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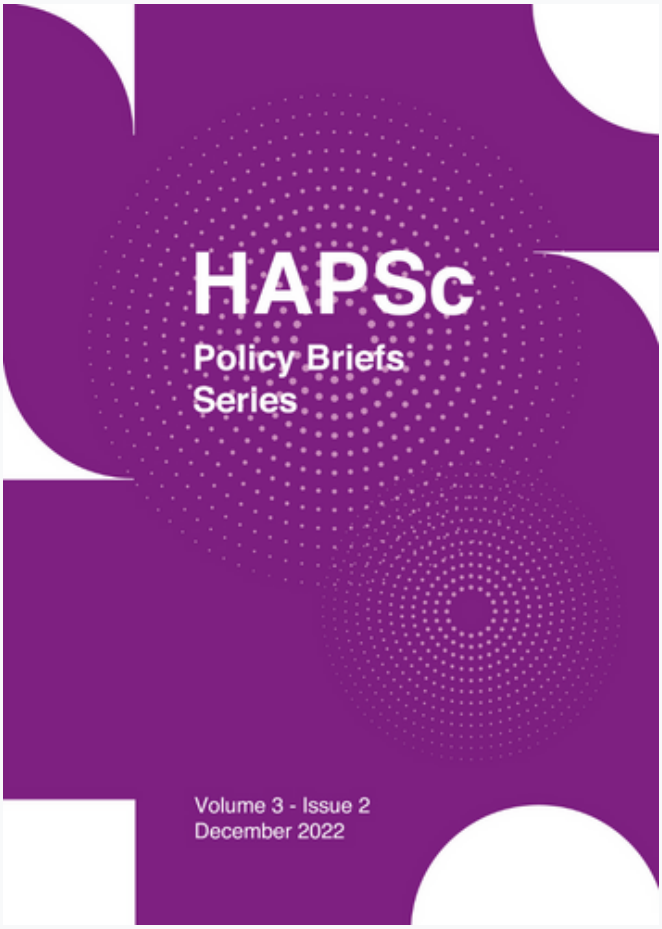

Covid-19 Impact on Greek Tourism Sector and the Implemented Policies

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Covid-19 Impact on Greek Tourism Sector and the Implemented Policies[1]

Konstantina Briola[2] & Helen Briola[3]

Abstract

Tourism is one of the most important economic activities internationally and many countries (e.g. Portugal, Spain, Greece) are highly dependent on the tourism sector. Tourism has always been considered a priority sector in Greece and significant capital investments have been made over the years for its development. The pandemic has driven the global economy into a severe recession and many industries have been significantly affected by the measures taken, including the tourism industry. In response to this crisis, the Greek government, aiming to further develop the tourism sector and restore tourist flows to normal levels, used a series of measures. In this paper, we study the effects of the implemented policies on tourism during the pandemic. Our results indicate that the policies had a direct impact on the increase in tourism flows.

Keywords: tourism; covid-19; policies; pandemic; tourism flows.

Introduction

Tourism is one of the most important economic activities internationally and many countries, such as Portugal, Spain and Greece, are highly dependent on the tourism sector (Katemliadis & Papatheodorou, 2021). It has been argued that the tourism industry promotes the financial development of countries and its benefits are widely distributed in national economies (Oxford Economics, 2012; Sotiriadis & Varvaressos, 2015). Tourism has always been considered a priority sector in Greece and many capital investments have been made, and in turn they develop the country's economy and generate sufficient employment opportunities for its population.

The COVID-19 pandemic has led many countries (e.g. Cyprus, Italy and France) to take a number of measures, such as travel restrictions, to limit the spread of the virus. However, measures such as travel restrictions and border closures are proving to be directly linked to sustainability issues on businesses in the tourism sector (OECD, 2020). In response to this crisis, many countries used measures to restore this sector, such as Greece, that focused on policy-making and formulated programs to support the tourism sector.

