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THE EFFECT OF EARTHQUAKE ON THE TOURISM SECTOR: CASE OF TURKIYE 1999 AND 2023

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Abstract: Perceptions of tourism risk and decision-making processes are influenced by various factors, including security concerns, socioeconomic and demographic characteristics such as age, gender, education, religion, income, tourism motivation, and personal experiences. The effect of disaster events on tourism is shaped by the events' magnitude, frequency, and the destination's ability to adapt and recover. This study investigates how the 1999 Marmara and 2023 Kahramanmaraş earthquakes influenced Türkiye's tourism sector, using a qualitative methodology supported by secondary data. Tourism statistics from the 1999 Marmara earthquake show a sharp decline in international tourist arrivals—from 9,752,697 in 1998 to 7,487,285 in 1999. Tourism revenues also dropped significantly, with estimated losses reaching $3 million due to canceled tours. A 25% decline in tourism was noted specifically during August and September 1999. In contrast, the 2023 earthquake did not result in a significant reduction in tourism activity. One reason for the stability in 2023 is that the earthquake-affected regions—such as Kahramanmaraş, Hatay, Adıyaman, Malatya, Gaziantep, and others—are geographically distant from major tourist destinations like Antalya, Bodrum, and Muğla. However, public perception plays a critical role. If tourists are unaware that their intended destinations are unaffected, it could lead to declines regardless of safety. To enhance recovery and build resilience, several strategies are proposed. First, rebuilding critical infrastructure—roads, bridges, and public spaces—is essential. Second, social media should be used effectively to promote unaffected tourist destinations. Targeted campaigns should highlight attractions based on specific tourist interests, such as family travel, adventure, or gastronomy. Collaborations with platforms like Booking.com, TripAdvisor, and Expedia can further ease travel planning. Moreover, media engagement is vital. Positive coverage can help reshape the destination image. Journalists and bloggers should be provided with accurate, timely information about recovery efforts and safe areas. Despite effective recovery from the 2023 event, challenges remain in establishing clear causal relationships between crises and structural changes in tourism flows. Structural break analysis, while helpful, is limited by time-specific data and cannot fully isolate tourism behavior triggers.

Keywords: earthquake, natural disasters, environmental crisis, tourism infrastructure, sustainable tourism, disaster resilience

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INTRODUCTION

Tourism refers to the actions of individuals who travel to and stay in places outside their usual environment for a period of up to one year without interruption, mainly for leisure, business, and other purposes (WTO, 1999). Türkiye, situated in a geologically active area, has a lengthy record of seismic activity. Undoubtedly, Türkiye is situated in a geologically active area where the Eurasian and African tectonic plates converge, rendering it susceptible to earthquakes. Consequently, approximately 66% of Türkiye's land is occupied by active faults, exposing over 70% of the population to a significant danger of earthquake-related harm and devastation (Ewing et al., 2004).

Natural disasters can exert a substantial impact on different sectors of the economy, including the tourism industry. Türkiye is renowned as a sought-after tourist hotspot, celebrated for its abundant cultural legacy, breathtaking natural scenery, and picturesque coastlines. Nevertheless, earthquakes have the potential to inflict substantial harm upon these attractions, resulting in a decrease in tourism. The objective of this study is to ascertain the impact of the 2023 earthquake in Türkiye on both the economy and the influx of international tourists. Turkiye is a country with a high level of structural regime shifts in the economy (Guliyev, 2022). This study seeks to employ an innovative methodology to comprehend the impact of a natural calamity on tourist movement. The research seeks to analyze the impact of the earthquake on the tourism industry in order to gain insights into effective strategies for mitigating the damage and recovering from its effects. The subsequent sections of this paper are organized as follows: Section 1 offers an overview of earthquakes and their connection to the tourism sector. Section 2 provides a detailed explanation of the methodology and data sources employed in this study. The main discoveries are outlined in Section 3, subsequently followed by an analysis of the outcomes in Section 4. In Section 5, we ultimately conclude the paper by providing a concise overview of our research findings and presenting our policy recommendations. According to the results, we offer recommendations for possible approaches to reduce the impact of the earthquake on the tourism sector in Turkiye. These suggestions can be valuable for policymakers, tourism operators, and other stakeholders in the industry to devise effective strategies to mitigate the impact and facilitate the recovery of the tourism sector following the earthquake.

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LITERATURE REVIEW

Faisal et al.' s review would likely concentrate on prior studies concerning the impact of natural disasters on the tourism and hospitality sectors, as well as research on the application of niche construction theory in the field of economic geography. The review would also encompass pertinent policy and planning documents concerning post-disaster reconstruction endeavors in Christchurch (Faisal et al., 2020). The paper by Zhang and Cheng investigates the correlation between the progress of tourism and the economic advancement in the 36 counties in China that were impacted by the Wenchuan earthquake. The study covers the period from 2008 to 2016. The authors employ a panel threshold regression methodology to examine the impact of tourism development on economic growth, while also categorizing the counties into distinct groups (Zhang & Cheng, 2019). The research conducted by Huang et al. examines the prolonged recovery of inbound tourism in areas affected by disasters, specifically focusing on the Wenchuan earthquake in Sichuan as an illustrative example. The results demonstrate the existence of a phenomenon known as the "Blessing in Disguise" effect, which has led to a notable rise in the number of tourists visiting Sichuan following the earthquake. The study also emphasizes that this effect is a distinctive phenomenon, separate from the general pattern of inbound tourism in China during the same timeframe. This research enhances the overall comprehension of post-disaster tourism recovery. Moreover, the study offers valuable insights into tourism destinations that emerge after a disaster, and it discusses the practical consequences of the research for management (Huang et al., 2020).

The study conducted by Min et al., 2020 employed the ARIMA model to assess the magnitude of macroeconomic recuperation in Nepal's tourism sector subsequent to a natural calamity, specifically the earthquakes in 2015. The study examined time series data spanning from 1990 to 2018 in order to explore the impact of earthquakes on both tourism inflows and GDP. The findings indicate a shift in the pattern of rising tourist figures during the period following the earthquake. One possible explanation for this increase is the emergence of dark tourism, which refers to the practice of visiting locations linked to death, tragedy, or catastrophe. This study focuses on assessing the macroeconomic recovery of a heritage tourist destination following a natural disaster. It also aims to fill the gap in existing literature by examining the relationship between purpose-based tourism demand, dark tourism, and disaster recovery in a heritage tourism destination (Min et al., 2020).

