Journal of Economics, Management and Trade

Volume 30, Issue 9, Page 67-77, 2024; Article no.JEMT.121830
ISSN: 2456-9216
(Past name: British Journal of Economics, Management & Trade, Past ISSN: 2278-098X)

Effects of Crises on the Tourism Sector: The Case of Greece

Triantafyllos Pnevmatikos [a++*], Georgia Zouni [b#] and Paraskevi-Myrsini Nasiou [c†]

[a] Department of Planning and Regional Development, University of Thessaly, Greece.
[b] Department of Tourism Studies, University of Piraeus, Greece.
[c] Department of International and European Studies, University of Piraeus, Greece.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: https://doi.org/10.9734/jemt/2024/v30i91242

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/121830

Policy Article

Received: 23/06/2024
Accepted: 25/08/2024
Published: 05/09/2024

ABSTRACT

Aim: This study aims at investigating the contribution of tourism to the economic growth of Greece and how this sector was affected by the two crises: the socio-economic crisis that Greece faced after 2008 and the emergence of the COVID-19 pandemic in 2020.
Methodology: The study concentrates on Greece during the years 2005, 2010, 2015, and 2020, using the Input-Output Analysis as a methodological tool. This method is frequently used to interpret the function of an economic system and the productive relationships among different sectors of an economy.
Results: The data analysis presents that the two crises appear to have negatively affected the dynamism of tourism related sectors such as 'Accommodation and food services' and 'Rental and

[++] PhD;
[#] Assistant Professor;
[†] PhD candidate;
**Corresponding author: E-mail: trpnevmatikos@gmail.com;*

Cite as: *Pnevmatikos, Triantafyllos, Georgia Zouni, and Paraskevi-Myrsini Nasiou. 2024. "Effects of Crises on the Tourism Sector: The Case of Greece". Journal of Economics, Management and Trade 30 (9):67-77. https://doi.org/10.9734/jemt/2024/v30i91242.*

leasing activities'. On the contrary, sectors like 'Retail trade services' and 'Creative, arts and entertainment services, etc.' seem to have great resilience throughout the two major crises. Furthermore, the prominent role of 'Transport services' sector during the period 2005-2020 is worth to be mentioned for the intensity of its strong interindustry exchanges with other sectors of the economy. In general, interindustry exchanges of the sectors related to tourism seem to have satisfactory levels of intensity in the four years under examination revealing the dynamism of tourism and its contribution to the recovery of the Greek economy from the dual crisis.
Conclusion: The two crises that Greece experienced, have affected the sectors related to tourism to a different extent and policy makers should take this fact under consideration. Resource allocation should focus on the development of leading sectors as well as on sectors generating the highest multiplier effects. Additionally, enhancing the interdependencies among dominant sectors can contribute to the creation of a more competitive tourism sector that can be resilient to future crises.

Keywords: Tourism; Greece; input-output analysis; economic crisis; covid-19 pandemic.

1. INTRODUCTION

Tourism constitutes one of the most dynamic and growing sectors in many countries worldwide contributing to their economic development. The tourism sector generates positive spillovers to the determinants of economic growth [1, 2], like Gross Domestic Product [3], employment [4], investment in new infrastructure [5], innovation and technical knowledge [6], etc. On the other hand, tourism development strategies should have the relationship between tourism and environmental protection as a priority, taking into account crucial issues like optimal use of environmental resources, social and cultural authenticity of local communities, sustainable economic activity of enterprises, etc [7].

Tourism sector often appears to have strong interexchanges with other sectors of an economy. Specifically, tourism enterprises tend to buy intermediate goods and services from other sectors in order to satisfy the needs of visitors, to whom they sell their final goods and services. Moreover, the expenditures conducted by tourism enterprises, driven by the increasing number of visitors, produce indirect effects through the creation of jobs and wages for local enterprises that provide goods and services to tourism enterprises [8, 9].

In Greece, tourism constitutes a dominant sector as its direct economic contribution corresponds to 11.5% of the country's GDP for the year 2022, whereas its indirect contribution is estimated between 25.3% and 30.5% [10]. However, the socio-economic crisis following 2008, along with the onset of the COVID-19 pandemic in 2020, appears to have negatively impacted the country's tourism sector, as evidenced by significant declines in indicators such as tourist arrivals, sectoral GDP, and tourism receipts during this dual crisis period [11, 12].