In this paper, we investigate to what extent the policies implemented by Greece to strengthen the tourism sector affected the tourist flows during Covid-19. Specifically, we used the database of the

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Hellenic Statistical Authority (ELSTAT) and focused on two variables: the number of expenditures on personal trips and the age of individuals for the years 2018, 2019, 2020, and 2021. What we assume is that if the correlation of travel expenses through these years is high, the policies had a direct impact on the increase of tourism flows.

The importance of tourism in the Greek Economy

It is well known that Greece has been one of the most popular tourist destinations and its geographical diversity attracts significant investments in the tourism sector. Tourism has always been considered a priority sector in Greece and significant capital investments have been made over the years for its development (ports, roads, exploitation of natural resources, etc.). In this context, Greece attracts many visitors from both Eastern Europe and Asia (Lolos et al., 2021). The tourism industry in Greece is considered a separate financial activity and an important source of income for the Greek economy (Katemliadis & Papatheodorou, 2021).

During the financial crisis, tourism mitigated the negative effects of the recession and led the country to positive growth rates (INSETE, 2021a). The importance of tourism in shaping the country's GDP and boosting employment is significant, especially if we consider that in Greece tourism contributes directly to 20% of the country's GDP (INSETE, 2020a). Also, travel and tourism generated, directly and indirectly, around €27 billion in 2021, up from €15.5 billion in 2020 (Statista Research Department, 2022). At the same time, due to the dispersion of tourist destinations throughout the country, tourism plays an important role in generating income in many regional units (INSETE, 2021a). Thus, tourism tends to be used to reduce regional gaps and promote regional development (Soukiazis & Proenca, 2008; Karoulia et al., 2016).

In Greece, many capital investments have been made through tourism, which strengthen the country's economy and generate employment opportunities. Specifically, tourism boosts employment in businesses that offer tourism services (e.g. transport services, accommodation, catering) and in sectors that support or supply these organizations (e.g. industry, construction, utilities) (Nikoli & Lazakidou, 2019). Therefore, tourism development is widely recognized as a positive means of reducing unemployment, especially considering that it employs more than 900,000 people, representing 20% of the workforce (INSETE, 2020a).

Covid-19 Impact on Greek Tourism

The COVID-19 pandemic began in December 2019 and was considered a pandemic on March 11, 2020 (World Health Organization, 2020). Although an emergency protocol was established on

January 23, 2020 to prevent further infection, the new virus was spread across the world. Following the recommendations of the World Health Organization, a number of countries (such as Bulgaria, Croatia, Denmark) took restrictive measures (such as closing borders) to reduce the infection rate and protect their residents. Also, countries such as Cyprus, Italy and France, aiming to limit the spread of the virus and support national health systems to deal with the COVID-19 pandemic, decided to apply a series of restrictive measures to their citizens (European Centre for Disease Prevention and Control, 2022).

Accordingly, the Greek Government, wanting to limit the spread of the Covid-19 disease and contribute to mitigating the consequences of the pandemic on the domestic economy, implemented a series of measures. Some of the measures implemented in 2020-2021 are the following:

1) Prohibition of outdoor gathering (Government Gazette 5046/ B΄/14.11.2020)
2) Social distancing (Government Gazette 4566/B΄/15.10.2020)
3) Restrictions on internal movement (Government Gazette 1585/B΄/25.04.2020)
4) Mandatory use of face covering masks (Government Gazette 1780/B΄/10.05.2020)
5) Entry screening practices for infectious diseases among travelers at points of entry in Airports (Government Gazette 3401/B΄/13-08-2020)
6) Regulation for the maximum number of people at social gatherings in homes and public spaces (Government Gazette 3429/B΄/14-08-2020)

Indeed, the pandemic has driven the global economy into a severe economic recession and many industries have been significantly affected by the measures taken, including the tourism industry (The World Bank Group, 2020). In this context, measures such as border closures and travel restrictions have put tourism businesses at viability risk (OECD, 2020). The pandemic reduced international travel, causing a huge blow to many international economies in the world, which ultimately affected the global economy (Dupeyras et al., 2020).

