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Seasonality in Tourism

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I hereby declare that the work submitted is mine and that where I have made use of another's work, I have attributed the source(s) according to the Regulations set in the Student's Handbook.

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Abstract

This dissertation was written as part of the MSc in Sustainable Development at the International Hellenic University. The thesis examines the concept of seasonality in tourism, focusing on Greece, its drivers and its impacts on the accommodation sector and local communities. Furthermore, methods/actions that can be applied to prolong the high-demand period are proposed. Also, stakeholders' perception towards the implementation of "green policies" and eco-businesses is analyzed.

A mixed-method approach was chosen, which combines qualitative and quantitative data. First, interviews from owners/managers were taken, and then a questionnaire, based on their answers, was designed to capture residents' opinions towards this phenomenon. The results showed that weather is believed to be the main driver of seasonality, as the country offers mainly 3S (sea, sand and sun) experience. Moreover, negative changes in the average weather conditions have been noticed. With respect to actions, the majority of hotels use the method of the package offer for business and leisure travelers to extend the season and attract travelers, while local authorities are not active in promoting their regions. Another interesting finding is that all businesses claim that are environmentally sensitive and apply "green policies", but they are not interested in being certified, thus no clear relationship between attitudes and actions was found. On the other hand, responders demand more sustainable operations and agree that they prefer eco-businesses. Consequently the study shows that establishments must be informed about the benefits they can acquire if they decide to certify their business, and that public and private sector must combine their forces to reduce seasonality.

This thesis is perhaps the best ending of my studies as a postgraduate student of the MSc on Sustainable Development, so I would like to thank my supervisor Prof. Eftichios Sartzetakis and other staff of the International Hellenic University for the knowledge and experience I acquired on the field of sustainable development.

My sincere thanks also go to all the owners/managers who shared so openly their opinions with me through the interviews and all the responders for spending their time to fill in the questionnaire.

Finally, I must express my gratitude to my family and to my friends for their love, patience, encouragement and support. This accomplishment would not have been possible without them. Thank you.

Keywords: tourism, seasonality, impacts, climate, Greece

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Chapter 1- INTRODUCTION

1.1 Introduction

Tourism is one of the world's fastest growing industries and its impact on the economic and social development of a country can be enormous, especially its total contribution to GDP, so can be its negative effects on destination areas. Seasonality and its challenges are inalienable parts of international tourism.

Seasonality is a concept that is familiar to many but there is not a precise definition of it. Richard Butler attempted to define seasonality by characterizing it as "a temporal imbalance in the phenomenon of tourism, which may be expressed in terms of dimensions of such elements as numbers of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment, and admissions to attractions"(as cited at Hinch & Higham 2011:169).

Seasonality has attracted attention from the academic area and is, nowadays, a well-documented issue in the literature. Some scholars consider seasonality as a negative "problem", others believe that it presents opportunities, but all agree that addressing this phenomenon is the major challenge tourism industry faces and propose particular strategies and policies that could be applied by enterprises and authorities to manage seasonality or reduce its impacts.

1.2 Statement of the problem

Seasonality is a well-documented issue in the academic literature. Since the first study of Raphael Raymond V. Baron (1975), who analyzed the seasonal patterns of tourism arrivals over a period of 17 years for 16 countries, many have conducted studies in the belief that they can somehow contribute in the explanation of this phenomenon. There are many studies about seasonality as a general concept but only few focusing in Greece. This thesis will not magically solve the problem, but it is going to be a helpful guide for companies in tourism sector and local authorities to understand the causes of seasonality and its major impacts on accommodation sector and community. Furthermore, it will propose methods that can be used to increase the length of the high-demand season, and provide a clear image of people's opinion towards eco-businesses.

1.3 Aims and objectives of the study

The purpose of this thesis is to investigate the phenomenon of seasonality in Europe and more specifically in Greece. By examining the relevant literature and through semi-structured interviews with owners/managers of accommodation establishments and a structured questionnaire that was administered to Greek responders, the aims of this study are: (a) to examine the main problems seasonality causes to accommodation sector and to local communities; (b) to comprehend whether the

extreme seasonality Greece suffers is caused by the weather or other factors like the economic recession; (c) to compare the methods applied by the hotel industry and the methods responders propose to reduce this phenomenon; and finally (d) to compare establishments' operations and residents' perception towards companies that use "green policies".

1.4 Limitations of study

A significant limitation of the research was the short time period available for fieldwork. Another limitation was the small sample size of respondents and the low e-mail response rate as compared with personal interviewing, thus the results presented in this study might not be representative and/or applicable to the whole community and accommodation sector. Finally, due to the lack of data the results of the research cannot be compared with those of previous studies.

1.5 Structure of the study

This study consists of five chapters including the introduction and the conclusion. Previous academic literature, studies and surveys are used to define tourism and seasonality, identify forms and causes of the phenomenon, analyze its economic, socio-cultural and environmental impacts, provide management strategies that can be adopted to overcome seasonality, and explain how European and Greek tourism is affected and is predicted to be affected by the phenomenon of climate change in the near future. Then secondary data, mainly extracted from government agencies and official tourism websites, is used to give the general view of tourism and identify tourism demand. Specifically, peak months and the length of trips are presented, a comparison of domestic and outbound trips made throughout the year and the peak season is made, the purpose of the trip and the European countries that have the highest seasonality is identified, children's participation that gives a clearer image of how school holidays affect seasonality and a presentation of groups that are less season dependent is made. Statistics such as the number of international tourist arrivals, the average per capita tourism expenditure, the country's market share, the peak season, the concentration of seasonality, the hotel capacity and top 5 markets that visit Greece are presented, and tables of international tourist arrivals for the decade 2003-2013 and the non-residents' overnight of stays in Greece for 2005-2013 show how extreme is the seasonality Greece faces. Then a short description of eco-labels and environmental management systems (EMS), and country's hoteliers' attitude towards "green" practices is made. Finally, primary data collection is carried out and the results of the survey are presented.

Chapter 2- LITERATURE REVIEW

The literature review is an essential part of any kind of study as it shows the knowledge and awareness of the relevant work of others, and is necessary to set the research questions and establish the structure of the dissertation. This chapter includes definitions of tourism, tourism seasonality and its effects, the management strategies that can be adopted to overcome seasonality, a description of the climate change phenomenon and its physical and economic impacts, the general view of tourism worldwide and in Greece, particularly, through statistics, and finally a short introduction of Greece's hoteliers attitude towards "green" is made.

2.1 Tourism and seasonality

Guyer Feuler in 1905 was the first to define tourism as "a phenomenon unique to modern time which is dependent of people's increasing need for a change and relaxing, the wish of recognizing the beauties of nature and art and the belief that nature gives happiness to human beings and which helps nations and communities' approaching to each other thanks to the developments in commerce and industry and the communication and transportation tools' becoming excellent"(Esen & Uyar). Nowadays, UNWTO (2013) define tourism as "a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes" (as cited in Morpeth & Yan, 2015:4).

Tourism is a seasonal activity that depends on climatic conditions and travelers' leisure time, strongly linked to the school and work holidays. Although people realized the economic benefits of mass tourism from the early ages, only in 1970's the negative consequences on the destination areas and the travelling patterns were given the necessary attention. The first study of seasonality was conducted in 1975 by Raphael Raymond V. Baron, who analyzed the seasonal patterns of tourism arrivals over a period of 17 years for 16 countries and developed the measures of seasonality.(Candela & Figini, 2012; Weiermair et all, 2006)

Seasonality is a concept that is familiar to many, but there is not a precise definition of it. The first definition of seasonality was given by Baron in 1973 who stated that seasonality "implies an incomplete and unbalanced utilization of the means at the disposal of the economy, and this is similar to the imbalance of the business cycle, where the economy is either overheated or running under full potential at different phases of the cycle" Chung (2009:84). In 1989 Allcock describes seasonality as "the tendency of tourist flows that concentrates in relatively short periods of the year". Some years later Richard Butler(1994) characterizes seasonality as "a temporal imbalance in the phenomenon of tourism, which may be expressed in terms of dimensions of such elements as numbers of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment, and admissions to attractions" (Hinch & Higham, 2011:169).

2.2 Forms and causes of seasonality

Butler & Mao (1997) identify "three basic seasonality patterns: single peak, two-peak seasonality, and non-peak seasonality. Single seasonality occurs when there is an extreme seasonality e.g. summer in some Mediterranean destinations. Two peak seasonality that occurs when there are two seasons" (as cited in Baum & Lundtorp, 2001:8). Butler (2001:9) provides an example of the Caribbean as the region presents a "peak of winter demand from northern Caucasians and a summer peak in demand primarily from Caribbean emigres living outside the region". A non- peak seasonality is the one that occurs mostly in urban destinations "where the urban center has all year round use, but seasonal demand from different domestic and international visitors" (Page & Connell, 2006:49). Candela & Figini (2012:221) add another seasonality pattern which they describe as "a minor peak that falls between the high season and low season and offers fares and rates between those of the seasons", providing an example of Eastern break. They also state that "It is important to observe that different destinations and different types of tourism are characterized by different seasonality: ski tourism is mainly monoseasonal while mountain tourism is certainly bi-seasonal; cultural tourism does not present patterns of seasonality while wellness and spa tourism usually takes place during the middle seasons; business tourism tends to be at its lowest during summer holidays and other festivals", providing a "cleaner" image of seasonality patterns.

It has been generally accepted that seasonality in tourism occurs due to natural and anthropogenic factors, which can be classified as natural and institutional. The first form is caused by temporal changes in "climatic conditions, such as in temperature, rainfall, snowfall, sunshine and hours of daylight" (Baum & Lundtrop, 2001:1). As Adler, P. A & Adler, P (2004:99) state "natural seasonality attracts guests during favored climatic conditions (sun or snow), school and work vacations, and religious holidays". These natural changes increase as one moves farther from the equator. The second form, institutional, is caused by human decisions and includes sociological and economic factors (Jafari.J, 2000:521). "Institutionalized seasonality coincides with business conferences, performance-based incentive or reward trips, and times when destinations have organized socially constructed events to draw crowds, such as festivals, races" or other events (Adler, P. A & Adler, P, 2004:99). Chung (2009:85) identifies "big religious events like pilgrimages in Islam, Judaism, and Christianity" as one of the most significant factors that influences institutionalized seasonality, except for school and public holidays.

Table 1: Causes of seasonality

Natural	**Institutional**
Temperature	Institutionalized holidays (religious, national, civic, school, work)

Rainfall, snowfall	Economic (economies, cost of access)
Hours of daylight	Government travel policies (transportation, safety, security, exchange rates, control of visitor flows, visas)access frequency (regulated schedules)
Geography (destination features, location)	Trends in tourism (adventure, leisure, culture)
Acts of nature (hurricanes, earthquakes, floods, draughts)	Government tourism policies (marketing of destination, availability and mobility of labor force, funds for development)

Source: adopted from Baldacchino, 2006.

Although scholars agree that the main forms of seasonality are the two mentioned above, Baum & Lundtorp (2001:7-8) identify "other factors causing institutionalized seasonality in tourism apart from legislated holidays that form a third category called "social" seasonality" because of the social pressure that is put on members of some privileged societies to "participate in selected activities and visit certain locations" e.g. hunting or fishing in Europe. Another form of seasonality that has been identified is the sporting season, which is "associated with at least one set of sporting activities, specifically those related to snow, including skiing and snowboarding". Hitch & Higham (2011:219) note that "from a tourism management perspective, sport has been used as a strategy to influence seasonality with considerable success". Finally, seasonality that is "related to inertia or tradition" can be classified as a fifth form (Baum & Lundtorp, 2001:8).

Thus, seasonality occurs not only because holidaymakers prefer spending their vacation in summer, but due to other factors that do not allow them to travel in off-peak seasons, so there are some factors named push and pull factors that build the picture of a destination and influence travelers' choice.

Table 2: Push and Pull Factors

Push- factors	**Pull- Factors**
Institutional (school and industrial holidays)	Climate
Calendar (Easter and public holidays)	Sporting seasons (hunting, fishing, golfing, skiing)
Inertia and tradition	Events
Social pressure or fashion	
Access- transport costs and time	

Source: Adapted from Baum & Lundtorp, 2001

2.3 The effects of seasonality

The benefits and the impacts of tourism are quite spread in the literature with a lot of controversy amongst scholars about whether the negative effects overcome the positive. Most studies concentrate on the economic and sociocultural impacts, and only few discuss the ecological effects, with most of them analyzing the pressure generated up the environment because of overcrowding and overuse of natural resources during the peak seasons. It is of high importance to note that destinations that "specialize only in a single type of tourism" and those that present the phenomenon of mass tourism, have the higher impacts of seasonality. (Baum, 2001:10-11 and Candela & Figini, 2012:229)

It is interesting how effects can be positive and negative at the same time. For instance, tourism increases employment opportunity and thus the household income, but there might be also an increase of the cost of living during the peak seasons. The positive economic impact in this case is strongly linked with a negative social effect of employment of immigrant workforce and a positive which is the improvement in life quality of local residents, but we cannot be sure how much life quality improves as there is the negative effect of waste production, water consumption and resource use.

"Seasonality has been viewed as a global issue for the tourism industry with the most significant negative impact being a reduction in business revenue" (Pegg et al. 2011:660) as the local entrepreneurs, especially accommodation owners, suffer during off-peak season when the demand for products and services declines. Another important effect is the difficulty in attracting investors due to the short operating period, of few months, and the fact that there is no guarantee of return on investment. Seasonality has an important impact on employment, as well, as most employees are recruited only for the peak season, so there is a difficulty in maintaining quality of product and service delivery. Pegg et al. (2011:660) describe seasonal work as "an inferior form of job opportunity due to the lack of opportunities for career progression and job security". On the other hand, seasonality provides work opportunities during low period demand. For instance, during the off-peak season locals are hired to do the maintenance work on buildings, attractions or infrastructure. Furthermore, tourism can be a good employer of students, artists, disadvantaged groups and housewives. Many scholars argue that employees intentionally seek for seasonal job "because it pays better that alternative work that is available, and also because it allows those who wish to pursue other activities during the off season to do so" (Higham, 2005:193 & Baum, 2001 & Cannas, 2012).