Examining factors such as the time period (2005-2020), the sectors involved (tourism and related industries), the geographical focus (Greece), and the selected methodology (input-output analysis) highlights the significance of this study within the context of the dual crisis. The combination of these factors enables a thorough investigation focusing on the research question regarding the effects of the two major crises on the Greek economy, with an emphasis on tourism sector.

2. LITERATURE REVIEW

This section presents a literature review for examining the impact of the dual crises (the socioeconomic crisis and the COVID-19 pandemic) on the Greek tourism sector, as well as of their effects on the global tourism industry.

According to Agiomirgianakis, G. and Sfakianakis, G. [13], the tourism sector worldwide was affected by the international financial crisis (2008) causing financial instability in most of the tourist countries and resulting in a sharp decline in income and employment. Moreover, Pizam [14] states that in many global tourist destinations, there was a decline in tourist arrivals and spendings and this resulted in the reduction of business income as well as in business closures. On the other hand, Sheldon and Dwyer [15], argue that crises constitute an opportunity for the tourism sector to reshape its structure and increase its competitiveness

whereas Papatheodorou and Arvanitis [16] point out the positive effects on inbound tourism, such as reduction of prices, etc.

In case of Greece, the significant role of tourism in the economy and its importance in national, regional and local development is acknowledged in the relevant literature [2, 11, 17, 18, 19]. However, Grotte J., Laloumis D. and Marinakos K. [20] note that the international financial crisis negatively impacted tourism in Greece. Specifically, they report a decline in tourism's overall contribution to national GDP (from 16.8% in 2008 to 15.8% in 2011) and employment (from 18.7% in 2008 to 17.6% in 2011). Additionally, Xatzidakis [11] presents a decrease in international arrivals (-5.7%) and tourism sector revenues (-25.7%) in Greece during the period 2008-2010, reflecting similar trends observed in other countries, such as Spain, France, Italy, etc.

Kapiki [21] notes the decline in the competitiveness of Greece as a tourist destination at European and world ranking between 2009 and 2011[1], whereas Petrakos [17] emphasizes the profitability decrease and the loss of income and jobs for workers in tourism sector.

Nevertheless, it should be noted that the negative impacts of economic crisis in the tourism sector occurred mainly in the early years of the crisis and they were painless compared to other sectors of the Greek economy (e.g. construction). The main indicators related to the tourism sector competitiveness showed that the tourism industry in Greece enjoyed high average efficiency levels after 2012 in comparison to other sectors, revealing the resilience of this sector [13, 1, 11].

The second crisis that seems to have affected the tourism sector is COVID-19 pandemic that appeared at the beginning of 2020. This pandemic constituted an unprecedented crisis with devastating effects on the economies of many countries [22].

Specifically, COVID-19 pandemic led the global economy to a severe economic recession due to the measures taken for its treatment (border closures, travel restrictions, etc.). These measures affected many economic sectors in all countries, including tourism [23]. COVID-19 had a negative impact in the tourism sector worldwide as it led to a loss of $4.5 trillion of sectoral GDP and 62 million jobs in 2020 [24], as well as to a major decrease (-74%) in international arrivals (loss of approximately 1.08 billion international arrivals) in the period 2019-2020 [12].

Assaf and Scuderi [25] and Karabulut et al. [26] note that the COVID-19 pandemic has had the most severe negative impacts on the tourism industry. They emphasize that each country's government plays a crucial role in both the recovery efforts and the transformation of the sector in the post-pandemic era. Moreover, according to Jayanta et al. [27], the impacts were more severe in countries which were more reliant on tourism.

Sigala [28] refers that COVID-19 pandemic differs from other past crises and it may lead to long-term structural impacts on tourism sector whereas Zhang et al. [29] point out the major impacts caused by COVID -19 on tourism sector, such as GDP decline. Additionally, Rausser et al. [30], Niewiadomski [31], and Ioannides et al. [32] claim that COVID-19 pandemic presents a great opportunity for the structural transformation of the tourism industry, with a focus on environmental sustainability, sustainable development and economic equity.

