to observe the effectiveness of TPS 3R as a village-based waste management system in the Borobudur sub-district in reducing the amount of municipal waste transported to a final landfill. We conducted the study in Borobudur sub-district, Indonesia, from 2022 to 2023, utilizing semi-structured interviews and focus group discussions. The interviewees consisted of managers and employees of TPS 3R and waste banks from twelve villages in the Borobudur sub-district, a head of the Borobudur sub-district, a head of the Environmental Agency, and a head of the Development Planning Agency. A focus group was held with Empowering Family Welfare members and health workers in the Borobudur sub-district. The data collected from the interview and focus group was then analyzed narratively. The TPS 3R was built by the Ministry of Public Works and Housing and state-owned enterprises on village land. The TPS 3R was equipped with infrastructure such as a biodigester, a compost shredder, and two garbage collection tricycles. The TPS 3R operates independently with less financial support from the local government, resulting in low welfare for the workers. Also, the largest type managed by TPS 3R is organic waste, which requires a longer time to compost but has a low selling price. Accordingly, TPS 3R revenue depends on the household levy fee. However, the levy fee tends to increase each year to cover the TPS 3R activities, which results in a decrease in customer numbers and threatens TPS 3R sustainability. On the other side, the involvement of some village authorities at the managerial level loads up the TPS 3R budget. Also, the on-site manager, a volunteer, manages the TPS 3R as usual, resulting in some infrastructure being idled. However, the TPS 3R reduces the amount of household waste dumped in a final landfill. Village-based waste management systems are not widely applied yet in Indonesia. As the Borobudur sub-district is one of the top tourist destinations, the central government built TPS 3R at the village level to overcome waste problems in the future.

**Keywords:** waste management; household waste; TPS 3R; Borobudur sub-district; tourism.

**JEL Classification:** Q53; Z32.

## Introduction

The Borobudur sub-district is famous for a Buddhist temple, namely the Borobudur temple. The temple has become one of the most attractive tourist destinations in Indonesia. Before the COVID-19 pandemic, more than three million tourists visited the temple annually (Statistics Indonesia of Magelang Regency, 2022). Meanwhile, in 2022, one and a half million tourists visited the temple (Statistics Indonesia of Magelang Regency, 2023). The Borobudur sub-district is in Magelang Regency, Indonesia, and comprises twenty villages. The sub-district was inhabited by 62,970 people in 2019, with a population density of about 1,141 people per km<sup>2</sup> (Statistics Indonesia of Magelang Regency, 2020). Permanent and temporary residents in the Borobudur sub-district generate waste of at least 35.485 tons per day (The Regional Development Planning Agency of Magelang Regency, 2019; Statistics Indonesia of Magelang Regency, 2020).

## 1. Research Background

In Indonesia, each regency has a final landfill managed as an open-dumping, semi-sanitary, or sanitary landfill, including the Magelang regency, where the Borobudur sub-district is located. However, a landfill in the Magelang regency has been overloaded, resulting in environmental problems. A temporary landfill, or TPS 3R, is an alternative to managing household waste in a densely populated area. The TPS 3R is a place to collect household waste and practice 3R (reduce, reuse, and recycle) to minimize the amount of municipal waste dumped into a final landfill. In the Borobudur sub-district, the TPS 3R was built at the village level by the MoPWH in cooperation with state-owned enterprises (SOEs) through a community social responsibility (CSR) scheme. However, the TPS 3R is only built in twelve of the twenty villages in the Borobudur sub-district. However, the TPS 3R is only designed to cultivate household waste from a maximum of 400 head families. The TPS 3R in the Borobudur sub-district is subjected to handling waste problems, mainly from tourism, in the future. Moreover, the central government is rapidly building infrastructure to support tourism in the Borobudur sub-district.

Another waste management scheme applied in the Borobudur sub-district is the waste bank. The waste bank is established in every village in the sub-district. The manager and employees of the waste bank are women group members of a social organization, namely *Pemberdayaan Kesejahteraan Keluarga*, or Empowering Family Welfare (EFW). They work voluntarily for the waste bank, although the local government allocates a budget for the waste bank operation and human resource capacity building. However, the waste banks provide training and activity budgets for their activists and members. Meanwhile, the TPS 3R manager is also a volunteer and usually involved in EFW, or waste bank activism.

In contrast to waste banks, TPS 3R has not received much attention from central and local authorities. The TPS 3R does not get funding from the local government. On the other hand, the Magelang Regency head's regulation No. 38, the Year 2018, mentioned that household waste management strategy was held through coordination between the regency and village authorities. The regulation also said that the executive and legislative branches should commit to providing budgets for handling household waste and the like. TPS 3R finances their daily activities from their revenue, which is mainly from waste levy fees. The waste bank is a program initiated by the Ministry of Environment and Forestry to reduce and recycle inorganic waste, and the ministry allocates budgets for the program, which the regency's environmental agency can access. However, TPS 3R is a program by which the MoPWH mandates that regencies or city governments cultivate household waste in residential areas. The TPS 3R is under the authority of the local regency or city government where it is located, and not every regency or city in Indonesia provides the TPS 3R to manage household waste. However, some TPS 3Rs in Bandung Regency, West Java, are inactive because of run-off operating costs (Zafira and Damanhuri, 2019). This study aims to observe the effectiveness of TPS 3R as a village-based waste management system in the Borobudur sub-district to reduce the amount of municipal waste transported to a final landfill.

## 2. Method

The study was held in Borobudur sub-district, Indonesia (Figure 1), in 2022–2023, using semi-structured interviews and focus group discussions. The interviewees consisted of managers and employees of TPS 3R and waste banks from twelve villages, namely Kembanglimus, Ngargogondo, Tuksongo, Borobudur, Tanjungsari, Ngadiharjo, Wringinputih, Majaksingi, Karangrejo, Wanurejo, Candirejo, and Karanganyar; a head of the Borobudur sub-district; a head of the waste management division of the Environmental Agency; and a head of the research and development division of the Development Planning Agency. However, the TPS 3R in Ngadiharjo and Karanganyar villages has been inactive for over two years, and the village authority has less data about the TPS 3R. Therefore, we excluded the TPS 3R in Ngadiharjo and Karanganyar villages in Figure 2 and Table 1 below. A focus group was held with EFW members and health workers in the Borobudur sub-district. The data collected from the interview and focus group was then analyzed narratively. The levy rates and worker salary calculations were based on a conversion rate of US\$1, which is equal to Rp 15,649.

Figure 1. A map of the Borobudur sub-district. The location of the Borobudur temple is shown by a pentagon shape, and the locations of the TPS 3Rs listed in Table 1 are shown by a pinned picture.

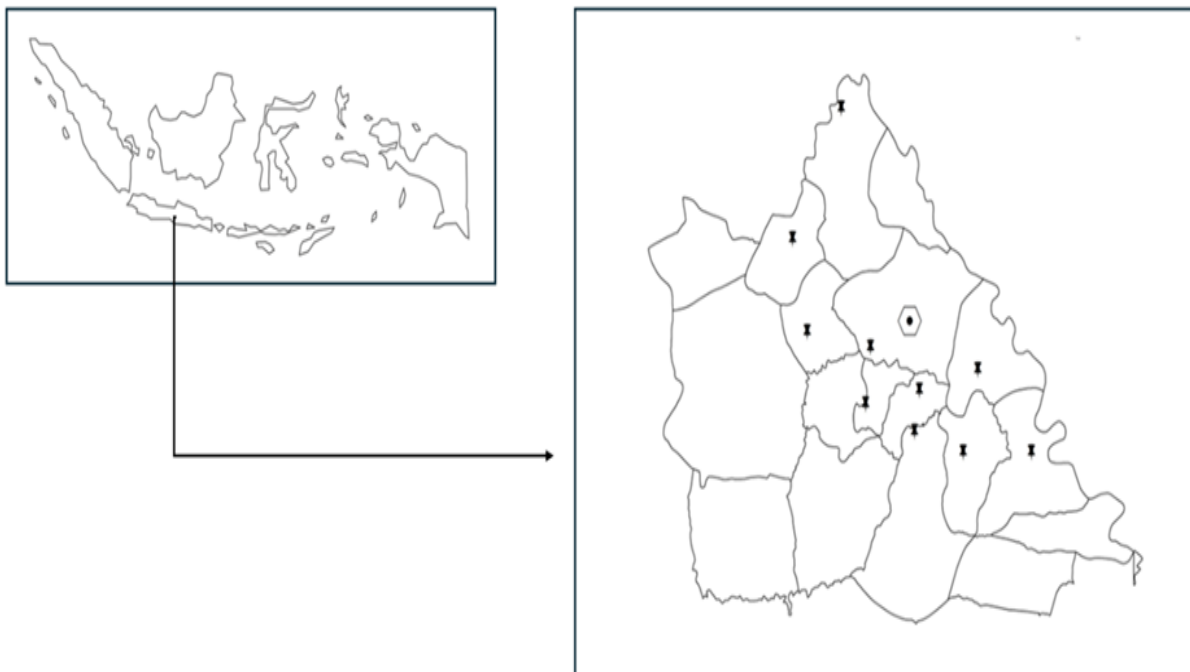
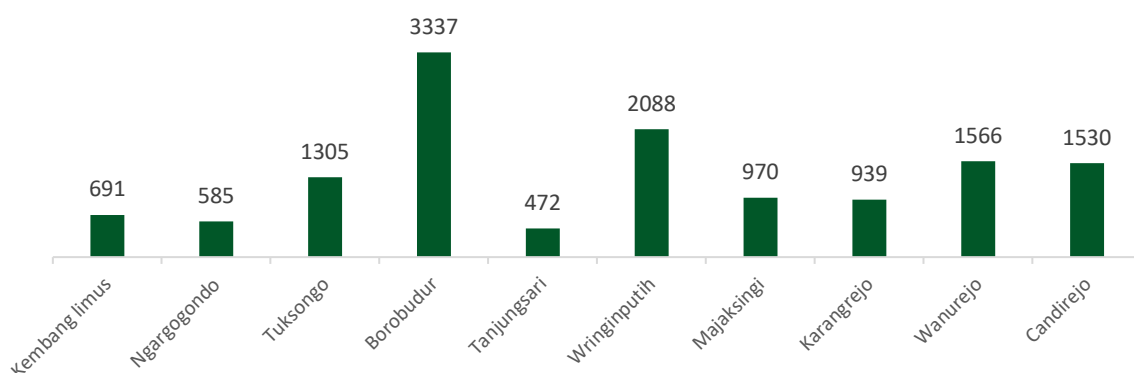


Figure 2. Number of head families of villages in the Borobudur sub-district that have been installed with TPS 3R.



Source: Population and Civil Registry Office of Magelang Regency, 2021.

### 3. Research Results

Table 1. Characteristics of TPS 3R in the Borobudur sub-district.

Village	Number of workers	Worker salary	Waste collection Days	Number of customers	Levy rates	Waste production of the customers	Residues dumps in a final landfill.
	person	US\$/month	days/week	Head family of	US\$/family/month	ton/month	ton/month
Kembang limus	4	54.32	7	160	0.97	8.64	1
Facilities	A biodigester, a compost shredder						
Ngargogondo	3	38.76	3	124	1.29	6.7	0
Facilities	A biodigester, a compost shredder						
Tuksongo	5	50.4	3	250	1.29	13	4
Facilities	A biodigester, a compost shredder, a plastic shredder machine						
Borobudur	6	58	5	265	1.62	15	8
Facilities	A biodigester, a compost shredder, a sieving machine						
Tanjungsari	3	63.84	3	200	0.97	10.8	1
Facilities	A biodigester, a compost shredder, a plastic shredder machine, a pelletizer machine						
Wringin Putih	5	63.84	4	250	1.28	30	20
Facilities	A biodigester, a compost shredder, an oven, a sieving machine						
Majaksingi	4	47.76-76.56	6	139	0.96	14	8
Facilities	A biodigester, a grinder, a sieving machine						
Karangrejo	4	53.2-70	7	211	1.28	12	4

Village	Number of workers	Worker salary	Waste collection Days	Number of customers	Levy rates	Waste production of the customers	Residues dumps in a final landfill.
	person	US\$/month	days/week	Head of family	US\$/family/month	ton/month	ton/month
Facilities	A biodigester, sieving machine						
Wanurejo	7	44.52	7	310	1.28	18	2.7
Facilities	A biodigester, a compost shredder, a sorting equipment, a composter, an incinerator						
Candirejo	7	70.32	3	425	0.64	16	8
Facilities	A biodigester, a composter, a compost shredder,						

Figure 3. A typical TPS 3R building in the Borobudur sub-district consists of an employees' room in the front and a hangar in the back (a); household waste manual sorting in the TPS 3R hangar (b); an idled biodigester located in the TPS 3R backyard (c); and maggot cultivation feeding with food waste (d).



The TPS 3Rs in the Borobudur sub-district were built by SOEs and the MoPWH, equipped with two garbage collection tricycles, a biodigester, and a compost shredder (Figure 3.a.). As the TPS 3R runs, sometimes the manager buys other infrastructure through an aid program or self-reliance, such as an incinerator, a pelletizer, or a plastic shredder. TPS 3Rs that collect household waste daily are in Kembang Limus, Karangrejo, and Wanurejo villages. Each TPS 3R serves 160 – 425 households, composing 7.9% – 42% of the head families per village. However, the customers of TPS 3Rs in the Borobudur sub-district only account for twelve per cent of the total head families in the sub-district. Most Borobudur sub-district inhabitants cultivate their household waste by disposing of it or burning it in their backyards. Customers of TPS 3Rs in the Borobudur sub-district are town people who do not have a large yard to cultivate their household waste. However, some FGD members who are also customers of TPS 3R claimed the current disposal charge was too expensive. They argue that household waste is worthless material. Nowadays, the levy rates for household waste range from US\$ 0.64 – US\$ 1.62 (family per month). Other TPS 3R customers include stores, schools, hotels, and villas, and the levy varies from US\$ 3.19 to US\$ 25.5. However, the number of these types of customers is small. According to the TPS 3R



managers, the gross revenue of TPS 3R ranges from US\$ 127 to US\$ 510. However, the managers should allocate US\$ 3.5 to US\$ 63.7 (per month) to pay a tipping fee for a final landfill. To reduce residue unloading at a final landfill, some TPS 3Rs build incinerators. However, the manager should provide an operational and maintenance budget for the incinerator, which will affect their revenue.

Meanwhile, the TPS 3R workers' salary is under the regional minimum wage of the Magelang regency, where the Borobudur sub-district is located, which is US\$ 142.934 per month. The TPS 3R workers' salaries range from US\$ 38.76 to US\$ 76.56 (per month), with workdays ranging from three to seven days per week. The workers collect household waste using a three-wheel motorcycle with a garbage bucket. The customers provide a waste container in their front house, and the workers pick up household waste in the morning to unload at the TPS 3R. The waste dumped in the bucket is separated by a board for organic and inorganic waste. However, a separation of organic and inorganic waste wrapped in a plastic bag occurs in TPS 3R. Usually, household waste is a mix of organic and inorganic waste. According to the TPS 3R manager, sorting inorganic household waste is time-consuming and the most expensive stage in TPS 3R because the process is held manually (Figure 3.b.). The workers separate plastic, paper, and glass waste into different containers, which are then sold to garbage collectors. In the meantime, organic household waste is cultivated for compost, maggot cultivation or incubated in a biodigester for bioenergy production (Figure 3.d.). However, the workers are wearing the minimum safety equipment. The gloves and boots provided are not suitable for the workers. In the interview, the workers mentioned that during waste separation, they must wear some layers of gloves made of fabric or latex and boots made of rubber because the waste contains sharp materials. The workers should work with great caution because the TPS 3R does not provide medical compensation, although the village authority has provided social health security for the workers.

The customers of TPS 3R produce waste ranging from 6.7 to 30 tons (per month). The TPS 3R reduces and recycles household waste through inorganic waste sorting and organic waste composting. However, some household waste is difficult to recycle, such as baby diapers, sanitary napkins, and dangerous toxic stuff that can amount to one to twenty tons (per month). This waste is categorized as residue and is usually dumped in a final landfill. However, to dump the residues, the TPS 3R should pay a tipping fee to the landfill, about 0.35¢ per kg. To avoid the tipping fees, some TPS 3R cultivate the residue by burning it, such as the TPS 3R in Ngargogondo and Wanurejo villages. However, TPS 3R in Wanurejo village still sends some of the household residue to a final landfill.

Meanwhile, the TPS 3R in Ngargogondo village generates zero residues and is also the only one that operates a biodigester by utilizing food waste to produce biogas. The biogas is sold to houses around the TPS 3R for a fee of 64.64¢ per month. The TPS 3R's compost product is also in demand among many customers. Unfortunately, at most TPS 3Rs located in the Borobudur sub-district, workers can rarely operate some of the infrastructure installed in the TPS 3R and some of the installed machines under the required TPS 3R capacity. Therefore, the installed infrastructure, such as a biodigester, a shredder, and a composting machine, is unused (Figure 3.c.).

The village authorities and a volunteer govern the TPS 3R's managers. However, the managers, composed of village authorities, are not involved in the TPS 3R daily operational activities. They link between the TPS 3R managers and the head village to access a village fund or another aid program. However, some TPS 3R managers who are composed of volunteers mentioned that the managers, composed of village authorities, lack responsiveness to the workers' problems. Meanwhile, the workers say that the lack of infrastructure to meet the daily waste production capacity burdens their work. The workers also sometimes must explain the TPS 3R policy changes or respond to customer complaints about the service, which they assume should be the management's duties. On the other hand, a manager who stays in the TPS 3R is usually a volunteer and manages the TPS 3R's revenue for utility expenses, which consists of workers' salaries, gasoline, electricity, and tipping fees. However, according to the on-site TPS 3R manager, the revenue is insufficient to cover infrastructure and building maintenance.

The refuse collection fee is paid in cash per month, and the person who takes the levy is a worker who picks up their waste. A treasurer then manages the cash collected by the levied person. However, some customers refuse to pay the bill on time, which harms TPS 3R. In the meantime, the TPS 3R in Tuksongo village has implemented online bill payment to make the revenue more accountable. The TPS 3R cooperates with a local digital wallet called DANA. According to the TPS 3R manager, when revenue exceeds expenses, the treasurer will keep the money to anticipate low revenue. However, some TPS 3Rs are often facing revenue deficits, such as in Kembang Limus, Wringin Putih, and Majaksingi village, because of the tipping fee to unload residues in a final landfill. Meanwhile, insufficient revenue to pay the workers occurs in TPS 3R in Candirejo

village, causing the TPS 3R manager to frequently ask the head village for a village fund to cover the workers' salaries. However, when we did the interview, the TPS 3R manager said that they had no support from a village fund for two months to pay the workers, and the workers were to quit TPS 3R if they had not paid at the end of the month.

Although some TPS 3R managers claim that waste banks reduce the workload of the TPS 3R, others consider the waste banks to be competitors. The waste banks' members and managers are commonly EFW members. The EFW members involved in FGD mentioned that three of the six waste banks in a village are inactive. Compared to TPS3R, waste banks are funded by the sub-district and village authorities. The waste bank collects the inorganic waste from its members, pays for it, and then sells it to garbage collectors. In the Borobudur sub-district, some waste banks gather inorganic waste from the EFW members and pay it at the end of the year so the members can save from selling inorganic waste to the waste bank. According to some EFW members, the earnings from waste banks are then invested in gold for long-term savings. However, only a few EFW members are interested in volunteering to manage waste banks because they have jobs or are busy carrying children.

The Regency Environmental Agency, on the other hand, suggested that areas for TPS 3R and waste banks should be separated in the future to reduce a conflict between the TPS 3R and waste banks. The agency plans to separate village areas for TPS 3Rs and waste banks. Inorganic waste has a good selling price; hence, the TPS 3R prefers to collect recyclable inorganic waste to increase revenue. Since the waste bank also collects inorganic waste, the TPS 3R and the waste bank are usually in conflict. They compete with the waste banks in accumulating recyclable inorganic waste to sell to garbage collectors. However, as the waste banks buy the inorganic waste from the customers, they are more advanced than TPS 3R in collecting the materials. On the other side, TPS 3R accumulates the materials from a dump. The Regency Environmental Agency, responding to another waste problem related to littering, mentioned that they will implement social sanctions for inhabitants who litter. However, the kind of social sanction will be discussed later with the authorities about waste management at the sub-district and village levels.