Rasmussen & Koroleva (2003:416) ascribe negative social and environmental effects to the fact that tourism is an industry, and thus "requires land, produces waste, make use of water resources, can contribute to environmental degradation and alter the local inhabitants' evaluation of their environment and their way of life." Although sociocultural impacts affect both local communities and tourists, the academic

literature focuses on the negative aspects relating to the host community. The main impacts are noise, lack of parking, traffic jams, access to commercial services, queues for services, increase in the prices of services and goods, and additional costs paid through taxes for waste collection, repair of infrastructure and security. Special attention must be given to security as during the peak season there is an increase in prostitution, drug use and crime (Baum, 2001 & Cannas, 2012). Murphy (1985:81) implies that there is a need of extra facilities and qualified employees during the peak season to avoid reduction in standards as it is not only affecting the holidaymaker, "but also for the resident, who is called upon to pay this social cost of the peaking problem" (as cited in Pegg et al. 2011:660). On the positive side, seasonality improves the quality of life of locals as they can use all the facilities and amenities (such as swimming pools and better street or bike infrastructure) during the off-peak season, and help them promote their culture via festivals and events. Regarding the sociocultural impacts Baum (2001:12) expressed his opinion by characterizing the off-season period as "the only time that the local population can operate in what to it is a "normal" manner, and engage in traditional social and cultural activities".

Manning and Powers (1984) stated that "the heavy use of the natural environment during the peak season impacts on the ecological carrying capacity of a destination" (as cited in Cannas, 2012), thus environmental impacts are strongly linked with mass tourism. The major negative effects of overcrowding are the air pollution, waste production, disturbance of wildlife and the overuse of natural resources. Cooper et al. (2008:165) provide the examples of air transportation which has been identified as one of the main factors causing the global warming, the "noise created from other forms of transport such as jet skis, quad bikes and snowmobiles", the extravagant use of water by the tourists and from the activities associated with them such as swimming pools and golf courses, the danger litter poses to wildlife, the "solid waste disposal that can be a major despoiler of the environment in coastal areas, rivers, lakes and roadsides, and can also give rise to serious health risks to humans as well as wildlife". Graham et al. (2010:242) believe that the pollution of water resources is the most significant negative effect as it "promotes the spread of water-borne diseases such as gastro-enteritis, hepatitis, dysentery and typhoid". On the other hand, depending on the level of community's sensitivity towards ecology and its dependency upon maintaining the attractiveness of the location, some positive influences can occur, with the most important being the conservation and protection of biodiversity and natural species (Graham et al. 2010 & Cooper et al. 2008).

Table 3:Environmental impacts of tourism

Area of Effect	Negative Impacts	Positive Impacts
Biodiversity	Disruption of animal breeding, feeding and migration patterns Killing of animals for leisure(hunting) or for souvenir trade	Encouragement to conserve animals as attractions Establishment of protected or conserved areas to meet to tourism demands

	Loss of habitats Change in species composition Destruction of vegetation	
Erosion and physical damage	Water pollution(sewage, fuel spillage and littering) Air pollution(e.g. vehicle emissions) Noise from traffic and tourist attractions(e.g. bars and discos) Littering	Cleaning programs to protect the attractiveness of locations
Resource base	Depletion of ground and surface water Diversion of water (e.g. for golf courses and swimming pools) Depletion of local fuel sources Depletion of local sources of building material	Development of new or improved sources of water supply
Visual/structural change	Land transfers to tourism(e.g. from farming) Detrimental visual impact through tourism development Introduction of new architectural styles Changes in (urban) functions Physical expansion of built-up areas	New uses for marginal or unproductive lands Landscape improvement (e.g. to clear urban dereliction) Regeneration and/or modernization of the built environment Reuse of disused buildings

Source: adapted from Graham et all (2008)

2.4 Management Strategies

Seasonality cannot be totally eliminated, mostly because of the reasons holidaymakers decide to travel, but there are some strategies that can be followed in order to reduce this phenomenon. Witt et all. (1991) stated that “there are four principal strategies for managing seasonality: changing the product mix, market diversification, differential pricing and encouragement/facilitation by the state of the staggering of holidays” (as cited in Baum 2001:154). Although, many would believe that the main goal of price differentiation is to maximize profits, differentiation strategy aims in increasing demand during the off-peak season by offering promotional pricing and group booking offers, control the operational costs of the business or even avert its closure during the low demand season. Another strategy that can be used is the so called diversified attraction. Its main purpose is to promote tourism products in order to increase visitation and business in low periods, attract different market segments, expand operational season and encourage travelers to stay in off-season. This strategy can be achieved through diversification into niche product or service areas, the development of the local environment and introduction of new products such as festivals, special events, holiday packages etc. Market

diversification refers to marketing campaigns to attract new or alternative markets in different seasons, work close with tour operators or travel agents to sell product/service and determinate the optimal segment mix. Finally, government must participate in the management response towards seasonality as the destination focused strategies cannot maintain all the costs of infrastructure, development of attractions, and promotion and marketing.

Table 4: Strategies for addressing seasonality impacts

CITED IN	STRATEGY	ISSUE ADRRESSED
1. Differential Pricing		
Commons &Page (2001); Jang (2004); Jeffrey & Barden (1999); Witt & Moutinho (1995)	Seasonal (or promotional) pricing (e.g. discount or free offers)	Increasing visitation in low periods. Increasing length of stay. Increasing yield. High prices to decrease congestion in peak season.
Jeffrey & Barden (1999)	Group booking offers (e.g. retirees)	Increasing visitation in low periods.
Jeffrey & Barden (1999)	Financial planning and budgeting to manage fluctuating operational costs (employees and other resources) based on cyclical trends	Inability to control fluctuating seasonal costs.
Butler (2001)	Closure of business in off-peak season	Reduction of operational costs.
2. Diversified Attraction (changing the product mix)		
Goulding, Baum & Morrison (2004); Witt & Moutinho (1995)	Introduction or development of festivals and events	Increasing visitation in low periods.
Goulding, Baum & Morrison (2004)	Development of the local environment (access to restricted natural attractions)	Increasing visitation in low periods.
Goulding, Baum & Morrison (2004)	Facility or structural development (e.g. public transport, public amenities)	Increasing visitation in low periods.
Goulding, Baum & Morrison (2004)	Service level differentiation (reducing opening times in low season)	Reducing costs, increasing yield. Meeting customer needs.
Goulding, Baum & Morrison (2004); Jeffrey & Barden (1999)	Offering complementary services or themed offers (e.g. combining tourist facility with local amenities	Expanding operational season (reducing seasonal closures).

	– motel with coffee shops or retail outlets)	
Jeffrey & Barden (1999)	Offering off-season holiday package	To provide an incentive to stay in off-season.
Jang (2004); Jeffrey & Barden (1999); Witt & Moutinho (1995)	Diversifying into niche product or service areas (e.g. identifying and matching seasonal motivation with product/service or local attraction).	Attracting a different market.
Jang (2004)	Diversifying to increase local customers	Increasing business in low periods.
3. Market Diversification		
Witt & Moutinho (1995)	Marketing campaigns to attract different markets in different seasons (a multisegment approach)	Flattening of seasonal peaks and troughs.
Jang (2004)	Determination of the optimal segment mix (e.g. financial portfolio theory)	Increasing yield (reducing costs and increasing income).
Jeffrey & Barden (1999)	Align with tour operators or travel agents to sell product/service	Increasing business in low periods and increasing market penetration.
4. Facilitation by the state		
Witt & Moutinho (1995); Goulding, Baum & Morrison (2004)	Staggering of holidays over a longer period	Flattening of seasonal peaks and troughs.
Goulding, Baum & Morrison (2004); Krakover (2001); Witt & Moutinho (1995)	Initiatives to increase the labour market and to encourage labour force flexibility (e.g. relaxing regulations on work visas for seasonal work or training incentives)	Lack of seasonal workers.
Goulding, Baum & Morrison (2004)	Provision of business support services (marketing, financial planning)	Cash flow and other financial problems.
Witt & Moutinho (1995); Baum & Hagen (1999)	Provision of loans or subsidies by government to develop product or local services	Improving the business or destination to increase tourism.
Witt & Moutinho (1995)	Provision of tax concession (e.g. on the price of fuel)	Encouraging travel to remote areas.

Goulding, Baum & Morrison (2004); Witt & Moutinho (1995)	Environmental regeneration initiatives	Damage to local environment during peak periods.
Goulding, Baum & Morrison (2004)	Support off-season community initiatives (e.g. local arts festivals)	Reduced trade for local businesses.
Goulding, Baum & Morrison (2004)	Improved and expanded regional infrastructure	Greater access to rural or remote areas during both high and low seasons.
Baum & Hagen (1997); Goulding, Baum & Morrison (2004)	Development of local business networks and partnerships	Provision of greater marketing resources and support for infrastructure development.

Source: adapted from Lee, Ch et all. 2008.

2.5 Climate change, weather and tourism

Climate change is the most important issue humanity has ever faced and its effects are already observable on the environment. Although the public awareness around this phenomenon has increased during recent years, according to UNWTO's team (2008:46) "the relationship between tourism and climate has been studied for a long time", with most 1970's and 1980's studies concentrating on the season length and tourist comfort. Nowadays, scholars are more interested in the reasons that contribute in the climate change and its affects upon destinations.

Scott et al. (2012:6) state that the global environment is always changing but the "rates of change have increased dramatically as a direct result of humans, and the waste products of human action related to the consumption of natural resources, the creation of new habits for humans, and the waste products of human consumption and production". Reddy & Wilks (2013:96) provide an image of how destination areas will be affected saying that "conditions in areas around the equator will deteriorate year-around, conditions in higher latitudes will improve year-around, and conditions in middle latitudes such as the Mediterranean will decrease in summer and improve in the shoulder seasons".

2.5.1 Physical and Economic Impacts

Holden (2013:88) uses WTO's (2003) data to highlight that specific threats of climate change include: "sea-level rise will threaten many coastal areas and small islands; temperature rises will change precipitation patterns, water supply problems will be exacerbated; and increase the magnitude, frequency and risk of extreme climatic events such as storms and sea surges". In his older book Holden (2008:215) had stated that "it is probable that as the sea level rises there will be increased beach and

cost erosion; a higher likelihood of coastal flooding; loss of coastal ecosystems; and a total submersion of some low-laying islands and coastal plants". Sartzetakis & Karatzoglou (2011:216), in a study conducted for the Bank of Greece, synopsized the main physical and economic impacts of climate change on tourism industry.

Table 5: Physical impacts of climate change on tourism

Direct impacts	**Indirect impacts**
Temperature increase infrastructure	Damage to coastal tourism
Sea-level rise	Depreciation of tourism infrastructure due to inadequate natural conditions (lack of snow in ski resorts),
Changes in air humidity and quality	Intrusion of sea water in aquifers and salinization of drinking water
Increased drought	Decreased water availability due to decreased rainfall
Increased pollution	Decrease and/or loss of ecotourism infrastructure and activities
Increase in discomfort index	
Increased extreme events(storms, floods, huriccnes)	
Increased fires and diseases	
Decreased rainfall and snowfall	
More frequent appearance of photochemical smog	
Destruction of sensitive ecosystems	

Source: adapted from Bank of Greece Study 2011

Table 6: Economic impacts of climate change on tourism

Possible decline in the number of tourist arrivals
Possible decline in average tourist length of stay
Reduced seasonality
Global fall in disposable income for tourism due to drop in GDP as a result of climate change
Increase in average cost of services provided to tourists
Cost of forced discontinuation of provided tourism services due to extreme natural events (opportunity cost or loss of revenue)
Works to reduce pollution and gas emissions
Works (incl. engineering) to address the physical impacts of climate change and extreme events (dams, water recycling systems)

Need to develop novel bioclimatic infrastructures
Increased maintenance cost for older infrastructures
Works to substitute natural capital with man-made capital in order to preserve the attraction of an area (e.g. substituting a forest with a thematic park, mountain bike activities with a kart circuit, addressing the lack of snow by creating a climbing wall)
Downgrade of cultural and historic monuments(UNESCO and possible study, 2007) destruction of archaeological monuments
Cost of staff training and adaptation to new operations
Working procedures and repositioning of the tourism product in the global market.

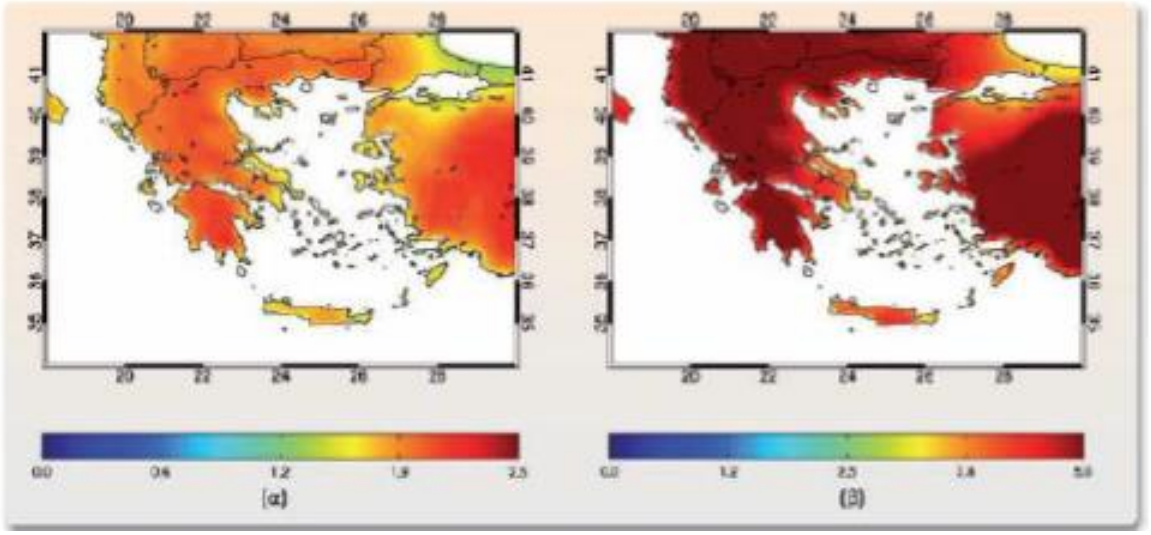
Source: adapted from: Bank of Greece Study 2011

2.5.2 Climate change: European and Mediterranean Region

Europe is the most important tourist region in the world. According to UNWTO, in 2014 nearly 51.4 % of all international tourists (581.8 million) visited Europe, with Southern Europe and the Mediterranean region being the favorite holiday destinations (214.9 million). According to Deutsche Bank Research (2008:1) on climate change and tourism, the "Benelux countries, Denmark, Germany, and the Baltic countries" will gain, and slightly France and Italy. Outside Europe Canada, New Zealand and the USA are the only three further countries whose tourist industry will be on the winning side, "while the Mediterranean generally deteriorates in its appeal for the holidaymaker: the temperatures may become too hot, tropical diseases may become prevalent, there may be water shortages, the landscape may become arid, and freak events in the form of flash floods and forest fires may become more frequent. The coast may become eroded and low lying coastal amenities such as resort complexes and golf course inundated" (1st International Conference on Climate Change and Tourism, 2003:25).