Ural (2015) emphasizes that effective risk management is essential for sustaining tourism in the face of increasing exposure to diverse disasters, including natural, technological, and socio-political hazards. The study highlights how structured risk planning helps mitigate negative impacts and supports the long-term resilience of tourism destinations.

The study conducted by Zhang et al., revealed that the tourism sectors of both Jiuzhaigou and Aba experienced negative impacts in the aftermath of the earthquake. However, the overall tourism industry in Sichuan was comparatively less affected. The earthquake caused a substantial decline in tourist arrivals to Jiuzhaigou and Aba for multiple years. The impact of the earthquake exhibited month-to-month variability and exerted a substantial influence on Jiuzhaigou's comparative significance within Sichuan's tourism sector. The study highlighted the significance of domestic tourism and economic variety in attaining resilience and promoting local economic endeavors in the aftermath of natural calamities (Zhang et al., 2021).

The study conducted by Chan et al., revealed that the tourism industry's impact differs during different stages of a disaster. It notably affects the spread of information, communication, and the provision of emergency lodging for tourists. The long-term recovery and resolution phases encompass essential transformations, including the gathering of information, experiential learning, institutional restructuring, the formulation of sustainable tourism development strategies, and the implementation of post-disaster destination marketing. The study enhances current disaster management frameworks by integrating the viewpoint of tourism stakeholders. The findings have tangible implications for the formulation of tourism development and sustainability strategies in the Kumamoto area subsequent to the earthquake (Chan et al., 2019).

The study conducted by Ma et al., examines two categories of disasters: natural and man-made, with earthquakes and terrorist attacks serving as illustrative instances. The study employs online review data sourced from TripAdvisor and utilizes a difference-in-differences methodology to examine the impacts of various disaster events on the tourism industry. The study reveals that both natural and anthropogenic disasters exert an adverse impact on tourism, influencing both tourist influx and their overall experiences. The frequency of earthquakes exerts a more significant impact on tourism in comparison to their magnitude and severity. On the other hand, the perception of safety in tourist destinations is primarily influenced by the frequency and severity of terrorist attacks, rather than their impact on tourism. Furthermore, the study emphasizes that earthquakes have a more significant impact on tourist numbers in comparison to terrorist attacks (Ma et al., 2020).

Li-Wei Liu et al., study examines disasters, risks, and crises in the tourism and hospitality industry to develop a structured framework for resilience and recovery. Through bibliometric analysis and a systematic narrative review of 795 documents from the Web of Science and Scopus databases, it explores key themes such as crisis management, resilience, and recovery strategies. The findings emphasize the necessity of proactive planning, stakeholder collaboration, and adaptive measures to minimize disruptions. By presenting a holistic approach, this study contributes to the development of sustainable crisis management strategies for the tourism and hospitality sector (Liu et al., 2024). Kyoo-Man Ha explores the lack of comprehensive disaster management frameworks in international tourism despite increased interest during the pandemic.

This study investigates ways to enhance disaster management to mitigate human suffering and economic losses. Using qualitative content analysis, it examines passive and active disaster management approaches, comparing their impacts on tourists, the tourism industry, regional governments, and international organizations. The findings emphasize the necessity for stakeholders to transition from passive to active disaster management by improving networking, refining the disaster management cycle, and strengthening local education. This research provides a systematic framework that considers both the supply and demand aspects of disaster management in international tourism (Ha, 2024).

Jiahui Duan et al., conducted a study analyzing 302 articles on tourism crises from 1991 to 2020, sourced from the Social Sciences Citation Index. The study used bibliometric and content analyses to identify types, regional distribution, impacts, and

synergistic factors of tourism crises. The findings revealed that tourism crises are diverse, event-driven, and primarily affect Asia, Europe, and North America. Impacts occur at macro, meso, and micro levels, influenced by positive, negative, and interactive factors. The research suggests significant future potential for studies on tourism crises (Duan et al., 2021). Baihaqi et al., conducted a study on the economic survival strategies of tourism entrepreneurs on Lombok Island during the earthquake and COVID-19, using methods such as documentation, interviews, and observation. His research revealed how government policies and diversified income strategies helped tourism entrepreneurs adapt during these challenging times (Baihaqi et al., 2023).

Ecotourism is a sustainable approach to utilizing natural resources with the potential for cost-effective funding. As a form of ecologically and socially responsible tourism, it fosters biodiversity while preserving both the environment and society. To support the growth of ecotourism and the progress of indigenous communities and their resources, it is important to understand the factors tourists consider when choosing a destination. This study by RAHMAN and HAQUE examines the key risk factors in selecting ecotourism destinations within a specific context. Using a sample of 377 tourists, the research investigates the relationships between various factors, with data analysis conducted using SPSS-AMOS. The findings emphasize the significant role of risk factors in shaping tourists' decisions. As a result, it is essential for the Bangladesh government, policymakers, and tourism managers to address these issues to increase tourism at ecotourism sites. Additionally, the results are valuable for helping stakeholders understand tourists' perceptions and guide the development of ecotourism while mitigating potential challenges (Rahman & Haque, 2021). Iqbal et al., examine geotourism through geological and geographical approaches, leading to initiatives like geohazard tourism focused on faults and earthquakes. Their study identifies the Great Sumatran Fault depression in West Lampung, shaped by volcanic activity, fault movements, and river erosion. Comparing it to global geomorphosites, they highlight its significance in geotourism. The site, impacted by the 1908, 1933, and 1994 earthquakes, offers opportunities for geohazard tourism, enhancing public understanding of natural processes and land use through real-world examples (Iqbal et al., 2023). Scawthorn (2020) provides a detailed assessment of the August 17, 1999 Marmara earthquake in Turkey, underscoring the widespread destruction and its implications for infrastructure, including tourism-related facilities. The report illustrates how large-scale natural disasters can severely disrupt local economies and highlights the necessity of disaster preparedness within tourism planning.

METHODOLOGY

The present research is based on literary narratives as a source of data, primarily relying on secondary data and an experience-based methodology. The study employed a document analysis approach, where various textual and visual resources were examined to contribute to the research topic. The data collection process involved the use of secondary data sources, including documents, publications, statements from influential figures in the tourism industry, press releases from the Minister of Tourism, official reports, and statistical data from organizations such as the World Tourism Organization, OECD, Statista, and the Department of Tourism, Government of Türkiye. Additional sources included media reports and interviews.