#### 4. Discussions

The TPS 3R can reduce the waste volume in a landfill and extend its final landfill life. However, the absence of a standard operational procedure (SOP) and inexperienced managers resulted in suboptimal TPS 3R management. The lack of SOP causes some infrastructure, such as biodigesters, to be idled because no one can be the operator. Therefore, organic waste is cultivated for compost, and food waste is used for maggot feed. However, compost made from organic waste has a low price. On the other side, the larvae of black soldier flies are slow at digesting food waste, and the rotting food waste causes a smelly odor that disturbs settlements near the TPS 3R. In the meantime, organic waste can be cultivated for clean energy in a biodigester, and the digestate is used as a soil fertilizer. The lack of SOP for customers and workers also burdens waste management in the TPS3R. At the customer level, the waste bins are usually provided without a cover, which causes the waste to become damp and heavier. At the same time, during the waste picking, the workers unload the waste into a tricycle without providing a cover that can accommodate rainwater wetting the waste. At the managerial level, the inexperienced TPS 3R managers manage the waste as business as usual, and some installed infrastructure is unutilized. On the contrary, a TPS 3R located in Ngargogondo village is managed by a provincial waste extension counselor manager experienced in cultivating organic and inorganic waste. The TPS 3R in Ngargogondo is the cleanest, and the waste is cultivated efficiently; food waste is for biodigester feeds, leaf litter is shredded and cultivated for compost, food waste is for bioenergy, plastics are separated into wet and dry before being sold to garbage collectors, and the waste residue is burned.

According to the on-site manager, the workers working days and salaries are determined by the village authorities, who are also TPS 3R managers. The village authorities' role as managers has advantages and disadvantages for TPS 3R management and workers. The benefit of involving the village authorities in TPS 3R management is that they have budgeting power at the village level and have information from the regency and central government levels about programs and aid related to waste management. The authorities in Candirejo and Karangrejo villages support TPS 3R by allocating a budget of village funds or village-owned enterprise funds. The village authorities, who are also TPS 3R managers, report the TPS 3R activities to the head village, which is also part of their duty as village authorities. However, most of those village authorities are inadequate managers, and they get double salaries from the TPS 3R and the head village for their jobs in the TPS 3R and at the village office. The number of village authorities as TPS 3R managers sometimes exceeds the number of workers, resulting in high payment expenses, although the salary is less than that of the workers. On the other hand, the

on-site manager stays at TPS 3R, manages routine activities, and gets a salary from the remnant revenue after the routine expenses that are usually less than the worker's salary.

The TPS 3R manages the village's waste independently, and the regency and sub-district authorities do not allocate budgets to help the TPS 3R business. The TPS 3R activities depend on earnings from refuse fee collection, selling inorganic waste, and composting. The TPS 3R depends on the managers' creativity to generate revenue. Some TPS 3R managers in the Borobudur sub-district try to get additional income for the TPS 3R activity by planting vegetables and fruit trees. Even some TPS 3R managers utilize the idled biodigester to breed catfish. However, the waste banks can threaten the TPS 3R by competing to gain inorganic waste. In the meantime, the inorganic waste selling price fluctuation can also increase or decrease TPS 3R revenue. Therefore, the managers often raise the levy to support the TPS 3R activity, particularly to cover waste transportation from customers to TPS 3R and the workers' salaries. However, the increasing levy fee causes some customers to quit membership. Most managers mentioned that the TPS 3R's income is inadequate to maintain and repair broken facilities. The EFW members who are also customers of TPS 3R mentioned that the present fee is US\$ 1.28 per month, and they consider the levy expensive. The customers added an ideal fee levy for household waste of around 64¢ per month.

The sub-district and SOEs support the TPS 3R by providing aid, such as to the TPS 3R in Borobudur village and Teksonggo. Both Borobudur and Teksonggo are villages with a highly populated density. The sub-district authority supports an occasional budget for TPS 3R, located in Borobudur village. Meanwhile, the SOE provides a CSR for TPS 3R in Teksonggo village to repair broken facilities and purchase new facilities. The CSR is a donation from an SOE that built the TPS 3R and assisted in its operation. However, an SOE that built the TPS 3R in Borobudur village no longer facilitates the TPS 3R activities, as do other SOEs that built another TPS 3R in the Borobudur sub-district. In the meantime, the head villages of Ngargogondo and Ngadiharjo plan to allocate the village fund, tax revenue sharing fund, or retribution profit sharing fund to support the TPS 3R in the future. Meanwhile, the head village of Tanjungsari explained that the village fund has no budget mechanism for TPS 3R activities, which makes the village authority doubtful about determining the fund spending for TPS 3R. On the other hand, the village fund has a budget mechanism for waste bank activities at the village and sub-village levels.

Another challenge faced by TPS 3R management is conventional bill payment collection and low worker welfare. During the payment collection, the workers levy the fee on houses where they pick up their household waste daily and do not make recordings. The new or old customers who want to register or quit a membership only tell the workers directly when they pick up the waste, and then the workers will inform the TPS 3R managers about the new data. The refuse fee collected in cash, unrecorded payments, and long-chain collection are vulnerable to losses and less accounted for because some customers pay the bill late, whereas, on some occasions, the customer delinquently pays for months. The collected cash from customer bill payments is susceptible to theft, and the salary payment in cash becomes the treasurer's burden. However, most TPS 3R managers and workers are unfamiliar with the banking system for levy fee payments. However, TPS 3R in Teksonggo village was assisted by the SOE to use an e-wallet for refuse fee payment.

Meanwhile, the workers lack safety equipment, and there is no employment insurance from the TPS 3R, indicating low worker welfare. The TPS 3R managers said they are concerned about the workers' safety; however, they cannot provide proper equipment due to the income shortage. The managers assert that their main target is to allocate the revenue for routine expenses such as workers' salaries and utility bills. However, as there is no employment insurance, workers who get injured during working hours should be self-medicated. Meanwhile, workers who operate tricycles and accidentally damage other vehicles during working hours should be self-responsible. However, the managers who work daily in TPS 3R are in a similar situation as the workers. The managers are sometimes paid under the workers' rate because their salaries are based on the remaining routine expenses. However, when the revenue exceeds expenses, the manager will keep the remaining revenue to support TPS 3R activities when there is a lack of income. Meanwhile, the tipping fee policy causes the TPS 3R managers to provide expenses to unload residues to a final landfill, despite the Regency Environmental Agency facilitating the carrying of the residues to a final landfill. However, some TPS 3Rs try to reduce the tipping fee by burning the residues in an incinerator; for example, TPS 3R in Wanurejo village has succeeded in installing and operating incinerators.

Meanwhile, most TPS 3R managers in the Borobudur sub-district claimed that waste banks reduce the workload for TPS 3R in managing the village's waste. Also, the TPS 3R managers said that waste banks educate the villagers to recycle and reuse household waste. However, most TPS 3R and waste banks run separately at the village level. The village heads mentioned that TPS 3R in Borobudur village is under the responsibility of the

regency's Environmental Agency, although TPS 3R is in their villages. However, the Regency Environmental Agency prefers to use gasification technology to manage the regency's municipal waste in a final landfill. The different interests of the regency environmental agency and TPS 3R in managing the waste cause TPS 3R to be more self-sufficient. Meanwhile, the TPS 3R managers are commonly selected from volunteers actively involved in village events and mandated by the village head to take care of the TPS 3R. Those managers are not linked to the regency's Environmental Agency, generating a lack of communication between those two entities about the TPS 3R obstacles.

According to the regency and village authorities, the TPS 3R program in the Borobudur sub-district was established by the MoPWH without previously discussing it with them. Consequently, they consider the program a burden and exclude TPS 3R from their work planning. However, since the head village is mandated to run the TPS 3R by the MoPWH, some TPS 3R managers are village authorities. The village authorities then chose EFW, or waste bank activists, to manage daily activities in the TPS3R. Before the TPS3R program was initiated in the Borobudur sub-district, the sub-district and village authorities empowered the EFW to operate waste banks. In the meantime, despite the Regency Environmental Agency's plan to separate working areas for TPS 3R and waste banks, the local authorities should support TPS 3R by providing funds because most of the household waste cultivated by TPS 3R is organic. According to Jain (2017), the municipal solid waste in Indonesia is 60 per cent organic. Moreover, organic waste cultivation requires more energy and time, but the product's selling price is low.

### Conclusions and Further Research

The TPS 3Rs in the Borobudur sub-district can reduce the amount of household waste unloaded to a final landfill. The program is effective in tackling waste problems at the village level. However, less support from the local government threatens the TPS 3R's sustainability in the future. The village government does not consider household waste a serious problem and has no urgency for waste management at the village level. The TPS 3R works independently, but most managers run the business as usual, resulting in inefficient management. However, the TPS 3R is likely difficult to hire professional managers interested in waste management, particularly at the village level. In the future, it would be better for the TPS 3R and waste bank to operate under one organization; the TPS 3R manages organic waste and the waste banks handle inorganic waste. However, there should be an incentive fund for the TPS 3R if they only cultivate organic waste. Also, research on communication types between villages, local government, and central government is important because some central government programs have not received attention at the grassroots level, including waste problems.

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### Credit Authorship Contribution Statement

**Siti Wahyuningsih:** Conceptualization, Investigation, Writing – original draft.

**Tuti Susilowati:** Conceptualization, Investigation, Methodology, Supervision.

**Hadi Ashar:** Investigation, Methodology, Validation, writing-original draft.

**Avry Pribadi:** Data curation, Writing – review and editing.

**Teguh Satyaji:** Funding acquisition, Writing – review and editing.

**Sukamsi:** Funding acquisition, Writing – review and editing.

**Purwati:** Project administration, Writing – review and editing.

**Dhanik Ernawati:** Visualization, Writing – review and editing.

### Declaration of Competing Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

### Declaration of Use of Generative AI and AI-Assisted Technologies

During the preparation of this work, the authors used QuillBot grammar checker and Google Translate in order to improve the language and readability of their paper with the appropriate disclosure. After using this tool or service, the authors reviewed and edited the content as needed and took full responsibility for the content of the publication.

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## Evidence of Climate Change Impact on Quantity of Rice-Planted Areas in Panama

Ronny SUAREZ  
Independent Researcher, USA  
[suarezronny@yahoo.com](mailto:suarezronny@yahoo.com)

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**Abstract:** This paper provides statistical evidence of a positive correlation between anomaly precipitation and the variation of planted hectares of rice. Panamanian farmers reduce planted areas of rice when they experience lower levels of rain.

**Keywords:** climate change; Panama; rice production.

**JEL Classification:** Q18; Q52; Q54.

### Introduction

In 2023, the Panama Canal experienced an unprecedented drought that made international news headlines due to its impact on ship transit and global trade.

'El Niño' phenomenon lengthened the dry season and reduced rainfall in 2023, affecting the agricultural sector, too. Specifically, the rice sector recorded a 7.1% reduction in the hectares of rice planted, decreasing from 95,182 hectares in 2022 to 88,401 hectares in 2023 (Ministry of Agricultural Development, 2024).

This paper is organised as follow: The first section presents how climate threats can affect rice production. The second section describes the results obtained for the relationship between abnormal rainfall and the variation of hectares planted with rice in the country. The last section provides conclusions.

### Rice Production and Climate Treats

Rice cultivation depends on climatic conditions such as temperature, precipitation, and water availability; extreme temperature variations and lack or excess rainfall impact crop productivity.

Greater frequency and intensity of droughts and floods reduce rice production, (Serey, S. et. al., 2021) and temperature rise reduces growth duration and grain filling duration, resulting in lower yield and lower quality rice grain (Jagadish. K., et.al., 2009).

Between 1971 – 2020, Panama experienced a mean temperature increase of 1.1°C and a decrease in precipitation of 140.9 mm (Climate Change Knowledge Portal, 2024).

If temperature increases continue and there are reductions in accumulated precipitation, the rice production levels will decline; if farmers do not adapt to climate change, the country will have a deterioration of future rice harvests (Mora, J. et al. 2010).

### Statistical Evidence

With the agricultural closure information from the Ministry of Agricultural Development (MIDA), we evaluate the percentage change in the number of hectares of rice cultivated for the period 2010-2023 and its correlation with the anomaly precipitation levels of each year obtained from the MeteoBlue.com site.

The following table shows the data for the analysis period that generated a correlation coefficient of 0.705. This coefficient shows us that there is a positive relationship between precipitation and variation of rice-planted areas. The higher the amount of rainfall, the higher the level of rice-cultivated hectares, and vice versa, the less amount of rainfall, the lower the level of hectares that farmers proceed to plant with rice.

Agricultural Closure			Hectares planted	Variation	Anomalous Precipitation
2010	-	2011	64,218		
2011	-	2012	67,048	4.4%	-82.1
2012	-	2013	63,754	-4.9%	-255.5
2013	-	2014	67,073	5.2%	-237.3
2014	-	2015	52,428	-21.8%	-407.6
2015	-	2016	57,066	8.8%	103.4
2016	-	2017	66,231	16.1%	-219.0
2017	-	2018	70,937	7.1%	-3.0
2018	-	2019	72,033	1.5%	-377.2
2019	-	2020	74,635	3.6%	-88.2
2020	-	2021	87,635	17.4%	279.8
2021	-	2022	95,182	8.6%	170.3
2022	-	2023	88,401	-7.1%	-328.5
<b>Correlation Coefficient (r):</b>					<b>0.705</b>

To validate the statistical significance of the obtained Pearson Correlation Coefficient, a Student's T-test is applied given the following steps:

- Step One. Statement of the Null Hypothesis and the Alternative Hypothesis:

$H_0: r=0$  There is no relationship between the level of rainfall and the variation in the number of hectares cultivated with rice.

$H_1: r \neq 0$  There is a relationship between the level of rainfall and the variation in the number of hectares cultivated with rice.

- Step Two. We calculate the Student's T-statistic:

$$\frac{r\sqrt{n-2}}{\sqrt{1-r^2}} = \frac{0.705\sqrt{12-10}}{\sqrt{1-0.705^2}} = 3.14$$

- Step Three. We establish the Student's T-Table Value:

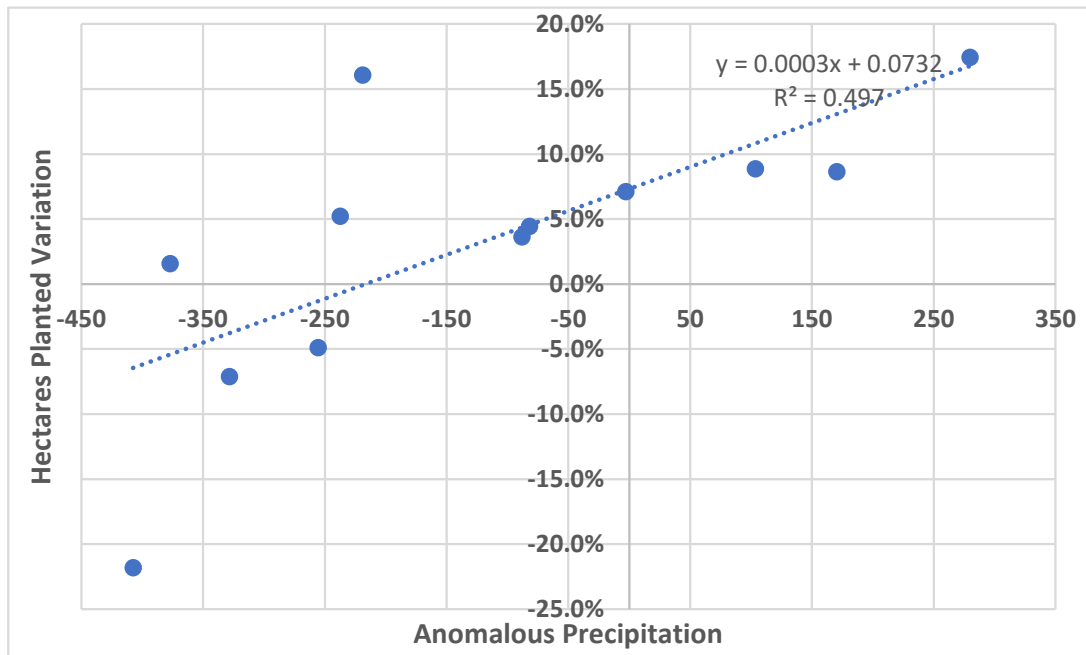
At a significance level of 2.5% (two-tailed), for ten (10) degrees of freedom, the Student's T-Table Value is -2.22. [Excel Function INV.T (2.5%;10)]

- Step Four. We make a decision:

As the Student's T-statistic is less than the Student's T-Table Value ( $-2.22 < 3.14$ ), we reject the Null Hypothesis; thus, we conclude that at a significance level of 2.5%, there is a relationship between the variation of planted hectares and the level of anomaly precipitation of the year.

## Conclusions

The next graph shows the positive correlation between anomaly precipitation and the variation of planted hectares of rice.



Therefore, a lower rainfall level in the country and the higher presence and intensity of droughts can reduce rice production through crop loss, lower yield per hectare, and lower sowing of cultivated areas. Panama produces 88% of national rice using the rainfed system. Rainfed production depends on rainfall levels. Consequently, farmers anticipating or suffering from low availability of rainwater tend to reduce their rice-planted areas.

#### Declaration of Competing Interest

The author declares that he has no conflict of interest regarding the publication of this paper.

#### Declaration of Use of Generative AI and AI-Assisted Technologies

The author declares that he has not used generative AI and AI-assisted technologies during the preparation of this work.

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## Social, Cognitive and Traditional Motives in Christmas Market Tourism: A Case Study from Poland

Anna MŁYNKOWIAK-STAWARZ

University of Gdańsk, Poland

ORCID: 0000-0001-6398-8333; Researcher ID: HPE-56792023

[anna.mlynkowiak-stawarz@ug.edu.pl](mailto:anna.mlynkowiak-stawarz@ug.edu.pl)

Robert BĘBEN

University of Gdańsk, Poland

ORCID: 0000-0003-2850-8757

[robert.beben@ug.edu.pl](mailto:robert.beben@ug.edu.pl)

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**Abstract:** This study offers a novel and significant contribution to the understanding of cultural tourism by exploring visitor motivations at one of Poland's largest Christmas markets, situated in Gdańsk. While Christmas markets are deeply rooted in European tradition, research on their appeal in the context of contemporary consumer behaviour, especially in the face of globalisation and secularisation, remains limited. By examining a diverse range of motives - spanning from social gatherings and shopping to tradition and inspiration - this research provides a fresh perspective on how Christmas markets can cater to both traditional and evolving interests. The study's insights highlight how event-driven tourism can effectively support regional visitation beyond peak tourist seasons, offering a model that could be applied to other locations seeking to expand their tourism appeal throughout the year. Furthermore, the findings emphasise the strategic importance of culturally significant events in strengthening the tourism economy and community engagement within the Baltic region and beyond.

**Keywords:** event tourism; christmas market; motives; tourist behaviour; recreation events.

**JEL Classification:** D12; M31; Z32.

### Introduction

Originating in the Middle Ages within Roman culture, Christmas markets have evolved into significant commercial and cultural events. In these early times, around the 5th century, they were associated with a period of joy and preparation, contrasting with other areas of Christian culture that viewed this period as a time for concentration and mortification. Christmas markets, such as the ones in Strasbourg, Vienna, Budapest, Madrid, Edinburgh and Gdańsk, attract throngs of visitors – both tourists and locals. Christmas markets are events with a significant marketing potential, especially for cities that host them. Apart from it, as noted by Broeckerhoff and Galalae, two significant features of Christmas markets: openness to diverse – historical and cultural – contexts and capacity to account for various types of meanings, make these events an important part of a calendar of many people. Simultaneously, the researchers note the necessity of adjusting the offer of markets to the consumer needs of their participants, functioning in diverse environments (Szymanderska, 2005; Egresi *et al.* 2021; Broeckerhoff and Galalae, 2022).