2.53 Climate change: The case of Greece

Image 1: Climate change- Greece



Source: Climate Change Impacts in Greece Report, Bank of Greece, Chapter 1: Variation in the mean maximum summer temperature in (a) 2021-2050and (b) 2071-2100, relative to 1961- 1990

Changes in the mean temperatures are expected to occur in the future. According to Bank of Greece's Report (2011: 79) "the increase in mean maximum summer temperatures in the period 2021-2050 will be greater than that of the winter minimums and will exceed 1.5ºC and in some cases reach as much as 2.5ºC. In the period 2071-2100, the increase in mean maximum summer temperatures may be as much as 5ºC", and the areas that are going to be significantly affected are those that are located far from the sea.

Holden (2008:218) explains that the climatic changes will result in droughts, heatwaves and change in the sea temperature. Small islands in the Aegean may face serious problems if the predictions of the decrease in the rainfall and water supply availability become reality, as the amount of water consumed by only one luxury hotel is calculated to be around 600 liters of water per guest per night, and the publicity given to heat wave deaths play an important role in the making and, of course, the demand for electricity increases as people try to stay cool in air conditioned homes. On the contrary, given that for comfortable swimming activities the sea surface temperature should be 20-21, even with warming of 2-3 °C he assumes that swimming in the country will begin earlier and end up in October-November. Keskitalo (2010:219) uses a study of the European Islands System of Links and Exchanges to describe in few words the impacts of climate change upon Greek islands that are "particularly exposed to risk from sea level rise".

2.6 General view of tourism

According to UNWTO (2015 edition) an amazing number of 1133 million international tourist arrivals was recorded in 2014, with 46 million more tourists travelling the world in 2014. Although USA is the region that recorded an 8% increase in overnight visitors, Europe with a growth of a 3% increase, welcomed more tourists with the total number of travelers preferring European regions reaching approximately 582 million. Asia and the Pacific saw a growth of 5% and it reached 23.3% of the market share. Middle East, also, saw a growth of 5% after two years of declining and Africa reached a total of 56 million tourists (2% growth).

Image 2: General view of tourism

	International Tourist Arrivals (million)							Market share (%)	Change (%)			Average annual growth (%)
	1990	1995	2000	2005	2010	2013	2014*	2014*	12/11	13/12	14*/13	'05-'14*
World	**435**	**527**	**674**	**809**	**949**	**1,087**	**1,133**	**100**	**4.2**	**4.6**	**4.3**	**3.8**
Advanced economies¹	**296**	**336**	**420**	**466**	**513**	**586**	**619**	**54.7**	**4.0**	**4.7**	**5.8**	**3.2**
Emerging economies¹	**139**	**191**	**253**	**343**	**435**	**501**	**513**	**45.3**	**4.4**	**4.5**	**2.4**	**4.6**
By UNWTO regions:												
Europe	**261.5**	**304.7**	**386.4**	**453.0**	**488.9**	**566.4**	**581.8**	**51.4**	**3.9**	**4.9**	**2.7**	**2.8**
Northern Europe	28.7	36.4	44.8	59.9	62.8	67.4	71.3	6.3	1.5	2.9	5.9	2.0
Western Europe	108.6	112.2	139.7	141.7	154.4	170.8	174.5	15.4	3.6	2.8	2.2	2.3
Central/Eastern Europe	33.9	58.1	69.3	95.1	98.4	127.3	121.1	10.7	9.1	7.7	-4.9	2.7
Southern/Medit. Europe	90.3	98.0	132.6	156.4	173.3	201.0	214.9	19.0	1.9	5.6	6.9	3.6
- of which EU-28	230.1	268.0	330.5	367.9	384.3	433.8	455.1	40.2	3.0	4.0	4.9	2.4
Asia and the Pacific	**55.8**	**82.1**	**110.3**	**154.0**	**205.4**	**249.8**	**263.3**	**23.2**	**6.9**	**6.8**	**5.4**	**6.1**
North-East Asia	26.4	41.3	58.3	85.9	111.5	127.0	136.3	12.0	6.0	3.4	7.3	5.3
South-East Asia	21.2	28.5	36.3	49.0	70.5	94.3	96.7	8.5	8.7	11.3	2.6	7.9
Oceania	5.2	8.1	9.6	10.9	11.4	12.5	13.2	1.2	4.2	4.6	5.7	2.1
South Asia	3.1	4.2	6.1	8.1	12.0	16.0	17.1	1.5	5.9	11.4	6.8	8.6
Americas	**92.8**	**109.1**	**128.2**	**133.3**	**150.1**	**167.5**	**181.0**	**16.0**	**4.5**	**3.1**	**8.0**	**3.5**
North America	71.8	80.7	91.5	89.9	99.5	110.2	120.4	10.6	4.1	3.6	9.2	3.3
Caribbean	11.4	14.0	17.1	18.8	19.5	21.1	22.4	2.0	3.1	2.8	6.2	2.0
Central America	1.9	2.6	4.3	6.3	7.9	9.1	9.6	0.8	7.3	2.6	5.6	4.8
South America	7.7	11.7	15.3	18.3	23.1	27.1	28.6	2.5	6.3	1.5	5.4	5.1
Africa	**14.7**	**18.7**	**26.2**	**34.8**	**49.5**	**54.4**	**55.7**	**4.9**	**4.8**	**4.7**	**2.4**	**5.4**
North Africa	8.4	7.3	10.2	13.9	18.8	19.6	19.8	1.7	8.7	6.0	0.9	4.0
Subsaharan Africa	6.3	11.5	16.0	20.9	30.8	34.7	35.9	3.2	2.8	4.1	3.3	6.2
Middle East	**9.6**	**12.7**	**22.4**	**33.7**	**54.7**	**48.4**	**51.0**	**4.5**	**-5.3**	**-3.1**	**5.4**	**4.7**

Source: World Tourism Organization (UNWTO) © (Data as collected by UNWTO May 2015)

¹ Classification based on the International Monetary Fund (IMF), see the Statistical Annex of the IMF World Economic Outlook of April 2015, page 150, at www.imf.org/external/ns/cs.aspx?id=29.

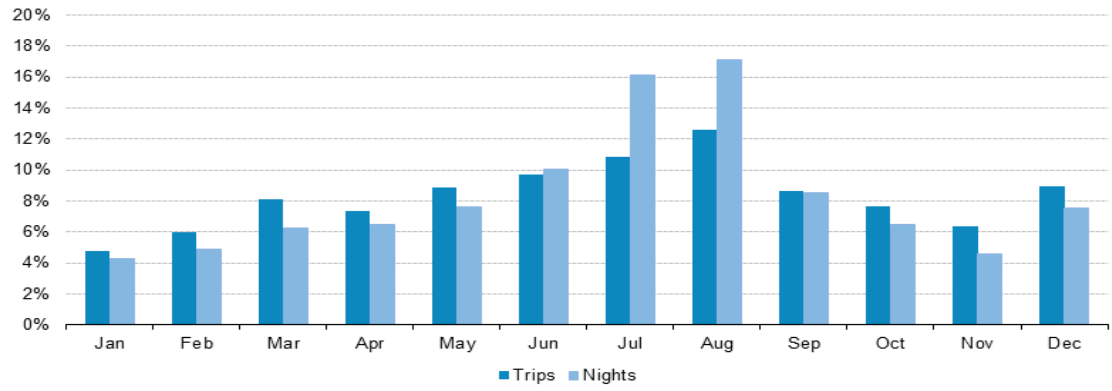
Source: UNWTO, Tourism Highlights 2015.

Europe holds the 51.4% of the market share, of which the 19% belongs to the Mediterranean countries as the region offers the 3S (sea, sand and sun) form of tourism during the summer period.

2.6.1 Monthly share of Trips and Nights

In 2013, August (12.6%) and July (10.9%) were the top months European residents chose to travel, with August (17.2 %) and July (16.1 %) being the months they choose to stay longer.
August is the peak month and January is the weakest, and if we take into account the number of trips and the number of nights spent, the seasonality pattern is more pronounced. As we can see in the figure below, the number of tourists who chose to travel in the peak month is 2.6 times higher if compared with the weakest month, and the number of overnights is 4 times higher in August than in January. (http://ec.europa.eu)

Image 3: Monthly share of trips and nights spent of EU residents, EU-2, 2013 (% of the 12 months)

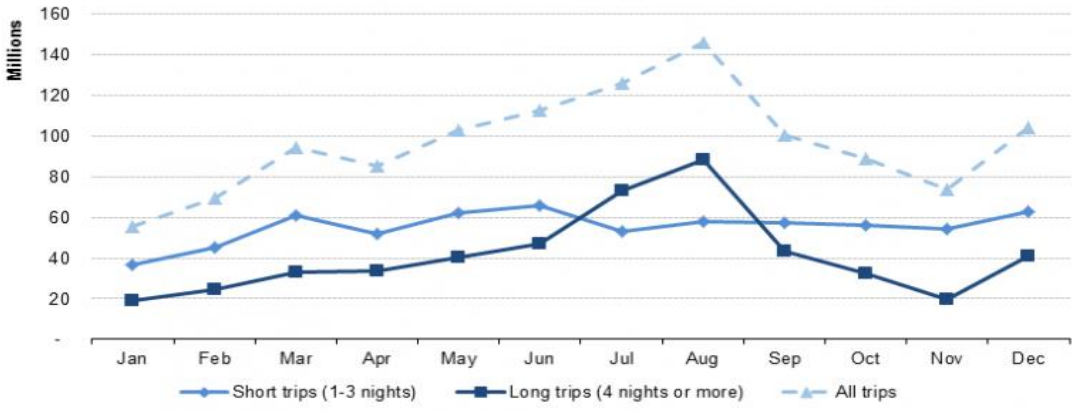


(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.
Source: Eurostat

2.6.2 Length of Trips- duration

August is the peak month, during which more than 140 million trips were made by European residents in 2013. 88 million of the trips can be characterized as long trips (4 night or more) and approximately 59 million as short trips (1-3 nights).
If we take a closer look at the figure below, more than 50% of long trips are made during June, July, August and September. On the other hand, EU residents make short trips all year around, with June, December, May and Match being the top months travelers choose to take short trips. (http://ec.europa.eu)

Image 4: Trips of EU residents by month of departure and duration, EU-28, 2013 (Millions)



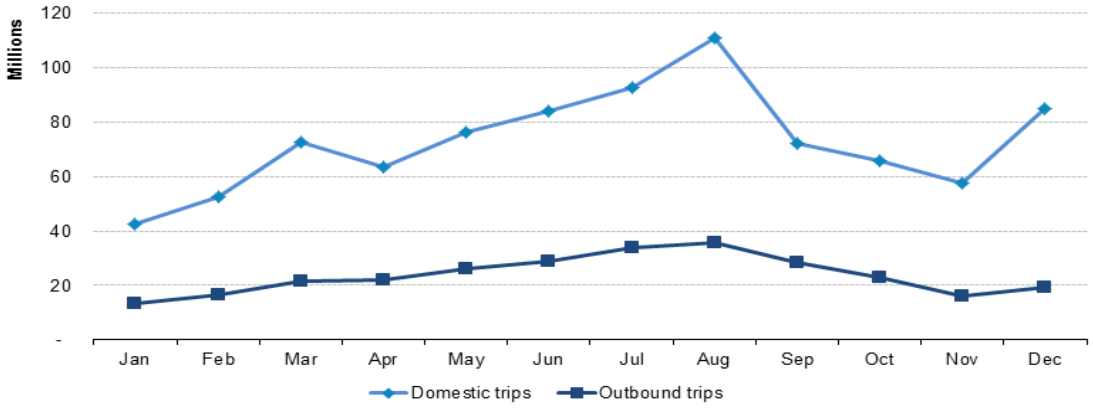
(*) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

2.6.3 Domestic and Outbound trips

In 2013, approximately 285 million trips abroad and approximately 876 million domestic trips, mostly made during summer months and Christmas period, were recorded. Domestic trips made in August were 2.6 times higher than in January, so were the outbound trips (2.7 times). (http://ec.europa.eu)

Image 5: Trips of EU residents by month of departure and destination, EU-28, 2013 (Millions)



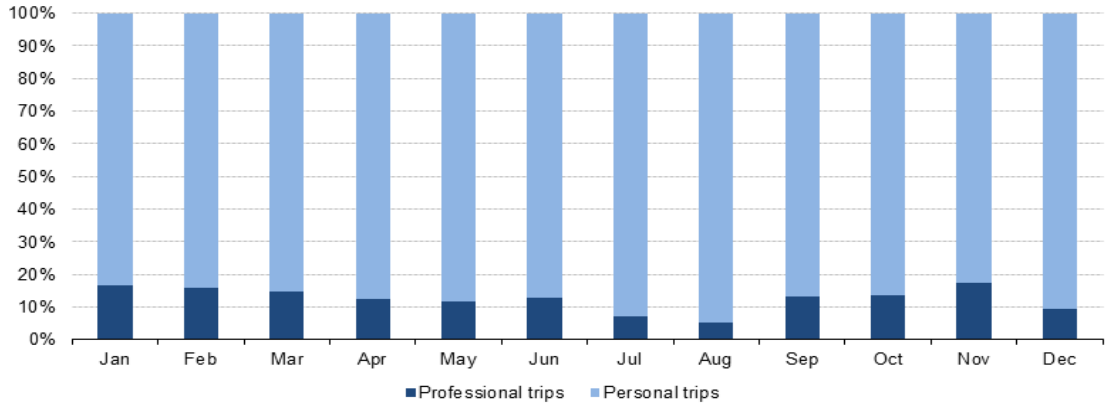
(*) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

2.6.4 Professional and Personal trips

In 2013, 12% of all trips can be characterized as professional trips. Most of them were made in November and January. July and August were the months most personal trips were made. (http://ec.europa.eu)

Image 6: Share of professional and personal trips of EU residents per month of departure, EU-28, 2013 (%)



(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).

