Anticipating the Impacts of Climate Change on Tourism in Lisbon Metropolitan Area – Assessing Tourist Perceptions

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Abstract

According to the Intergovernmental Panel on Climate Change latest findings, average air temperature in southern Europe can raise from 2ºC to 6ºC until 2100. Longer, warmer summers and smoother winters can be expected, along with changes in the precipitation regime and quantities. In tourism, as well as in other climate sensitive economic sectors – such as agriculture - considerable impacts are likely to happen. Changes in what concerns tourism flows and seasonality can be anticipated, as well as in the activities in which tourists engage. Impacts of climate change in tourism can be either positive or negative, although most literature on the subject has emphasized costs more than benefits. The purpose of this paper is to reflect upon these matters that are currently in an early stage of debate. Taking into account the results of interviews to tourists carried out in the Lisbon Metropolitan Area, as a part of the international project “Urban Tourism and Climate Change”, we try to assess to what extent climate changes will impact on tourism trends and tourist perceptions, behaviour and preferences, and also how these can influence the attractiveness of urban destinations.

1. Introduction

For many regions of the world tourism has become a noteworthy, if not the most important, source of income (De Freitas, 2003), acting as a trigger for a number of businesses. Despite often being pointed out as one of the largest and fastest growing industries in the world (Amelung et al, 2007, De Freitas 2003, Lise and Tol, 2002; Wall, 2007), tourism is extremely vulnerable to several aspects, such as economy, politics, the occurrence of crisis and threats or demographic changes. Tourism trends are, therefore, subject to a great deal of variability.

Climate is among the features that we must take into account when considering international tourism flows. Being a resource in itself and lending many destinations their attractiveness, climate also influences environmental assets that are vital to tourism and recreation and the operating costs related to the tourism activity (De Freitas, Matzarakis, Scott 2006). Hence, bearing in mind both the weight of the tourism industry for global economy and the importance of climate for tourism, it is imperative that we try to assess the impacts that may arise from climate change.

According to the recent findings of the Intergovernmental Panel on Climate Change (Wilbanks et al, 2007), there is evidence that climate has changed when compared to the pre-industrial era and is expected to continue changing. It is anticipated that, until 2100, average temperatures can increase 2º to 6º C in southern Europe. Likewise, longer, warmer summers and smoother winters can be expected. Considering the Scenarios, Impacts and Adaptation Measures (SIAM) project’s forecast for Portugal (Miranda et
al, 2006), a 3º C (in coastal areas) to 7º C (in inner areas) increase in average temperature until 2100 can be estimated. Heat waves are likely to be longer and occur more often. With a greater deal of uncertainty, inland annual precipitation can undergo a severe reduction of 20 to 40 per cent, whereas heavy rainfall events are like to become more recurrent. Such changes will also have indirect environmental impacts, such as biodiversity loss and ecosystems dilapidation, as well as effects in public health (Casimiro et al, 2006). Another expected outcome of climate change is an average sea level raise which can, among other consequences, cause the erosion of the coastal line (Andrade et al, 2006).

Therefore, even though the effects of climate change remain, to a considerable extent, highly uncertain, especially at the regional scale (Alcoforado and Andrade, 2008), there is a widespread agreement on the need to take action to minimize negative impacts and take advantage of the opportunities that may take place. Climate change will bring about structural transformations for the tourism industry calling for adaptation measures. Strategies can encompass a wide range of initiatives, according to the vulnerabilities of a given region. Infrastructure adjustment, diversification of the tourism commodities available, changes in schedules or activity agenda are some of the measures that can be included in adaptation plans.

On the other hand, the transformations in land use, the emission of greenhouse gas (GHG), and the use of energy and water resources entailed by tourism are also aggravating climate change. Mitigation measures to reduce tourism’s environmental impact are, thus, just as crucial as adaptation strategies.

2. Objectives, study case and methodology

Most literature on the impacts of climate change for tourism has emphasized its consequences for seaside and mountain tourism. On the one hand, these tourism destinations are climate dependent and, at the same time, they are regions that display greater vulnerability to climate change impacts. However, the effects of climate change for other tourism destinations, namely urban tourism, have not been thoroughly assessed, even tough it is highly unlikely these will be similar.

The most widespread views on this matter estimate major changes in tourism trends. Under the expected future climate scenario, tourism flows would tend to reorient towards higher latitudes, thus leading to the decline of many traditional international tourism destination (Hamilton et al, 2003). Usually thought of only as a seaside and beach destination, the Mediterranean has been pointed out as one of the potentially top losing regions.