Detailed recognition of motives underlying the unwavering popularity of Christmas markets is thus an interesting issue due to theoretical and practical reasons. It cannot be concluded that the motives have remained unchanged since the Middle Ages or are only related to the Christian heritage of the event. Progressing secularisation and globalisation call for discerning other causes of the popularity of Christmas markets. Changes in the lifestyle of societies and generation changes (Kotler *et al.* 2021; Kennedy *et al.* 2021) discussed in literature may play a significant role in this respect. Participants of Christmas events may be influenced by a range of

motives distinct from those in the past and unlike those identified in analyses of other types of events. This may result from the nature of Christmas markets, which are events combining commercial, cultural, gastronomic and, for some, also religious aspects (Spennemann & Parker, 2021; Parker & Spennemann, 2021; Ogden, 2024).

Recognition of these motives in the context of the Christmas market in Gdańsk, which is one of the largest and most popular events of this type in Europe, started with a survey carried out in November and December 2002. Gdańsk, being a seaside city, experiences the greatest influx of tourists in the summer months given its climatic conditions. The Christmas market that is held in November and December is thus an important factor stimulating the development of tourist industry outside the high season (Marcher *et al.* 2019) and increasing the attraction of such venue as Gdańsk. Lynch and Quinn (2022) also draw attention to the impact of the place where an event is held on the social, cultural and physical dimension of the event. Thus, creation of event marketing is significant especially in the context of event location (Ponzini, 2021; Di Vita and Wilson, 2020). An event may be treated as a resource in the process of formation of a brand of a location (Ceballos *et al.* 2020), its positive image and recognisability (Sudaryanto, 2015) among residents, visitors and tourists.

The study of participation motives at the Gdańsk Christmas market provides valuable insights for both marketing strategies and cross-cultural perspectives, shedding light on participant preferences that vary depending on local and global contexts. In the face of globalisation and secularisation, which are reshaping the perception and nature of many cultural events, traditional religious aspects of Christmas markets are becoming less prominent, while commercial and cultural values are taking centre stage. The findings contribute to a better understanding of how contemporary Christmas markets can cater to the needs of consumers from diverse cultural backgrounds, which is crucial for international marketing efforts.

The analysis of motives – including shopping, seeking inspiration, preserving tradition, and social aspects – underscores the importance of tailoring event offerings to meet the modern expectations of attendees. This knowledge serves as a valuable tool for organisers aiming to increase attendance and engagement in both local and international contexts by developing diversified strategies that promote the authenticity, uniqueness, and appeal of these markets.

On an international level, these findings can aid cities and organisers in attracting foreign tourists, enabling the development of universal yet flexible marketing strategies that take into account cultural differences while emphasising elements that appeal to a broad audience. Such research also serves as a foundation for broader cross-cultural analyses, allowing for comparisons and trend identification across different countries, thereby enhancing our understanding of how traditional events can effectively operate in the age of globalisation. Thus, these results are not only practically relevant but also support the development of advanced segmentation methods and tourism promotion on an international scale, thereby strengthening the brand position of both the event and the city in the global tourism market.

The purpose of the survey that was carried out among the participants of the Christmas market was to understand the main motives that are guiding the visitors who decide to take part in the event. Such knowledge is of considerable implementation value, as it allows for tailoring the marketing policy of market organisers and the host – the city of Gdańsk – to the motives disclosed by the attendees.

The first part of the paper presents a review of literature related to the motives of engaging in recreation events. Next, the authors discuss the results of a survey concerning the motives of participation in the Gdańsk Christmas market, conducted in November and December 2022, and explore their theoretical and practical implications. The motives guiding the visitors of the Christmas market in Gdańsk were studied with the use of a questionnaire survey, prepared specially for the purpose of the study. The results were subjected to exploratory factor analysis, which allowed for differentiating four groups of motives of participation in the Christmas market, most representative for the respondents. The variances in the disclosed motives within the examined group were analyzed using a single factor variance analysis, ANOVA, conducted in the SPSS package. The paper presents the initial phase of the analyses, which will be utilized in the development of a model to investigate the motives of event attendees and their segmentation.

## 1. Literature Review

### 1.1. Motives of Participants of Recreation Events

Given that Christmas markets focus on commercial, gastronomy and cultural offer, in the course of the study a reference was made to the research devoted to motives of participants of similar events. Attendees of recreational events primarily consist of local residents in the vicinity of the event's location, one-day visitors, predominantly from the surrounding region, and tourists lodging in the specific area. In spite of these differences, the motives related to the desire to participate in an event may be convergent for persons who belong to these



three groups in the dimension of an experience that they want to have, or the mode of recreation selected by them (Funk and Bruun, 2007).

When analyzing the rationales of event attendees, it is possible to refer to the traditional notion of travel motives as a spectrum, formulated by Crompton (Crompton, 1979). On one side of such a continuum are the social and psychological motives, while on the other there are the cultural and education motives. This dichotomous outline assumes joint occurrence of various motives, which should be examined together. Among cultural and recreational motives, Crompton distinguishes novelty and education, understood as a desire to get to know and learn something new. Among social and psychological motives, Crompton lists the necessity of changing the environment, relaxation, prestige, establishing or reinforcing social relations and socialisation. Crompton elaborates this concept in his later works referring it, among others, to the motives of participation in specific events. When examining the motivation of festival attendees, it is observed that they are primarily driven by cultural factors, specifically the aspiration to explore cultural novelties, as well as psychological factors, including the pursuit of balance and interaction with an external group, as evidenced by their gregariousness (Crompton and McKay, 1997).

An important part of Christmas markets is the gastronomy offer; thence, it seems essential to indicate motivation related to the choice of a place to have a meal as a contextual event related to food (Sundqvist, 2023). Sundqvist primarily draws attention to the necessity of organising the meals in a way that makes it possible for individuals to experience pleasure of being with others. According to him, it is the social motive of gregariousness that is significant when people decide to eat out. The researchers who analysed a food festival in Spain drew attention to another aspect related to the role of food as the main element of the event (del Pilar Leal Londoño *et al.* 2022). They concluded that local associations and organisations involved in promotion of food may influence the image of a place where the festival is held, reinforcing local identity and culture, in particular in reference to the emotions in the narrative which food evokes in this context. The narrative concerning gastronomy may also focus on showing it as a representation of social and cultural distinctness of a region (Rojas-Rivas *et al.* 2020).

## 1.2. Participants of Christmas Events

Teams comprising Brida, Disegna and Osti (2012) and Brida, Disegna and Scuderi (2014) carried out studies of participants of Christmas markets in northern Italy in 2008, 2009 and 2011, which were used for their segmentation. In the first two studies, three segments were distinguished. The first one included 'business people' who came to the market as if by accident – they did not have other duties at the moment and they were in the vicinity. The second group consists of 'Christmas enthusiasts' for whom attending the market holds significance. Their main motives include the desire to experience the Christmas atmosphere, to try the local products, to relax, to have fun and to shop. The third group was called 'general tourists', *i.e.* persons for whom the main motive was to visit the city and the region and also the Christmas market (Brida *et al.* 2012).

In the third investigation, which utilized a different approach, the researchers identified six categories among market attendees. These segments varied in terms of the type and intensity of their motives for participation. The groups mainly differed in their level of interest in children's attractions, the inclination for social gatherings with friends and relatives, and the eagerness to participate in various activities at the market. The most commonly mentioned motive, which is tasting local food and beverages, remained consistent across all six segments. Furthermore, in five of the groups, there was a notable emphasis on the aspiration to immerse themselves in an extraordinary holiday atmosphere, explore the city, and partake in distinctive and innovative activities. It is important to highlight that none of the recognized segments listed shopping as their primary reason for attending the market. Subsequent research conducted by the Brida, Meleddu, and Tokarchuk team (2017) on the Christmas markets in Meran, Italy, uncovered varying degrees of utility value for the participants of the event. Apart from travel costs, the utility value was affected by the type of experience related to the visit at the fair and the perceived authenticity of the event. Also Castéran and Roederer (2013) refer to the significance of authenticity perceived by Christmas market attendants; they examined this issue using the example of the Strasbourg Christmas Market. In accordance with their findings, the perception of authenticity, defined as involvement in an event that is unique in terms of its location and offerings, has an impact on the behavior of participants, including its financial aspects.

In this paper, the inspiration for formulating classes of motives subjected to analysis was a classification where five classes of motives stimulating people to action are distinguished. These are functional motives, related to the rationalisation of choice; hedonistic motives, relying on the experienced emotions; social motives, related to the relations occurring within member groups (family, event participants), as well as symbolic motives, *i.e.* leading

to self-expression via the perspective of consumed products and cognitive motives, related to learning new things, getting to know new places, traditions, tastes and others (Bęben 2013).

## 2. Research Method

### 2.1. Context

The study was carried out during the Christmas market organised in Gdańsk (Poland) between 18 November and 23 December 2022. Last year, the event was attended by approx. 700,000 guests including residents of Gdańsk, tourists and one-day visitors. As every year, the Christmas market was organised in the centre of Gdańsk, in a place attractive for tourists and residents. The Christmas market is a commercial and cultural place, intended for children and adults. During the event, which in a basic dimension has a commercial and gastronomy nature, also cultural events are held, in particular artistic in the form of workshops and exhibitions and musical in the form of concerts and carol singing. The offer for children in 2022 encompassed a ride in St. Claus' sleigh in a VR version and a visit to Lucek the Elk who spoke with a human voice. The market also had its very characteristic elements and events, e.g. a carousel and a visit by St. Claus. The main part of the Christmas market is at the Targ Węglowy, where the data for study were compiled. The study was performed with the use of CAPI (Computer-Assisted Personal Interviewing), i.e. direct interviews with the respondents recruited among event participants. The survey concerned various elements of the market, including Christmas lights, assessment of the offer and other aspects examined cyclically by the B. Synak Pomerania Research Institute, at the commission of the event organiser.

Ultimately, following the validation of the measurement instrument, the survey section addressing the motives for market participation included sixteen statements. These were categorized into five primary types of motives: functional (five statements), hedonistic (two statements), social (three statements), symbolic (four statements), and cognitive (three statements). The respondents assessed the degree to which a given statement was consistent with their behaviour on a 7-degree Likert scale (from strongly disagree to strongly agree).

### 2.2. Respondents

201 respondents took part in the survey. This is a typical number that is observed in studies carried out at events by an entity performing the study. The demographic profile of the respondents is shown in Table 1.

Table 1. Respondents profile characteristics

Profile characteristics	%
Gender	
Male	37,25
Female	62,75
Age	
18-24	19,62
25-34	36,76
35-44	17,65
45-54	12,25
55-64	6,86
65+	6,86
Education level completed	
Primary Education	1,96
Basic Vocational	18,24
Secondary Education	33,82
Post-secondary Education	9,80
Higher Education	36,27
Children	
No Children	43,00
One Child	24,00

Profile characteristics	%
Two Children	20,00
Three Children	11,00
Four and more Children	2,00
Residential region	
Gdańsk	29,35
the Tri - City (Metropolitan Area - Gdańsk, Sopot, Gdynia, except Gdańsk)	33,83
the Pomeranian Province	26,37
Other parts of Poland	10,45

Source: Author's own work.

Given the fact that the sample was not selected randomly, it cannot be stated that the event was local, but persons participating in the study may be divided into three groups in a simplified approach: one-day visitors (approx. 60.0%), residents (29.5%) and tourists (10.5%).

## 2.2. Procedure

Responses related to the indicated motives underwent exploratory factor analysis (EFA) to ascertain the structure of motives that best corresponded to the observed situation. Following the EFA using the maximum likelihood method, four groups of motives were selected with the use of varimax rotation (Table 2). Statements with a factor load higher than 0.4 were selected for further analysis, as recommended for a study sample of this size (Hair *et al.* as cited in: Sztemberg-Lewandowska 2008). Thus, the list of motives comprises fourteen statements.

Table 2. Motives for participation in Christmas market selected in the exploratory factor analysis

Name of factor	Motives	Factor			
		1	2	3	4
Shopping motives	To use the opportunity of buying unique presents	0.843			
	On account of the extensive offer of products	0.660			
	To buy something interesting	0.612			
	To buy presents	0.596			
	To see the Christmas commercial offer	0.554			
Searching for inspiration motives	To learn the trends in Christmas decorations		0.942		
	To learn the new trends in Christmas cuisine		0.728		
Traditional, pre-Christmas activities motives	To cultivate Christmas tradition			0.549	
	To feel the Christmas vibe			0.547	
	To do something different			0.498	
	To spend time actively			0.457	
	Because it is one of the biggest markets in Europe			0.446	
Social meeting motives	To meet with friends				0.888
	To meet other people				0.743

Source: authors' own compilation.

The four main factors that were selected explain 45.4% of variances. The 4-factor model explains the motives observed in the studied group to an acceptable degree. The Tucker Lewis Index amounts to 0.90, while the RMSEA index is 0.05, which fits within the acceptable value ranges. The size of the chi-square statistics is  $\chi^2(74) = 127$ ,  $p < .001$ , yet this is not a condition necessary for model acceptance (Sztemberg-Lewandowska, 2008). The single-factor variance analysis, ANOVA, conducted using the IBM SPSS package, was employed to determine which variables influence the variations associated with the motives of participation in the Christmas market.

## 3. Analysis

The shopping motive, as the first factor, explained a significant 15.48% of variance, indicating the commercial nature of Christmas markets as a primary attraction. It accounts for functional aspects, related to making unique

and interesting purchases and the motive that was previously determined as cognitive, yet consistent with the process of shopping, *i.e.* getting to know the commercial Christmas offer. These declarations of consumers show the Christmas market as an event with a primarily commercial nature, where the participants are looking for inspiration and exceptional Christmas presents. The visitors do not want to buy just anything – the purchases must be original. The second factor refers to searching for inspiration in decorations and Christmas cuisine (11.64% of explained variance). It is related to the cognitive motive. Both these factors show the significance of the Christmas market as a venue that also performs exhibition functions. Another factor that was taken into account refers to the tradition and pre-Christmas activities (9.69% of explained variance). It is primarily expressed by the desire of doing something different in the Christmas spirit and nourishing tradition, as declared by the respondents. Declarations related to these motives refer to the hedonistic and symbolic nature of the Christmas market. The last factor (motive) explaining 8.62% of the variance was described as the motive of a social meeting – here, it is primarily understood as the inclination to meet with friends and other people. The Christmas market where the study was conducted, similarly to many others, had a gastronomic selection that provided an opportunity for communal dining. Additionally, it offered a variety of activities and options for individuals to enjoy their time together.

In turn, the analysis of the respondents' answers to individual questions shows that the most conscious and clear motive for participating in the event is, in the respondents' opinion, the motive related to engaging in traditional pre-Christmas activities. Responses to questions comprising this construct are characterised by the lowest standard deviation and the most decisive declarations of the respondents (on average at 5.20, *i.e.* between somewhat agree (5) and agree (6)). The respondents' responses regarding the motives for social gatherings (average value of answers on a scale from 1 to 7) also fall between somewhat agree (5) and agree (6), but with a notably higher standard deviation, indicating a wider range of responses related to this construct. Table 3 displays the average values for responses associated with each specific motive.

Table 3. Average values of indications according to the declared motives

Factor	Average	Standard deviation
Shopping motives	4.75	1.26
Motives of searching for inspiration	4.37	1.75
Motive of traditional, pre-Christmas activities	5.20	0.84
Motives of social meeting	5.09	1.44

Source: authors' own compilation.

The shopping motive is definitely less clear in the respondents' declarations. In the questions comprising this construct, the respondents' declarations range between neutral (4) and somewhat agree (5). In turn, the motive of searching for inspiration had the lowest average indicator among studied constructs. Hence, it should be noted that when comparing the motives identified in the course of factor analysis and declarative indications of respondents, the visitors at the Christmas market were not aware of the motives stimulating them to participate in the event which they mainly perceived through the perspective of Christmas atmosphere, traditions and meetings related to it.

To assess the significant inter-group variations related to declared motives, we employed single-factor variance analysis using the ANOVA test within the IBM SPSS package. Our investigation revealed that gender is the distinguishing characteristic of respondents who attend the Christmas market in search of inspiration. On the other hand, respondents driven by the inclination for social interactions exhibited differences in terms of the number of children and age. The results illustrating the significance levels of these variations are presented in Table 4.

To assess the significance of identified differences, post hoc analyses were performed. Given that the data do not meet the assumptions about variance homogeneity, while the groups of persons declaring individual motives and characteristic descriptive features are unequal, the Games-Howell post hoc test was applied.

In case of diversification of the group on account of sex, women covered by the study significantly more often (MPI; M=4.59; SD=1.70) looked for inspiration at the Christmas market (MPI) than men (MPI; M=4.01; SD=1.79). In turn, the number of children was a significant differentiating variable in the case of guests visiting the Christmas market for social purposes (MST). And thus, for individuals with one child (MST; M=5.71, SD=1.04) and individuals who declared that they had no children (MST; M=5.12; SD=1.41), the average values of indications are much higher in comparison to those who had two children (MST; M=4.65; SD=1.49) or three

children (MST; M=4.52; SD=1.69). As far as the respondents' age is concerned, ultimately the Games-Howell test did not show the age groups between which the difference is statistically significant.

Table 4. Differences in Motives by Gender, Number of Children, and Age.

Descriptive variable	Motive		Sum of squares	df	Average square	F	Significance
Sex	Motives of searching for inspiration	Among groups	16.223	1	16.223	5.386	0.021
		Within groups	608.464	200	3.012		
		Total	624.686	201			
Children	Motives of social meeting	Among groups	35.185	3	8.796	4.517	0.002
		Within groups	387.545	198	1.947		
		Total	422.73	201			
Age	Motives of social meeting	Among groups	143.258	51	2.703	1.451	0.042
		Within groups	279.472	150	1.863		
		Total	422.73	201			

Source: authors' own compilation.

In a further part of the analysis, also relations between the disclosed motives and the sources of information used by the respondents were studied. This may be useful in the process of preparing efficient marketing communication. The survey accounted for the sources where information and advertisements about the Christmas market were published. The study included the respondents' statements regarding their active use of eight information sources related to the Christmas market. These sources encompassed local newspapers, a dedicated internet site for the Christmas market, and Facebook. The source that to a significant degree differentiates the respondents who declared all motives was Facebook.

Table 5. Results of ANOVA variance analysis for the respondents declaring selected motives of participation in the Christmas market on account of active Facebook use

Source of information	Motives		Sum of squares	df	Average square	F	Significance
Facebook	Shopping motives	Among groups	33.845	6	5.641	3.841	0.001
		Within groups	289.305	197	1.469		
		Total	323.15	203			
	Motives of social meeting	Among groups	27.694	6	4.616	2.302	0.036
		Within groups	395.037	197	2.005		
		Total	422.73	203			
	Motive of traditional, pre-Christmas activities	Among groups	15.467	6	2.578	3.927	0.001
		Within groups	129.33	197	0.656		
		Total	144.797	203			
	Motives of searching for inspiration	Among groups	63.817	6	10.636	3.736	0.002
		Within groups	560.869	197	2.847		
		Total	624.686	203			

Source: authors' own compilation.

The Games-Howell tests showed that persons who do not use Facebook ('I definitely do not use it') attributed lower values to the responses to questions comprising the constructs of shopping motives (MZ; M=3.82, SD=1.35) than persons who claimed to use Facebook actively (MZ; M=4.98, SD=1.11). Individuals who do not use Facebook listed motives related to traditional, pre-Christmas activities less frequently (MTPA) (MTPA; M=4.62; SD=0.73) than individuals who are active (MTPA; M=5.39; SD=0.70) or very active (MTPA; M=5.53; SD=0.77) on Facebook. Also, persons who do not use Facebook listed motives related the searching for inspiration less frequently (MPI; M=3.41; SD=1.95) than active (MPI; M=4.72; SD=1.61) or very active (MPI;



M=5.24; SD=1.65) Facebook users. The Games-Howell tests did not show any significant differences in groups divided with respect to Facebook use in case of the social meeting motive.

Following this, we will discuss the results of significant differences among groups categorized based on other sources of information, which were found to be significant in relation to individual motives. The local newspaper (e.g., *Dziennik Bałtycki*) played a significant role in distinguishing individuals who stated that they attended the Christmas market for social gatherings and shopping. Similarly, frequent usage of the local news website 'trójmiasto.pl' was significant in differentiating respondents based on the motive of seeking inspiration. Individuals who claimed to use the trójmiasto.pl website (answer 'yes', MPI M=5.19; SD=1.53) significantly more often indicated motives of searching for inspiration as the cause of participation in the Christmas market than individuals who responded 'not really' (MPI; M=3.59; SD=1.49), 'no' (MPI; M=3.40; SD=1.59) and 'definitely no' (MPI; M=3.55; SD=1.92). Even though various local media were analysed in detail in the course of the study, yet their more extensive presentation in the paper seems to be purposeless, as the conclusions will potentially have no universal character nor be of significance for many readers. However, they are interesting for the event organiser as they allow for better planning of marketing communication.