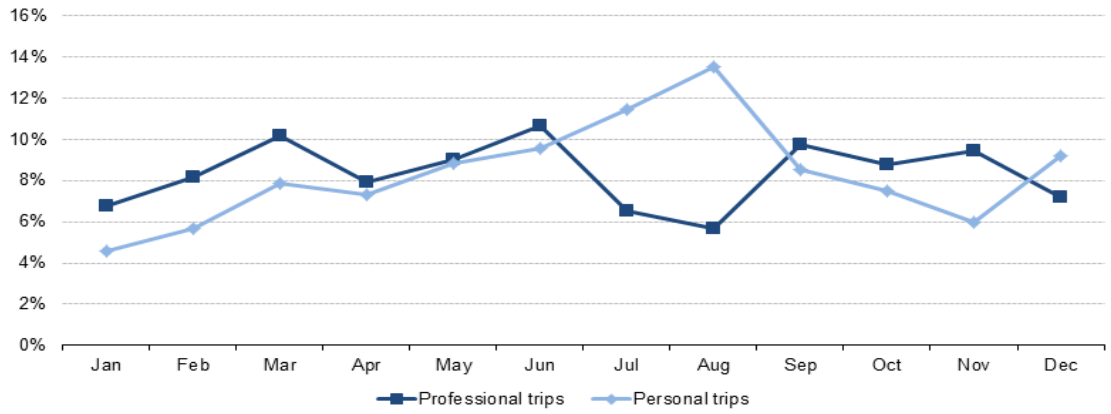
(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

2.6.5 Purpose of the trip

March, June and September are the three months most of professional trips are made by European residents, and June, July and August are the top months personal trips are made. As it can be seen in the figure below, most of the personal and less of the professional trips are made during the peak month. (http://ec.europa.eu)

Image 7: Monthly share of trips of EU residents by purpose of the trip, EU-28, 2013 (% of the 12 months)



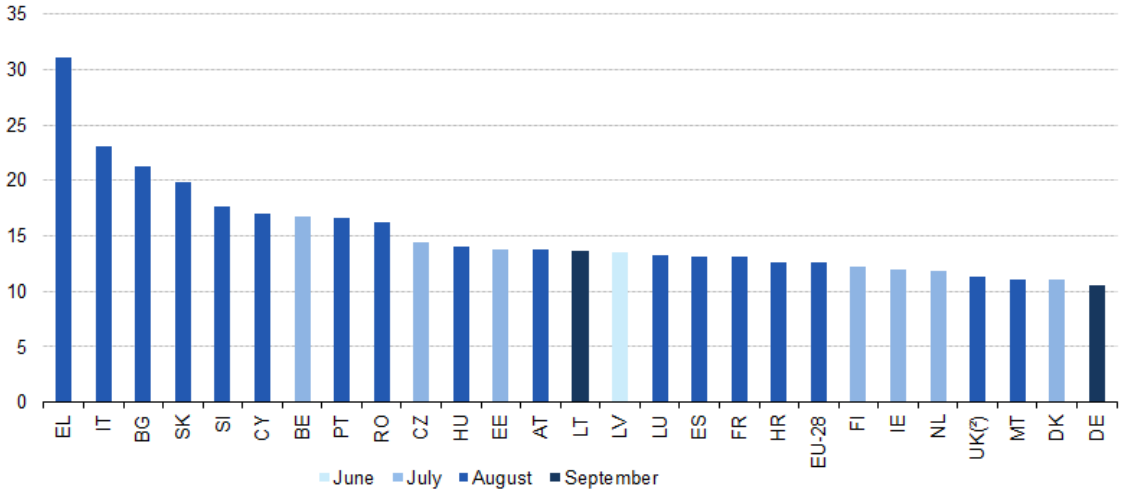
(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

2.6.6 Peak month for trips of EU residents

Most EU residents decided to travel during August, except for Belgians, Czechs, Finns, Irish, Estonians, Dutch and Danish who preferred July, Germans and Lithuanians took their trips during September, and only the residents of Latvia preferred June for their holidays. (http://ec.europa.eu)

Image 8: Peak month for trips of EU residents, 2013 (% share on the 12 months)



(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) 2012 data.

Source: Eurostat

Image 9: Distribution over the year of tourism nights of EU residents, 2013

	Number of trips (thousand)	Distribution per month(*) (%)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EU-28(²)	1 160 148	4.8	6.0	8.1	7.4	8.9	9.7	10.9	12.6	8.7	7.6	6.4	9.0
Belgium	13 330	5.0	7.7	9.2	8.1	7.9	8.4	16.8	12.9	8.1	5.9	5.3	4.6
Bulgaria	3 966	4.6	4.1	6.5	4.8	12.8	8.9	10.4	21.3	6.3	4.6	4.8	11.0
Czech Republic	31 280	5.2	6.3	7.1	6.5	9.5	9.6	14.4	13.5	8.2	7.2	4.9	7.6
Denmark	31 792	5.7	8.7	10.7	7.0	8.5	8.6	11.0	8.2	7.9	7.6	6.7	9.3
Germany	248 582	4.4	6.2	10.2	7.4	9.1	10.3	8.4	9.7	10.5	8.5	6.2	9.2
Estonia	2 899	5.7	6.6	7.9	7.1	8.2	10.9	13.8	12.1	6.7	7.6	6.3	7.1
Ireland	11 669	5.8	6.1	8.2	7.1	9.2	10.2	12.0	11.2	8.1	8.7	6.6	6.7
Greece	5 584	2.8	2.4	3.8	6.3	7.7	6.7	19.6	31.1	5.4	4.9	2.9	6.3
Spain	132 351	5.3	5.4	9.3	7.1	8.3	9.5	11.0	13.1	8.5	7.6	6.4	8.6
France	224 950	4.4	6.3	7.3	8.0	9.2	8.2	11.7	13.1	7.4	8.4	6.2	9.8
Croatia	9 151	5.8	5.0	6.3	7.7	6.9	12.1	11.8	12.6	7.7	8.0	6.7	9.4
Italy	52 687	4.3	5.3	7.2	5.9	5.2	10.4	15.5	23.0	5.6	5.1	5.1	7.5
Cyprus	2 406	5.7	5.4	7.7	6.0	7.8	10.0	12.1	17.0	8.4	7.3	5.7	6.9
Latvia	4 402	6.6	3.4	5.0	6.6	7.9	13.6	11.9	12.8	8.0	8.0	6.8	9.4
Lithuania	4 353	5.3	5.4	6.1	6.4	9.0	10.8	10.9	11.7	13.7	7.2	6.5	6.9
Luxembourg	1 680	5.6	6.4	7.9	6.8	8.3	8.0	10.4	13.2	8.2	7.5	8.0	9.7
Hungary	16 050	5.6	5.9	9.0	5.9	8.2	11.9	10.8	14.1	7.2	6.2	6.1	9.1
Malta	526	6.0	7.2	11.0	6.3	7.3	8.7	10.3	11.1	7.7	7.7	8.3	8.4
Netherlands	43 247	4.1	6.1	9.2	6.4	10.0	11.5	11.9	10.7	9.5	5.7	5.0	9.9
Austria	22 401	5.2	7.5	7.8	6.4	8.3	9.6	11.6	13.7	8.5	7.6	6.0	7.8
Poland	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u
Portugal	14 940	6.5	6.5	7.8	7.0	7.0	8.2	10.3	16.6	7.9	5.8	6.3	10.2
Romania	17 682	9.2	4.8	7.2	3.4	13.3	7.9	7.8	16.3	5.1	4.6	4.5	16.1
Slovenia	4 637	4.8	6.1	5.2	7.4	7.2	9.1	17.1	17.7	6.8	6.9	5.4	6.3
Slovakia	6 894	:u	3.3(u)	5.3	6.9	9.3	12.1	14.0	19.8	3.7(u)	2.7(u)	6.9(u)	14.5
Finland	39 083	5.6	7.3	7.9	7.8	8.1	10.4	12.2	9.6	8.2	8.0	7.3	7.6
Sweden	:	:	:	:	:	:	:	:	:	:	:	:	:
United Kingdom(²)	161 113	5.5	5.8	6.9	8.6	8.5	9.5	9.5	11.4	9.8	8.2	8.0	8.3

(*) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).

(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

(³) 2012 data.

":" - data not available.

"u" - low reliability.

Note: Due to rounding, deviation can occur between total and subtotals.

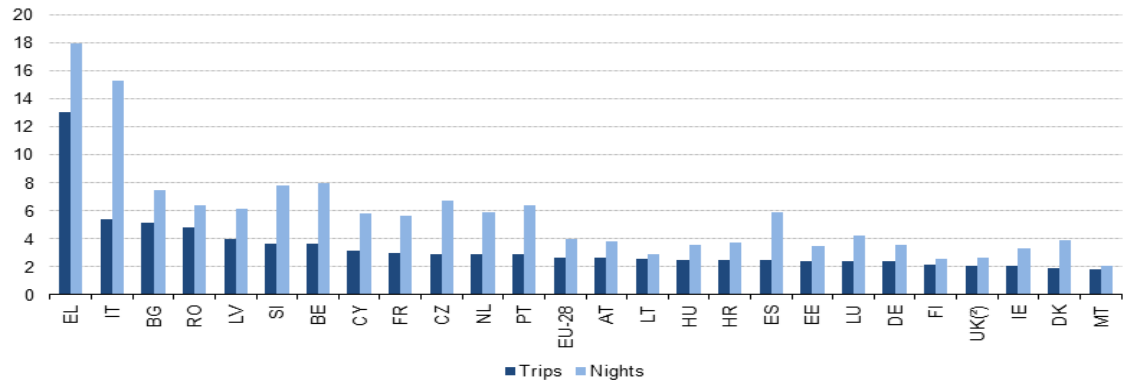
Source: Eurostat

2.6.7 Trips during the peak month and the weakest month

One formula for measuring seasonality is by comparing the number of trips made and the nights spent during the peak and the weakest month. Greece, Italy and Bulgaria are the countries that have the highest seasonally. The figure below shows that Greece is the country that suffers the most from seasonality as the number of trips made in the peak month are more than 13 times higher and the nights spent are 18 times more than in the weakest month. The number of rips made to Italy and Bulgaria are 5 times higher in their peak month, with the difference that nights spent in Italy are 15 times more during the peak month, when in Bulgaria they are approximately 8 times more than in the weakest month.

Malta, Denmark, United Kingdom and Ireland are the countries that have the lowest seasonality. (http://ec.europa.eu)

Image 10: Ratio of the peak month by the weakest month, trips and nights spent by EU residents, 2013

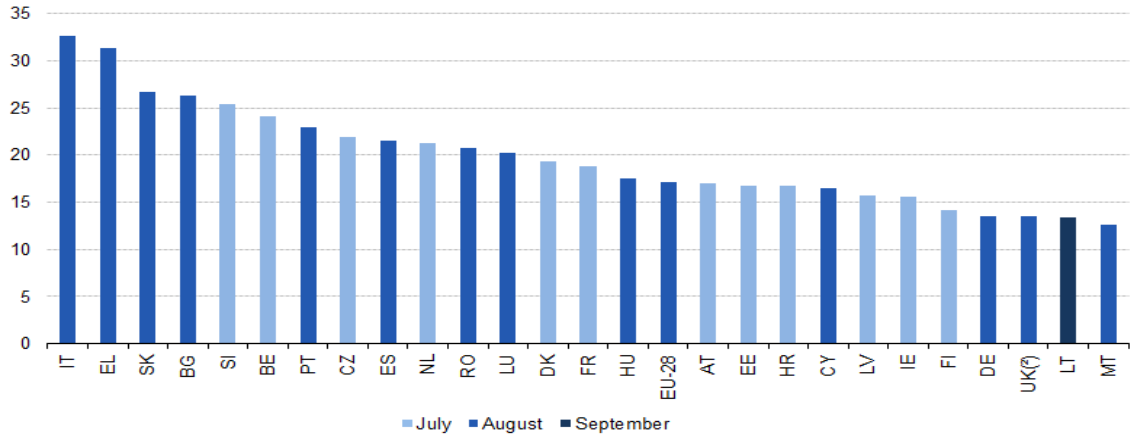


(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) 2012 data.
Source: Eurostat

2.6.8 Peak months for tourism nights of EU residents

Another formula for measuring seasonality is by dividing the number of overnights of best month to the weakest. As we can see in the data of the figure and the table below the peak months for all the countries are July and August, except for Lithuania where September is the month tourists prefer visiting the country. Italy, Greece and Slovakia are the countries in which the percentage of tourism nights during July and August exceeds 50%. (http://ec.europa.eu)

Image 11: Peak month for tourism nights of EU residents, 2013 (% share on the 12 months)



(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) 2012 data.
Source: Eurostat

Image 12: Distribution over the year of tourism nights of EU residents, 2013

	Number of nights (thousand)	Distribution per month(1) (%)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EU-28(2)	6 103 791	4.3	4.9	6.3	6.5	7.6	10.0	16.1	17.2	8.5	6.5	4.6	7.6
Belgium	96 509	4.2	6.9	6.8	7.2	6.7	9.6	24.1	15.4	8.0	4.6	3.0	3.5
Bulgaria	19 141	4.6	3.5	4.4	5.6	9.5	7.5	16.9	26.3	5.5	3.8	4.1	8.4
Czech Republic	131 014	4.0	4.9	5.1	4.4	7.5	10.1	21.9	19.7	7.5	5.3	3.3	6.4
Denmark	107 872	7.2	7.8	8.7	6.0	6.8	8.7	19.4	8.6	7.8	7.1	4.9	7.0
Germany	1 312 992	3.8	5.4	8.0	7.0	8.6	10.8	11.7	13.6	10.2	8.0	4.9	8.1
Estonia	11 725	5.7	6.0	7.0	7.1	6.9	10.4	16.8	12.3	7.3	9.3	4.8	6.6
Ireland	61 440	5.6	4.6	7.1	5.7	10.3	13.3	15.6	10.8	8.5	7.1	5.3	6.0
Greece	58 781	2.5	1.7	2.1	5.6	5.9	11.7	26.2	31.3	3.1	3.7	1.8	4.4
Spain	654 242	3.6	3.8	7.5	4.8	5.8	10.2	17.9	21.6	7.1	5.3	4.3	8.1
France	1 252 281	3.3	4.8	5.6	7.4	7.8	8.7	18.8	18.0	6.8	6.6	3.9	8.1
Croatia	51 478	5.7	4.7	4.5	8.0	5.3	11.4	16.7	16.7	7.4	5.6	5.2	8.8
Italy	343 408	2.1	2.4	3.6	2.8	3.3	10.0	27.4	32.7	3.8	3.4	3.0	5.4
Cyprus	16 999	7.9	4.0	5.2	7.7	8.5	8.3	13.0	16.4	10.6	8.0	2.8	7.6
Latvia	15 240	6.5	2.6	4.3	6.9	6.4	13.0	15.7	13.8	7.7	9.5	4.9	8.7
Lithuania	20 711	4.6	4.7	5.6	6.3	8.6	10.5	12.5	12.8	13.4	7.6	6.9	6.5
Luxembourg	10 717	4.8	5.1	6.8	5.3	6.8	7.3	15.5	20.3	8.4	6.0	5.2	8.6
Hungary	61 359	4.8	5.2	7.7	5.6	7.5	12.6	13.6	17.5	7.1	5.6	4.9	7.9
Malta	3 079	6.4	6.1	8.2	7.8	6.2	7.9	11.8	12.6	9.1	7.0	7.0	9.8
Netherlands	265 224	3.7	4.7	5.0	6.5	10.4	11.5	21.2	13.5	8.9	5.3	3.6	5.8
Austria	105 096	5.0	6.8	6.6	5.7	7.1	9.2	17.0	16.8	8.1	6.2	4.5	7.0
Poland	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u
Portugal	73 516	12.7	8.0	5.0	4.5	4.2	7.6	12.4	23.0	6.7	3.6	3.7	8.5
Romania	73 151	8.3	4.0	5.1	3.3	10.9	7.8	10.4	20.8	5.9	5.2	3.9	14.4
Slovenia	19 166	3.3	5.0	3.4	6.7	5.1	10.0	25.4	20.8	5.9	5.9	3.6	4.9
Slovakia	32 630	:u	2.6(u)	3.8	3.6	5.1	12.3	23.7	26.7	4.6(u)	2.6(u)	4.1(u)	9.9
Finland	132 337	5.5	6.4	8.0	6.7	7.4	12.5	14.2	8.8	7.3	7.7	5.8	9.5
Sweden	:	:	:	:	:	:	:	:	:	:	:	:	:
United Kingdom(3)	880 766	5.9	5.1	6.3	8.1	7.8	9.3	10.6	13.6	12.2	7.5	6.5	7.1

(1) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).