For example, due to the pandemic and travel restrictions, consumer purchasing behavior has changed dramatically, leading to a near-complete cessation of tourism activities and businesses (e.g. hotels, restaurants and airlines) (Allaberganov, Preko & Mohammed, 2021). According to the World Tourism Organization, in May 2020 the number of international tourists dropped by 98% globally, leading to an overall decrease of 56% in total visitor numbers for the period January – May 2020. Accordingly, the losses in revenue for tourism businesses worldwide are estimated at €320 billion for the same period. However, according to the latest UNWTO World Tourism Barometer, international

tourist arrivals almost tripled from January to July 2022 (+172%) compared to the same period in 2021. This means the sector recovered almost 60% of pre-pandemic levels (World Tourism Organization, 2022).

Tourism's Recovery Strategies

Tourism has been one of the sectors worst affected by the Covid-19 pandemic, leading to a loss of $4.5 trillion in T&T GDP and 62 million jobs in 2020 (World Economic Forum, 2022). As the impact of COVID-19 on tourism and hospitality is paramount, government support during this crisis has been essential (Fong et al., 2020). The World Travel & Tourism Council (WTTC) is encouraging countries affected by the pandemic to formulate policies and programs to provide the necessary support to the tourism sector, the industry's workforce, and provide financial incentives for companies and businesses affected by the pandemic (WTTC, 2020).

In response to this crisis, many governments used measures to restore the tourism sector. For example, the Chinese government implemented measures that varied by region. To be more specific, in eastern China, which is more densely populated, the government focused on tax reduction and gave financial support to the residents whereas tourist protection and inspection was the primary objective of central regions (Shao et al., 2020). Accordingly, Hong Kong, Singapore, South Korea and Japan have rolled out various programs that provide discounts, coupons and subsidies for domestic travel (World Economic Forum, 2022).

The Greek government, aiming to further develop the tourism sector and restore tourist flows to normal levels, used a series of measures. The Ministry of Tourism finances 38 projects (e.g. Implementation of infrastructure projects, Implementation of Human Resource Development Projects, Projects to strengthen the competitiveness of Tourism, etc.), which aim to accelerate the recovery of tourism and empower the country's economy **(**Ministry of Tourism, 2021).

An attempt to revive domestic tourism was the "Tourism for All" program. The purpose of the program was to strengthen domestic tourism, which is part of the government’s broader strategy to support Greek households and businesses against the effects of the global inflationary crisis, and the budget for the program was set at €100,000,000.00 **(**Ministry of Tourism, 2021). The beneficiaries - citizens with an individual income of up to 16,000 euros and a family income of up to 28,000 euros - were able to issue an e-voucher, which they could use for their stay at any hotel or accommodation in the country that they choose. Accordingly, within the framework of the National Vaccination Program against COVID-19, a prepaid card (€150) was given in 2021 to people aged 18 to 25 who got vaccinated against Covid-19. The financial facility took the form of a digital debit card - known

as "Freedom Pass" - and could be used to cover costs for travel and entertainment, including airfare or ferry tickets, vehicle rentals, accommodation, admission to museums and archaeological sites (Government Gazette 4675/B΄/09-10-2021, 2021).

Dataset and Experiment

A. Dataset

In this paper, aiming to investigate whether the policies implemented by the Greek Government to strengthen the tourism sector affected tourist flows during the pandemic, we used data from the Hellenic Statistical Authority (ELSTAT). For the purpose of the study, we focused and studied the relationship between two variables: the number of expenditures on personal trips and the age of individuals. In this context, we obtained data from ELSTAT for the years 2018, 2019, 2020, and 2021. It is worth mentioning that for 2022 the data from ELSTAT is not yet available.