Given the unfavorable global economic environment, Greek tourism could not remain unaffected. Specifically, Greek tourism recorded a substantial decrease in arrivals (-76.7%, from 31.3 mil. in 2019 to 7.3 mil.in 2020) and in receipts (-76.1%, from € 17.6 mil. in 2019 to € 4.2 million in 2020). Despite the significant reduction in Greece's tourism indicators, employment had a milder decrease in the accommodation and catering services sector (-10% between 2019 and 2020) due to the measures taken by the Greek government for the supporting businesses [12].

Papanikos [33, 34] asserts that Greek tourism collapsed along with other tourism markets in Europe and the rest of the world due to the COVID-19 pandemic, whereas he claims that Greek tourism will fully recover in 2022 reaching

[1] *In 2011, Greece held the 21st (16th in 2009) and 29th position (23rd in 2009) at European and global level respectively.*

the same receipts and arrivals as in 2019. This fact is verified by the statistical data of INSETE (31.3, 7.3, 14.7, 27.8 and 32.7 millions of arrivals in 2019, 2020, 2021, 2022 and 2023 respectively and 17.6, 4.3, 10.3, 17.2 and 19.7 millions of receipts by foreign tourists in 2019, 2020, 2021, 2022 and 2023 respectively). Based on empirical research, Tabouratzi et al. [35] concluded that the impacts of the pandemic in tourism enterprises influenced more the fields of loan repayment, liquidity and collectability of receivables than areas like rent and wage payments. Vourdoubas J. [36] refers that the lessons learnt during the COVID-19 pandemic should be used to reduce the vulnerability of tourism sector and increase its resilience.

Despite the negative impacts of COVID-19 pandemic, recent studies refer that tourism seems to recover in a significant way after 2021 at international, European and national level, showing the dynamism of the sector as well as its significance for the economies [37, 38].

3. METHODOLOGY

Regarding the methodology of this study, Input-Output Analysis is used to examine the importance of the tourism sector in the Greek economy and how it was affected by the two major crises (economic crisis and COVID-19 pandemic).

Input-Output Analysis is one of the methods that can be used for the investigation of interactions among the sectors of an economy. It describes the functioning of an economic system and provides tools for assessing the structural changes in an economy, in terms of the linkages among the sectors. Moreover, Input-Output tables provide information about the status quo of a particular economy by analyzing intersectoral exchanges in goods and services [39, 40, 41].

Specifically, multipliers and indicators of inter-sectoral linkages can be considered as significant tools, in the context of Input-Output Analysis, for the conduction of sectoral economic analyses in a geographic area.

In the context of Input-Output Analysis, various studies have been conducted for estimating the economic impacts of tourism at national or regional level with the use of Input-Output Analysis in recent years [42, 43, 44, 45, 46, 8, 9].

3.1 Output and Employment Multipliers

In the context of Input - Output Analysis, the multipliers constitute important indicators as they can be used to estimate the impact of changes of final demand on output, income, employment, etc. [41, 39].

Specifically, the output multiplier of sector *j* is defined as the total value of production in all sectors of the economy which is necessary to satisfy the increase in the final demand of sector j by one unit. The output multiplier for each sector is estimated by the sum of the corresponding column of the Leontief's inverse matrix [39, 47, 40]:

$$OM_j = \sum_{i=1}^{n} b_{ij} \quad (1)$$

where OM_j is the output multiplier of sector j and b_{ij} is the element of the Leontief's inverse matrix.

Moreover, the employment multiplier of sector j shows the overall change in employment that is induced in the economy by a change in final demand of each sector separately. For the estimation of employment multiplier, the direct employment coefficients vector is first estimated by the following formula [39]:

$$DE_j = E_j / X_j \quad (2)$$

where E_j is the number of employees in each sector and X_j is the total output of each sector. Then, total employment multipliers are estimated as follows:

$$EM_j = DE_j (I - A)^{-1} \quad (3)$$

3.2 Indices of Inter-Sectoral Linkages

The indices of inter-sectoral linkages constitute a useful tool for economic analysis as they can contribute to the importance of each sector in terms of the intensity of its inter-exchanges, and to highlight the key-sectors of the economy. Various vertical and horizontal inter-sectoral linkages indicators have been suggested in several studies [48, 49, 50, 51]. The main disadvantage of these indicators is that they do not reflect the intensity of the dispersion of indirect effect among the sectors of an economy. Specifically, any sector with a high horizontal or vertical linkages index does not necessarily lead to an increase in the gross product of all sectors of the economy under consideration.