(2) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

(3) 2012 data.

":" - data not available.

"u" - low reliability.

Note: Due to rounding, deviation can occur between total and subtotals.

Source: Eurostat

2.6.9 Average length of stay

The average length of stay can be calculated by dividing the number of nights spent by the number of trips made each month. From the data presented below we can see that long trips, which last for at least a week, are made in July and August. (http://ec.europa.eu)

Image 13: Average length of stay of trips of EU residents by month of departure of the trip, 2013 (nights)

	All trips	Month of departure(1)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EU-28(2)	5.3	4.7	4.3	4.1	4.7	4.5	5.4	7.8	7.2	5.2	4.5	3.8	4.4
Belgium	7.2	6.0	6.5	5.3	6.5	6.1	8.3	10.4	8.7	7.1	5.6	4.1	5.5
Bulgaria	4.8	4.8	4.1	3.3	5.6	3.6	4.1	7.9	6.0	4.2	4.0	4.2	3.7
Czech Republic	4.2	3.2	3.3	3.0	2.8	3.3	4.4	6.4	6.1	3.9	3.1	2.8	3.5
Denmark	3.4	4.3	3.1	2.7	2.9	2.7	3.4	5.9	3.5	3.4	3.1	2.5	2.5
Germany	5.3	4.5	4.6	4.2	5.0	5.0	5.6	7.4	7.4	5.1	5.0	4.2	4.6
Estonia	4.0	4.0	3.7	3.6	4.0	3.4	3.8	4.9	4.1	4.5	4.9	3.1	3.8
Ireland	5.3	5.1	4.0	4.6	4.2	5.9	6.9	6.9	5.0	5.6	4.3	4.2	4.7
Greece	10.5	9.1	7.7	5.8	9.3	8.0	18.3	14.1	10.6	6.0	8.1	6.7	7.4
Spain	4.9	3.4	3.5	4.0	3.3	3.5	5.3	8.0	8.1	4.1	3.4	3.4	4.6
France	5.6	4.2	4.3	4.2	5.1	4.7	5.9	9.0	7.7	5.1	4.4	3.6	4.6
Croatia	5.6	5.5	5.3	4.0	5.9	4.3	5.3	8.0	7.5	5.4	3.9	4.4	5.2
Italy	6.5	3.3	3.0	3.3	3.1	4.2	6.3	11.5	9.3	4.5	4.3	3.8	4.7
Cyprus	7.1	9.8	5.2	4.8	9.1	7.6	5.9	7.6	6.8	8.9	7.7	3.5	7.8
Latvia	3.5	3.4	2.6	3.0	3.6	2.8	3.3	4.6	3.7	3.3	4.1	2.5	3.2
Lithuania	4.8	4.1	4.2	4.3	4.7	4.5	4.6	5.5	5.2	4.7	5.0	5.1	4.5
Luxembourg	6.4	5.5	5.0	5.5	5.0	5.2	5.8	9.5	9.8	6.5	5.1	4.2	5.7
Hungary	3.8	3.3	3.4	3.3	3.6	3.5	4.1	4.8	4.7	3.7	3.5	3.1	3.3
Malta	5.9	6.3	5.0	4.4	7.2	5.0	5.3	6.7	6.6	6.9	5.4	4.9	6.8
Netherlands	6.1	5.6	4.8	3.4	6.2	6.4	6.1	11.0	7.7	5.7	5.7	4.3	3.6
Austria	4.7	4.5	4.3	4.0	4.2	4.0	4.5	6.8	5.8	4.5	3.8	3.5	4.2
Poland	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u	:u
Portugal	4.9	9.7	6.1	3.2	3.2	3.0	4.5	6.0	6.8	4.2	3.1	2.9	4.1
Romania	4.1	3.7	3.5	2.9	4.0	3.4	4.1	5.5	5.3	4.8	4.6	3.6	3.7
Slovenia	4.1	2.8	3.4	2.7	3.7	2.9	4.5	6.1	4.9	3.6	3.5	2.8	3.2
Slovakia	4.7	:u	3.7(u)	3.4	2.5	2.6	4.8	8.0	6.4	6.0(u)	4.4(u)	2.8(u)	3.2
Finland	3.4	3.4	3.0	3.4	2.9	3.1	4.0	3.9	3.1	3.0	3.3	2.7	4.2
Sweden	:	:	:	:	:	:	:	:	:	:	:	:	:
United Kingdom(3)	5.5	5.9	4.8	5.0	5.2	5.0	5.3	6.1	6.5	6.9	5.0	4.4	4.7

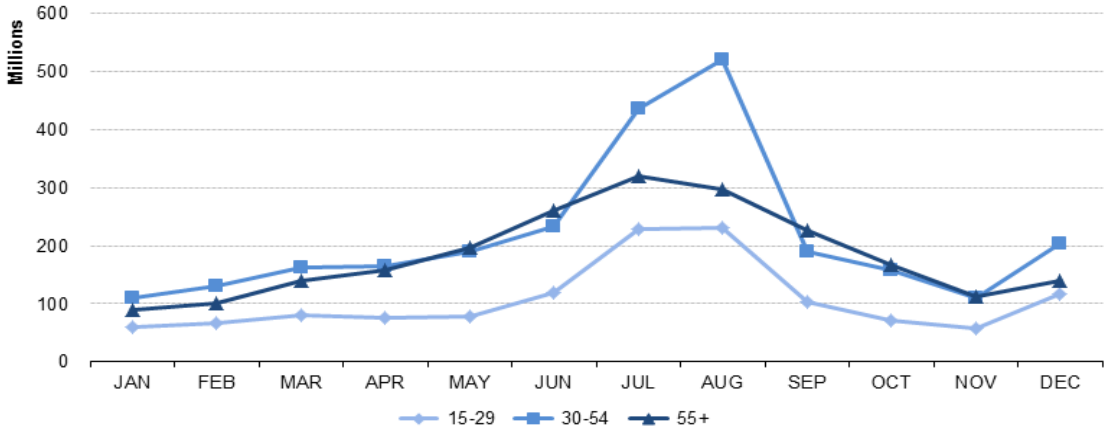
(1) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(2) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.
(3) 2012 data.
":" - data not available.
"u" - low reliability.
Note: Due to rounding, deviation can occur between total and subtotals.

Source: Eurostat

2.6.10 Age groups- Elder travelers

July and August are the two months all group ages prefer traveling, but June and September are preferred from visitors aged 55+ years. Another observation that can be made is that approximately 40% of the nights spent during the off peak season are spent by this age group as they can travel all year around. (http://ec.europa.eu)

Image 14: Number of nights spent by EU residents by month of departure and age group, EU-28, 2013 (Millions)

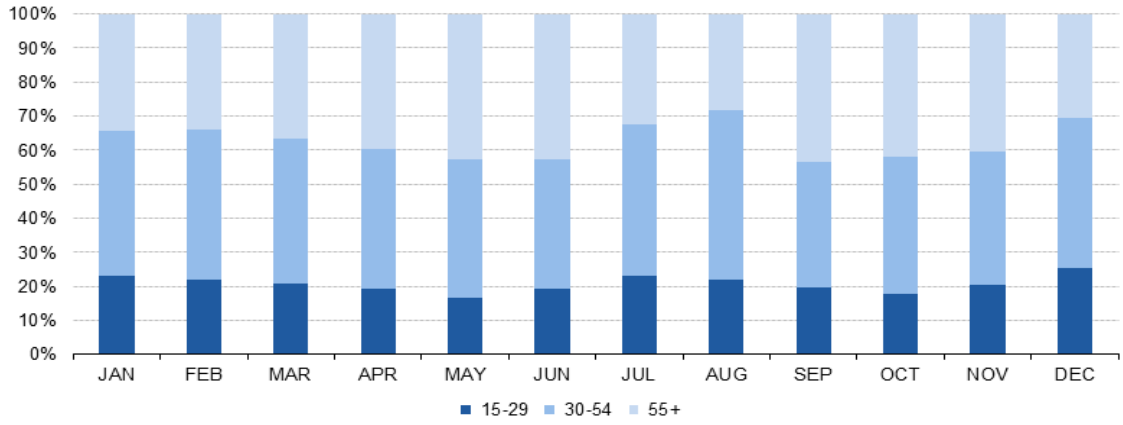


(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

The figure below shows that in May, June, September, October and November more than 40% of the nights were spent by travelers that belong in the group age of 55+ years old. (http://ec.europa.eu)

Image 15: Share of EU residents' nights spent by age group and month of departure, EU-28, 2013 (%)



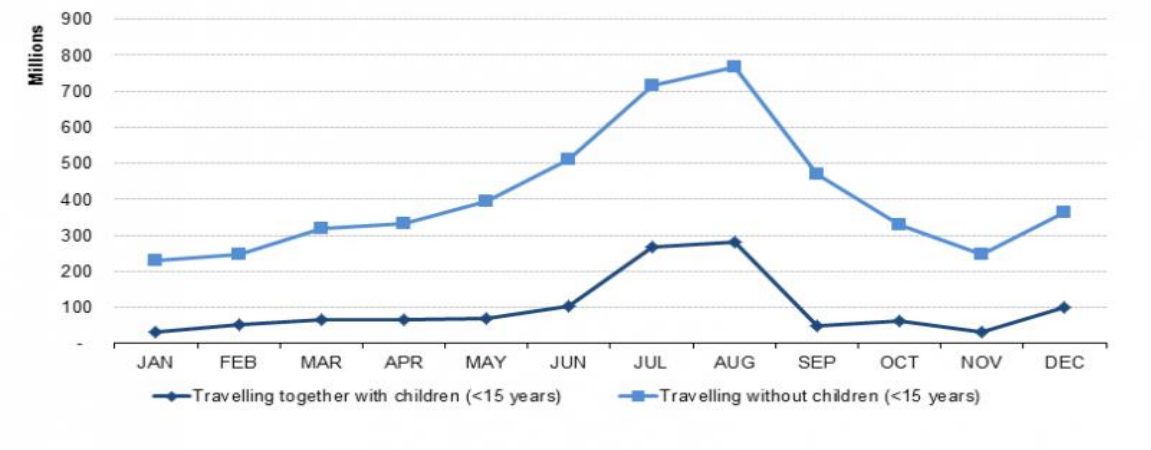
(¹) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).
(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

2.6.12 Participation of children

Approximately 300 million out of nearly 800 million European residents travel with children aged less than 15 years old. (http://ec.europa.eu)

Image 16: Trips of EU residents by month of departure and participation of children, EU-28, 2013 (Millions)



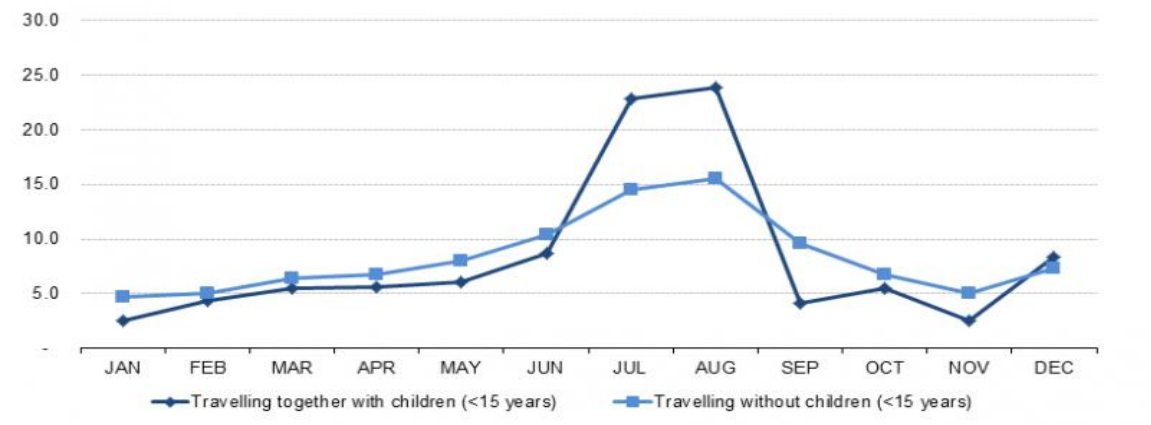
(*) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).

(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

As we can see in the figure below, July and August are the months families choose to travel because of the school holidays. The percentage of European residents who travel together with children is approximately 47%. (http://ec.europa.eu)

Image 17: Monthly share of trips of EU residents by participation or not of children, EU-28, 2013 (% of the 12 months)



(*) Trips which started in 2012 and ended in 2013, are included in the corresponding month of departure of 2013 (f.i. a trip that started in November 2012 and ended in January 2013 is included in November 2013).