#### 4. Discussion

As the popularity of Christmas markets in Poland continues to rise, understanding what motivates visitors to participate in these events becomes increasingly important. Currently, there is limited research on whether the motivations of visitors to Polish Christmas markets align with those of attendees in other regions of the world. The study conducted had the objective of comprehending the motives displayed by attendees of the Christmas market in Gdańsk. The analysis aimed to demonstrate a variety of participation motives in the event and assess whether these motivational factors align with the preferred sources of information regarding the event.

The study corroborated the importance of motives outlined in the literature, such as the desire to savor the unique Christmas ambiance and the inclination to engage in something out of the ordinary, which were also recognized as motives for participating in Christmas markets by the researchers Brida, Disegna, and Scuderi (2014). At the same time, it must be noted that the originality of Christmas markets may also be understood as their authenticity and exceptionality (Castéran and Roederer 2013). Apart from it, the motive of shopping at the market was also common for both studies. In the study of participants of the Christmas market in Gdańsk, it had a greater differentiating significance than in the studies of Brida *et al.* (2012). However, one motive from the group related to savory cuisine did not emerge as a significant factor in explaining the behavior of Christmas market participants after the EFA, despite the gastronomic offerings constituting a major portion of the market's stalls. In contrast, the motive associated with sampling local cuisine and beverages was a noteworthy factor in the responses of Christmas market attendees examined by the Brida research team in 2014. Nonetheless, this finding is not unexpected, as participants of the Derbyshire Food and Drink Fair in the United Kingdom, an event primarily dedicated to the enjoyment of food and beverages, similarly did not prioritize this motive as their primary reason for attending the fair. As their motives of participation, they indicated the intention to become engaged, to be present and to discover, which may be considered motives of searching for inspiration, joining others, consumption, and entertainment, *i.e.* motives related to social meetings (Alonso *et al.* 2015)

Brida *et al.* (2014) divided the participants of the Italian Christmas markets on account of participation motives into six groups. However, the respondents primarily differed in terms of the significance of motives related to social gatherings which take place at the market. The respondents stressed the significance of various types of fun as the main reasons for attending the market. According to these studies, the market was treated by the participants as an exceptional opportunity, primarily for social meetings, which brings it closer to a festival in the respondents' perception (Crompton and McKay 1997). The examination of motives of people visiting the Christmas market in Gdańsk did not reveal such great significance of the motive of social meetings. It accounted for the smallest part of the explained differences. Meeting with the family, after performance of factor analysis, was not included in this construct, which eventually encompassed meetings with friends and other people. The survey encompassed queries regarding the motives for family time, yet these did not align with any of the four distinct factors identified.

#### Conclusion

To the authors' knowledge, this study investigating the motives of participation in the Gdańsk Christmas market represents the first research of its kind conducted in Poland. Christmas markets are developing in this part of Europe, and they find an increasing group of fans, both on the side of organisers and visitors. In spite of common elements and many identical factors motivating guests to visit them, each may have its individual specifics. That

is why it is worth conducting research, along with identification of differences, as they may be of significance for the attendance numbers at the event and may attract these guests who are the target market segment for the organisers. It must be remembered that in spite of the fact that the markets are an element of the cultural heritage of the region and its promotion, they also have a commercial dimension and should bring profits, both for the exhibitors and the organisers. Thence, the study of participation motives in the market has great practical significance. This study's insights can guide event organizers in developing targeted marketing strategies. Future research could explore the transferability of these findings to other cultural contexts.

Motives associated with shopping are more frequently expressed by individuals who actively engage with Facebook and a local news website, *gdańsk.pl*; however, they do not peruse the local daily paper (*Dziennik Bałtycki*). Conversely, respondents indicating the motive of social gatherings are primarily those who are childless or have one child, typically of a young age. They also do not read the local press where the information about the event was published. The respondents declaring the motive of traditional, pre-Christmas activities confirm active use of Facebook. The most significant differences between the respondents were revealed by the study of characteristics of persons looking for inspiration at the market (cognitive motive – searching for inspiration). This group of respondents most often includes women, individuals who use Facebook and the local news websites, *i.e.* *trójmiasto.pl* and *gdańsk.pl* actively. They listen to radio Eska and they do not use public transportation.

As shown, the descriptive variables did not turn out to be the factors that would significantly affect the majority of the declared motives. Consistency in expressing particular motives for participation is more closely associated with active engagement on Facebook and local news websites, reflecting trends in media utilization and the influence of social media on the intent to participate in various events (Schivinski *et al.* 2019). The traditional media, such as the newspapers and the radio, which were considered in the study, did not have such significant impact on the diversification of consumers as compared to their activity on-line.

### Limitations

The primary constraint that influenced the formulation of results in this study was the sampling approach, which entailed a purposive but random selection conducted by surveyors (individuals from the Christmas market who willingly responded to the questions). In the analysis of the study, the responses of foreign participants of the Christmas fair were not taken into account due to the small number. However, the study has great potential; therefore, plans have been made to implement stratified sampling during the next year's edition of the Christmas market and to include more reasons for attending related to, for example, staying in the vicinity of the Christmas market due to residence or work and accidental involvement in the event. The authors of the study are convinced that supplementing the construct should allow for clarifying a much greater level of variability than 45% of the variance. In relation to this, bearing in mind the cyclical nature of such event as the Christmas market in Gdańsk, next year the authors will try to identify a greater portion of the motives declared by the participants of the Christmas market. An important aspect of further research will also involve examining the expenditures of those who declare individual motives.

### Credit Authorship Contribution Statement

**Anna Młynkowiak-Stawarz:** Conceptualization, Investigation, Methodology, Formal analysis, Writing – original draft, Data curation, Validation, Visualization

**Robert Bęben:** Conceptualization, Methodology, Supervision, Validation, Writing – review and editing

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have not used generative AI (a type of artificial intelligence technology that can produce various types of content including text, imagery, audio and synthetic data. Examples include ChatGPT, NovelAI, Jasper AI, Rytr AI, DALL-E, etc) and AI-assisted technologies in the writing process before submission, but only to improve the language and readability of their paper and with the appropriate disclosure.

### Founding

Compilation of the analysed data was possible thanks to financial engagement of the event organiser – Międzynarodowe Targi Gdańskie.

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## The Rise of Tennis Tourism: Motivations, Experiences, and Economic Impact of Traveling Fans

Alexandru-Nicolae BANCIU  
University of Craiova, Romania  
ORCID: 0000-0003-3447-4637  
[alexandru.banciu@edu.ucv.ro](mailto:alexandru.banciu@edu.ucv.ro)

Irina-Valentina TUDOR  
University of Craiova, Romania  
ORCID: 0000-0002-0189-4961  
[irina.tudor@inf.ucv.ro](mailto:irina.tudor@inf.ucv.ro)

Cristina POPÎRLAN  
University of Craiova, Romania  
ORCID: 0000-0001-7634-545X  
[popirlan.cristina@ucv.ro](mailto:popirlan.cristina@ucv.ro)

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**Abstract:** This study explores the rise of tennis tourism, examining the motivations, experiences, and economic impact of fans who travel to attend tennis events. Through a mixed-methods approach combining quantitative survey and qualitative interviews, the study identifies three primary motivations for tennis tourism: the prestige of attending tournaments, emotional connections to prominent players, and the desire for cultural engagement in host cities. Results indicate that fans value not only the sport but also the unique atmosphere of the venues and opportunities for player interaction. Economic analysis reveals that tennis tourists contribute substantially to local economies through spending on accommodations, dining, and entertainment. This study highlights tennis tourism as a growing segment of the sports tourism industry and the unique characteristics of tennis fans, their travel patterns, and the economic implications of their participation in tennis events.

**Keywords:** sports tourism; tennis; survey; interview.

**JEL Classification:** C83; L83; Z32.

### Introduction

The sports tourism industry has experienced remarkable growth in recent years, with sporting events attracting a significant number of travellers worldwide. Among the various sports that have gained popularity as a tourist attraction, tennis has emerged as a prominent contributor to this trend. Tennis events, such as ATP/WTA Tour events, have become magnets for dedicated fans who travel to witness the matches and immerse themselves in the atmosphere of these prestigious competitions (Fairley, 2009; Kanwal *et al.*, 2020).

Fans are attracted to attend the tennis events due to their desire to witness the highest level of tennis competition, featuring the world's best players. They often seek to experience the intensity and excitement of live matches, rather than relying solely on television or digital broadcasts (Brandão *et al.*, 2020). Tennis events offer a unique opportunity for cultural immersion and social interaction. Traveling fans can involve themselves in the host city's local culture, exploring its landmarks, cuisine, and entertainment offerings.

This paper aims to explore the rise of tennis tourism by examining the motivations that drive tennis fans to travel to these events, the unique experiences they seek and encounter, and the significant economic impact that this market has on host cities and countries. A combination of quantitative surveys and qualitative interviews was applied to analyze the motivations, experiences, and economic impact of tennis tourism on traveling fans. Data collection will focus on two Romanian tennis events, particularly WTA 250 Transylvania Open Cluj-Napoca and



ATP 250 Tiriac Open Bucharest, as they attract significant numbers of international visitors and serve as prime examples of tennis tourism in Romania.

## 1. Literature Review

The phenomenon of sports tourism, particularly within niche markets such as tennis, has gained increasing attention from researchers over the past few decades. Tennis tourism, characterized by fans traveling to attend prestigious tennis tournaments and events, offers a unique blend of sporting entertainment, cultural engagement, and leisure activities.

Sports tourism has been broadly defined as the act of traveling to participate in or watch sports activities (Gibson, 1998). According to Weed and Bull (2009), sports tourism comprises both active participation (individuals engaged in sports activities) and passive participation (fans attending sporting events).

Higham and Hinch (2010) highlights that tennis tourism shares characteristics with other forms of sports tourism, particularly in terms of destination appeal, the influence of star athletes, and the timing of events. Tennis, as a global sport with a structured calendar of events, offers consistent travel opportunities that attract both casual and devoted fans (Preuss, 2007). Some countries have experienced as much as 25% of their tourism receipts from sports-related activities, emphasizing the substantial financial impact of this industry (Agrusa *et al.*, 2011). The expansion of professional and leisure sports leagues, as well as the increased popularity of active lifestyles, have contributed to the growth of sport tourism globally (Roche *et al.*, 2013).

Traveling tennis fans are a unique segment of the sports tourism market, with a strong attachment to the sport and a willingness to travel significant distances to attend events (Heydari *et al.*, 2021). The fans witness world-class tennis performances, experience the energy and atmosphere of the events, and potentially engage in tennis-related activities during their travels (Higham and Hinch, 2018), contributing to the substantial economic impact of tennis tourism on host cities and countries (Lee and Taylor, 2005). Chalip (2008) highlights that many tennis events are tied to local cultural experiences, allowing fans to engage with the destination beyond the sport.

Understanding the motivations (Wong and Tang, 2015) behind tennis tourism is essential for analyzing its appeal. Events, such as WTA 250 Transylvania Open Cluj-Napoca and ATP 250 Tiriac Open Bucharest, attract fans not only for the quality of the sport but also for the status associated with attending these high-profile events. Attending these tournaments is seen as an opportunity to experience the tradition and history of tennis firsthand (Getz, 2008). A significant motivational factor is the emotional connection that fans have with specific players (Peixoto and Sousa, 2021). Tennis is an individual sport, and many fans develop strong personal attachments to certain players, often leading them to travel across countries to support their favorite athletes. These emotional connections are reinforced by narratives of success and personal triumph, which are heavily promoted in media and marketing. Unlike in many team sports, tennis fans have closer interactions with players through autograph sessions, public practice courts, and media events. This direct interaction is often a significant part of the overall experience for traveling fans, contributing to a sense of personal connection with the sport and its stars.

Bazzanella *et al.* (2023) suggests that many fans travel to tennis events as part of a broader desire to explore new places, cultures, and experiences. Tournaments provide international tourists with the chance to combine tennis with sightseeing in a unique destination.

The literature on tennis tourism underscores the complex motivations of fans, their diverse experiences, and the significant economic impact of tennis events (Crompton, 1995; Zhang *et al.*, 2020). Fans are motivated by prestige, emotional connection to players, and the desire for novel experiences, all of which shape their engagement with both the sport and the destination. Meanwhile, host cities stand to benefit economically from tennis tourism, particularly in terms of revenue generation and infrastructure development (Raisi *et al.*, 2020). However, further research is needed to explore how to maximize these benefits while ensuring equitable economic distribution across local communities (Perić *et al.*, 2019). The continued rise of tennis tourism, especially at iconic global events, indicates its growing significance within the broader sports tourism industry.

## 2. Methodology

This study employs a mixed-methods approach, combining quantitative surveys with qualitative interviews to comprehensively analyze the motivations, experiences, and economic impact of tennis tourism on traveling fans (Pratt and Tolkach, 2018). This design allows for a nuanced understanding of both the motivations and experiences of tennis tourists, as well as the quantifiable economic contributions to host cities. Data collection will focus on tennis events, such as WTA 250 Transylvania Open Cluj-Napoca and ATP 250 Tiriac Open Bucharest, as these events attract significant numbers of international visitors and serve as examples of Romanian tennis tourism.

The Transylvania Open is a women's tennis tournament played on indoor hard courts that hosted around 7000 attendees per day on its fourth edition this year. Tiriac Open is a men's tennis tournament played on outdoor clay courts with about 3500 viewers per day.

The target population for this study is international and domestic tennis tourists who attended the two Romanian tournaments. We recruited participants who have travelled specifically to attend one of these events. To ensure a representative sample, recruitment focused on individuals from various demographic backgrounds, including age, gender, nationality, and frequency of attendance. The research was conducted in compliance with ethical guidelines for human subjects' research. Informed consent was obtained from all participants, and they were assured of their right to withdraw at any time. All survey and interview data were anonymized to protect participants' privacy, and data were stored securely.

The sample included:

- Approximately 500 attendees surveyed at each of the events, resulting in a target total of 1000 responses for the survey.

- 50 individuals from the larger sample were selected for interviews based on their survey responses, capturing diverse motivations and experiences within tennis tourism.

Surveys were distributed on-site at the tournament's venues. The structured survey was administered to gather quantitative data on participants' motivations, travel behaviors, and economic contributions. They included:

- Demographic questions (age, gender, nationality);
- Travel motivations (emotional connection to players, novelty-seeking, interest in event prestige);
- Spending patterns (accommodation, dining, entertainment, shopping);
- Event experience satisfaction;
- Likelihood to repeat attendance at future tennis events.

A quantitative analysis was applied for the data collected through the survey. Data was analyzed using descriptive and inferential statistics to identify key motivational factors, spending patterns, and levels of event satisfaction. Factor analysis (Mulaik, 2010) was employed to group and interpret different motivations for attending tennis events, while regression analysis (Chicco *et al.*, 2021) was used to determine the relationships between fan demographics and spending behaviors.

Interviews lasted about 30 minutes, and were conducted on-site in a quiet setting area. Semi-structured interviews provided deeper insights into participants' personal experiences and emotional connections to tennis tourism. The interviews explored:

- Detailed motivations for travel;
- Favorite aspects of the event and any areas for improvement;
- Perceived cultural engagement with the host city;
- Comparison with other sports tourism experiences.

The qualitative analysis of the interview, using thematic analysis (Braun and Clarke, 2019), was used to identify recurring themes related to motivations, emotional connections, and fan experiences. The qualitative data provided a rich contextual layer to the survey findings, highlighting individual nuances in fan experiences.

### 3. Results

A total of 1000 valid survey responses were collected from attendees across the WTA 250 Transylvania Open Cluj-Napoca and ATP 250 Tiriac Open Bucharest tournaments. Demographically, participants included 56% male, 43% female respondents and 1% prefer not to answer, with ages ranging from 18 to 65. 53% of the attendees were international travellers, with the largest group traveling from Europe (51%). Approximately 54% of respondents were repeat attendees, having visited other tennis tournaments in the past (35% attended one of the considered tennis tournaments).

Factor analysis conducted for the survey responses identified three primary motivations for tennis tourism:

- prestige of the event (35%): Attendees noted the significance of attending a tennis tournament as a motivating factor, with many associating it with a prestigious experience. The history, the tradition and the players participating in the tournament were cited frequently, especially among international attendees.
- emotional connection to players (41%): A significant portion of respondents highlighted their emotional connection to specific players as a motivation for travel. Fans of prominent athletes were willing to travel considerable distances to see them compete live.
- novelty and cultural experience (24%): Many attendees reported seeking the opportunity to combine tennis with local cultural experiences.

Survey results, represented in figure 1, showed high levels of satisfaction with the overall event experience, with 85% of participants rating their experience as *excellent* or *very good*. Thematic analysis of interviews revealed several recurring themes regarding the fan experience:

- event atmosphere: fans consistently described the atmosphere as electric and enjoyable, especially during high-stakes matches.
- access to players: many fans appreciated opportunities for closer interactions with players, such as autograph sessions and accessible practice courts. These experiences were frequently highlighted as unique aspects of tennis tourism that made their trips feel more personalized and memorable.
- cultural engagement: interviews and survey responses underscored fans' interest in engaging with the culture of the host city.

Figure 1. Tennis tourism survey results



Based on survey data, the study estimated economic impacts. Tennis tourists reported an average daily spending of approximately \$350, which includes accommodation, food, entertainment, and event-related purchases. International tourists, in particular, spent significantly more on accommodations and dining compared to local visitors. Data indicated a notable rise in hotel occupancy rates and restaurant revenue during tournament periods.

Interviews with fans revealed that many attendees intentionally extended their stays to explore more of the host city beyond the tournament, benefiting the local economy. Fans expressed that attending these events was not only a chance to watch tennis but also a way to experience the culture and landmarks of the host destination, amplifying the tourism impact of each event.

A substantial 62% of survey respondents indicated they would likely return to the same event in the future, highlighting tennis tourism's potential for long-term economic contributions. Fans who had attended multiple tennis tournaments over the years reported a strong loyalty to certain events and a sense of tradition. Interviewed fans explained that positive experiences encouraged them to revisit, particularly when the host city offered other attractions or cultural activities.

The results indicate that tennis tourism is driven primarily by event prestige, emotional connections to players, and the desire for cultural experiences. The economic impact analysis shows that tennis tourists make significant contributions to local economies, with substantial spending on accommodations, food, and other services. Furthermore, the high rate of repeat visits among tennis tourists highlights the enduring appeal of these events and the potential for sustained economic benefits in host cities.

The survey results indicate that the rise of tennis tourism is driven by a combination of factors, including the growing popularity of professional and leisure sports leagues, the increased interest in active lifestyles, and the unique characteristics of tennis fans as a distinct segment of the sports tourism market. These are briefly described in table 1.

Table 1. Tennis tourism - survey key findings

Finding	Description
Highly engaged and passionate tennis fans	Tennis fans who travel to attend tournaments are a highly engaged and passionate segment of the sports tourism market, driven by a strong attachment to the sport and a desire to witness world-class tennis performances, experience the energy and atmosphere of the events, and potentially engage in tennis-related activities during their travels.
Significant economic impact	The analysis of data and literature suggests that the global market for sports-related travel and tourism, including tennis tourism, has a significant financial impact on this industry, with some countries experiencing as much as 25% of their tourism receipts from sports-related activities.
Drivers of tennis tourism growth	The rise of tennis tourism can be attributed to the expanding popularity of professional and leisure sports leagues, the increased interest in active lifestyles, and the unique characteristics of tennis fans as a distinct segment of the sports tourism market.

As the demand for tennis-related travel continues to grow, host cities and event organizers will need to adapt their strategies to cater to the specific needs and preferences of this dedicated fan base, further enhancing the economic and cultural impact of tennis.

The research findings suggest that the growing popularity of tennis as a spectator sport, coupled with the allure of attending prestigious tournaments in iconic locations, has driven a significant increase in the number of travellers who are choosing to incorporate tennis events into their vacation plans. The data analyzed in this study indicates that tennis tourism is a rapidly expanding niche within the broader sports tourism industry, with far-reaching economic implications for host cities and countries.