Trying to overcome this problem, Rasmussen [50] and Hirschman [49] suggested the estimation of indices of power dispersion and sensitivity of dispersion through a normalization process. Specifically, these indices are determined in the following way:

$$U_j = \frac{\sum_{i=1}^{n} b_{ij}}{n} \Bigg/ \frac{\sum_{j=1}^{n}\sum_{i=1}^{n} b_{ij}}{n^2} \quad \text{και} \quad U_i = \frac{\sum_{j=1}^{n} b_{ij}}{n} \Bigg/ \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} b_{ij}}{n^2} \tag{4}$$

where *Uj* is the index of power dispersion, *Ui* is the index of sensitivity of dispersion, b_{ij} express the coefficients of the inverse Leontief matrix, and *n* is the number of productive sectors. When $U_j > 1$, an increase in final demand of sector *j* will cause an increase in the productive activity of economy above the average. Moreover, if $U_i > 1$, then an increase in the final demand of the sectors by one unit, will cause an increase in sector *i* production above the average.

The above indices of Rasmussen [50] and Hirschman [49] have a main disadvantage as they are sensitive to marginal values. For this reason, Allaudin [52] suggested the variability indexes that can be used in addition to the dispersion indexes. These indicators can be estimated as follows:

$$V_j = \sqrt{\frac{\frac{1}{n-1}\left[\sum_{i=1}^{n}\left(b_{ij} - \frac{\sum_{i=1}^{n} b_{ij}}{n}\right)^2\right]}{\frac{\sum_{i=1}^{n} b_{ij}}{n}}} \quad \text{and} \quad V_i = \sqrt{\frac{\frac{1}{n-1}\left[\sum_{j=1}^{n}\left(b_{ij} - \frac{\sum_{j=1}^{n} b_{ij}}{n}\right)^2\right]}{\frac{\sum_{j=1}^{n} b_{ij}}{n}}} \tag{5}$$

where b_{ij} are the coefficients of the inverse Leontief matrix and *n* is the number of productive sectors. Low values of these indicators for a sector show that the indirect results of this sector are evenly distributed to other sectors. Otherwise, the values of these indices are high. According to Allaudin [52], a sector is considered to have a leading role in the economy when (a) the U_i and U_j indices have values greater than the unit, and (b) the indices V_i and V_j have relatively low values.

4. APPLICATION

As referred above, the objective of this study is to analyze the significance of the tourism in the Greek economy during the period 2005-2020 and how this sector was affected due to the two major crises that took place: the socioeconomic crisis (started in 2008) and the COVID-19 pandemic (started in 2020).

This objective is carried out by using output and employment multipliers, as well as linkages analysis, that come from the input-output tables of the Hellenic Statistical Authority for the years 2005, 2010, 2015 and 2020. Specifically, the input-output analysis is used for two main purposes: first, multiplier analysis is used to assess the relative significance of tourism in creating output and employment. Second, linkages analysis is applied to investigate the interdependence between tourism and the other sectors of the Greek economy[2].

Specifically, the original I-O tables of 65 sectors were aggregated to 37 sectors. Among the 37 sectors considered by the national Greek I-O tables, the closest tourism-related sector is identified as 'Accommodation and food services'. Moreover, the following four sectors offer tourism-related activities: 'Retail trade services', 'Transport services', Creative, arts and entertainment services, etc.' and 'Rental and leasing services'.

Regarding the product multipliers (Table 1), the results show that they range from 1.5984 for 'Creative, arts and entertainment services; Sporting and recreation services, etc.' (2005) to 2.2270 for 'Transport services' (2015). The 'Accommodation and food services' sector presents a significant reduction of its multiplier

[2] *The methodology is applied to 37 sectors covering all the economic activities of the Greek economy (agriculture-logging-fishing, mining, manufacturing, constructions, trade, transport, communication, bank services, business activities, etc.)*

values in years 2010 and 2020 (-21.2% between 2005 and 2010 and -5.49% between 2015 and 2020). The two crises seem to have affected this sector in a significant way. However, it should be noted that the product multiplier of this sector appears a major increase (+29.3%) during the period 2010-2015 and this fact reveals its instant recovery and dynamism for the Greek economy. Specifically, 'Accommodation and food services' sector rises from 33rd place to 16th place between 2010 and 2015. In addition, 'Rental and leasing activities' sector tends to appear similar trends in its multiplier values but with smaller changes among the years.