To gather the necessary data, the study accessed databases such as WoS, Scopus, Ebsco, Proquest, Sciencedirect, Emerald Insight, Dergipark, and other global sectors under the category of service products. Information on tourism was obtained using document analysis techniques. The research also involves descriptive statistics as the method of analysis. Tourist statistics issued by the Department of Tourism, Government of Türkiye, were utilized to analyze and collect information about the tourism industry. The study compares quantitative evaluations, specifically examining trends in visitor arrivals during two consecutive periods: 1995-2002 and 2017-2023. These trends were analyzed to assess the impact of the earthquake on tourism by comparing the periods before and after the devastation caused by the earthquake.

Global Environmental Risks and Tourism

The World Economic Forum in 2019 identified five significant global environmental risks: extreme weather events, inadequate efforts to address climate change and adapt to its effects, significant loss of biodiversity and collapse of ecosystems, major natural disasters, and environmental damage and disasters caused by human activities. The tourism industry is severely impacted by extreme weather events such as floods, storms, extreme heat, and cold waves (Windle & Rolfe, 2013). These destinations may diminish tourists' enthusiasm due to tourists' general sensitivity to climate. Temperature, in particular, has been a significant factor influencing tourism demand (Bigano et al., 2005). Climate change poses a significant obstacle to the tourism industry, impacting it currently and projected to have even more far-reaching consequences in the future (Scott et al., 2012; Tuna & Özyurt, 2017). These effects manifest in various ways, such as the choices made by consumers in selecting destinations, the spatial distribution of tourism demand, and the long-term viability and competitiveness of destinations. Hence, the lack of success in implementing strategies and actions to address climate change presents a significant threat to the tourism sector (Scott et al., 2016). It is imperative to assess the existing tourism assets, assess the extent of the damage, identify the issues and reasons for the stagnation in the tourism sector, understand the requirements of service providers impacted by the earthquake, develop new products aimed at boosting local demand, and execute communication and destination marketing strategies to promote the industry (Garcia et al., 2018).

Unplanned tourism negatively impacts biodiversity, whereas ecotourism is a significant and expanding sector of tourism that relies heavily on biodiversity and ecosystem services. This type of tourism faces a substantial risk of experiencing major biodiversity loss and ecosystem collapse, whether on land or in the sea. For instance, research indicates that the harm inflicted upon coral reefs has resulted in permanent consequences for the eco-tourism industry (Simpson, 2003). In their study, Tursab & Tuader (2017) documented a decline in the biodiversity of plants and animals due to the uncontrolled growth of tourism in Mugla, Turkiye. Significant local and global extinctions of plant and animal species are anticipated, which would have an impact on eco-tourism (Simpson, 2003). Hence, mitigating this risk is heavily contingent on

safeguarding biodiversity. The tourism sector is frequently impacted by catastrophic natural disasters such as earthquakes, tsunamis, volcanic eruptions, wildfires, and geomagnetic storms (Ritchie et al., 2010).

They cause harm to the infrastructure and facilities that are associated with tourism, such as hotels, as well as the resources that are important for attracting tourists, such as popular tourist sites. Additionally, they contribute to the decline and degradation of tourist destinations (Park & Reisinger, 2010). Typically, there is a decline in tourism demand for areas that have been affected by major disasters (Sharpley, 2005). Notable recent disasters that had a significant impact on the tourism industry include the 2004 Asian Tsunami, the 2010 Eyjafjallajokull volcanic eruption in Iceland, the 2011 Great East Japan earthquakes and tsunami, the 2011 flooding in Thailand, the 2010-2012 Christchurch earthquakes in New Zealand, and the 2013 Southern Alberta flood in Canada (Scott et al., 2012). A substantial proportion of the casualties from the 2004 Indian Ocean Tsunami consisted of tourists and individuals employed in the tourism sector (Thitthongkam & Walsh, 2011). This event impacted the influx of international tourists to countries such as Indonesia and Thailand in the tourism industry for several years (Thitthongkam & Walsh, 2011). In the first half of 2005, the number of international tourists visiting Phuket, Thailand, experienced a significant decline of 67.2% (Kuo et al., 2008).

An instance of a calamity impacting operations in the tourism industry can be observed in the state of Indonesian tourism in 2018, specifically in Lombok, West Nusa Tenggara. Lombok Island is among the ten national tourism priority areas that have been established by the tourism ministry. The 2018 earthquake had both physical and psychological impacts on the victims, as well as repercussions on the tourism industry. The earthquake is projected to result in economic losses that could lead to a potential decline of approximately 100,000 foreign tourists within a one-month period (6 August - 6 September 2018). These losses are estimated to amount to USD 100 million, assuming an average expenditure of USD 1,000 per visit. Moreover, in terms of spatial impact, the disaster has affected significant tourist attractions on the island of Lombok, such as the climbing areas of Mount Rinjani, Gili Terawangan, Gili Meno, and several other locations (Hadi, 2019).

Türkiye's tourism industry can be significantly impacted by various natural hazards, including flooding, earthquakes, and drought. Türkiye's prominent tourist destinations are prone to significant seismic hazards and risks. An earthquake of significant magnitude can impact tourists, tourist infrastructure, facilities, and cultural heritages, which are key factors contributing to the development and growth of tourism in Turkiye (Çetinsöz et al., 2012). Likewise, anthropogenic environmental harm and calamities such as oil spills, radioactive pollution, and so on, can significantly impact the tourism industry. Significant oil spills, like the Deepwater Horizon oil spill in the Gulf of Mexico in 2010, contaminate coastal areas and diminish their appeal to tourists. The ability to travel to areas contaminated with radioactivity is reduced. Urban areas like Istanbul face significant environmental hazards, with air pollution being a prominent concern (TURSAB, 2017). The impact on tourists, particularly elderly individuals who are more susceptible to the hazards of pollution, is significant.

General Features of Türkiye

Due to its location, Türkiye has an advantageous position from many perspectives, as it is located at important intersections around the world. Being located in a strategic region where the continents of Europe, Asia, and Africa converge makes Türkiye an intercontinental bridge. The country's population stands at 85.3 million according to recent figures, and its total area covers 783,562 square kilometers, indicating that Türkiye occupies a relatively vast geographical territory. The richness of the country's natural and human resources offers various opportunities for tourism. The fact that tourism accounts for 4.6 percent of Turkiye's Gross Domestic Product (GDP) underscores its significant role in the country's tourism sector (World Bank, 2022).