(²) EU-28 aggregate estimated for this publication, not including Sweden, including 2012 data for the United Kingdom.

Source: Eurostat

2.7 Tourism in Greece

Greece, an attractive tourist destination famed for its warm people, history, archeology and islands, is a country located in southeastern Europe. Tourism plays an important role in Greece's economy as it is the main source of income for a large proportion of coastal areas and islands. According to World Travel & Tourism Council (2015:1), "the total contribution of travel and tourism to GDP was € 29.4bn (17.3% of GDP) in 2014 and is expected to grow by 3.7% to € 43.8bn (19.8% of GDP) in 2025. The total contribution to employment was 19.4% of total employment and is predicted to rise by 2.7% to 951.000 jobs in 2025 (22.2% of total)". (https://www.wttc.org) The Greek Tourism Confederation (SETE) estimated that the tourism receipts for 2014 were € 13bn, with the average expenditure per capita being € 590. The total number of international tourists that were attracted by the country is calculated to be 22bn with approximately 8.4bn originated from Germany, United Kingdom, Russia, France and Italy. Hudman & Jackson (2003:249) are certain that the dominance of Germany and United Kingdom "results from the development of Greece as a major charter destination area by large travel companies". This increase of 4.1mi international travels compared to 2013 contributed in the rise of the country's market share worldwide and in Europe. In 2014, the number of registered hotels was 9.851, with a total room capacity of 792.304 beds with 70% of hotel beds distributed in the prefectures of Crete, Dodecanese, Macedonia and Central Greece.

Table 7: Basic Figures of Greek Tourism

	2013	**2014**
Contribution to GDP	16.3%	17.3%
Contribution to Employment	18.2% of total employment	17.3% of total employment
Total Employment	657.100 jobs	699.000 jobs
International Tourism Receipts	€ 11.7bn	€ 13bn
International Tourism Arrivals	17.9mi	22mi
Average per capita tourism expenditure	€ 653	€ 590
Market Share	3.2% Europe, 1.6% World	3.8% Europe, 1.8% World
Seasonality	56.4% of international tourist arrivals are recorded in July - August –September	56% of international tourist arrivals are recorded in July -August – September
Concentration of Supply	66% of beds in Crete, Dodecanese, Macedonia and Central Greece	70% of beds in Crete, Dodecanese, Macedonia and Central Greece

Hotel Capacity	9.677 hotels 773.445 beds	9.851 hotels 792.304 beds
Top 5 Markets	Germany 2.2673546 UK 1.846.333 Russia 1.352.901 France 1.152.217 Italy 964.314	Germany 2.459.228 UK 2.089.529 France 1.463.159 Russia 1.250.174 Italy 1.117.711

Source: SETE

2.7.1 Seasonality in Greece

Greece's temperate climate has a strong influence on seasonality. Greece has typical Mediterranean climate: warm, hot summers and wet winters. Spilsbury (2012:7) describes spring and autumn as "short seasons" and provides information about the amount of sunshine that "varies from 4 to 5 hours a day in the middle of winter to as many as 14 hours a day in the middle of the summer". August, the peak month, is the best month to swim in the sea as the average sea temperature is 25°C and the average temperature in Athens is 29°C. (http://www.holiday-weather.com/) Unfortunately, according to National Observatory of Athens August, as well as July, are also the months during which extreme heats are more likely to occur.
The most common method of measuring seasonality is the number of visitors. As we can see from the statistics provided by SETE the pattern of seasonality in Greece is obvious as more than half of travelers chose to visit the country in summer. Another interesting fact is that although the percentage of seasonality did not change during the years 2007-2010, the total number of arrivals decreased because of the global economic crisis.

Table 8: Seasonality of international tourist arrivals 2003-2013

Months	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Jan.-Mar.	6.31%	7.64%	7.14%	6.31%	7.02%	7.79%	6.94%	6.53%	6.75%	6.31%	5.71%
Apr.-Jun.	30.70%	31.89%	24.57%	24.87%	25.50%	26.62%	26.05%	24.49%	25.54%	24.81%	24.54 %
Jul.-Sep.	50.57%	49.08%	52.58%	54.28%	52.24%	51.05%	52.20%	54.89%	54.33%	55.78%	56.44 %
Oct.-Dec.	12.43%	11.39%	15.71%	14.54%	15.24%	14.54%	14.81%	14.09%	13.38%	13.10%	13.31 %

Source: SETE

Table 9: Non-residents' overnight stays in Greece, 2005-2013

Year	Total of overnight stays	Change
2005	153.439,9	
2006	162.165,2	5,69%
2007	161.235,2	-0,57%
2008	152.596,1	-5,36%
2009	141.443,7	-7,31%
2010	140.175,7	-0,90%
2011	150.978,2	7,71%
2012	142.416,9	
2013	162.918,0	14,40%

Source: SETE

2.7.2 Green Tourism in Greece

Green tourism is not a special form of tourism, and can be characterized as alternative tourism that includes ecotourism, sustainable and responsible tourism (Vilay & Wilkes, 2015:146). It is an effort to go "green" by reducing water and energy consumption, generating less waste, and supporting cultural traditions and local community. Although, green tourism as a term is used in the literature, there is not a precise definition yet. Knoepfel (2007:333) explains that he understands eco-business as "the economic sector that produces and sells goods and services whose main intention and priority is to measure, predict, limit or correct damages caused to the environment".

A business that applies "green" policies can certify itself with an eco-label or by adopting an environmental management system (EMS) or even both of them. Font & Buckley (2001:3) describe ecolabels as "methods to standardize the promotion of environmental claims by following compliance to set criteria, generally based on third party, impartial verification, usually by governments or non-profit organizations". Fairweather et all. (as cited in Hughes et all, 2015:230) define ecolabel as "any form of certification giving assurance that the tourist operation or activity is conducted according to a known standard that enhances the environment or at least minimizes environmental impacts". The most widely recognized environmental certification program is ISO 14001 that can be adopted by any type of organization. According to its website there are more than 300.000 certifications to ISO in 171 countries around

the world. It is mostly applied by large resorts and hotel chains because it is costly, complicated and heavily engineering oriented (Honey, 2008; Parsa & Narapareddy, 2015).

In Europe, northern countries like Scandinavia, Netherlands and Germany are recognized as being highly environmentally conscious. In Greece, particularly, many hotels began taking steps to "green" some parts of their operations, mostly by reducing water and energy consumption. Although in the past Greece's hoteliers were characterized as reluctant, and the public sector was unable to promote and support sustainable practices, nowadays hotels show signs of progress in the introduction of EMS as the majority of tourists arrive from Germany, and are not only potential guests but investors as well (Leslie, 2012; Bramwell, 2004)

Table 10: Summary of the major tourism ecolabels

PROGRAMME	WHAT IS CERTIFIED	REGIONS AND LEVELS
ANEOR Medio Ambiente	Consumer products and services including those in tourism	Spain, South America and Europe
AIAB (Italian Association for Organic Agriculture)	Organic products and companies including those in agritourism	Italy
Audubon International	Building, tourism and waste water management Communities, neighborhoods and organizations	Worldwide
B Corporation	Organizations including those in tourism	North America
BIO Hotels	Tourism and food	Austria, Italy, Germany, Switzerland
Blue Angel	Tourism and other industries(health, climate, water and resources)	Worldwide
Blue Flag	Tourism(beaches and marinas)	Worldwide
Calidad Galapagos	Tourism	Ecuador(Gold, Silver ad Brown)
Carbon Reduction Label	Products including those in tourism and other industries	Worldwide(mostly developed countries)
Cleaner and Greener Certification	Tourism and other industries	North America and Sri Lanka(5 levels from reporting level through to Platinum Certification)
Climatop	Tourism and other industries	Switzerland

Costa Rican Tourism Sustainable Scheme	Tourism and hospitality(hotels and travel agents)	Costa Rica
David Bellamy Conservation Award	Tourism and buildings	UK(Gold, Silver and Brown)
EarthCheck	Tourism	Worldwide(various levels, checked or assessed, Brown, Silver, Gold, Platinum)
Earthsure	Tourism and other industries	North America
ECO Certification	Tourism particularly hotels	Malta
Eco Hotels Certified	Tourism particularly hotels	Austria
Ecolabel Luxembourg	Hotels, camp sites and holiday homes	Luxembourg
Environmentally Friendly Label	Tourism and other industries	Croatia
Ekologicky sertny vyrobek (Environmentally Friendly Product)	Products and services including those in tourism	Czech Republic
Estonian Ecotourism Quality Label	Tourism	Estonia
EU Ecolabel	Tourism and other industries	European Union and some Asian counties
Fair for Life	Organizations, products and services including those in tourism	International(3 levels: orange, blue, green)
Good Shopping Guide Ethical Company	Three aspects: people, animal and environment including tourism	UK
Green America	Products and services, process, workplace and community including those in tourism	North America
Green Certificate	Tourism	Latvia
Green Crane	Tourism and other industries	Ukraine
Green Globe	Tourism	Worldwide
Greek Key	Tourism	Worldwide
Green Key(Hotel Association of Canada)	Hotels	Worldwide(5 levels)
Green Seal	Organizations, products and services, facilities including those in tourism	Worldwide(limited)
Green Tick	Seven aspects: sustainable, carbon neutral, carbon negative, natural, organic, GE-	Australia, NZ and USA

	free, fair trade including those in tourism	
Green Tourism Business Scheme(GTBS)	Organizations and destinations in tourism	UK, Ireland, Scotland, Canada
International Eco Certification Programme	Products and services, organizations, tour guide in tourism	Australia(3 levels: natural tourism, ecotourism, advanced ecotourism)
Legambiente Turismo	Hotels	Italy
Milieukeur Ecolabel	Tourism and other industries	The Netherlands
National Green Page™ Seal of Approval	Tourism and other industries	United States
Nature's Best Ecotourism	Organizations, products and services including those in tourism	Sweden
Nordic Ecolabel('Swan')	Tourism and other industries	Nordic countries, Denmark, Finland, Norway, Iceland, Sweden
Osterreichisches Umweltzeichen	Products and services, schools including those in tourism	Austria
Rainforest Alliance Certified	Tourism and other industries	Worldwide(2 levels certified and verified)
SEE What you are buying into	Organizations including those in tourism	UK
Singapore Green Label Scheme(SGLS)	Tourism and other industries	Singapore
Steinbock	Hotels and conference centers	Switzerland(5 levels)
Tunisia Ecolabel	Tourism and textile	Tunisia
Viabono	Tourism and hospitality	Germany
Vitality Leaf	Tourism and other industries	Russia

Adopted from Hughes et all. 2015

Chapter 3- METHODOLOGY

This chapter presents the research method chosen for this study, the data collection and sampling.

3.1 Research approach

Many scholars have widely discussed about which method, qualitative or quantitative should be used when conducting a research as both have their advantages and disadvantages. Belk (2006:199) claims that using a mixed method "bridges the gap". In an attempt to understand the impacts of seasonality in Greece a mixed method approach that combines quantitative and qualitative methods was chosen. First, semi-structured interviews with owners and managers of tourism businesses were undertaken to investigate how seasonality affects the accommodation sector and what are the actions/methods they use in order to reduce this phenomenon. Second, a questionnaire was designed to capture residents' perception towards tourism and its impacts, and their opinion towards companies' operations and the methods that can be implemented to reduce seasonality. Finally, a comparison of the answers will be made after the results are presented.

3.2 Data collection and sampling

The sample in this study included the owners/managers of accommodation establishments and residents of the country. Six interviews were conducted in person in quiet seating areas of the respective hotels and 40 were distributed via email, of which only 2 were answered. The questions and a summary of the answers are presented in the Appendix. The structured questionnaire, which can be found in the Appendix, was administered to Greek responders and were distributed through a snowball sampling method and online using Google Docs. The survey questionnaire consisted of two parts. Part A consisted of a covering note that explained the term "seasonality" and the purpose of the study, and questions relating to the demographic characteristics (gender, age, level of education, occupation and income). For the Part B 8 questions were asked to capture residents' perceptions of the phenomenon and climate change, the importance of the negative impacts of tourism on a three-point Likert scale, their opinion towards companies that use "green policies", the total contribution of the tourism in the area of residence, and finally the methods that can be used to reduce seasonality. Questions, most of them closed-ended, were put in Greek and then translated in English.

A total of 100 copies were distributed, of which 11 were not returned and 5 were invalid as they were uncompleted. The overall response rate was 84%. Other 57 people answered on Google Docs. All data gathered from copies was transferred in Google Docs.

Chapter 4- RESULTS

The aim of this chapter is to present the results of the semi-structured interviews with owners/managers of the accommodation sector and the structured questionnaire that was administered to Greek responders.

4.1 Interviews

Key points of the semi-structured interviews conducted with owners/managers of accommodation establishments:

> The majority of the hotels target entrepreneurs, then families and sales representatives. In off-peak season most visitors come from abroad, mostly from Europe, and although almost all hotels attempt to mitigate the level of seasonality they do not target new markets as entrepreneurs and families continue to be the main target audience, plus the groups.

> At first glance, it seems like all the hotels have different peak-demand periods, but in reality July-August-September are the months during which the concentration of visitors is high, with August being the busiest month.

> All interviewees, except one, agreed that seasonality has negative effects for their hotel because the biggest challenge they face is the operating expenses related to maintenance costs. Other problems that were mentioned are: the reduction of staff and the difficulty in increasing the length of the tourist season, especially for the hotels that are located seaside.

> The most widespread method used to increase demand outside peak season is to offer packages for business and leisure travelers. Some use internet (mostly booking websites) to promote their packages, others use email marketing. Participation in exhibitions, within the borders of the country and abroad, is also a technique a hotel can use.

> Most interviewees seem to agree that weather is the major cause for seasonality, followed by the economic situation and work/school holidays. "Special" categories of hotels identify other reasons such as the "lack of activities in off-season period as most businesses are temporarily closed during the slow season, so it is up to us to satisfy our guests" (according to an owner of seaside hotel), and the fact that Greek people "lack of spa culture" (according to a co owner of a hotel). Although in Greece there are over 200 spas, it is clear that thermal springs are not popular.

> Most of the hotels are taking steps to become "greener". They recycle and apply appropriate activities to maintain the building, use LED lighting and water boiler heater, choose energy efficient appliances and low water consumption devices, prefer energy saving aluminum frames, some use solar panels and even harvest rainwater. However, none of these hotels is certified green except one that has adopted an environmental management system ISO 14001.