### Conclusions and Further Research

The study's reliance on self-reported spending data may lead to potential biases in economic impact estimates. Additionally, focusing on the Grand Slam tournaments may limit the establishment of findings to smaller tennis events. However, these limitations are addressed by triangulating self-reported data with official tourism statistics and selecting a diverse sample across multiple events.

This approach will provide a comprehensive understanding of the unique characteristics and driving factors that contribute to the rise of tennis tourism, offering valuable insights for both academics and industry stakeholders.

This study offers a comprehensive analysis of tennis tourism, focusing on the motivations, experiences, and economic impacts associated with fan travel to major tennis events. The findings reveal that tennis tourism is driven by three primary factors: the prestige of attending iconic tournaments, emotional connections to athletes, and the desire for novel cultural experiences. Fans are not only motivated by the appeal of high-profile events but also by the unique, intimate atmosphere of tennis venues and the opportunities for direct interaction with players.

The experiences reported by tennis tourists highlight the importance of venue atmosphere, access to players, and the cultural offerings of host cities. Fans value not only the matches themselves but also the broader experience, including local cuisine, sightseeing, and cultural immersion. This demonstrates that host cities can enhance tourism value by emphasizing unique local attractions, which in turn can increase both visitor satisfaction and the likelihood of repeat visits.

From an economic perspective, tennis tourism provides substantial benefits to host cities, with fans contributing to local economies through spending on accommodations, dining, entertainment, and shopping. Additionally, the high percentage of repeat attendees underscores the long-term value of tennis tourism, as positive experiences often lead fans to return for future events, further amplifying the economic benefits.

These insights offer practical implications for both event organizers and host city tourism boards. To maximize the economic impact of tennis tourism, organizers can enhance fan experiences through improved player accessibility and memorable venue atmospheres. Host cities can complement these efforts by promoting local attractions and cultural experiences that enhance the overall value of attending a tennis event.

In conclusion, tennis tourism represents a growing and valuable segment of the sports tourism industry, one that brings economic growth and cultural exchange opportunities to host destinations. As international travel and sports tourism continue to grow, understanding and nurturing the unique motivations and experiences of tennis tourists will be essential for both event sustainability and broader tourism development. By leveraging the prestige and emotional connections of these internationally renowned tournaments, communities can unlock the full potential of tennis tourism to drive economic development and cultural exchange. This includes fostering a deep sense of tradition and loyalty among fans, who are eager to revisit the same events and explore the host destinations in-depth. Additionally, strategies that enhance the cultural value of these tournaments, such as

promoting local cuisine, landmarks, and other attractions, can amplify the overall tourism impact and create lasting memories for tennis enthusiasts. Ultimately, a multifaceted approach that caters to the diverse interests and expectations of tennis tourists can yield substantial and sustained benefits for the local economy and community. Future research could further explore tennis tourism's impact on smaller tournaments and consider strategies for balancing economic gains with equitable community benefits, ensuring that tennis tourism contributes positively to all facets of host communities by further integrating tennis events with broader tourism initiatives, attracting repeat visits, and amplifying the cultural value of these globally renowned tournaments.

### Credit Authorship Contribution Statement

**Alexandru-Nicolae Banciu:** Conceptualization, Investigation, Writing – original draft, Data curation, Validation.

**Irina-Valentina Tudor:** Conceptualization, Methodology, Formal analysis, Writing – original draft, Data curation, Validation, Writing – review and editing, Visualization.

**Cristina Popîrlan:** Conceptualization, Investigation, Methodology, Formal analysis, Writing – original draft, Validation, Writing – review and editing, Visualization.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

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## The Potential for Sustainable Tourism Development in Small-Scale Regions: A Case Study of Sulejów Municipality

Waldemar CUDNY

Faculty of Geographical Sciences, University of Lodz  
Institute of Urban Geography, Tourism Studies, and Geoinformation, Poland

ORCID: <https://orcid.org/0000-0002-3259-6086>

Corresponding author: [waldemar.cudny@geo.uni.lodz.pl](mailto:waldemar.cudny@geo.uni.lodz.pl)

Justyna PALUCH

Faculty of Geographical Sciences, University of Lodz  
Institute of Urban Geography, Tourism Studies, and Geoinformation, Poland

[justyna.paluch@edu.uni.lodz.pl](mailto:justyna.paluch@edu.uni.lodz.pl)

**Abstract:** The article addresses the critical intersection of tourism potential and sustainable tourism, focusing on a case study of the Sulejów commune, a small municipality located in central Poland. The study analyzes Sulejów's natural and cultural attractions and other elements of tourism potential and assesses their relevance for sustainable tourism development. The research employed field observations, an intercept questionnaire survey, and SWOT analysis to evaluate tourism potential, the perspectives for sustainable tourism and identify areas for improvement. The results highlight Sulejów's significant tourism potential, with key natural attractions such as the Sulejów Landscape Park, the Pilica River, and the Sulejów Reservoir, alongside cultural historical landmarks like the Cistercian Abbey. While respondents rated tourism potential highly, challenges include inadequate accessibility, weak eco-awareness and promotion and limited support from local institutions. The study proposes a framework emphasizing pro-ecological education, sustainable infrastructure improvements, better promotion, and the use of modern technologies to market the region sustainably. The findings contribute to the understanding of sustainable tourism in smaller communities and provide a basis for broader comparisons in future research.

**Keywords:** sustainable tourism; tourism potential; small communities; Sulejów; Poland.

**JEL Classification:** Z32; Q56; Q01; R11.

### Introduction

The concept of tourism potential is important from a scientific viewpoint, as it encompasses a destination's ability to attract and accommodate tourists (Yan *et al.* 2017). Studying tourism potential deepens the understanding of the factors influencing tourism development, including tourist attractions, infrastructure, and socio-economic elements (Kaczmarek *et al.* 2010). From a practical perspective, such analysis helps planners and decision-makers manage resources effectively and develop tourism responsibly. It also assists in identifying high-value areas for tourism, which is crucial for local economic growth (Zajadacz and Śniadek 2009b). Moreover, understanding the limitations and barriers of tourism potential can help minimize tourism's negative impacts, thereby promoting sustainable tourism (Butler 1999; Zaręba 2010; Harris *et al.* 2012).

In the pursuit of sustainable tourism development, analyzing tourism potential across various territorial contexts emerges as a pivotal research endeavor (Niezgoda 2006; Datta and Banerji 2015; Trukhachev 2015; Cetin 2018; Crăciun *et al.* 2022). This analysis plays a key role in formulating strategies for sustainable tourism, a critical response to socio-economic and environmental challenges. As regions and cities worldwide grapple with issues such as overtourism, environmental degradation, income inequality, and the domination of large international corporations, the importance of sustainability has become increasingly pronounced in tourism (Dodds and Butler 2019; Sharpley 2020). This growing awareness has led to a stronger focus on integrating UN Sustainable Development Goals (SDGs) into the tourism sector. These goals emphasize the need to promote responsible economic growth, conserve ecosystems, encourage sustainable consumption, and take climate

action (Cudny and Dajer 2024). However, sustainable tourism is not only about protecting the environment but also about supporting local businesses and products. It offers a holistic approach to leveraging natural and cultural attractions in ways that foster responsible tourism while respecting and preserving local identities and resources (Farrell 1999; Zareba 2010; Włodarczyk and Cudny 2022).

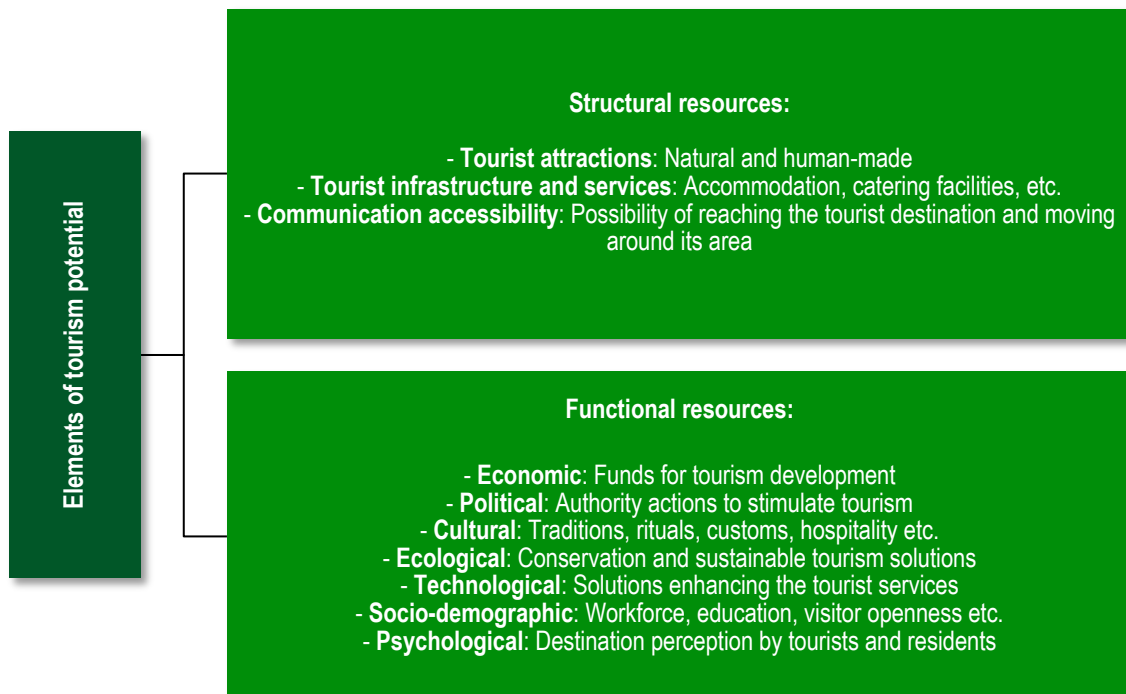
In this context, the main aim of our article was to evaluate the tourism potential of Sulejów, a small municipality in central Poland known for its natural beauty and cultural heritage. The objective of our study was to thoroughly analyze the region's natural and man-made tourist attractions, infrastructure and other critical components of its tourism potential, as well as their capacity to support sustainable tourism development. By exploring the feasibility of integrating these elements within sustainable tourism frameworks, we also aimed to develop a strategic framework for leveraging Sulejów's tourism resources in a sustainable manner. The study draws on field observation, questionnaire surveys, in-depth interviews, literature, and online resources. It contributes to the scientific discussion around sustainable tourism in smaller regions and provides a basis for future comparisons and broader conclusions.

## 1. Literature Review

### 1.1. The Concept of Tourism Potential

Tourism potential includes various factors that enhance tourism in a region, such as natural, cultural, historical, and socio-economic elements (Zajadacz and Śniadek 2009b). Yan *et al.* (2017, p. 355) described potential as a community's resources - ranging from natural and cultural attractions to infrastructure and services - vital for attracting tourists and creating tourism products. The importance of assessing tourist attractions, infrastructure, and tourist traffic when evaluating tourism potential was highlighted by Butowski (1996). Bellinger (1994) and Zajadacz and Śniadek (2009a) emphasized the role of natural conditions, infrastructure, and social factors in generating tourist traffic. Mukatova *et al.* (2022) viewed tourism potential as encompassing cultural and natural resources, infrastructural facilities, and recreational activities, all of which enhance tourist experiences and promote sustainable tourism growth. Kaczmarek *et al.* (2010) described tourism potential as a combination of structural and functional resources crucial for tourism development in a destination (Figure 1).

Figure 1. The structure of resources constituting tourism potential.



Source: Authors compilation based on Kaczmarek *et al.* (2010).

## 1.2. Tourist Attractions and Tourism Infrastructure as the Main Elements of Tourism Potential

Attractions are essential to tourism potential, captivating visitors with their unique features (Kruczek 2011). Lew (1987) described them as elements outside one's usual environment that attract travelers, offering landscapes, activities, and experiences. According to Richards (1996), attractions - whether natural, cultural, historical, or recreational - draw visitors seeking unique experiences and require proper infrastructure and commercialization. Urry and Larsen (2011) view attractions as focal points within a destination that captivate visitors.

The term 'tourist attractions,' prevalent in English-language literature, often encompasses not only natural and cultural elements but also associated services, pricing, and infrastructure. In Polish literature, the term 'tourist values' is often used (Kruczek 2011). Tourist values refer to all natural and man-made elements that directly attract tourists, according to Kurek (2012). These values are categorized into natural and human-made (cultural or anthropogenic), with further classifications based on travel motives (recreational, sightseeing, specialized), materiality (material or non-material), and type (place-based or event-based values) (Kaczmarek *et al.* 2010).

Tourist infrastructure is considered another of the main components of tourism potential (Kaczmarek *et al.* 2010). The term encompasses both the process of equipping an area with facilities for tourists and the resulting infrastructure or material base present in a specific area (Kowalczyk 2001). It includes the facilities and services that support tourists in a region (Kowalczyk and Derek 2010). Szwichtenberg (2000) identifies the following main types of tourism infrastructure:

- Accommodation base: Hotels, motels, guesthouses, hostels, guest rooms, camping sites, and similar lodging facilities.
- Gastronomic base: Independent eateries and those within accommodation facilities, such as restaurants, pubs, pizzerias, and fast-food outlets.
- Supplementary base: Facilities catering to the cultural, entertainment, sports, recreation, shopping, and health needs of tourists.
- Transportation base: Infrastructure facilitating access to and movement within tourist destinations.

Tourist infrastructure is developed to protect and adapt attractions, ensure access, and provide essential living conditions for tourists (Rogalewski 1977). It consists of both tourist and para-tourist facilities, with the former primarily serving tourists and the latter also serving the local population (Kowalczyk 2001).

## 1.3. Tourism Potential as a Research Topic

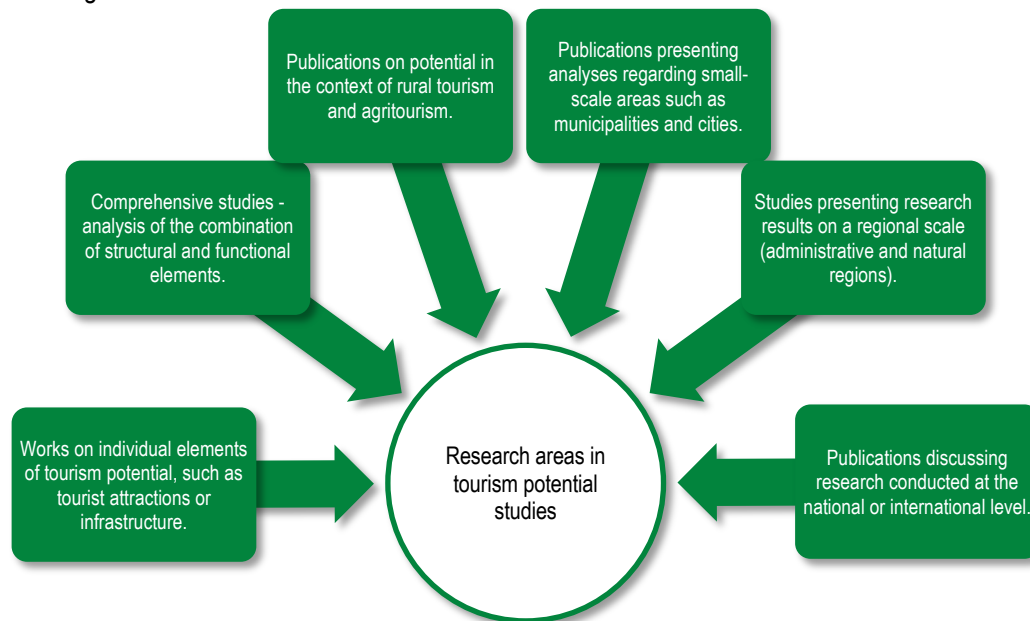
Tourism potential, a significant research topic, encompasses diverse aspects, including studies on individual elements such as natural attractions (terrain, climate), cultural features (heritage, sacred sites, events), or infrastructure. Comprehensive research examines both the structural (attractions, infrastructure) and functional (social, economic, psychological) dimensions (Figure 2). The scope of research ranges from rural and agritourism to spatial scales that include municipalities, cities, provinces, natural regions, and even national and international levels (Figure 2).

Examples of studies on tourism potential's individual elements include Pralong (2005) on Mont Blanc's terrain, Martín (2004) on Catalonia's climate, and Valjarević *et al.* (2017) on hot springs as attractions. Cetin *et al.* (2018) analyzed Yesilyuva Nature Park in Turkey for its natural and cultural values, while Sun *et al.* (2011) assessed rural China's cultural heritage. Kartal *et al.* (2015) explored religious tourism in Manisa, Turkey, Mukatova *et al.* (2022) studied Ethno-Tourism in Kazakhstan's Ulytau region, Szczęsna and Gawrysiak (2009) examined Lublin region's man-made (anthropogenic) values, and Calderón *et al.* (2020) investigated regional tourism and cultural heritage attractions as part of potential.

Comprehensive analyses covered attractions, infrastructure, and accessibility, focusing on areas from municipalities and counties (Brzezińska-Wójcik and Skowronek 2009; Skrzypczak and Chmielewska 2009; Ungureanu *et al.* 2014) to cities (Jazienicka and Skulimowska-Rzeźwicka 2009; Kociuba and Kociuba 2009; Evstratova *et al.* 2020). Regional analysis included Polish Gryfino County (Głabiński and Duda 2017), Lublin region (Tucki 2009), West Pomeranian Voivodeship (Kubicki 2009), Kashubian Lakeland (Witkiewicz 2009), Podlasie (Godlewski and Zalech 2009), and Leszno region (Zajadacz and Śniadek 2009a).

Research in rural areas encompasses Trukhachev's (2015) sustainable tourism studies, Baum's (2011) work in Poland, and focused analyses on agritourism (Amirov *et al.* 2020) and rural tourism (Seken *et al.* 2019; Crăciun *et al.* 2022), examining attractions, infrastructure, and services.

Figure 2. Overview of the Main Research Areas in Tourism Potential Studies



Source: Own elaboration.

Internationally and nationally, studies varied. For instance, Ankomah and Crompton (1990) discussed tourist resource use and barriers in Sub-Saharan Africa. Olimovich (2015) studied Uzbekistan's tourism potential, focusing on attractions and infrastructure. Krzemińska *et al.* (2018) analyzed European megalithic monuments' role in tourism potential. Boiko *et al.* (2018) evaluated Ukraine's tourism post-crisis, considering sustainable development. Borysova *et al.* (2020) investigated religious tourism potential in Ukraine. Frolova and Rogach (2023) researched religious tourism in Russian regions.

Methodologically, tourism potential studies vary widely. Zajadacz and Śniadek (2009b) noted that data are gathered through observations (e.g., Evstratova *et al.* 2020; Krzemińska *et al.* 2018), interviews, surveys, and social consultations (e.g., Witkiewicz 2009; Głabiński and Duda 2017; Cudny and Dajer 2024), as well as inventories, document analysis, and literature reviews. Analytical methods included indicator analysis (see Tucki 2009; Calderón *et al.* 2020), SWOT analysis, and graphical presentations like tables, charts, and maps.

#### 1.4. Sustainable Tourism

Understanding tourism potential is essential for sustainable tourism research, as it highlights resources that contribute to long-term conservation and community benefits (Trukhachev 2015; Mukatova *et al.*, 2022). Sustainable development balances economic, social, and environmental aspects to ensure viability (Kowalczyk 2010b). The Club of Rome's report *The Limits to Growth* (1972) underscored the dangers of uncontrolled growth, leading to the global prioritization of sustainable development. The Brundtland Report (1987) defined sustainable development as meeting current needs without compromising the ability of future generations to meet their own. Key global initiatives such as Agenda 21 (1992), the Kyoto Protocol (1997), the Millennium Development Goals (2000), and the UN Sustainable Development Goals (SDGs) in 2015, which include 17 objectives like poverty reduction, inclusivity, and climate action, reflected this commitment (<https://sdgs.un.org/goals>).