Earthquake, Its spatial extent, and Damages

The North Anatolian Fault Zone (NAFZ) is the most seismically active strike-slip fault in Europe and Asia Minor. It serves as the demarcation line between the Anatolian and Eurasian tectonic plates (Sengor et al., 2005). Throughout the 20th century, a sequence of significant and destructive earthquakes occurred as a result of this particular fault. One of the destructive earthquakes that resulted in long-term damage was the Marmara earthquake, which happened on August 17, 1999. The 1999 Marmara earthquake, also known as the earthquake in Kocaeli Province, occurred on August 17, 1999. It originated on the North Anatolian Fault Zone (NAFZ) and its epicenter was located near the easternmost end of Izmit Bay in northwestern Türkiye. The earthquake transpired at 03:01:39 a.m. local time, during the nocturnal hours, when the inhabitants of the area were at their residences, in a state of slumber. Following a recurring trend observed in the NAFZ, the aforementioned earthquake was succeeded by another significant event on November 12, 1999, commonly referred to as the 1999 Duzce - Bolu earthquake. The occurrence of this event marked the final separation of the Duzce Fault (a fault that runs parallel to the North Anatolian Fault Zone) which had already been set in motion by the 1999 Marmara earthquake. As a result, further devastation and loss of life occurred in the already severely affected region. (MCEER, 2000). The red color represents areas with the highest seismic risk, pink indicates moderate risk zones, yellow signifies lower-risk areas, and white shows regions with the least seismic risk. However, the map is missing essential components, including the legend, orientation elements, and scale, which makes it difficult to fully interpret the map's data and accurately assess the seismic risk levels. On February 6, 2023, between 04:17 and 13:24 Turkish local time, two earthquakes measuring 7.7 Mw and 7.6 Mw, with epicenters in Pazarcik (Kahramanmarash) and Elbistan (Kahramanmarash), respectively, occurred. Both earthquakes were felt very strongly and caused severe damage and loss of life in Kahramanmarash, Hatay, Adiyaman, Gaziantep, Malatya, Kilis, Diyarbakir, Adana, Osmaniye, Shanliurfa, and Elazig. The earthquake affected an area of 108,812 km^2, covering 11 provinces in Eastern and Southeastern Anatolia (Figure 1). Based on strong ground motion records, field observations, and information obtained from local residents, it is possible to say that the first earthquake was more forceful in Kahramanmarash and Hatay, while the second earthquake was particularly forceful in Malatya. These two major shocks, which are recorded as the most devastating earthquake storms in the country's history, require immediate attention and action for relief and recovery efforts (AFAD, 2023).

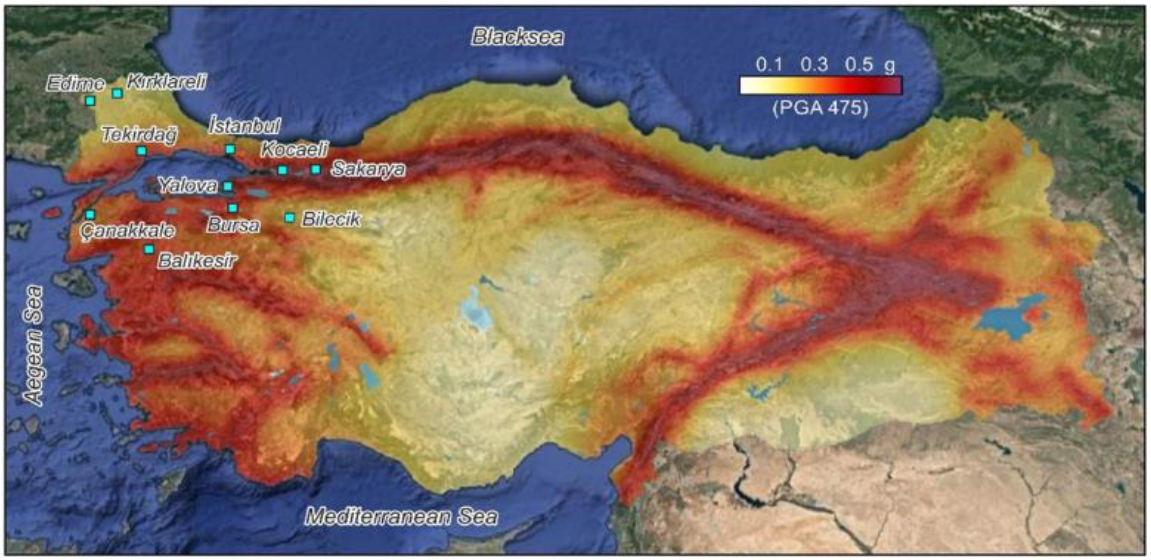

Figure 1. The Turkish Earthquake Hazard Map visualizes the seismic risk levels across various regions (Source: Işık et al., 2020)

Role of Tourism on Turkish Economy

Contemporary economies direct their policies toward stability and growth. In achieving these goals, the contribution of the tourism sector is becoming increasingly important. Tourism, with its dynamic and economic nature, serves as a solution to national and international economic problems and acts as a gateway to overcome economic bottlenecks. The tourism sector is one of the most rapidly growing and high-capacity sectors among the industries within GDP. With its ability to generate foreign exchange and contribute to economies, tourism has a significant effect on GDP and employment. The values related to tourism revenues and their share in gross domestic product are included in Figure 3 and Figure 4. Figure 2 presents the monthly distribution of foreign visitor arrivals from 1995 to 2001.

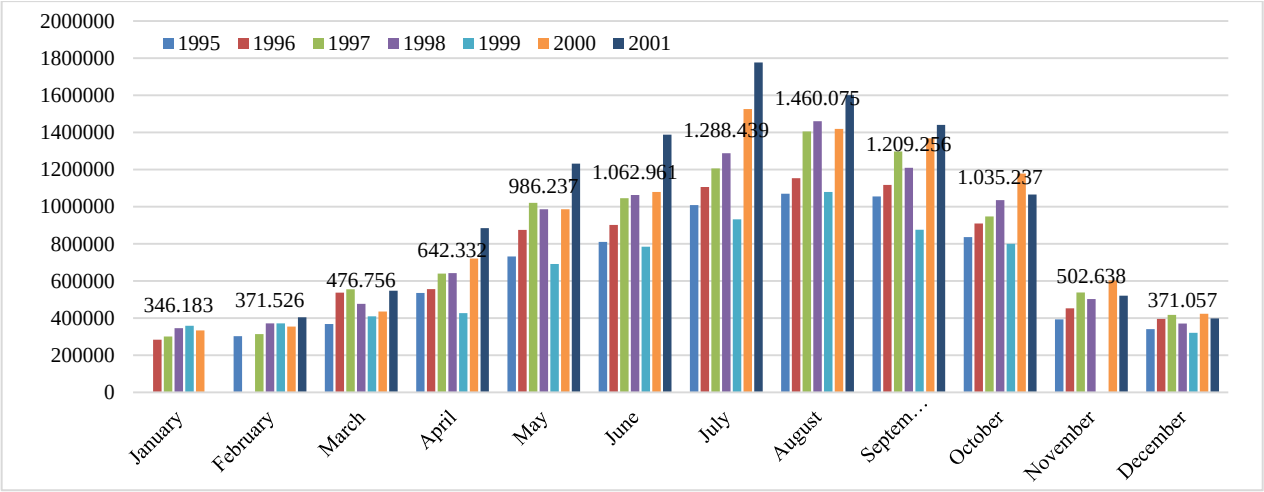

Figure 2. Statistics of tourists visiting Turkiye by months and years (1995-2001) (Source: TURSAB, 2024)