B. Experiment

Aiming to analyze these two variables (number of personal travel expenses and age), we used the Pearson correlation coefficient, which is a commonly used nonparametric method of detecting associations between two variables (Taylor, 1987: 409). Pearson's linear correlation coefficient (r) takes values between -1 and +1. When r is closer to +1 (-1), it is considered that there is a strong positive (or negative) correlation, while when r is closer to 0, it is considered that there is a weaker correlation. Therefore, it is considered to be a strong correlation if the correlation coefficient is greater than 0.8 and a weak correlation if the correlation coefficient is less than 0.5.

In the context of null hypothesis testing, we are using p-value in order to quantify the idea of statistical significance of evidence. The p-value is found in almost all statistical analyses and can take values between 0 and 1. A p-value close to 0, indicates that the observed difference is unlikely to be due to chance, whereas a value close to 1 suggests no difference between the groups other than due to chance. In general, the smaller the p-value, the stronger the evidence against the null hypothesis (Dahiru, 2008).

Our approach consists of one experiment and the procedure can be summarized in the steps below:

1. Grouped the amount of personal travel expenses by year and age.
2. Compute Pearson Correlation Coefficient between each year’s personal travel expenses.
3. Compute the p-value for each correlation coefficient.

For the purpose of this study, we used the general-purpose programming language Python in order to preprocess the data and compute correlations and p-values, since it is commonly used for this kind of computation.

Results

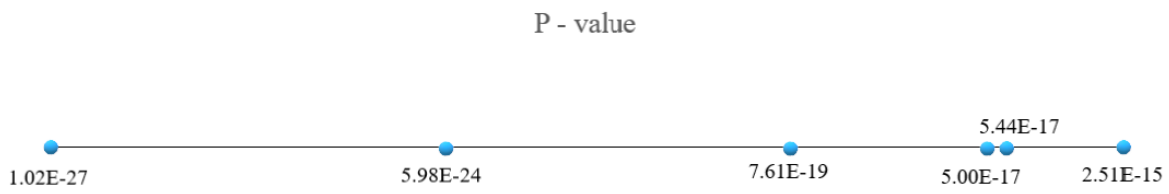
The figure below (Figure 1) shows the correlation matrix between years. Each cell in the table shows the correlation between two years, for example for years 2018 and 2019 the correlation coefficient is 0.997366. The color scale represents the value of the correlation between two variables: dark blue highlights strong correlations while light green highlights weak correlations.

Figure 1: Correlation matrix between years (2018-2021)

	2018	2019	2020	2021
2018	1.000000	0.997366	0.977249	0.984352
2019	0.997366	1.000000	0.968132	0.977419
2020	0.977249	0.968132	1.000000	0.994393
2021	0.984352	0.977419	0.994393	1.000000

In order to evaluate the statistical importance of our results we also calculated p-values for each year. Our results can be summarized in Figure 2.