Sustainable tourism, according to The World Tourism Organization, considers economic, social, and environmental impacts, benefiting visitors, the tourism industry, and host communities (<https://sustainabledevelopment.un.org/topics/sustainabletourism>). It contributes to several SDGs, particularly goals 8, 12, and 14, by promoting inclusive economic growth, sustainable consumption, and responsible use of land and marine resources (<https://www.unwto.org/tourism-in-2030-agenda>). Sustainable tourism, widely discussed by scholars (see: Butler 1999; Swarbrooke 1999; Kowalczyk 2010a, 2010b; Grabara and Bajdor 2013; Edgell 2019; Fennell and Cooper 2020), requires balancing the needs of the environment, tourists, local communities, and service providers, with the aim of minimizing environmental impact and maximizing community benefits (Kowalczyk 2010b). It addresses challenges such as environmental degradation, overtourism, and the dominance of large corporations over local businesses (Mika 2015).



Sustainable tourism promotes eco-friendly practices essential for protecting ecosystems, preserving biodiversity, and safeguarding local cultures. It emphasizes respect for traditions, preventing cultural erosion, and ensuring that visitors experience authentic local cultures (Swarbrooke 1999; Zaręba 2010). Economically, sustainable tourism creates opportunities for local businesses through responsible practices, increasing community income and reducing poverty and unemployment (Weaver 2007). By adhering to sustainability's three pillars - environmental, social, and economic - sustainable tourism prevents ecological damage, maintains cultural integrity, and enhances community prosperity (Farrell 1999; Purvis *et al.* 2019).

## 2. Materials and Methods

This article employs several research methods to identify the tourism potential of the Sulejów municipality, assess its elements, and evaluate its suitability for the broader development of sustainable tourism. Field observation was used to identify and describe the main tourist attractions and assess transportation accessibility, infrastructure, and other components of tourism potential. Additionally, a questionnaire survey was conducted among residents and visitors to Sulejów. The survey utilized a printed questionnaire distributed to respondents in public places within the municipality.

A questionnaire survey is a research method used to gather information from respondents through structured questions. These questions are typically presented in written form, either on paper or digitally, and can include closed-ended options (e.g., multiple choice, yes/no) or open-ended questions allowing for detailed responses. An intercept survey, a specific type of survey, was conducted where respondents were selected on the spot, often in public places like shopping centers, parks, or tourist attractions. In this technique, researchers 'intercept' individuals during their regular activities and invite them to participate, enabling quick data collection from people conveniently available in a location. Although non-representative, this approach is frequently used in tourism-related research (Veal 2017). Ultimately, 103 correctly completed questionnaires were obtained and used in further analysis. Moreover, two in-depth interviews were conducted. An in-depth interview is a conversation between an interviewer and a respondent, designed to obtain information relevant to the research objectives and gain a deeper understanding of a specific topic. The interview is guided by a list of questions focused on a particular research issue for which the respondent has valuable knowledge (Babbie 2001). These interviews were conducted with the Deputy Director of the Łódź Voivodeship Landscape Parks Team and the Head of the Promotion, Development, and External Funds Department of the Sulejów Municipal Office. The interviews were aimed at obtaining data about the commune and information on its tourist attractions, infrastructure and other elements of tourist potential. Additionally, SWOT analysis and desk research were utilized, involving data from observations, questionnaire survey results, and reviews of internet sources and academic literature.

## 3. The Study Area

The Sulejów Municipality is an urban-rural area located in central Poland, within the Łódź Voivodeship (Figure 3). The municipality's capital is the town of Sulejów, home to approximately 6,100 residents. The municipality covers an area of ca 189 km<sup>2</sup> and has a population of around 16,600 inhabitants ([https://www.polskawliczbach.pl/gmina\\_Sulejow](https://www.polskawliczbach.pl/gmina_Sulejow)). Most of the municipality lies on the lowlands of the Piotrków Plain, with higher elevations in the eastern part, which belongs to the Opoczno Hills region (Kondracki 2002).

Figure 3. Location of Sulejów Municipality on the map of Poland and Łódź voivodship.



Source: Authors elaboration.

Sulejów municipality is one of the most forested areas in the Łódź Voivodeship. In 2022, forests covered ca 43% of the area. Additionally, a portion of the Sulejów Landscape Park is located within its borders. The main river in the municipality is the Pilica River, a tributary of the Vistula and one of the key rivers in the Łódź voivodship (<https://www.sulejow.pl/asp/start>).

## 4. Research Results

### 4.1. Tourist Attractions

The Sulejów municipality is renowned for its natural tourist attractions (Figure 4). One of its main attractions is the Pilica River, a major left-bank tributary of the Vistula. Stretching 319 km, the Pilica River's valley has preserved its natural character, making it a popular recreational area, especially for kayaking. In Sulejów, two kayak harbors and a kayak station have been established on the Pilica River. Another notable river is the Luciąża River, the longest left-bank tributary of the Pilica, spanning about 50 km. It also serves as a recreational and tourist area.

Figure 4. The most important tourist attractions of Sulejów municipality.



Source: Authors' elaboration.

One of the most important attractions in the studied commune is the Sulejów Reservoir (Photo 1), an artificial lake created between 1969 and 1974 by damming the natural course of the Pilica River. The reservoir covers 27 km<sup>2</sup>, with a 58 km shoreline. It serves functions including water retention, energy generation, flood protection, and recreation, offering opportunities for water sports such as sailing, kayaking, and windsurfing.

Photo 1. Sulejów Reservoir.



Source: Authors' elaboration.

The most valuable protected natural site in the municipality is the Sulejów Landscape Park, with about 31% of its 17,030 ha area located within the municipality. Established in 1994, the park protects the natural Pilica valley and features valuable forest communities, including pine forests, mixed woods, and riparian forests. It is also home to rare water, reed, and meadow ecosystems, as well as many protected plant species.

Within the Sulejów Municipality, there are two nature reserves: Lubiaszów and Las Jabłoniowy, along with two areas under the European Natura 2000 protection system. Additionally, the municipality contains individual natural monuments, including four protected groups of trees, and 58 ecological sites that preserve ecosystems important for biodiversity conservation.

The Sulejów municipality is also home to significant man-made tourist attractions (Figure 3), the most notable of which are in Sulejów. These include the neo-Gothic St. Florian Church (built in 1903), the hospital church, and remnants of a narrow-gauge railway. The municipality also features historic spatial layouts in Sulejów and nearby villages. The most valuable monument is the Cistercian Abbey complex in Sulejów, which comprises the church, monastic buildings, fortifications, and former garden areas (Photo 2). This abbey, one of Poland's most significant monuments, retains its historical structure and cultural landscape. The monastic church has preserved its original form as a three-nave basilica, with the adjoining monastery. The entire complex is surrounded by a ring of late-Gothic fortifications, with part of the complex adapted for use as a four-star hotel.

Photo 2. Cistercian Abbey complex in Sulejów



Source: Authors' elaboration.

Another important religious site is the Norbertine Monastery complex in Witów-Kolonia, situated in the village center. The centerpiece of this site is the Church of St. Margaret and St. Augustine. Two significant cultural routes pass through the municipality: the Cistercian Route, which highlights medieval sacred architecture in Cistercian monasteries across Europe, and the Romanesque Route, which connects valuable Romanesque architecture, including the Cistercian Abbey in Sulejów. Sulejów is also rich in intangible cultural heritage,

reflected in regional identity through folk groups like the 'Piliczanie' folk ensemble, founded in 2018. This cultural identity is further expressed through local crafts and products and reinforced by cultural and folk events such as St. John's Night, Sulejów Days, and the Medieval Family Feast.

#### 4.2. Tourist Infrastructure, Accessibility, and the Functional Resources of Tourism Potential

The official data indicated 24 accommodation facilities in Sulejów Municipality, including 2 hotels in 2022. The number of available beds has fluctuated in recent years, showing a downward trend. For example, in 2022, statistics reported 560 beds, compared to 794 in 2019, marking a decrease of approximately 30%, mostly due to the COVID-19 pandemic. Most facilities are in Sulejów and Barkowice, particularly near the Sulejów Reservoir.

According to data from the Sulejów Municipality Office, there are 17 food establishments in the region. However, the variety is limited, dominated by pizzerias, bars, and restaurants. There is only one café in the area, located in Sulejów. A significant downside of the municipality's gastronomic offer is its lack of diversity, with most venues being bars without a unique culinary experience.

Transportation infrastructure is a key factor in choosing a vacation destination, as it determines the ability of tourists to reach the destination and explore the area (Kaczmarek *et al.* 2020). Despite its attractive central location in Poland, reaching Sulejów is difficult due to the lack of a railway line. Access is only possible by car or bus, which is inconvenient for non-motorized visitors and significantly reduces the sustainability of tourism in the area. However, the situation is slightly improved by the municipality's 5.4 km of bike paths and tourist trails, enhancing accessibility for cyclists and pedestrians. Three tourist trails run through the Sulejów municipality: the Zygmunt Goliat bike path and two hiking trails, the Hubal partisan trail and the Pilica River trail.

As for the supplementary infrastructure, according to data from the Sulejów Municipality Office, there are 12 sports equipment rental services in the area. They offer equipment for kayaking, cycling, and other activities related to local tourist attractions. The municipality also provides information boards for tourists and rest areas along popular hiking trails. In 2022, Sulejów had 18 sports facilities, primarily outdoor gyms, sports halls, and swimming pools. Additionally, the town hosts the Municipal Cultural Center and a public library. In 2023, the largest share of businesses in the municipality were classified under Wholesale and Retail Trade; Repair of Motor Vehicles, with 316 entities, including shops serving both tourists and residents (<https://www.sulejow.pl/asp/start>).

Functional resources, including economic, socio-demographic, and technological factors (see Figure 1), also contribute to the tourism potential of the Sulejów municipality. Key economic drivers include small and medium-sized enterprises offering services like accommodation, dining, and entertainment. However, the limited number of investors and businesses slow the sector's growth. Political support, such as local authority programs and tourism-friendly regulations could strengthen the tourism sector, though specialized tourism institutions and development strategies are lacking. Cultural resources, including historical sites like the Cistercian Abbey, attract tourists, but the limited cultural organizations hinder full potential. Technological resources, such as internet access and online booking systems, are improving but still face limitations, especially regarding the local applications. Socio-demographic factors are unfavorable due to the aging population and lack of specialized education for tourism. Psychological factors, such as the positive attitudes of residents toward tourists, create a welcoming atmosphere in Sulejów Commune. Ecological resources, including protected areas, promote sustainable tourism, but limited environmental awareness among the community and funding challenge further development. Sulejów's functional resources offer significant potential for sustainable tourism, but further investment, promotion and specialized support are needed to fully realize this potential.

#### 4.3. The Results of Questionnaire Survey

The questionnaire survey included 103 participants, with 44.66% who identified themselves as women and 55.34% as men. Of the respondents, 61.17% were visitors to the municipality, while the rest were residents. Most respondents fell into the following age groups: 31-36 years (25.24%), 37-42 years (14.56%), 43-48 years (18.45%). The largest educational group had higher education (43.69%), followed by those with secondary education (39.81%) (Figure 5).

Figure 5. The age and educational structure of the respondents

**The profile of respondents in the survey**

Age structure		Educational structure	
Age group	%	Level of education	%
18-24	7,77	Elementary	0,00
25-30	10,68	Vocational	13,59
31-36	25,24	Junior	0,00
37-42	14,56	Secondary	39,81
43-48	18,45	Post-Secondary	2,91
49-54	14,56	Higher	43,69
55-60	2,91	Together	100,00
61-65	0,00		
66 and more	5,83		
Together	100,00		

Source: Authors' elaboration.

The first question asked to the respondents concerned the assessment of the tourist potential of the Sulejów municipality on a scale from 1 to 10. The average rating was quite high, at 6.11 points. Most respondents (19.4%) rated the municipality's potential at 8 points, while the lowest rating, 1 point, was given by the fewest respondents (0.97%) (Table 1).

Table 1. The respondents' evaluation of the tourism potential of the Sulejów municipality

Assessment of the tourist potential in the studied region	
Score	%
1	0,97
2	2,91
3	7,77
4	14,56
5	16,50
6	12,62
7	12,62
8	19,42
9	5,83
10	6,80
Together	100,00
Average score	6,11

Source: Authors' elaboration.

The next question asked respondents to identify which of the listed aspects have the greatest impact on the tourism potential of the municipality. Respondents evaluated them using a Likert scale, with the following response options: strongly disagree, rather disagree, neither agree nor disagree, rather agree, and strongly agree. The highest-rated aspect of Sulejów's tourism potential was its natural attractions. Man-made (anthropogenic) attractions, tourist infrastructure, were also rated very positively. However, the influence of local institutions and authorities on tourism potential was rated lower with neither agree nor disagree option dominating the structure of responses (Table 2).

Table 2. The dominant opinions regarding the elements determining the tourism potential in the Sulejów Municipality.

Elements that are determining tourism potential in the research area	The response most frequently chosen by respondents
Rich natural tourist attractions	I strongly agree (44,66%)
Rich anthropogenic tourist attractions	I rather agree (42,72%)
Well-developed tourist infrastructure	I rather agree (41,75%)
Favorable communication accessibility	I rather agree (31,07%)
Interesting regional and local culture and traditions	I rather agree (29,13%)

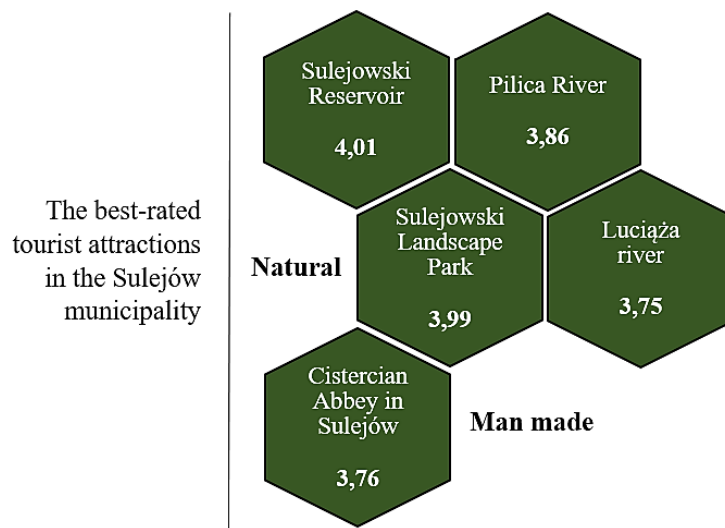


Elements that are determining tourism potential in the research area	The response most frequently chosen by respondents
Tourism related activities of local institutions	Neither agree nor disagree (36,89%)
Tourism related activities of local authorities	Neither agree nor disagree (47,57%)

Source: Authors' elaboration.

The next question involved rating most important attractions in the Sulejów municipality on a scale of 1 to 5. The best-rated attraction was the Sulejów Reservoir, with an average score of 4.01. Other highly rated attractions were mainly natural sites, such as the Sulejów Landscape Park, the valleys of the Pilica and Luciąża Rivers, as well as a man-made site - the Cistercian Abbey in Sulejów (Figure 6).

Figure 6. The breakdown of respondents' ratings of the most important attractions in the Sulejów municipality.



Source: Authors' elaboration.

In the next question, respondents were asked to indicate what actions should be taken to increase the potential of the Sulejów Municipality. This was a multiple-choice question, and 183 responses were collected. The most common answers were greater support for tourism development and the development of a sustainable tourism infrastructure, both receiving 27.32% of the responses. Improved promotional efforts were chosen by 25.68% of respondents, while 14.75% pointed to greater support from local authorities for the tourism sector in the municipality.

The next question asked respondents to identify the dominant type of tourism in the Sulejów Municipality. Both tourists and residents agreed that active tourism is the most prevalent in the area (like kayaking, cycling, hiking), with 50.89% of responses indicating this option. It is important that these forms of tourism are often considered as sustainable (see Cudny and Dajer 2024). Leisure tourism ranked second (34.82%), followed by sightseeing tourism in third place (12.50%).

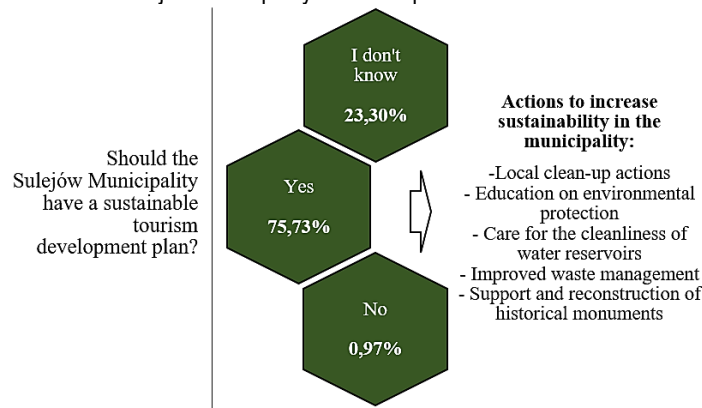
In the following question, respondents were asked whether, in general, efforts should be made to develop sustainable tourism. A total of 50.49% of respondents had no opinion on whether sustainable tourism in general should be developed, however 49.51% believed it should. They justified their positive responses by referring to environmental concerns, such as the benefits to the environment, increased awareness of nature conservation, and the fact that sustainable tourism helps maintain environmental balance. Notably, none of the respondents selected 'No' as an answer to this question. Therefore, rejecting those who had no opinion, everyone answered this question positively.

In the next question, respondents were asked to answer the following: Should the Sulejów municipality have a sustainable tourism development plan? Most respondents agree that the municipality should have such a plan – over 75% of respondents. More than 23% of those surveyed had no opinion on the matter, while only one person believed that the municipality should not have a sustainable tourism development plan.

Respondents were also asked to suggest actions that should be implemented to increase sustainability in the Sulejów municipality. The most frequently mentioned suggestions included organizing neighborhood cleanup campaigns, educating tourists and residents about environmental protection, maintaining the cleanliness

of water bodies, improving waste management, supporting local environment friendly businesses, and restoring historical sites and heritage buildings in the municipality to preserve its heritage for the future (Figure 7).

Figure 7. Responses on whether the Sulejów municipality should implement a sustainable tourism development plan.



Source: Authors' elaboration.

#### 4.4. Sustainable Tourism a Framework

In addition to analyzing tourism potential, the article aimed to present a framework for better utilizing Sulejów's potential to develop sustainable tourism. First, the potential is summarized using a SWOT analysis, followed by the presentation of the framework. SWOT analysis is a strategic tool used to identify and evaluate the Strengths, Weaknesses, Opportunities, and Threats of an organization, project, or region. It aids in understanding internal factors (strengths and weaknesses) and external factors (opportunities and threats), providing insights for decision-making and strategic planning in businesses as well as in territorial development (Kaczmarek *et al.* 2010). Based on the research results, Sulejów possesses strong tourism potential, with rich natural and cultural assets such as the Pilica River, Sulejów Reservoir, and historic sites. Its location, environment and biodiversity provide ideal conditions for water tourism and ecotourism. However, challenges include poor accessibility, limited promotion, seasonal tourism flow, and low environmental awareness. Opportunities lie in the growing interest in ecotourism, availability of EU funding, and regional collaboration to enhance sustainable tourism. Nevertheless, threats such as environmental issues, economic crises, and rising costs may hinder sustainable tourism development (Figure 8).

Figure 8. SWOT Analysis of tourism potential and sustainable tourism development in Sulejów municipality

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>➤ Rich natural attractions like the Pilica River, Sulejów Reservoir, nature reserves, supplemented by cultural attractions like the Cistercian Abbey are core of tourism potential.</li> <li>➤ High potential for water tourism: especially kayaking which is perceived as sustainable form of tourism.</li> <li>➤ Strategic central location.</li> <li>➤ Biodiversity and tourist trails: ideal for eco and sustainable tourism activities.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Poor communication infrastructure limits tourist access.</li> <li>➤ Insufficient promotion lowers region's visibility as a destination.</li> <li>➤ Seasonality in tourism and limited environmental awareness and education as weaknesses.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>➤ Rising interest in sustainable tourism appeals to responsible tourists seeking authentic, nature-based experiences.</li> <li>➤ Availability of EU funding and new technology - supports infrastructure and promotion.</li> <li>➤ Possible regional collaboration and tourist trails development enhances attractiveness for sustainable, active tourism.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Environmental and economic risks (pollution, climate change, global crises) and competition from other destinations pose a threat for the destination.</li> <li>➤ Rising costs, higher energy and resource prices negatively impact development.</li> </ul>

Source: Authors' compilation.

The development of sustainable tourism in the Sulejów commune requires support through a framework designed to maximize the region's tourism potential while adhering to the principles of sustainability. This approach aims to deliver long-term benefits for both the local community and visitors (Figure 9).