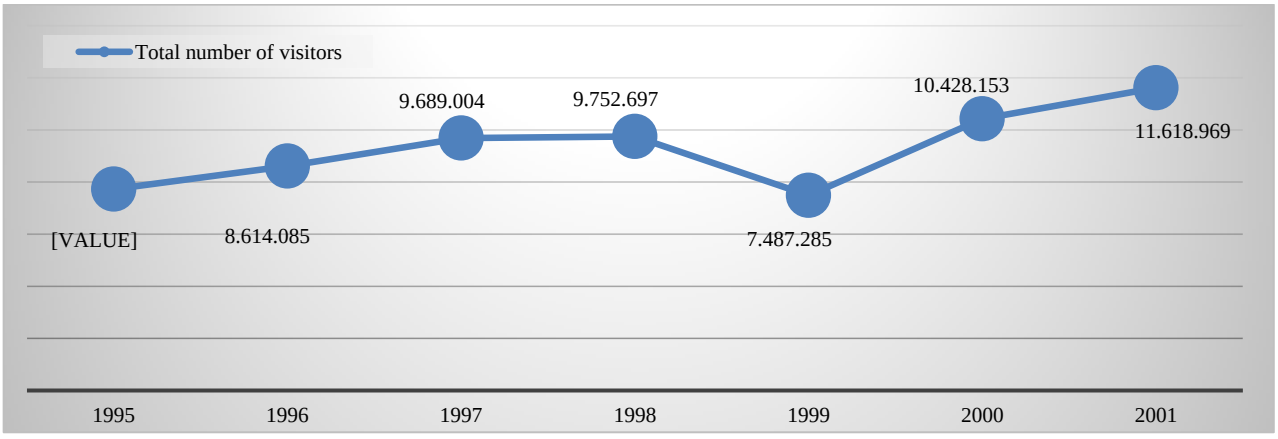

Figure 3. Total number of visitors to Türkiye by years (1995- 2001) (Source: TURSAB, 2024)

The data reveals a general seasonal trend, with the highest number of visitors recorded in the summer months (June to September) across all years. However, a sharp decline is noticeable in 1999, following the 1999 earthquake, where the number of arrivals was lower compared to previous years, particularly in the peak tourism months. The recovery begins in 2000, with a notable increase in visitor numbers. Figure 3 clearly illustrates the sharp decline in the total number of foreign visitors following the 1999 earthquake. In 1998, the number of international arrivals peaked at 9,752,697, but in 1999, this figure dropped drastically to 7,487,285, marking a 23.2% decrease.

This sudden decline reflects the immediate impact of the earthquake on the tourism sector, as concerns about safety, infrastructure damage, and overall uncertainty deterred travelers. However, in 2000, the data shows a strong recovery, with visitor numbers rebounding to 10,428,153, surpassing pre-earthquake levels. By 2001, the upward trend continued, reaching 11,618,969. This suggests that while natural disasters can cause short-term disruptions in tourism, the industry can recover quickly with proper crisis management and restoration efforts.

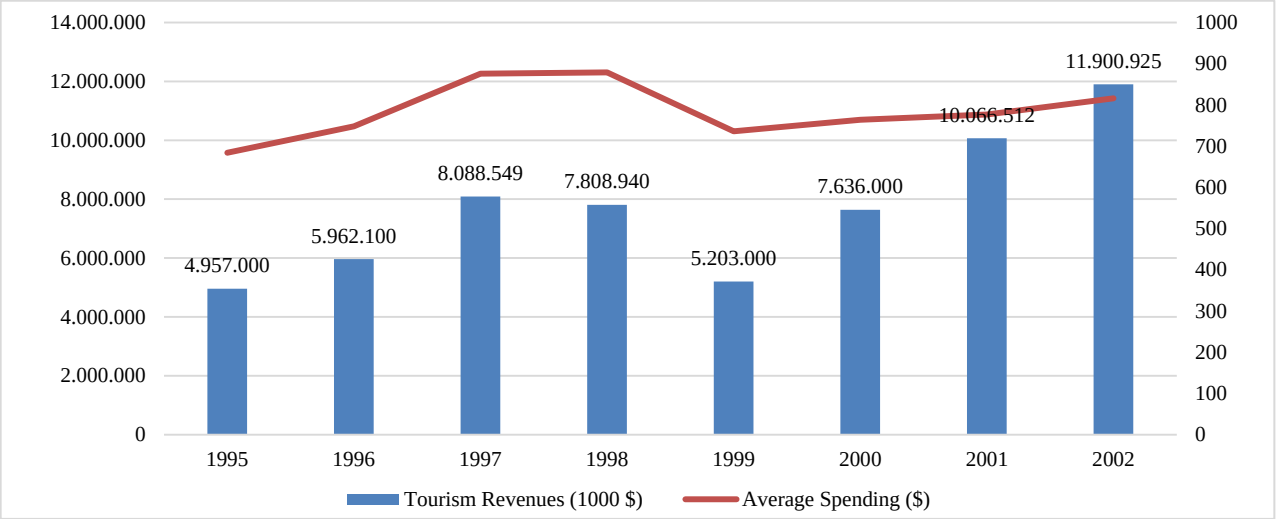

Figure 4. Distribution of Tourism Revenues and Average Spending (Source: TURSAB, 2024)

Figure 4 illustrates the significant financial losses in the tourism industry caused by the 1999 earthquake. The total revenue loss amounted to 173 million USD, with 15 million USD lost due to canceled congresses and an additional 3 million USD from canceled tours. Furthermore, 8,000 tourists cut short their vacations and returned to their home countries, while 156,000 reservations were canceled, resulting in a financial loss of 105,000 USD.