With the current study on Tourism and Climate Change, framed under the Urban-Net project, we intend to question to what extent these scenarios are adequate and can be applied to tourism in urban areas. In order to do so, we try to assess tourists’ environmental awareness and their perceptions on the attractiveness of Lisbon under future climate scenarios. The research, still in progress, is being developed in the Lisbon Metropolitan Area, the second most important tourism region in Portugal, after the Algarve (having registered 21,8% of the country’s overnights in 2007). From the 1990s onwards the tourist demand has grown fast, boosted by a number of events to promote Lisbon’s international image (Brito Henriques, 2003)
3. Results

The following results draw from 218 interviews to tourists (randomly sampled), conducted in the Lisbon Metropolitan Area in the autumn of 2009. In what concerns the sample’s age structure, more than half of the interviewed are under 35 years old (55%), whereas 29% is between 35 and 55 years old; only 15% is over 55 years old. There is a majority of tourists recording a high education level (78% hold, at least, a bachelor degree). The data highlight the importance of the Spanish market in the city’s tourism international demand (1/5), followed by other noteworthy origin markets: Germany (11%); France (11%); United Kingdom (9%). It is also worth pointing that 43% of foreign tourists represent other nationalities (26 different countries), which demonstrates a heterogeneous tourist demand in the region.

The majority of the interviewed is alert to climate change. When assessing the concern about climate change risks, over half the respondents (59%) expressed preoccupation on the matter, whereas 19% demonstrated to be moderately concerned; for 22% of the enquired, however, risks arising from climate change do not constitute a matter of worry.

Fig. 1: Concern with climate change risks

When crossing the replies with the interviewees’ nationalities (using the Chi-Square test) we can observe that there is a significant statistical relation (p < 0.01) between these variables. Tourists from United Kingdom and Germany appear to be more worried than tourists arriving from France, Spain and domestic tourists.

Establishing a comparison between the concern and the respondents’ age, we can see that young and middle aged people reveal to be more apprehensive about climate change risks than people that are over 55 years old. This may be explained by the evolution of environmental education and raise of awareness to the subject, recent trends in societies. Furthermore, it can also express elder’s lower levels of concern for the future.

During the interview, tourists were confronted with two hypothetical climate change scenarios for the region in 2050, based on the projections presented in Miranda et al (2006): a moderate and an extreme future scenario. According to the first scenario, a 2°C raise in average temperatures can be expected, as well as a 150 mm decrease in average annual precipitation and a more frequent occurrence of heat waves. In an extreme future scenario, a 5°C increase in average temperatures is estimated; heat waves are
likely to take place more often and for longer time periods, while annual precipitation is expected to severely decrease (300 mm). A 7 point Lickert scale was used in order to assess the tourists’ perception on the region’s attractiveness, facing these two scenarios.

![Fig. 2: Concern with climate change risks in relation to the interviewees’ nationality](image1)

![Fig. 3: Tourists opinion on the regions’ attractiveness facing two distinct future climate scenarios for 2050 (average values in a 7 point Lickert scale, 1 expressing disagreement and 7 expressing total agreement)](image2)

In general, according to the tourists’ opinion, summer’s attractiveness will suffer harshly, especially before an extreme future scenario. The data reveals that intermediate season’s pleasantness will undergo a slight decrease in the second scenario, remaining, nevertheless, positive. In face of the expected climate assessment, the winter is seen as the most agreeable season for visiting, particularly under an extreme future scenario.

On the other hand, recreation and tourism activities also demand certain specific climate conditions. Considering possible impacts on tourist practices, the interviewed were asked whether climate changes would influence the activities in which they engage. Over half the respondents answered that, facing climate change, they would prefer indoor activities in the summer, in order to escape excessive heat whereas, in the winter, the climate would largely encourage engaging in outdoor activities.
Fig. 4: Opinion on the effects of climate change on tourist preference for indoor or outdoor activities

4. Conclusions

The results of the research, although preliminary, suggest that tourists are aware of climate change, although the extent of concern with the risks that it may entail widely varies, namely according to the respondents age and nationality.

Considering tourist perceptions on the attractiveness of the region before two future climate scenarios we can see that the winter is perceived as the most pleasant season for visiting. Moreover, looking at recent tourism trends, city and short breaks or golf tourism are increasingly favouring shoulder months and winter. Therefore, milder autumns and winters can be quite positive for the attractiveness of a given region and lead us to anticipate possible seasonal shifts in the tourist demand patterns.

The variety of practices and activities in which tourists can engage in urban destinations, on the other hand, allow for adjustments and do not necessarily entail a decline of a given region.

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