The first framework objective is to raise ecological awareness among residents and tourists through actions such as organizing eco-festivals, open days on sustainable tourism, and social media campaigns with educational content. Carbon emissions reduction strategies, including promoting cycling infrastructure and public transportation, are also essential. This will help strengthen the eco-awareness in the community and should develop environment and heritage protection.

The second objective focuses on improving the accessibility, sustainability and quality of tourism infrastructure. Expanding and modernizing cycling paths and transport connections, improving road accessibility, and adapting facilities for people with disabilities will enhance the lacking access to attractions. Developing eco-friendly accommodations, such as energy-efficient eco-hotels with recycling systems, should also become a priority.

It's worth mentioning that these efforts (Figure 9) align with UN Agenda 2030 goals, including lifelong learning (Goal 4), sustainable consumption and production (Goal 12), and climate action (Goals 13, 14, 15).

The third framework objective focuses on supporting sustainable economic development by implementing training programs for local businesses to adopt eco-friendly practices, to create inclusive tourist spaces, inclusive and just economy and enabling better utilization and protection of tourist attractions. This should help to rise the local tourism sector, strengthen the regional economy and help adhere the EU funds. Promoting active nature-based tourism and agritourism and certifying eco-friendly facilities will provide authentic, high-quality tourism experiences, boost the local business sector, and strengthen local institutions' efforts toward sustainability.

The fourth objective is to promote regional attractions and Sulejów as a sustainable tourism destination. Marketing campaigns, partnerships with influencers, and leveraging modern technologies, such as social media and mobile apps, will enhance the region's visibility and tourist engagement.

Third and fourth objectives will also be a chance for improving the activity of local institutions and authorities towards sustainable tourism development.

Finally, the fifth objective is to enhance local community involvement in sustainable tourism through workshops, community meetings with different local groups, and cross-sector collaboration. This integrated approach fosters stronger inclusivity and community bonds, ensures effective tourism development, and further supports local institutions' sustainability efforts.

These actions (Figure 9) align with different SDGs, including responsible production and consumption (Goal 12), inclusivity and equality (Goal 5), decent work (Goal 8), and sustainable communities (Goal 11). Implementing this framework will enable the Sulejów Municipality to maximize its tourism potential while preserving the environment and promoting community well-being.

Figure 9. Framework for sustainable tourism development.



Source: Authors' compilation.

## 5. Discussion

Issues related to tourism potential are an important element of contemporary tourism research (Kaczmarek *et al.* 2010; Yan *et al.* 2017). Tourism potential also serves as the foundation for the development of sustainable tourism, which is now considered a paradigm for shaping tourism in many areas (Nieżgoda 2006; Trukhachev 2015; Crăciun *et al.* 2022; Cudny and Dajer 2024).

Studies on tourism potential are common in scientific analyses at local (Brzezińska-Wójcik and Skowronek 2009; Skrzypczak and Chmielewska 2009; Ungureanu *et al.* 2014), regional (Kubicki 2009; Zajadacz and Śniadek 2009a; Głabiński and Duda 2017), national (Borysova *et al.* 2020), and international levels (Ankomah and Crompton 1990), as well as in research on individual elements (Pralong 2005; Calderón Puerta *et al.* 2020) and comprehensive perspectives of potential (Kociuba and Kociuba 2009). However, there are still too few analyses exploring the connections between tourism potential and sustainable tourism, especially at local level (Cudny and Dajer 2024). This research gap is what the present article seeks to address. It serves as a case study analyzing the potential of a small community and its relevance for the development of sustainable tourism. In the authors' opinion, this analysis provides a basis for further comparisons and the development of more general conclusions in future studies.

The analysis revealed that the Sulejów commune has significant tourism potential, distinguished by its rich natural resources, including the Sulejów Landscape Park, the Sulejów Reservoir, and the Pilica River. These natural attractions are complemented by cultural landmarks such as the Cistercian Abbey. While the tourism infrastructure is quite well-developed in terms of accommodation and gastronomy, improvements in communication accessibility are necessary. The influence of tourism promotion and local institutions and authorities on tourism potential was assessed less positively. These findings were supported by field observations interviews and a questionnaire survey result.

Although the respondents rated the municipality's tourism potential rather high (6,11 points) they highlighted that the tourism sector should be strengthened through greater support for its development and further responsible enhancement of tourism infrastructure and through leveraging the social awareness. They identified active tourism (e.g. kayaking, hiking, cycling) as the most prevalent form of tourism in the area, followed by leisure tourism and sightseeing tourism. Moreover, there was broad agreement among respondents that the Sulejów municipality would benefit from a sustainable tourism development framework.

The framework for Sulejów focuses on maximizing the region's potential, reducing weaknesses and threats, while preserving the environment and benefiting the local community. Key actions include raising eco-awareness, improving sustainable tourism infrastructure, promoting responsible tourism, and leveraging modern technologies to market the area as a sustainable destination. These initiatives align with several of the UN Agenda 2030 goals, fostering a balanced approach to tourism that integrates economic growth, environmental protection, and community engagement.

## 6. Conclusion and Further Research

The article demonstrated that the Sulejów municipality has significant tourist potential, which, however, requires further action to fully utilize it, especially in the development of sustainable tourism. The analysis also indicated that the municipality has real chances to develop as an attractive destination for sustainable tourism, which should contribute to improving the quality of life of residents and protecting the natural environment.

Research limitations include the article focus on a case study of one small municipality. As a result, broader implications and generalizations can only be drawn through comparisons with additional case studies. The research included results from non-representative intercept survey studies. Although these are valuable and commonly used in tourism research (Veal 2017), they cannot be fully generalized to reflect the opinions of the entire community.

Future studies should explore the relationship between tourism potential and sustainable tourism development across different areas, considering variations in location and scale. Research should incorporate diverse methods, including analyses of opinions from both local populations, decision makers and tourists, to build a broader base for comparisons. Once a larger body of data is collected, efforts should focus on formulating generalizations regarding tourism potential theory and its elements, such as attractions and infrastructure. Additionally, the findings should address the pillars and goals of sustainable development (SDGs).

## Credit Authorship Contribution Statement

**Waldemar Cudny:** Conceptualization, Software, Investigation, Formal Analysis, Methodology, Writing - original draft, Writing – review and editing, Project administration, Supervision, Visualization.

**Justyna Paluch:** Conceptualization, Software, Data curation, Investigation, Formal Analysis, Methodology, Writing - original draft.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Economic Effects of Sports Events in Tourism. Case Study EURO 2024

Mădălina CONSTANTINESCU  
Spiru Haret University, Romania  
[madalina.constantinescu@spiruharet.ro](mailto:madalina.constantinescu@spiruharet.ro)

Lorin UNGUREANU  
Carol I College Craiova, Romania  
[lorin.ungureanu@gmail.com](mailto:lorin.ungureanu@gmail.com)

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**Abstract:** Major sporting events such as the Olympic Games, European Championships, the Asian Cup, World Championships, and other international competitions have become not only moments of joy but also powerful economic drivers. These events extend beyond competitions on the field, having a significant impact on the economy and tourism of the host country.

The professional organization of sporting competitions is highly beneficial for the public image of the host country and cities, as well as for local businesses involved in the event organization process. The results include revenue, eventual profit, increased occupancy rates, greater use of accommodation services, taxes and fees collected for the state budget, job creation, and an excellent boost in public image.

UEFA EURO 2024 was one of the most spectacular sporting events of the year, bringing football fans together from around the world. With Germany as the host country, this competition not only offered world-class football matches but also provided a unique opportunity to explore the culture and attractions of this European nation. Whether in Berlin, Munich, Frankfurt, Hamburg, or Cologne, each host city provided unique experiences that enriched the journey for fans from all over. From culinary delights to must-see tourist attractions, unforgettable moments were created throughout Germany.

This article aims to highlight the importance of major sporting events and their impact on the local economy. It also discusses the direct impact of sports tourism on various economic sectors and how it stimulates the overall economy.

**Keywords:** sports tourism; international competitions; economic effects; EURO 2024.

**JEL Classification:** L83; Z21; Z32.

### Introduction

According with World Tourism Organization: Sports tourism is a fundamental axis, generating around 10% of the world's expenditure on tourism. It has an estimated growth rate of 17.5% between 2023-2030, moving masses intra and intercontinentally. Sports tourism can promote social, economic and environmental action, it accelerates development and can leave a long-lasting positive legacy.

Sports tourism is a developing branch of tourism, which offers many advantages to tourism companies from all over the world. Whether it is about larger competitions, such as World Cups, football championships, tennis competitions or tournaments, the tourist locations represented by the respective sport have a lot to gain, being increasingly sought after and visited by those who are passionate.

These events attract thousands, maybe even millions of spectators from all over the world who spend money in the host country for accommodation, transport, food, souvenirs and other goods and services. Hotels, restaurants, shops and other local businesses benefit significantly from this increase in demand, generating additional income and temporary or even permanent jobs.

Moreover, the organization of a major sports event requires a complex infrastructure and modernization of existing facilities such as stadiums, sports halls, roads and other facilities. These infrastructure investments can have long-term benefits for the local economy, stimulating urban development and improving the attractiveness of the city or region for investment and tourism.

Major sports events offer a unique platform for promoting tourism and the image of the host country. Through the global media exposure and the international presence of the participants and spectators, these events can draw attention to the respective destination and create marketing and promotion opportunities. The host cities have the opportunity to present their tourist attractions, culture, traditions and gastronomy to a global audience, which can lead to an increase in the number of tourists in the future.

Also, the successful organization of a major sporting event can improve the public perception of the respective country. An impeccable organization and a festive atmosphere can contribute to creating a positive impression on visitors and can lead to increased interest in investments, comet and international collaboration.

Although the costs of organizing such an event can be significant, the long-term economic and tourist benefits can far exceed these initial expenses. Investments in infrastructure and sports facilities can have long-term benefits for the local community, stimulating economic development and improving the quality of life of the inhabitants. Also, tourism promotion and increasing international visibility can generate constant revenues from tourism and other related industries that compensate and exceed the initial costs.

Therefore, major sports events are not only a joy for sports fans from all over the world, but also an excellent opportunity for the host countries to promote their economy and tourism. By attracting a constant flow of international spectators, generating additional income for local businesses and investing in infrastructure, these events have a significant positive impact on the economy. Also, promoting tourism and improving the international image can bring benefits in the long term, strengthening the reputation and attractiveness of the host country for tourists, investors and commercial partners. Therefore, sports tourism is an increasingly important component of the global economy, with a significant impact on the economic development of regions and countries hosting sporting events. Here are some key points regarding the economic importance of sports tourism:

- **Revenue generation.** Sporting events attract tourists from around the world, leading to increased spending in areas such as accommodation, transportation, restaurants, retail, and other tourism-related services. For example, the Olympic Games or the FIFA World Cup generate billions of dollars for host countries.

- **Job creation.** The organization and support of sporting events require a wide range of services, from hotel and restaurant staff to tour guides, organizers, and security teams. This contributes to increased employment, both short-term (during events) and long-term (due to developed infrastructure).

- **Infrastructure development.** Hosting large-scale sporting events involves significant investment in infrastructure, such as stadiums, roads, airports, and other facilities. These investments remain after the event, contributing to the overall improvement of local infrastructure and further attracting tourists.

- **Promotion of tourist destinations.** International sporting events serve as a means of global promotion for host destinations. Host countries benefit from intense media exposure, which can boost tourism in the long term, even after competitions have ended.

- **Tourism diversification.** Sports tourism helps diversify the tourism offer, attracting a segment of active tourists interested in sports like skiing, surfing, golf, or hiking. This diversification reduces dependence on seasonal tourism and attracts visitors during the off-season.

- **Local economic development.** For smaller destinations, such as towns or villages hosting regional competitions, sports tourism can revitalize the local economy by attracting a large number of visitors, generating income, and stimulating local entrepreneurial development.

- **International investments and partnerships.** Hosting large-scale sporting events attracts foreign investments and international partnership opportunities, such as sponsorships, advertising contracts, and other collaborations that contribute to economic growth and diversify business opportunities.

- **Indirect impact on other economic sectors.** Besides tourism, other sectors, such as transportation, retail, and catering services, benefit from the increase in tourist flow, thus stimulating the broader economy.

In February 2022, the World Tourism Organization (UNWTO) and the Union of European Football Associations (UEFA) established a partnership around shared values and a common vision for the future. The two organizations agreed to jointly promote the benefits of sport and sports tourism for development and opportunities for all, recognized the shared values of tourism and football, emphasized their ability to promote understanding, friendship and solidarity and drive social and economic change.

UEFA President Aleksander Čeferin noted: '**Sports tourism** is one of the fastest-growing tourism segments. And tourism and football, as the world's most popular sport, uniquely complement each other. Sporting events, such as UEFA EURO and UEFA Women's EURO, are making an exceptional contribution to tourism in the host countries. More importantly, football offers teams and supporters a chance to travel the world, discover new destinations and cultures. I cannot think of a better way to learn more about each other, grow together rather than drift apart.'



In conclusion, sports tourism has a profound economic impact, offering opportunities for growth and economic diversification for destinations that invest in this sector, while also contributing to the sustainable development of tourism and the economy in general. This is why we have chosen this topic and will present the case of EURO 2024.

## 1. Literature Review

Raso and Cherubini (2023) analyse the most recent literature regarding the relationship between sports tourism and its economic impact on a specific region. A total of 64 relevant articles were identified through comprehensive searches across databases, resulting in the selection of 14 articles that met the established inclusion criteria for the study. The studies were analysed and synthesized to identify the key economic benefits and challenges of hosting sporting events. The review identified that sports tourism positively impacts regions by attracting tourists, creating job opportunities, and generating revenue for local businesses. However, they think is need for further research to identify best practices for maximizing the economic benefits of sport tourism and to explore its potential for sustainable economic development.

Since 1992, Burgan and Mules stated that 'major sporting events have their main economic impact through the direct spending of tourists associated with the event. According to them, we only need to count the expenses that would not have been incurred in the absence of the event: we should not count the expenses incurred by tourists who were going to visit anyway but decided to make their visit coincide with the event. By avoiding each such expenditure, one can estimate the remaining net expenditure using an inter-industry trade model of the host economy'.

The economic impact of sports events was also the subject of an article published by A. Muller et al. (2016). Their conclusion was the infrastructure development and investment are the leading economic impacts of major sports events, such as the Olympic Games. A spectacular example is the Sydney Olympic Games in 2000, when in the 6 years either prior to or following the Olympic Game the GDP in Australia rose 6.3 billion pounds, primarily thanks to investments.

Sports Economics (Blair, 2011) is an excellent introduction to sports economics, analyzing the sports market, economic balance in sports leagues, and the impact of public funding on stadium construction. Blair explains how economic decisions are made under conditions of uncertainty using the well-known expected utility model and makes extensive use of present value concepts to analyze investment decisions. The Economics of Sports (Leeds, Allmen and Matheson, 2023) another reference book in the field, this covers a wide range of topics such as athlete salaries, team revenues, and the economies of host cities for sporting events. The authors also explain the role of sponsorships and television rights, very relevant in the economy of modern sports. Sport and Public Policy (2010) by Charles A. Santo and Gerard C.S. Mildner approaches the topic of sport from a public policy perspective and explains how local economies may or may not benefit from investment in sport. Its content focuses on the economic impact of state-funded stadiums, but also on the organization of major sporting events.

A collection of essays and case studies on how sport intersects with business and economics gives us Scott Rosner și Kenneth Shropshire (2010). Roger G. Noll and Andrew Zimbalist (2000) analyses the economic impact of sports teams and stadiums on local and national economies. It's a more technical read but offers a deep understanding of how investments in sports can affect the economy in the long term.

Ferris, Koo, Park, and Yi (2023) examine the economic effects of the Summer and Winter Olympic Games and the FIFA World Cup on the economies of host countries. They found that in the short run, hosting the Olympic Games has a significant positive announcement effect on the host country's equity market.

But Khanya Thabi (2024) reveals that there exists a contextual and methodological gap relating to the economic impact of major sporting events on local economies. Preliminary empirical review revealed that while such events often yielded significant short-term economic benefits, including increased tourism revenue and job creation, their long-term sustainability remained uncertain due to common challenges like cost overruns and underutilized infrastructure. Factors such as event scale, location, and management influenced the extent of economic impact, with effective planning and stakeholder engagement playing crucial roles.

Silvestrea *et al.* examines the growth of the Olympic Games against that of former host cities to understand whether this mega-event may have 'outgrown' its hosts. The increasing hosting requirements and governments' expansive use of mega-events as tools for urban development would suggest that the 'Olympic city' – a term we use for describing the size of the Olympics as hosted in different cities over the decades – has grown at a faster rate than former host cities.

A mega event benefits a host destination in terms of attracting visitors to the event and drawing global attention to the destination. However, in addition to such short-term benefits, it can be a catalyst for longer-term

tourism development in various aspects from economic to social. The publication on *Maximizing the Benefits of Mega Events for Tourism Development* provides practical references on what a host destination can do to fully leverage the event opportunity for tourism development with a variety of illustrative cases. Although the report refers to insights from mega events, the practical references can be applied to any scale of events in any destination.

## 2. Major Sporting Events

Since 1960, sport has become an element of international importance, which attracted the attention of the mass media, attracted major economic investments and political interests. On the other hand, tourism remains one of the most important branches of the world economy, which is constantly growing. Sport and Tourism can contribute in different ways to a mutual development. Weed and Bull (2004) show that the tourism industry can help develop local sports facilities or provide communities with the opportunity to create them where they would not otherwise be possible. Also, tourism can benefit from sports because it offers a lot of activities that take place during the holidays. Therefore, greater cooperation would be very attractive to both industries in order to use mutual advantages.

Sports tourism, especially for major sporting events, includes the Olympics, world championships, and continental championships. Generally, it attracts sports enthusiasts - such as fans of volleyball, skiing, skating - or supporters of renowned teams, as often seen in football. In recent years, there has been a notable rise in sports tourism, with sports becoming a primary reason for travel. Major sporting events have, year after year, created a form of 'sports tourism' that unfolds alongside each major tournament. More and more people plan their vacations around their favorite sporting events, and there are travel agencies specialized in organizing these 'tours.'

Important figures from various fields - politics, economics, and, of course, sports - flock to arenas like Wimbledon or Roland Garros, to remote towns in the French Alps during the Tour de France, and more recently, to the 'greens' of major golf competitions. Golf has gained ground in 'tourist preferences' because it is a business-oriented sport; most 'tourists' are individuals who have retired from significant positions, possess the financial means, and suddenly have plenty of free time. Additionally, golf offers the unique opportunity to try the champion's shot from the exact spot where they succeeded. Cities that host such events provide suitable tourist services for various segments of visitors, who are drawn by these sporting events.

Any sporting event is an opportunity to explore a city or a country with a rich cultural and historical heritage. Cities like Sydney, Montreal, Athens, and Beijing have hosted the Olympic Games, while others, such as Nagano and Albertville, have organized world-class winter sports events. These large-scale events require the development of additional infrastructure, often built on the outskirts of cities. Major events generally make use of the existing urban infrastructure; however, mega-events like the Olympics are an exception, as they involve substantial investments.

Hosting such events helps to develop tourism, ensuring a high flow of tourists during a specific period and reducing the seasonality of tourism. Following the hosting of an event that promotes the city internationally, an increase in community pride is often observed. After the success in Adelaide, which hosted the Formula 1 Grand Prix in 1995, residents expressed interest in hosting additional events. The involvement of local communities in the planning and management of special events is essential. The timing and location of events should align with the needs of the host city. Strong connections with local tourism help maximize the benefits the city gains from the event. Active involvement of local authorities is necessary, as is the development of measures to reduce seasonality. Regular communication and feedback are needed between event organizers and destination marketers to facilitate planning and marketing activities.

Several studies over time have highlighted the economic impact of sporting events such as major football tournaments or the Olympic Games. A 2016 study (Pop *et al.*) showed that the hospitality industry benefits the most. According to this study: 'The economic impact, from a tourism perspective, can also extend beyond the event itself. During the event, it is evident that many hotel rooms will be booked, and there may be an increased consumption of certain food products. But it's also about what remains afterward. At former Olympic stadiums, for instance, tourist circuits often include at least a brief stop at these locations, where the Olympic rings are still present.'