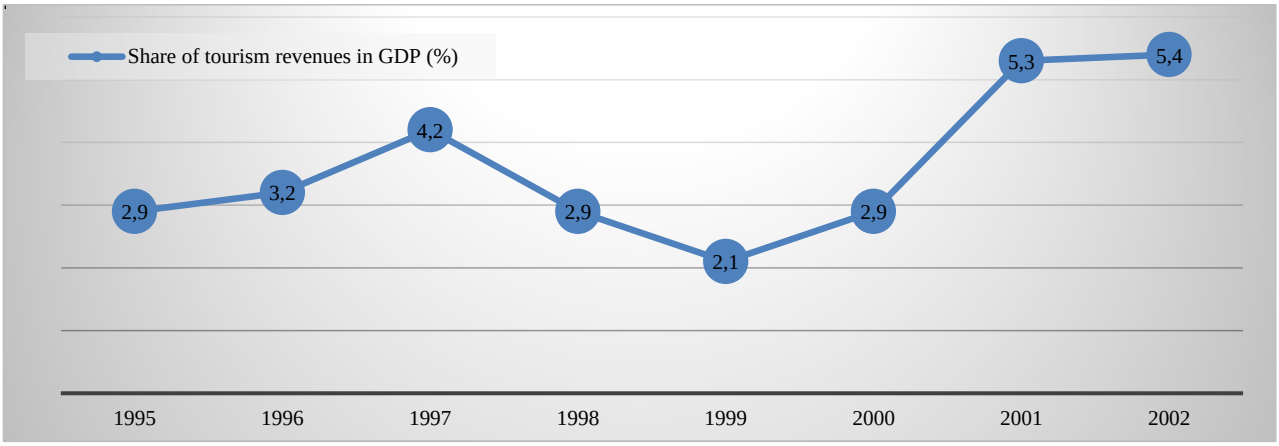

Figure 5. Share of tourism revenues in GDP (Source: TURSAB, 2024)

Figure 5 highlights the decline in the tourism sector following the earthquake. The number of tourists showed an increasing trend before the disaster; however, in September 1999, there was a sharp decline. The overall decrease in the tourism sector was approximately 27% compared to the previous year. Additionally, the table summarizing tourism revenues from 1995 to 2002 indicates a significant drop in 1999, with total revenues amounting to 2,605 million USD.

Figure 6 presents the total number of tourists visiting Türkiye from 2017 to 2023. In 2017, Türkiye attracted 38,620,346 tourists. This number increased steadily in the following years, reaching 45,628,673 in 2018 and 51,860,042 in 2019. However, due to the COVID-19 pandemic, there was a drastic decline in 2020, with only 15,826,266 tourists visiting the country. In 2021, a recovery was observed, with the number of tourists rising to 29,357,463. Projections for 2022 suggest that the number of tourists will increase to 51,369,026, surpassing the pre-pandemic levels of 2019. As of July 2023, a total of 29,324,605 foreign visitors had come to Türkiye, despite the devastating Kahramanmaras earthquake.

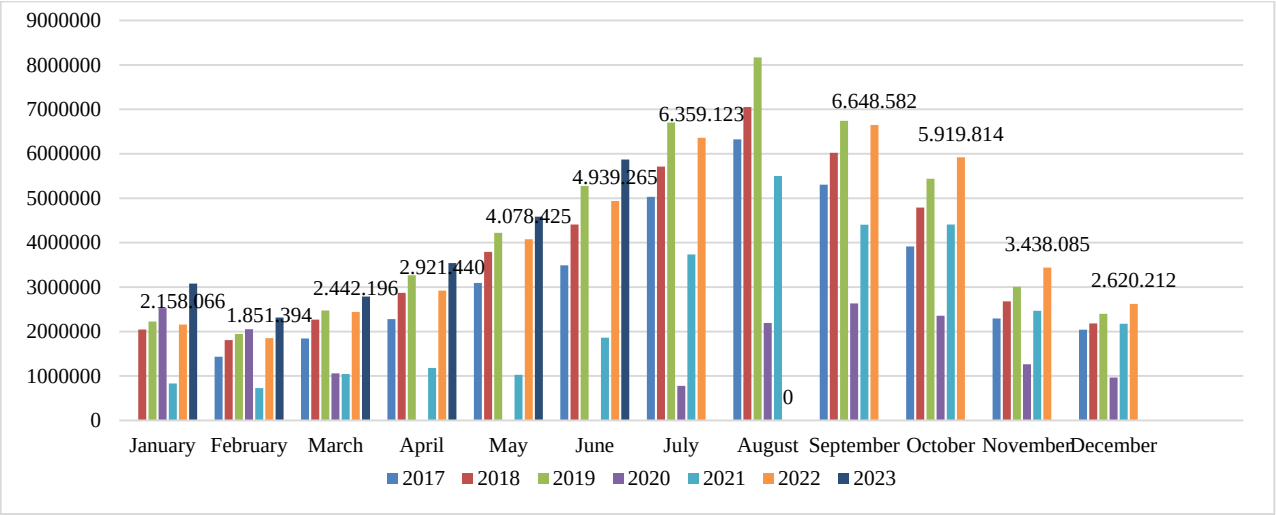

Figure 6. Statistics of tourists visiting Turkiye by months and years (2017- 2023) (Source: (TUIK, 2024)

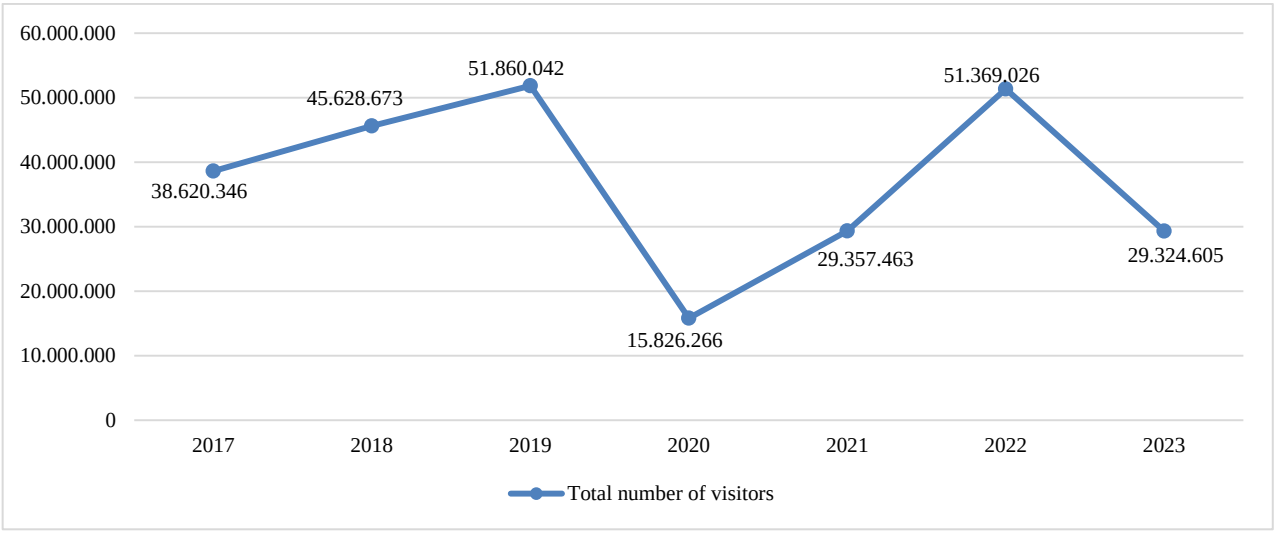

Figure 7. Total number of visitors to Türkiye by years (2017-2023) (Source: (TUIK 2024)`