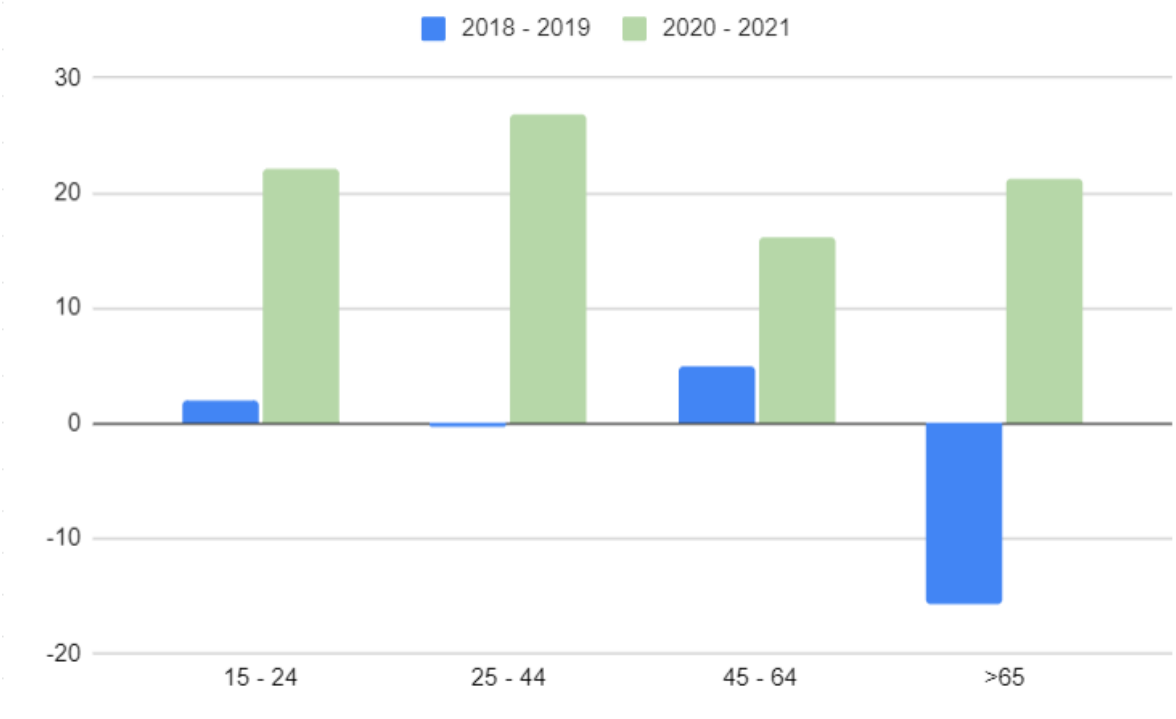
Figure 2: P-values for each year (2018-2021)



As we notice from the figure above, p-values range from $1.02 \cdot 10^{-27}$ (the lowest p-value) to $2.51 \cdot 10^{-15}$ (the highest). These results indicate strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct (and the results are random), since all of them are less than 0.05.

Afterward, we calculated the percentage change of the amount of personal travel expenses between the years 2018 - 2019 and 2020 - 2021 in each age group since we noticed from the correlation matrix above that the years 2018 - 2019 and 2020 - 2021 had the strongest correlation coefficient. The results are shown in Figure 3.

Figure 3: Percentage change of the amount of personal travel expenses between years 2018 - 2019 and 2020 - 2021 by age groups



As we notice, the percentage change of personal travel expenses from the year 2020 to 2021 is quite greater than the percentage change from the year 2018 to 2019. This can be explained both by the relaxation of measures and the implemented policies. As we observe, there is a great increase in travel expenses in all age groups. This increase might be caused by the implemented policies such as "Freedom Pass" and "Tourism for All", since greater amounts of money were spent in the tourism sector.

Conclusion

In this paper, we studied the effect of the implemented policies to strengthen the tourism sector during the pandemic. In Greece, tourism has always been considered a priority sector and significant capital investments have been made over the years for tourism development and one of the sectors worst affected by the Covid-19 pandemic. In response to this, the Greek government aimed to further develop the tourism sector and implement policies to strengthen this sector.

For this purpose, we examined the correlation between the number of expenditures on personal trips and the age of individuals from 2018 to 2021 by calculating the Pearson Correlation Coefficient to study the effects of implemented policies on tourism. Our results indicate that there is a strong correlation between the years 2018 - 2019 (pre-pandemic) and 2020 - 2021 (pandemic). Afterwards, we calculated the percentage change of the amount of personal travel expenses between these years and we noticed that it is quite greater from the year 2020 to 2021, indicating that the implemented policies might have contributed to the increase of tourism flows.

A possible extension of our work would be the application of our approach in the year 2022. Moreover, we could also study which type of transport was used (airplane, train, car) or the type of accommodation (hotel, hostel, camping). Lastly, we could use other correlation coefficients such as Spearman Correlation Coefficient to evaluate which correlation coefficient is the best for our approach.

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