On the other side, the product multipliers in 'Transport services' sector have high values and they appear a significant increase during the period 2005-2015. The reduction presented in 2020 (-2.33% compared to 2015) may be due to the restriction of movements that caused the lockdown of the Greek economy for several months. This sector maintains the highest positions in the ranking among the tourism related sectors for all the years (16th, 13th, 11th, 13th position in 2005, 2010, 2015 and 2020 respectively).

By examining the employment multipliers (Table 2), it should be noted that despite the reductions observed in some cases in 2010 (e.g. -25.57% for 'Rental and leasing services' and -19.35% for 'Accommodation and food services' between 2005 and 2010), their values are increased in all sectors related to tourism during the period 2005-2020. The 'Creative, arts and entertainment services etc.' and the 'Accommodation and food services' sectors appear the highest increases between 2005 and 2020 (56.82% and 49.14% respectively). This fact shows that these sectors seem to have recovered from the economic crisis in terms of employment multipliers. Moreover, sectors of 'Retail trade services' and 'Accommodation and food services' rank in high positions among the 37 sectors of the Greek economy.

The linkages analysis (Tables 3 and 4) shows the intensity of interindustry exchanges and highlights the key-sectors of an economy. According to the results, 'Transport services' sector has a leading role during the period 2005-2020 (dispersion indexes have values greater than 1 and variability indexes have relatively low values for the four years under examination). The intensity of its interindustry exchanges with other sectors of the economy has not been affected by the crises that Greece experienced. No other industry can be characterized as a leader in these years. Furthermore, it is worth noting that the 'Accommodation and food services' sector shows high backward linkages in years 2005 and 2015 (1.0259 and 1.0177 respectively), whereas the 'Retail trade' sector appears high forward linkages in years 2010, 2015 and 2020 (1.2289, 1.2550 and 1.1221 respectively). In general, interindustry exchanges of the sectors related to tourism seem to have satisfactory levels of intensity in the four years under examination revealing the dynamism of tourism and its contribution to the recovery of the Greek economy from the dual crisis.

Table 1. Product multipliers

Sector	2005	Rk	2010	Rk	2015	Rk	2020	Rk
Accommodation and food services	1.902	17	1.499	33	1.938	16	1.832	22
Retail trade services	1.610	28	1.652	25	1.651	28	1.687	28
Transport services	1.904	16	1.997	13	2.227	11	2.175	13
Creative, arts and entertainment services, etc.	1.598	29	1.647	28	1.811	24	1.819	23
Rental and leasing services	1.715	25	1.651	26	1.835	22	1.797	24

Source: Hellenic Statistical Authority, own elaboration

Table 2. Employment multipliers

Sector	2005	Rk	2010	Rk	2015	Rk	2020	Rk
Accommodation and food services	27.52	8	22.19	10	26.98	7	41.04	4
Retail trade services	41.69	3	41.77	3	45.06	3	55.96	1
Transport services	14.99	25	12.52	25	13.81	23	15.83	22
Creative, arts and entertainment services, etc.	15.71	24	13.07	22	18.92	16	24.64	13
Rental and leasing services	13.19	30	9.82	31	14.45	20	16.37	21

Source: Hellenic Statistical Authority, own elaboration

Table 3. Dispersion Indexes

Sector	Index Uj								Index Ui							
	2005	Rk	2010	Rk	2015	Rk	2020	Rk	2005	Rk	2010	Rk	2015	Rk	2020	Rk
Accommodation and food services	1.025	17	0.802	33	1.017	16	0.938	22	0.735	24	0.739	22	0.632	27	0.564	31
Retail trade services	0.868	28	0.884	25	0.866	28	0.864	28	1.355	9	1.228	10	1.255	11	1.122	11
Transport services	1.027	16	1.068	13	1.169	11	1.113	13	1.257	10	1.323	7	1.820	4	2.136	3
Creative, arts and entertainment services, etc.	0.861	29	0.881	28	0.950	24	0.931	23	0.808	19	0.850	17	0.711	23	0.704	23
Rental and leasing services	0.924	25	0.883	26	0.963	22	0.920	24	0.687	25	0.672	25	0.644	26	0.707	22