Table 11: Summary of interviewees' responses

1) Target group		**2) Seasonality period(high-demand)**	
Entrepreneurs	1, 2,4,5,7	No seasonality	1,7
Families	4,8	May-September	2
Sales representatives	5,8	July- August- September	3
Ambassadors	5	10th of July- 30th of August	4
Faculty (professors)	7	January- May	5
Travelers/bathers	8	August, Christmas, Easter vacations	6
All	3,6	November- May	8
3) Guests in off-season period?			
Guests		Originated from	
Entrepreneurs	3,4	Outbound	3,4,5,6,8
Families/couples	6,7	Greece	4,5,6
Groups	3,4	Demographic characteristics	
Students	3	Middle aged(40-60), 30-70	5,8
Sport tourism	4	Secondary & higher education	8
Ambassadors	3	Middle class	6
4) Significant Problems		**Methods**	
Operating costs	2,3,5,6,8	Packages	3,5,6,7,8
Difficulty in increasing the length of the tourism season	4	Participation in exhibitions	4
Reduction of staff	8	Promotional offers and mails to partners	6
5) Seasonality Causes			
Weather		1,2,3,4,6,8	
Economic situation		1,2,8	
Work/school holidays		1,2,5	

Political situation		2	
Lack of promotion		2	
Lack of activities		4	
No interest from authorities		6	
Lack of hot spring tourism culture		8	
6) Green policies			
ISO 14001	2	Building insulation	3,4,5
Recycling	1,3,4,5,6,7	Personnel training	4,5
LED lamps	1,3,4,5,6,8	Dual-flush toilet siphon	4,5
Energy efficient appliances	1,3,4,5,8	Key cards	3,7
Boiler-heater	1,3,4,5	Low flow shower heads	4
Energy saving aluminum frames	3,4,5,8	Rainwater harvesting	5
Building maintenance activities	1,3,4,5	Solar panels	8
Low water consumption devices	1,3,4,5		
Have you seen positive reaction from guests?			
Yes		No	
2,3,4		1,5,7	
7) Is seasonality positive or negative for your hotel?			
Positive		Negative	
3		2,5,6,8	

4.2 Questionnaire Answers

4.2.1 Demographic characteristics of responders

The sample consisted of 74.4% females and 25.6% males, the majority of which, 51,6% in particular, were aged from 18 to 27 years old. Another 24.2% were aged 28 to 47, 12.7% were between 38 to 47 years old, 5.1% were aged 48 to 57, 5.7% were more than 58 years of age and only 0.6% or 1 person was less than 18 aged old.

In terms of education, the table below shows that 20.5% hold Master degree and 32.1% attended only high school. A larger group of 47.4% has completed a bachelor's degree. Hence, most responders are of higher education.
Regarding the occupation of the responders the results indicate that 37.2% are employees, 21.8 % students, 11.5% entrepreneurs, only 0.6% or 1 person self-employed and the huge 28.8% unemployed.

Finally, in terms of income the responders were asked to identify their annual income in tens of thousands of euros. 3.8% of responders had an income of more than €30.000. 1.3% had an income of €20.000-29.999, 21% between €10.000 and €19.999, and an enormous 73.9% of responders had an income of less than €10.000.

Table 12: Responders demographic profile

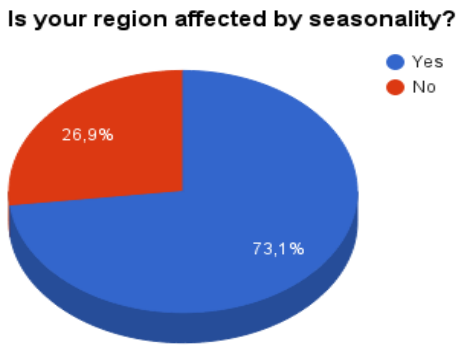
Demographic profiles	Frequency (N=156)		Percentage (%)
Gender	Female	N=116	74.4%
	Men	N=40	25.6%
Age	<18	N=1	0.6%
	18-27	N=81	51.9%
	28-37	N=38	24.4%
	38-47	N=20	12.8%
	48-57	N=8	5.1%
	58+	N=8	5.1%
Education	High school	N=50	32.1%
	Bachelor degree	N=74	47.4%
	Master degree	N=32	20.5%
	PhD degree	N=0	0%
Occupation	Unemployed	N=45	28.8%
	Students	N=34	21.8 %
	Employees	N=58	37.2%
	Entrepreneurs	N=18	11.5%
	Other: Self-employed	N=1	0.6%

Income	<10.000	N=115	73.9%
	10.000-19.999	N=33	21%
	20.000-29.999	N=2	1.3%
	30.000+	N=6	3.8%

4.2.2 Seasonality

The first question responders were asked was about their place of residence. 73.1% claimed that their area suffers from seasonality and only 26.9% of responders answered that their region is not affected by the phenomenon.

Graph 1: Seasonality in the area of residence



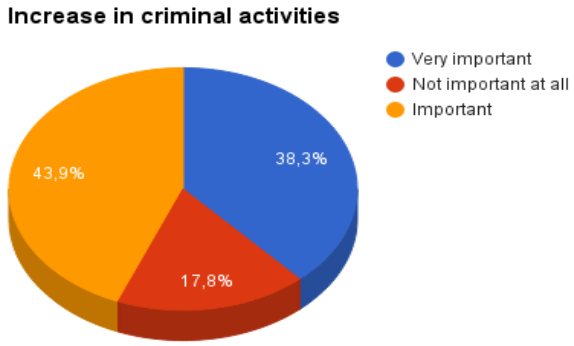
4.2.3 Negative Environmental Impacts

Responders that answered “Yes” in the previous question had to characterize 6 most significant social, economic and environmental impacts on three-point Likert scale of importance level.

4.2.3.1 Increase in criminal activities

43.9% of responders believe that the increase of the crime rate during the peak-season is important, 17.8% said that it is not important at all, and 38.3% find that impact very significant.

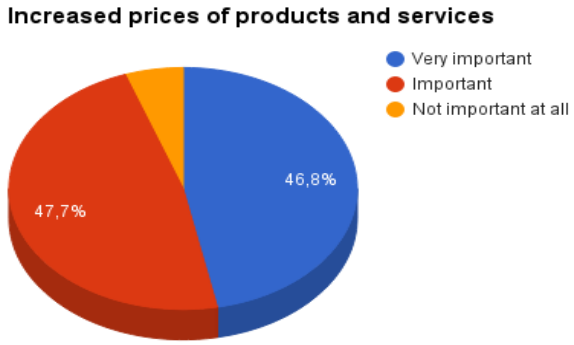
Graph 2: Increase in criminal activities



4.2.3.2 Increased prices of products and services

94.5% of responders agree that prices of products and services increase in high-demand seasons. Of them, 46.8% characterize this effect as very important and 47.7% as important. Only 5.5% of responders find it not important at all.

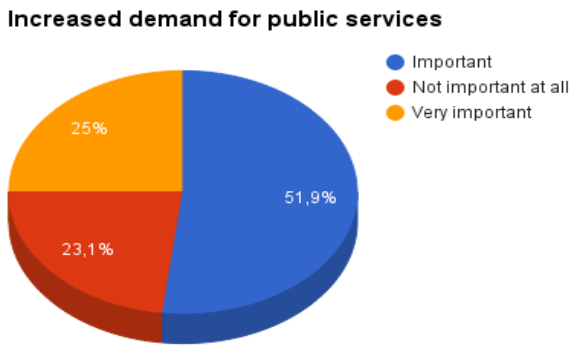
Graph 3: Increased prices of products and services



4.2.3.3 Increased demand for public services

More than half of responders (51.9%) believe that high-demand season leads to high demand for public services, thus they characterize that impact as important. 25% find it very important and 23.1% disagree.

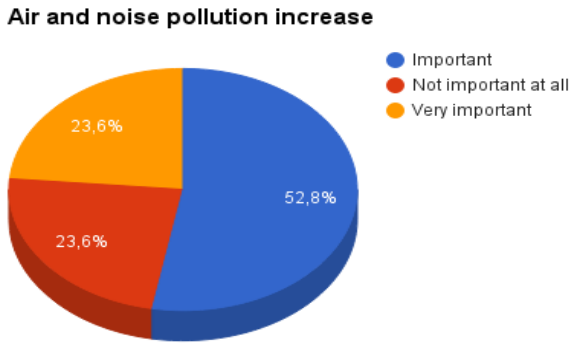
Graph 4: Increased demand for public services



4.2.3.4 Air and noise pollution increase

Air and noise pollution seems to be unimportant for 23.6% of the sample. An equal percentage of 23.6% disagree as they believe that it is very significant, while 52.8% characterize it as just important.

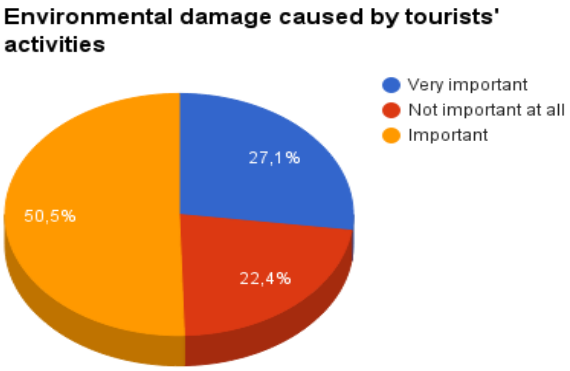
Graph 5: Air and noise pollution increase



4.2.3.5 Environmental damage caused by tourists' activities

Half of the responders (50.5%) claim that the environmental damage caused by tourists' activities is important. 27.1% of the sample characterize it as very important, and the rest 22.4% believe that tourists' activities do not damage the environment in their region.

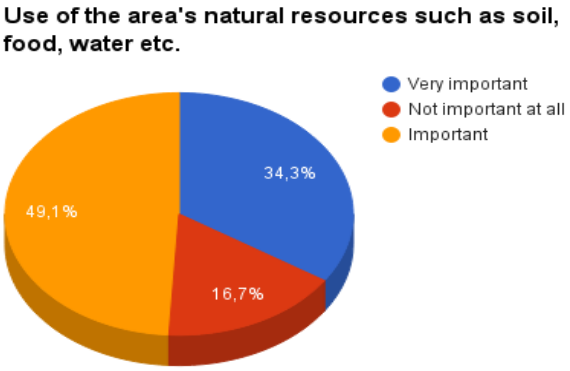
Graph 6: Environmental damage caused by tourists' activities



4.2.3.6 Use of natural resources

More than 83% of responders agree that the use of natural resources is an impact of high importance, of whom 49.1% characterize it as important and 34.3% as very important. However, 16.7% disagree.

Graph 7: Use of natural resources



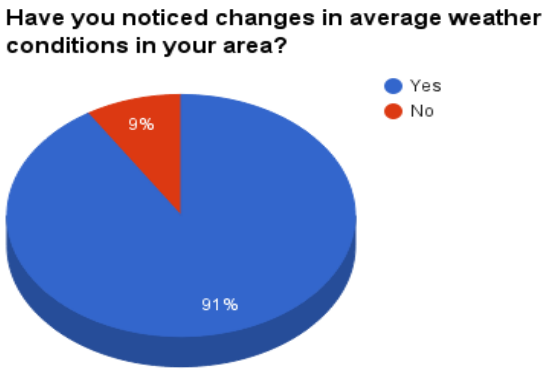
4.2.3.7 Most Significant Negative Impact

From the data presented above we can conclude that Greek residents believe that "Increased prices of products and services" is the most important negative impact of seasonality. As mentioned in the previous chapter, Greece suffers of extreme seasonality because it mainly offers the 3S (sea, sand and sun) form of tourism during the summer period. As a consequence, for a large proportion of coastal areas and islands, summer is the only period other, except accommodation, businesses operate fully, as the tourism is the main source of demand. Thus, many entrepreneurs apply the "higher price" policy during the peak-season to increase their revenue in order to pay their taxes and operating costs for the whole year. This impact could be characterized as neutral but because of the economic recession and the fact that the unemployment rate has increased dramatically over the recent years and, at the same time, salaries have decreased by more than half, responders, of whom 28.8% are unemployed and approximately 74% had an income of less than €10.000, declared it as the most significant negative impact.

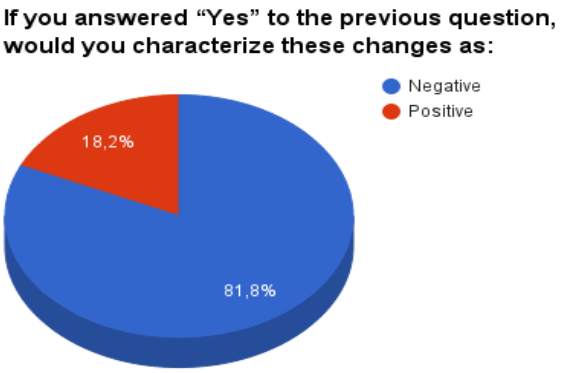
4.2.4 Climate change

Responders were asked to answer whether they have noticed changes in average weather conditions and then characterize them as "Positive" or "Negative".
9% of the sample claimed that climatic conditions have not changed, but a large percentage of 91% disagreed. 81.8% of the latter believe that weather changes are negative, and 18.2% find them positive.

Graph 8: Change of weather conditions



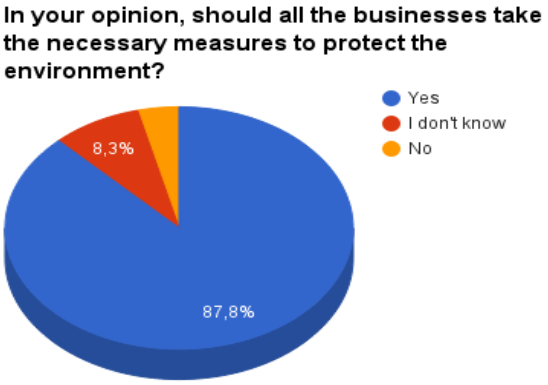
Graph 9: Responders opinion on the climate change



4.2.5 Businesses and the Environment

87.8% of responders claim that businesses must take the necessary measures to protect natural environment. 8.3% of the sample state that they are not informed about climate change and global warming. The rest 3.9% believe that businesses should not "green" any part of their operations.