Figure 7 illustrates the number of tourists by month from 2017 to 2023. July and August have consistently been the months with the highest number of tourist arrivals, except in 2020 when the COVID-19 pandemic led to a significant reduction in tourism. The data also shows a gradual increase in tourist arrivals from January to May, with June being another peak month, following the summer months. Despite the challenges posed by the earthquake in 2023, there was no significant drop in the number of tourists visiting Türkiye.

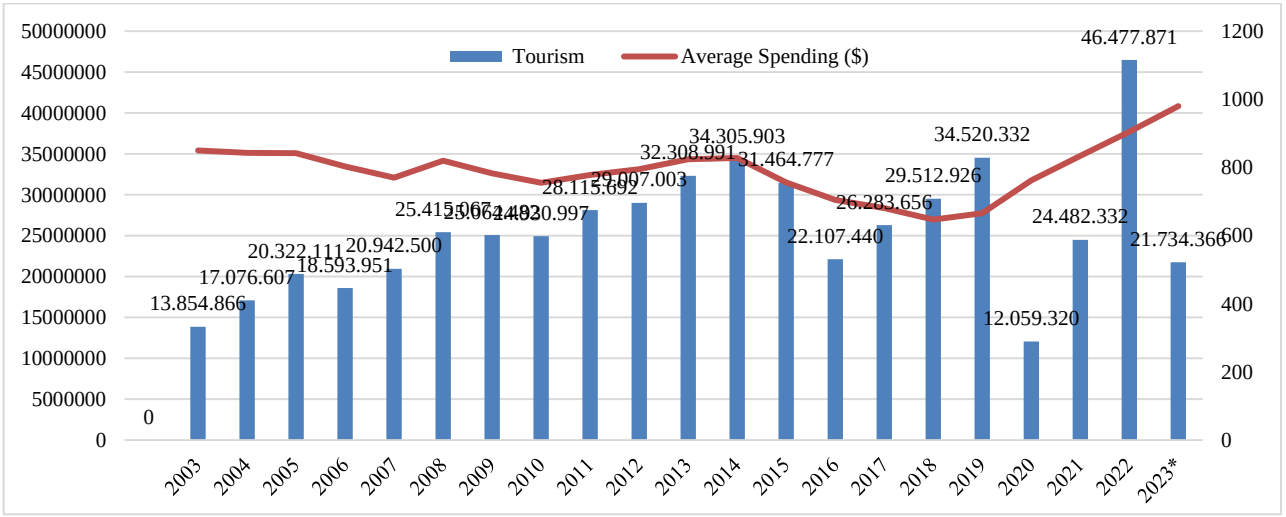

Figure 8. Distribution of Tourism Revenues, Average Spending by Year (2003-2022) (Source: The Ministry of Culture and Tourism 2024)

Figure 8 illustrates the distribution of tourism revenues and average spending in Türkiye from 2003 to 2023. Tourism revenues showed a steady increase from 2003 until 2014, reaching a peak of $34,305,903,000 in 2014. However, in 2015, the plane crisis led to a significant drop in the number of Russian tourists, and further declines were observed in 2016 due to the coup attempt and a series of terrorist attacks. The biggest contributing factor was the negative image and embargoes resulting from the plane crisis. A recovery trend began in 2017 and 2018, leading to a new peak in 2019, when tourism revenues reached $34,520,332,000, accounting for 4.6% of GDP.

The COVID-19 pandemic caused a sharp decline in tourism revenues, dropping to $12,059,320,000 in 2020. The average spending per tourist also fell from $850 in 2019 to $666 in 2020, before recovering slightly to $762. In 2021, a partial recovery was observed, with tourism revenues increasing to $24,482,332,000 (3.1% of GDP). The projected data for 2022 indicates a decrease in revenues to $14,171,591,000, accounting for 2.4% of GDP. Since the data for 2023 is incomplete, it is not yet possible to calculate the share of tourism revenues in GDP. However, available data shows that tourism revenues in 2023 amounted to $21,734,366, with an average spending per tourist of $980.

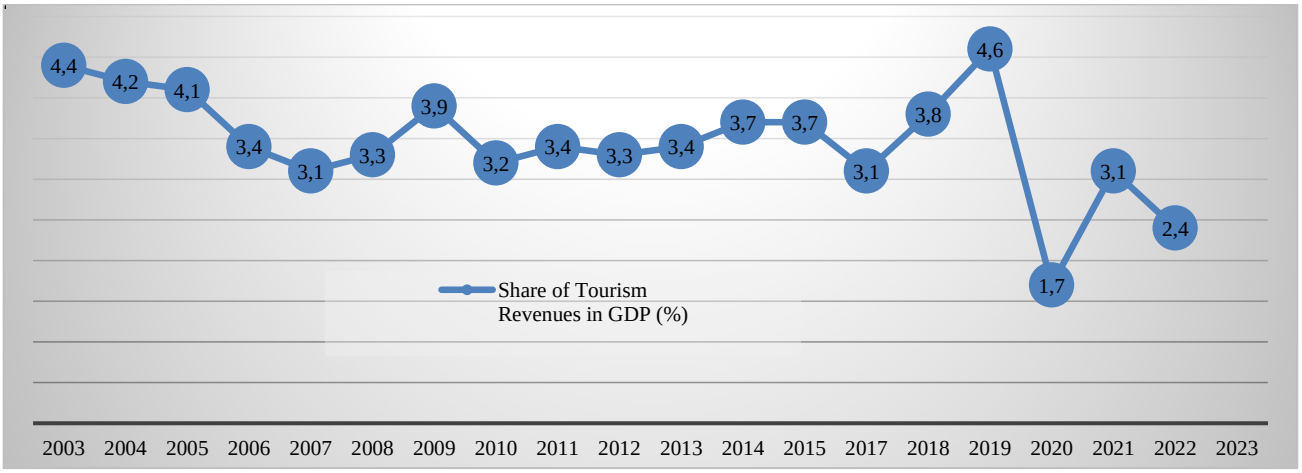

Figure 9. Share of tourism revenues in GDP (Source: The Ministry of Culture and Tourism 2024)