Source: Hellenic Statistical Authority, own elaboration

Table 4. Variability Indexes

Sector	Index Vj								Index Vi							
	2005	Rk	2010	Rk	2015	Rk	2020	Rk	2005	Rk	2010	Rk	2015	Rk	2020	Rk
Accommodation and food services	0.725	36	0.812	19	0.717	35	0.738	31	0.853	25	0.844	24	0.908	18	0.950	14
Retail trade services	0.795	23	0.784	28	0.794	22	0.783	24	0.620	33	0.650	33	0.639	34	0.669	33
Transport services	0.906	5	0.897	8	0.938	4	0.983	3	0.807	29	0.793	27	0.734	30	0.689	31
Creative, arts and entertainment services, etc.	0.917	4	0.905	7	0.876	9	0.873	10	0.944	15	0.916	16	1.013	6	1.001	7
Rental and leasing services	0.790	25	0.800	23	0.768	27	0.798	21	0.914	18	0.911	19	0.938	15	0.903	21

Source: Hellenic Statistical Authority, own elaboration

5. CONCLUSIONS

This study examined the effects of the dual crisis, that Greece experienced during the past 20 years, in sectors related to tourism. At theoretical level, the study reinforces the existing theoretical framework according to which crises, such as the socio-economic crisis and the COVID-19 pandemic, had multifaceted impacts on the tourism sector in many countries worldwide. Moreover, Input-Output analysis was used to provide a comprehensive view of how shocks in the tourism sector can influence the productive sectors in an economy.

Specifically, multiplier analysis was used to indicate how the tourism sector either strengthened, weakened or maintained its dynamism during the period of the two crises in Greece. Specifically, according to analysis of product multipliers, the dynamism of sectors like 'Accommodation and food services' and 'Rental and leasing activities' seems to have been affected by the two crises. On the other side, sectors like 'Retail trade services' and Creative, arts and entertainment services, etc.' appear a steady increase and this fact shows their resilience in the two major crises. The sector of 'Transport services' presents the highest values of product multipliers in the 4 reference years. Moreover, it should be noted that all sectors related to tourism show an increase in employment multipliers during the period 2005-2020.

Linkages analysis was used to quantify backward and forward linkages for the sectors of Greek economy identifying 'key' or 'leading' sectors and examining the evolution of their interconnections during the period 2005-2020. The linkages analysis shows that 'Transport services' sector appears high backward and forward linkages in the 4 reference years, having a leading role in the economy structure.

Future lines of research can focus on a comparative analysis between Greece and other countries that experienced similar crises providing strategies for recovery of the tourism sector. Moreover, a further analysis can investigate the factors (e.g. digital transformation) that contribute to the recovery and resilience of the tourism sector, whereas the experiences of various stakeholders in the tourism sector (e.g., business owners, workers, tourists) during crises can enrich the understanding of the sector's dynamics and the adoption of more effective policies.

The findings of this study underscore the critical role of the tourism sector in Greece's economy in the context of the crises that the country experienced. Policy makers should prioritize the development of adaptive strategies that enhance resilience against economic shocks, such as the socio-economic crisis and the COVID-19 pandemic. Specifically, policies for the development of tourism should focus on the enhancement of the leading sectors and on the sectors producing the highest multiplier effects. The strengthening of the interdependencies of the dominant sectors can contribute to the creation of a more competitive tourism sector that can be resilient to future crises, as highlighted by the Input-Output Analysis. Fields that can contribute to the achievement of a balanced and sustainable tourism development, which can strengthen the competitiveness of Greece as a tourist destination are the following: infrastructure development, promotion of alternative tourism forms, digital transformation, support of small and medium enterprises (SMEs), highlighting of cultural heritage etc.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Pegkas P. The efficiency of the tourism industry in Greece during the economic crisis (2008 - 2016). European Journal of Tourism Research. 2022;32: 1-19.
2. Nikoli G, Lazakidou A. The contribution of tourism industry to the economy: case of the Greek tourism sector. Advances in Management & Applied Economics. 2019; 9(6): 21-28.