Here are some prominent examples of major sporting events and their significant impacts on tourism and the economy:

1. *The Olympic Games* (London, 2012; Rio de Janeiro, 2016; Tokyo, 2021). Olympic host cities often experience substantial infrastructure investment, from new sports facilities to improved public transportation systems. For example, London invested billions in public transport and infrastructure, much of which has become

a permanent part of the city. Hosting the Olympics typically brings a surge in international visitors both during and after the games, as media coverage raises the city's global profile. London saw millions of additional tourists post-2012, contributing significantly to the economy.

2. *The FIFA World Cup* (South Africa, 2010; Brazil, 2014; Russia, 2018; Qatar, 2022). Hosting the World Cup involves major investments in stadiums, airports, and hotel capacity. Brazil spent billions on infrastructure, though some facilities are now underused, illustrating the 'white elephant' phenomenon. The World Cup draws vast numbers of international visitors, boosting local hotels, restaurants, and entertainment industries. Russia saw an increase in tourism even after the 2018 World Cup due to a lasting interest in visiting the country.

3. *Super Bowl* (USA, recent locations include Miami, Tampa Bay, Los Angeles). The Super Bowl brings an economic surge to its host city. Direct spending by fans, media, and teams is significant; for instance, the 2020 Super Bowl in Miami was estimated to bring about \$500 million to the local economy. It attracts tens of thousands of visitors, many of whom explore the city, boosting local tourism. The event is also watched globally, which can enhance the city's international visibility and reputation.

4. *Tour de France* (France, with routes passing through various regions) stimulates local economies across numerous towns and villages along the route, benefiting hotels, restaurants, and local businesses. The Tour attracts cycling fans and sports tourists who may travel to watch multiple stages. Many also return in later years to ride the famous routes themselves, creating a long-lasting tourism legacy.

5. *Formula 1 Grand Prix Series* (global circuit with key races in Monaco, Singapore, Abu Dhabi, and others). Each race boosts local economies by attracting international tourists, media, and celebrities. The Singapore Grand Prix, for example, generates over \$100 million annually in tourism revenue. Host cities benefit from a sustained tourism boost, as these races are held annually, keeping these locations in the spotlight. The races are often marketed with special vacation packages, enhancing the appeal of the host city.

6. *The Rugby World Cup* (England, 2015; Japan, 2019; France, 2023) attracts visitors from around the world, significantly impacting the hospitality and transport sectors. Japan saw an influx of over 400,000 foreign visitors, contributing an estimated \$4 billion to the economy. Japan gained significant exposure as a tourist destination in Asia, with many fans touring the country beyond match locations, helping boost tourism in less-visited areas.

These events show how sports can act as an economic catalyst, providing immediate gains and fostering long-term tourism by promoting the host city or country. However, host locations must often plan carefully to avoid overspending and ensure that the new infrastructure can be utilized post-event.

### 3. Study Case: EURO 2024

The EURO is among the few top-tier premium international football events in the world, in a class with the Champions League and the World Cup in terms of viewership and revenues.

#### 3.1 Evolution of UEFA Income at the European Football Championships

England hosted the first European Championship with 16 teams in 1996. UEFA's revenue from that tournament was more than triple that of the previous tournament in Sweden in 1992, which was the last edition with only eight teams. Adjusted for today's currency, the 1996 tournament brought in €147 million, compared to €41 million in 1992. Since then, EURO revenues have consistently risen: €230 million in 2000, €855 million in 2004, €1.351 billion in 2008, and €1.391 billion in 2012.

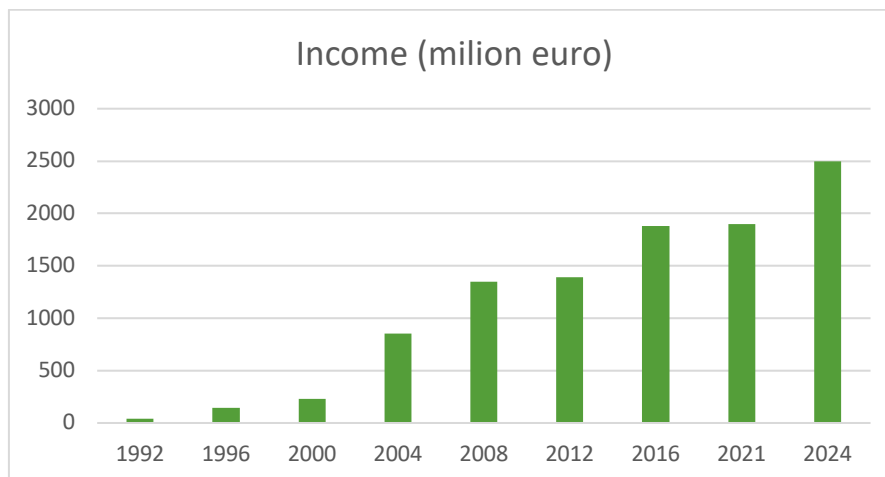
With France's 2016 edition, which expanded the number of teams to 24, revenues soared to €1.9 billion, yielding a profit of €847 million. In 2021, during the pandemic-affected EURO, revenues dropped slightly to €1.882 billion, with a profit of €646 million.

This year's €2.5 billion in revenue is distributed as follows: €1.5 billion from TV rights, €600 million from sponsors and advertising, and €400 million from ticket sales and hospitality.

Organizing a large-scale tournament like the EURO requires substantial funding. Besides UEFA's contributions, which cover a significant portion of organizational costs, funding comes from television broadcasting rights, sponsorships and commercial partnerships, ticket sales, and public and governmental funds from the host country.

Television rights are one of the most important sources of income for the tournament. UEFA sells broadcasting rights to television stations around the world, which brings in considerable sums that contribute to the organization's costs. Local and international television stations, eager to broadcast the matches, generate a large part of the tournament's budget. This year, revenue from TV rights amounted to €1.5 billion.

Figure 1. Evolution of UEFA income at the European Football Championships



Source: The Authors.

Sponsorships are an essential source of funding, and EURO 2024 has benefited from top corporate partners who contributed to the budget through exclusive sponsorship agreements and advertising contracts. Large companies pay substantial amounts to become official partners of the tournament, which provides them with global visibility. UEFA received €600 million from sponsors and advertising. So, at the European Football Championship in Germany, not only the balls were put into motion, but also the money. The sponsors of the tournament were, in the majority, from outside Europe, especially from China. Thus, the Chinese car manufacturer BYD was one of the main sponsors of EURO 2024, providing a fleet of electric cars. The surprise was that they chose BYD, not Mercedes or VW. Adidas provided game balls and equipment for volunteers and staff, and Atos was responsible for IT during the tournament. China's largest mobile payment provider Alipay was also on the list of sponsors.

The German economy also benefited from the competition, because several national and international brands, including Adidas, Coca-Cola or Deutsche Telekom, were involved in the promotion of Euro 2024.

Ticket revenue is a direct and important source for organizers. Match tickets are sold to the public, which brings in significant funds to cover the stadium's operational costs, security and other logistical services.

In recent years, betting has become an important part of major sporting events, including the EURO 2024 tournament. They bring substantial income for bookmakers and competition organizers. Betano, one of the world's leading sports betting and gambling platforms, was the Exclusive Betting Partner of the European Championship hosted by Germany. This is the first time UEFA has partnered with a betting company for the European Championship, bringing one of the world's most prestigious sporting events to a wider betting audience. Fans had the opportunity to experience the tournament on another level by placing bets before or during the Euro matches through the sports betting platform.

The tournament attracts bettors from around the world, many motivated by the excitement and passion for the sport. Bookmakers have reported an increased volume of activity and significant earnings during major tournaments such as the EURO, which indirectly helps support the local economy through their fees and contributions to national budgets.

Sports betting is, however, also a challenge for organizers, who implement safeguards to prevent the risks of match manipulation and problem gambling. Thus, in addition to the economic benefits, organizing a tournament like EURO 2024 also implies increased responsibilities in ensuring the integrity of the sport.

Whether they are truly dedicated to a certain sport, or whether they constantly follow it from the spot, sports tourists are the ones who, on average, bet the most at online betting houses. Thus, it can be said that sports tourism greatly influences the bets and betting methods chosen by enthusiasts.

These combined sources enable UEFA not only to cover the costs of organizing the tournament but also to invest back into European football development.

### 3.2 Economic Impact of EURO 2024

The European Football Championship held in Germany is one of two top sporting events with major economic potential that took place in Europe this summer, paving the way ahead of the Paris Olympics. According to a

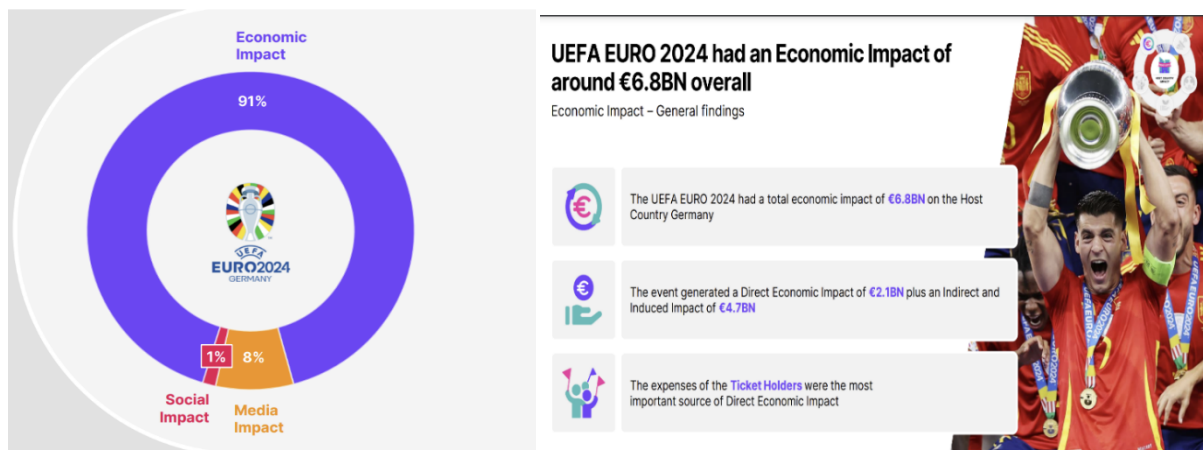
holistic study conducted by Nielsen Sports, the world's leading provider of sports data measurement and fan insight, the economic impact of UEFA EURO 2024 for Germany and the ten host cities amounts to €7.44bn.

The UEFA EURO 2024 tournament had a significant economic impact on Germany, estimated at over 7.4 billion euro, according to a report by Nielsen Sports. This figure exceeds initial expectations and includes the direct and indirect spending of the 2.7 million ticket holders, of which about 44% were international visitors. Spending was mainly concentrated on accommodation, transportation, and food, giving a strong boost to local hospitality and transportation sectors in the 10 host cities (including Berlin, Munich, and Hamburg) and attracting additional visitors to other tourist locations in Germany.

The tournament also generated long-term tourism benefits: 97% of international tourists expressed a desire to return to Germany, and 79% of all attendees stated they would recommend the host cities to others. The global media exposure from the event added approximately 571 million euro in value to Germany's image, further establishing it as a top destination for tourism and major events. Additionally, a sustainability program promoted the use of public transportation, with two-thirds of attendees using it to get around, thereby reducing the environmental impact.

The Nielsen Sports study was based on surveys of ticket holders, cross-media monitoring and evaluation of data from the host country, host cities and UEFA, as well as additional expertise and knowledge from over 150 similar impact studies successfully conducted by Nielsen Sports. The full report includes explanations of the approach and methodology used.

Figure 2. Economic Impact of EURO 2024, according to Nielsen-Sports



Source: Nielsen-Sports, 2024.

UEFA has not yet disclosed a final report detailing the exact profit from EURO 2024, as is typical with such major events. However, the preliminary figures and estimates provide a comprehensive view of the economic impact.

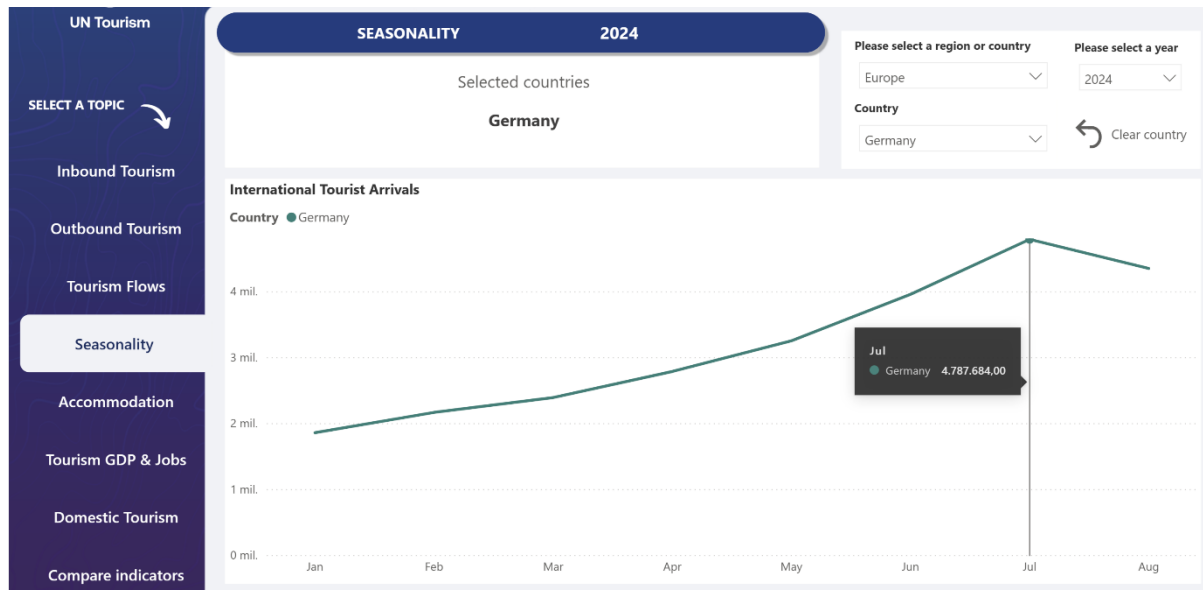
From UEFA's perspective, the tournament's profits will fund initiatives such as the HatTrick program, which aims to invest an estimated €935 million into European football development over the next four years. This includes infrastructural improvements, youth programs, and expanded access to the sport throughout Europe.

Overall, while exact profit figures are pending release, EURO 2024's commercial success has been substantial, with notable investments channelled back into the game's future development.

Therefore, EURO 2024 not only boosted the economy and tourism but also had a positive social effect by enhancing pride among German citizens and promoting social cohesion in the host cities. This success underscores the role of major sports events in driving economic growth and strengthening Germany's international reputation.



Figure 3. The evolution of international tourists arrival in Germany



Source: <https://www.unwto.org/tourism-data/global-and-regional-tourism-performance>

UEFA and the DFB made special efforts in the area of sustainability, from the successful bid to host EURO 2024 onwards. Sustainability concepts were integrated into the bid and converted into an environmental, social and governance (ESG) strategy for the tournament, backed by targeted measures and investments totalling €32m. In relation to the environment, this encompassed areas such as climate protection, sustainable infrastructure and the circular economy.

## Conclusions

Before every sporting event, the organizing expenses are huge. That's because the host countries are preparing at the highest level and building new arenas. This was not the case for Germany, which did not build any new stadiums, since they already had the infrastructure in place since 2006, when they organized the World Cup.

EURO 2024 was a major event for the German economy, and the organization of the continental tournament had a financial impact, which directly affected tourism. It created additional revenues of one billion euros thanks to tourists coming to watch matches in Euro 2024, according to the Ifo Institute. This amount represents about 0.1% of the output of the German economy in the second quarter of the year, and the sector that benefited the most was hotels and restaurants. However, the effect was only short-lived, with Germany being the only G7 member state to report a GDP contraction this year.

Therefore, whether immediately quantifiable or not, sporting events gather hundreds of millions of passionate fans, and any country would aspire to host an event of this magnitude at least once. This involves revenue from tourism, sustainable investments, and equally importantly, global prestige and visibility.

This is why bids for hosting are submitted many years in advance. The next European Football Championship in 2028 will be hosted by England, Northern Ireland, Scotland, and Wales, while four years later, the competition will move to Italy and Turkey.

The selection criteria are extremely rigorous and consider the economic health of candidate countries, with plans based on the current economic and geopolitical situation.

## Credit Authorship Contribution Statement

**Madalina Constantinescu:** Conceptualization, Investigation, Methodology, Project administration, Supervision, Validation, Writing – review and editing, Visualization.

**Lorin Ungureanu:** Investigation, Formal analysis, Writing – original draft, Data curation, Validation, Writing – review and editing, Visualization.

## Declaration of Competing Interest

The first author is part of ASERS Publishing and was not involved in the editorial review or the decision to publish this article.

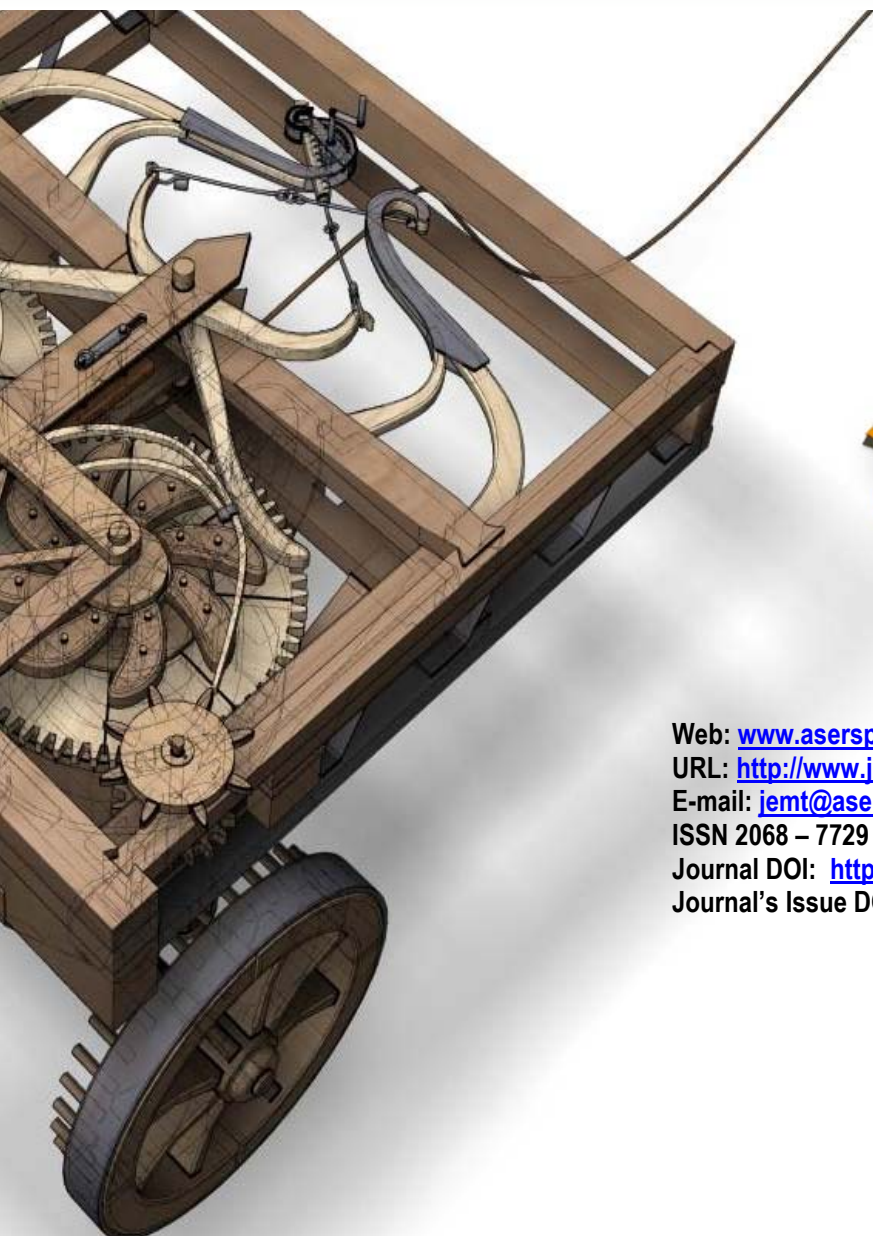
## Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

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