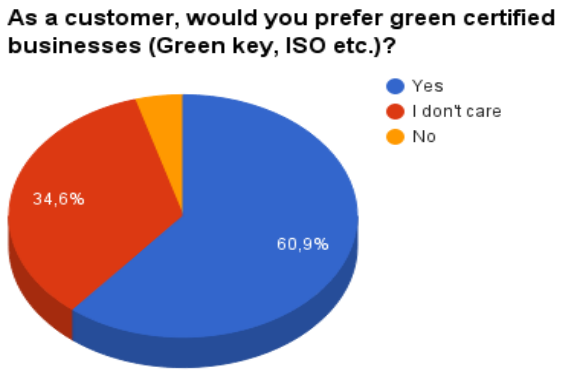
Graph 10: Businesses and the environment



4.2.6 Responders' opinions about eco-friendly businesses

As shown in the graph below, 60.9% of the sample prefers green certified business, 34.6% do not care whether the business applies "green policies", and 4.5% would not.

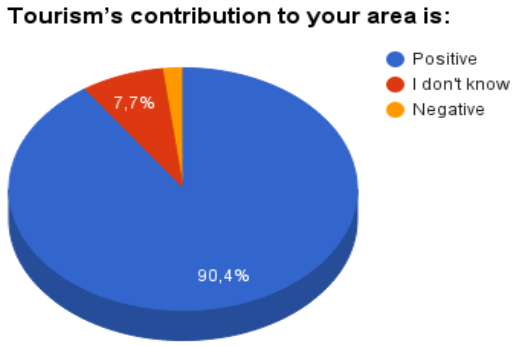
Graph 11: Responders' opinions about eco-friendly businesses



4.2.7 Tourism's Contribution

Responders were asked to set aside the negative impacts of seasonality and evaluate the overall tourism's contribution in their area of residence. 90.4% of the sample characterized tourism's contribution as positive, 1.9% as negative and 7.7% answered that they do not know.

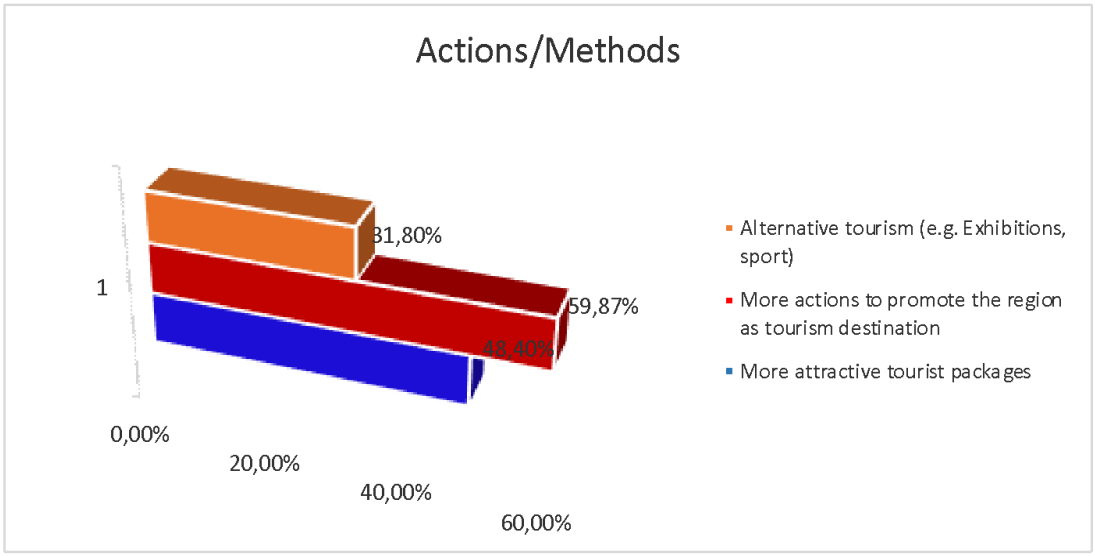
Graph 12: Tourism's contribution



4.2.8 Actions to increase the length of the tourism season

Finally, responders were asked to express their opinion about which method/action they believe that should be taken to increase the length of the tourism season. They could choose more than one answer and propose their own.
Approximately 60% of the sample believe that the region should be promoted more, 48% claim that the accommodation sector should provide more attractive tourist packages, and 31,8% state that alternative tourism can be a good solution as well.

Graph 13: Actions/methods to increase the length of tourism season



4.9 Summary of results

The major findings of this thesis, according to each objective, are as follows:

Objective one: Seasonality causes
Most interviewees agreed that weather is the major cause for seasonality. 81.8% of the sample agrees that they have noticed changes in the average weather conditions, which they characterize as “Negative”. On the contrary, accommodation owners see these changes as an opportunity to stretch the tourism season.

Objective two: Seasonality problems
The main problem accommodation establishments face are the operating expenses related to maintenance costs. The major negative impact that Greek residents identified is the increase in prices of products and services, which was characterized as important from 94.5% of the responders. The rest 5.5% of the sample that described this impact as unimportant are high school graduates who live in tourist areas and most of them receive a salary between €10.000 and €19.999.

Objective three: Actions/methods to reduce seasonality

Both interviewees and residents agree that Greece suffers from extreme seasonality. To reduce seasonality in off-peak seasons, hotels use the method of the package offer for business and leisure travelers. 48.40% of responders agree with this method, but they believe that the length of tourism season can be increased through promotion. This can be achieved only if local authorities decide to set aside a budget for campaigns. Unfortunately, as a manager of a hotel mentioned, “There is no interest from region’s municipality to protect hotels and tourism interests at all”.

Objective four: Business and the environment

Most hotels are environmentally sensitive and take actions to become greener, but only few of them seem to be interested in getting certified. On the other hand, 87.8% of responders agree that businesses must take the necessary measures to protect natural environment and approximately 61% of them claim that they, as customers, would prefer a green certified business, including those that answered that they did not notice changes in the weather conditions. Regarding the demographic characteristics of those who prefer green businesses, over 46% of the responders hold bachelor’s degrees and approximately 25% of them have completed their Master’s degree, they are aged between 18 and 37 years, and employed in both private and public sectors with 71% of them receiving a salary less than €10.000.

Chapter 5- CONCLUSIONS

Tourism seasonality is a well-documented issue in the academic literature. Its economic, socio-cultural and environmental impacts have been a topic of discussion during the last decades as an increasing number of academics and practitioners attempt to identify and value the positive and negative effects of seasonality on the destination area.

This thesis proposed many strategies that owners/managers of the accommodation sector can implement to increase the demand outside the peak season. However, when making their decisions they should take into account the environmental factors because firstly the number of tourists that prefer green business is rising and secondly there are economic benefits that the business can obtain from implementing an EMS or ecolabel. With Greece facing a prolonged economic crisis, it is difficult for the hoteliers to certify themselves. Hence local authorities should take the necessary actions to support sustainable practices and participate in this effort by setting aside a budget to promote the destination.

Climate change is another phenomenon that is worldwide discussed, with many characterizing it as the most important issue humanity has ever faced. In the literature review of this thesis the physical and economic impacts of climate change are presented, as well as the changes that are predicted to take place in the near future in the average temperature in the European and Mediterranean region, and particularly in Greece. Then secondary data was used to provide the general view of the tourism and the tourism in Greece.

A mix-method approach was used to select the primary data needed to conduct this thesis. The aim of this study was to examine the main factors that cause seasonality, identify the major problems that the accommodation sector and the community faces, the comparison of the methods applied by the hotel industry and the actions responders propose to reduce this phenomenon. Also, hoteliers' attitude towards the environment and residents' perception towards companies that use "green policies" were investigated because of their high importance. The results have been presented in the previous Section. In summary, although seasonality is a subject extensively researched in the past, travel trends change rapidly and all stakeholders should face the problem and solve it.

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- ISO: www.iso.org
- SETE: www.sete.gr

APPENDIX

QUESTIONNAIRE

I am a student at International Hellenic University currently researching for my Master dissertation in Sustainable Development. This study aims to capture your perception towards tourism, its impacts and your opinion towards companies' operations, and consists of eight very short multiple choice questions and was designed to require only 5 minutes of your time. It is anonymous and all information will be used exclusively to support this research.

Seasonality is defined as:

"*a temporal imbalance in the phenomenon of tourism, which may be expressed in terms of dimensions of such elements as numbers of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment, and admissions to attractions*"-Richard Butler, 1994.

Thank you in advance for your participation.

PART A

DEMOGRAPHIC CHARACTERISTICS

1) Gender:

Male/Female

2) Age:

- 18<
- 19-27
- 28-37
- 38-47
- 48-57
- 58+

3) Education:

- Some high school
- High school
- University degree
- Master degree
- PhD degree

4) Occupation:

- Unemployed
- Student
- Employee
- Entrepreneur
- Other:

5) Income:

- <10.000
- 10.000-19.999
- 20.000-29.999
- 30.000+

PART B

QUESTIONS

1) Is your region affected by seasonality?
Yes/No

2) If you answered “Yes” to the question above, how would you characterize the following negative impacts?

	Not important at all	Important	Very important
Increase in criminal activities			
Increased prices of products and services			
Increased demand for public services(e.g. hospitals)			
Air and noise pollution increase			
Environmental damage caused by tourist activities			
Use of the area's natural resources such as soil, food, water etc.			

3) Have you noticed changes in average weather conditions (climatic conditions) in your area?
Yes/No

4) If you answered “Yes” to the previous question, would you characterize these changes as:
Positive/Negative

5) Nowadays, climate change and global warming are hot topics of discussion all over the world. In your opinion, should all the businesses take the necessary measures to protect the environment?
Yes/No/I don’t know

6) As a customer, would you prefer green certified businesses (Green key, ISO etc.)?
Yes/No/I don’t care

7) Tourism’s contribution to your area is:
Positive/Negative

8) Finally, what actions should be taken to achieve an increase in the length of the tourism season?

(You can choose more than one answer)

- More attractive tourist packages
- More actions to promote the region as tourism destination.
- Alternative tourism (e.g. Exhibitions, sport)
- Other:

INTERVIEWS

1) What types of customer group do you target e.g. students, entrepreneurs, families, elders etc.
2) Which time/period can be viewed as high-demand (seasonality)?
3) Who are the hotel's guests in off- peak periods e.g. age, education, where they come from?
4) What are the most significant problems that arise from seasonality and are there any methods/policies that you apply in order to fight this phenomenon?
5) Do you believe that weather is the major cause for seasonality or other factors like work and school holidays, political or economic situation?
6) Do you use any green practices such as recycling, personnel training, green roofs, rainwater harvesting etc.
7) If so, have you seen positive reaction from your visitors and does these practices attract new customers?
8) Finally, is seasonality positive or negative for your hotel e.g. other hotels cannot take the cost and close in off-season periods?

1) Receptionist	
1	Entrepreneurs
2	No seasonality is viewed
3	-
4	-
5	Weather conditions is the major cause of seasonality but other factors like work holidays and the economic situation are important as well.
6	Recycling, boiler-heater, LED lamps, energy efficient appliances, building maintenance activities e.g. leaky faucet, low water consumption devices. No.
7	-

2) Owner	
1	Entrepreneurs (hotel is located adjacent to the International Road)
2	End of May till the end of September there is a slight increase in demand.
3	-
4	Operating costs
5	All the factors and the lack of promotion.
6	ISO 14001 Yes, of course.
7	Negative as seasonal businesses cannot develop opportunities.

3) Manager	
1	There is no particular market segment
2	July- August-September
3	Entrepreneurs, ambassadors, students and groups. Most visitors find us on booking.com and are originated from Serbia, Bulgaria, Italy and Romania
4	Operating costs. We offer vacation packages(2nd and 3rd day in half price, breakfast) and we try to satisfy all their needs
5	Weather is the major cause as most visitors book from September and November for the next summer. Other factors affect internal visitors from big city centers such as Athens and Thessaloniki.
6	Recycling, building insulation, boiler-heater, LED lamps, energy saving aluminum frames, energy efficient appliances, building maintenance activities e.g. leaky faucet, low water consumption devices. Yes.
7	Positive.

4) Owner	
1	We target various consumer groups- mainly entrepreneurs and families.
2	10th of July- 30th of August
3	Entrepreneurs, tour groups, sport tourism. Most visitors are originated from Greece, but there are also outbound tourists that visit our hotel in groups.
4	There is difficulty in increasing the length of the tourism season because all the businesses in the area operate only in the demand season. We participate in exhibitions, within the country and in Balkan countries.
5	Weather and the fact that there is lack of activities tourists can participate in off-season period.
6	Recycling, personnel training, building insulation, boiler-heater, LED lamps, energy saving aluminum frames, energy efficient appliances, low flow shower heads, building maintenance activities e.g. leaky faucet, low water consumption devices, dual-flush toilet siphon. Yes as a large number of visitors return to our hotel.
7	I cannot characterize it as positive or negative because most visitors are attracted by our amenities and packages and not by the tourist activities of the area.

5) Owner/Manager	
1	Entrepreneurs, ambassadors and sales representatives.
2	January to May.
3	Most visitors are middle aged tourists.
4	Operative costs/wages. We offer packages for those who stay a minimum of 5 nights.

5	Work holidays
6	Recycling, personnel training, building insulation, boiler-heater, LED lamps, energy saving aluminum frames, energy efficient appliances, building maintenance activities e.g. leaky faucet, low water consumption devices, rainwater harvesting, dual-flush toilet siphon. No.
7	Negative

6) Manager	
1	Business tourism, student tourism, medical tourism, sports tourism, religious tourism, social happenings tourism
2	August, Christmas vacations, Easter vacations
3	Families, couples, foreigners from all over the Europe and Greeks that stop over for a night. Most of them are middle class travelers.
4	Low income-high variable costs surcharge the situation. Promotional offers to attract guests and promotional emails to partners.
5	Climate factors, low demand for Larissa as a tourism destination, low interest for Larissa's tourism from Thessaly Region Authorities, no interest from Larissa's municipality to protect hotels and tourism interests at all.
6	Economy lamps , battery recycling
7	Definitely negative, all hotels in the area operate in these periods.

7) Manager	
1	Entrepreneurs and faculty(professors aged 35-55)
2	No seasonality is viewed in our hotel, but there is definitely a month (middle of July-middle of August) that the demand decreases.
3	Families with kids
4	We offer packages
5	
6	We use key-cards, recycle paper-plastic-aluminum, batteries and oil. No, as these practices are widespread.
7	-

8) Co owner	
1	Families, travelers, sales representatives and bathers
2	November to May. Demand increases in summer because of our location (Chanopoulou hot springs)
3	Our guests are aged 30-70, secondary and higher education. 2 years ago we renovated our hotel, since then the number of foreign visitors has increased.
4	The reduction of staff and revenue necessary for the maintenance of the hotel. To attract guests we offer packages

5	Weather, economic situation and the lack of hot spring tourism culture
6	We use solar panels, led lamps, energy saving aluminum frames, and energy efficient air conditioners.
7	Negative