3. Lagos D. Tourism Economic. Athens: Kritiki. Greek; 2018.
4. Balaguer L, Cantavella-Jorda M. Tourism as a long-run Economic Growth factor: the Spanish case. Applied Economics. 2002; 34:877-884.
5. OECD. Tourism Trends and Policies 2018. Paris: OECD Publishing; 2018.
6. Walder B, Weiermair K, Perez A. Innovation and product development in tourism: Creating sustainable competitive advantage. Germany: Erich Schmidt Verlag Publishing; 2006.
7. Zouni G, Nasiou PM, Georgaki I, Kapetanaki E. COVID-19 impact on tourism: Measuring similarities and differences on tourists and tourism businesses' perceptions. Tourism and Heritage Journal. 2021; 3: 61-93.
8. Atan S, Arslanturk Y. Tourism and economic growth nexus: an input output analysis in Turkey. Procedia - Social and Behavioral Sciences. 2012; 62: 952 – 956.
9. Surugiu C. The economic impact of tourism. An Input-Output Analysis. Romanian Journal of Economics. 2009; 292(38): 142-161.
10. Ikkos A, Koutsos S. The contribution of tourism to the Greek economy in 2022. INSETE. Athens. Greek; 2023.
11. Xatzidakis A. Tourist movement trends 2008-2015. Greek Tourism Organization. Athens. Greek; 2015.
12. Ikkos A, Koutsos S. Employment in accommodation, catering and other sectors of the Greek economy 2011-2020. INSETE. Athens. Greek; 2021.
13. Agiomirgianakis G, Sfakianakis G. The Resilience of the Greek Tourism Sector Ensures Growth Prospects for the Greek Economy: A Note. Modern Economy. 2022; 13: 826-832.
14. Pizam A. The global financial crisis and its impact on the hospitality industry. International Journal of Hospitality Management. 2009;28(3).
15. Sheldon P, Dwyer L. The Global Financial Crisis and Tourism: Perspectives of the Academy. Journal of Travel Research. 2010; 49(1): 3-4.
16. Papatheodorou A, Arvanitis P. Tourism and the economic crisis in Greece – Regional perspectives. Région et Développement. 2014;39:183-203.
17. Petrakos G. Economic crisis in Greece. European and domestic market and policy failures. Journal of Région et Développement. 2014;39: 9-33.
18. Psycharis Y, Kallioras D, Pantazis P. Economic crisis and regional resilience: detecting the 'geographical footprint' of economic crisis in Greece. Journal of Regional Science Policy & Practice. 2014; 6(2):121-141.
19. Andriotis K. Problems of Island Tourism Development: The Greek Insular Regions. In: Bramwell B, editor. Coastal Mass Tourism Diversification and Sustainable Development in Southern Europe. Clevedon - Buffalo -Toronto – Sydney: Channel View Publications. 2004;114-132.
20. Grotte J, Laloumis D, Marinakos K., Economic Crisis in Greece and the Impact in Tourism Development. 2016;13: 101-116.
21. Kapiki S. The impact of economic crisis on tourism and hospitality: Results from a study in Greece. Central European Review of Economics and Finance. 2012;2(1): 19-30.
22. Vouloutidou G, Nikas D, Kostas A, Tsoukalidis I, Karasavvoglou A. The COVID-19 Pandemic and Its Effects on the Greek Tourism Sector: A Case Study of the Region of Eastern Macedonia – Thrace. In: Economies of the Balkan and Eastern European Countries, Kavala: KnE Social Sciences. 2021;256–274.
23. Briola K, Briola H. Covid-19 Impact on Greek Tourism Sector and the Implemented Policies. HAPSc Policy Briefs Series. 2022;3(2): 61–70.
24. World Economic Forum. Travel & tourism development index 2021. Rebuilding for a Sustainable and Resilient Future. Switzerland; 2022.
25. Assaf A, Scuderi R. COVID-19 and the recovery of the tourism industry. Tourism Economics. 2020; 26(5):731-733.