Figure 9 presents the share of tourism revenues in GDP over the years 2003–2023. The share of tourism revenues in GDP fluctuated throughout the period, with the highest recorded share in 2019 at 4.6%. The data also shows that average tourist spending declined in the early years but has been increasing steadily since 2014. However, based on this observation and the available data, the 2023 earthquake does not appear to have significantly impacted Turkish tourism in the first half of the year. In 2023 the Russia- Ukraine war has resulted in Europe imposing sanctions on Russia, leading to Russia's banning of access to Europe. Figure 10 shows that however, despite these developments, when compared to previous years, this event has not caused a significant surge in the number of tourists traveling to Turkiye.

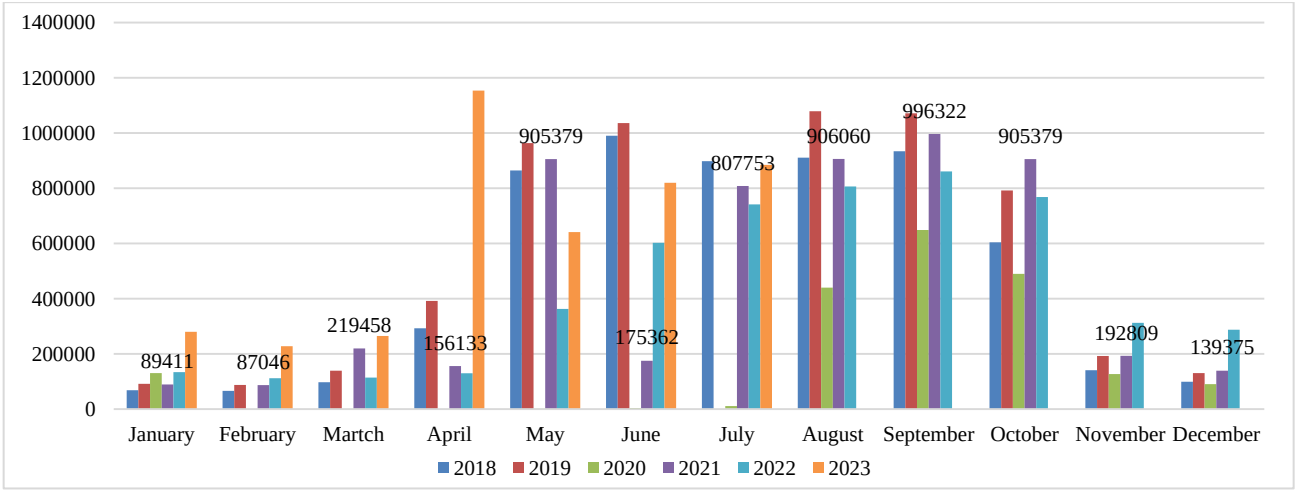

Figure 10. Total number of visitors from Russia to Turkiye for per year (2018- 2023) (Source: The Ministry of Culture and Tourism 2024)

CONCLUSION AND SUGGESTION

Various factors, such as security, socioeconomic and demographic variables (such as age, gender, education, religion, tourism motivation, personal experience, and income), shape perceptions of tourism risk and decision-making. The impact of disaster events on tourism at a destination is influenced by the characteristics, magnitude, and frequency of the events, as well as the destination's ability to recover and adapt in the tourism sector. In order to conduct our investigation, we employed qualitative research methods in this article. Examining the tourism data from the 1999

Marmara earthquakes reveals a substantial decline in both tourist arrivals and tourism earnings in Turkiye. The total number of international visitors for the entire year was 7,487,285, which represents a decrease compared to the previous year's total of 9,752,697. The tour cancellations led to a financial loss of 3 million USD.

The comparison of tourism statistics before and after the August 1999 earthquake shows a 25% decline in tourism during the months of August and September. Based on effect of the 2023 earthquake, it is possible to see no any decline in Turkish tourism for the year. The main reason for the lack of a decrease in tourism after an earthquake is not primarily due to Russian tourists choosing Turkiye for their vacations because they couldn't go to Europe. Instead, statistics demonstrate the opposite. The primary reason appears to be that tourist destinations are located far from earthquake-prone cities. When we look at the earthquake map that we used in our research, we see that Gaziantep, Hatay/Osmaniye, Adyaman, Diyarbakir/Sanliurfa, Kahramanmarash, Kilis, Adana, and Malatya are high-risk areas for earthquakes. These areas are clearly remote from tourist attractions. However, if potential customers are unaware of this fact, it will have a significant effect on tourism. It is critical to develop plans and strategies to accelerate the recovery process as soon as possible. The following are the proposals that must be implemented to accelerate the recovery.

- ✓ The first step is to repair and rebuild damaged infrastructure such as roads, bridges, and public buildings. This will help ensure that tourists can visit the region safely and have a good time.
- ✓ Use social media to promote tourism: social media is a powerful tool for promoting tourism. Share photos, videos, and stories about Turkiye's tourist region on social media platforms like Facebook, Twitter, and Instagram. Share informative videos about places far from the earthquake zone, such as Antalya, Bodrum, and Mula. Especially responding to comments and messages is another way to interact with potential tourists.
- ✓ Create targeted campaigns: Create targeted marketing campaigns aimed at specific demographics or geographical areas. You could, for example, create a campaign aimed at families, adventurers, or foodies.
- ✓ With online travel agencies like Expedia, Booking.com, and TripAdvisor to promote the region and make it easier for tourists to book their trips.
- ✓ Leverage media coverage: Use media coverage of the earthquake as an opportunity to promote the region. Reach out to journalists and bloggers and provide them with information about the region, its unique features, and the recovery efforts following the earthquake.

There are certain limitations that need to be considered. The primary limiting factor is it is anticipated that there will be a multitude of crises that have the potential to exert an influence. At a certain point in time, there was a specific location that served as a destination. With that being stated, the methodology solely focuses on identifying the occurrences of structural breaks within an intracellular context and determining their respective dates. Consequently, it becomes challenging to establish accountability for the structural break in the international tourism market between either of these crises. Furthermore, given the previous identification of structural breaks, it is important to recognize that the deliberate monitoring of statistics for the purpose of authentication seems to be feasible only within a specific timeframe.

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