26. Karabulut G, Bilgin MH, Demir E, Doker AC. How pandemics affect tourism: International evidence. Annals of Tourism Research. 2020;84. DOI: 10.1016/j.annals.2020.102991
27. Jayanta S, Subrata H, Subhasis B, Suman P. Tourism in retrospect of Covid-19 on global perspective using analytical hierarchy process. Spatial Information Research. 2021;29(6): 981-995.
28. Sigala M. Tourism and COVID-19: Impacts and Implications for Advancing and Resetting Industry and Research. Journal of Business Research. 2020;117(1): 312-321.
29. Zhang H, Song H, Wen L, Liu C. Forecasting Tourism Recovery amid COVID-19. Annals of Tourism Research. 2021; 87: 1-16.
30. Rausser G, Strielkowski W, Korneeva E. Sustainable tourism in the digital age: Institutional and Economic Implications. Terra Economicus. 2021;19(4):141-159.
31. Niewiadomski P. COVID-19: From Temporary Deglobalisation to a Re-Discovery of Tourism? Tourism Geographies. 2020;22: 651-656.
32. Ioannidis D, Gyimothy S. The Covid-19 crisis as an opportunity for escaping the unsustainable global tourism path. Tourism Geographies. 2020;22(3):624-632.
33. Papanikos G. The impact of the COVID-19 Pandemic on greek tourism-updates and comparisons. Athens Journal of Tourism. 2022;9(1): 51-62.
34. Papanikos G. The impact of the Covid-19 pandemic on Greek tourism. Athens Journal of Tourism. 2020;7(2): 87-100.
35. Tabouratzi E, Vasilikakis K, Charamis E. Investigation of the effects of Covid-19 pandemic on the tourism sector: Evidence from Greece. Theoretical Economic Letters. 2022;12(06):1958-1969.
36. Vourdoubas J. The impacts of covid-19 pandemic on tourism industry in the Island of crete, Greece. European Journal of Humanities and Social Sciences. 2023; 3(3):72-80.
37. Ikkos A, Koutsos S. The contribution of tourism to the Greek economy in 2023. INSETE. Athens. Greek; 2024.
38. UNWTO. World tourism barometer. EXCERPT. 2023;21(4):1-5.
39. Miller R, Blair P. Input–output analysis, foundations and extensions. 3rd ed. New York: Cambridge University Press;2022.
40. Pnevmatikos T. Structural changes and regional development in Greece: Evaluation methodology and empirical investigation. Doctoral thesis. Volos: University of Thessaly. Greek; 2017.
41. Polyzos S. Regional Development, 2nd ed. Athens: Kritiki Publications. Greek; 2019.
42. Siswahto E, Muryani. The impact of tourism on economic in North Sulawesi: Input-output analysis perspective. Journal of Developing Economies. 2020; 5(1): 36-53.
43. Abuamoud I, Ibrahim A, Hijawi L. Estimating the economic impact of tourism in the North of Jordan through the I-O Approach. European Research Studies Journal. 2019;XXII(1): 254-266.
44. Kronenberg K, Fuchs M, Lexhagen M. A multi-period perspective on tourism's economic contribution – a regional input-output analysis for Sweden. Tourism. 2018; 73(1): 94-110.
45. Kim H, Kim BG. Economic impacts of the hotel industry: An input-output analysis. Tourism Review. 2015; 70 (2): 132-149.
46. Sun YY, Wong KF. Stability of input-output coefficients by capacity utilization for short term tourism demand fluctuation. Tourism Economics. 2014;20(3): 509-526.
47. Pnevmatikos T, Polyzos S, Tsiotas D. Assessing the structural changes in the Greek economy for the period prior to economic crisis. Regional Science Inquiry. 2019;XI(3): 69-82.
48. Chenery HB, Watanabe T. International comparisons of the structure of production. Econometrica. 1958;26(4):487-521.
49. Hirschman AO. The strategy of economic development, New Haven: Yale University Press; 1958.
50. Rasmussen PN. Studies in intersectoral relations. Amsterdam: North-Holland; 1956.

51. Augustinovics M. Methods of international and intertemporal comparison of structure. In: Carter AP, Brody A. editors. Contributions to input–output analysis, Amsterdam: North-Holland; 1970.

52. Allaudin M. Identification of key sectors in the Bangladesh economy: a linkage analysis approach. Applied Economics. 1986;18(4):421-442.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/121830