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How guest profile and tourist segment explain acceptance of economic-based water-saving measures. A Mediterranean destination case study --Manuscript Draft--

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Abstract:	<p>Saving water in tourist destinations is most effective when guests staying in rental accommodation actively participate and collaborate in it, especially in regions where water is scarce, such as the Mediterranean. There are several guest-centred water-saving measures that may be significant and therefore play an important role in saving water, including economic ones. Measures such as taxes and/or economic incentives may be worth considering as a complement to existing water-saving actions. However, little is known about how acceptable they are to guests. To research the acceptance of these measures to guests with different profiles, 493 guests from five hotels, selected by a convenience sampling approach, were surveyed. These hotels - in the Ter River basin, a region with high water stress - stand out for their good water-saving practices. A two-step cluster analysis has been applied to analyse how acceptance of a water tax and a water incentive can be explained by the three resulting clusters. The results demonstrate the water incentive-based measure to be clearly cluster-dependant, a fact that allows to state that the design and application of an economic-based environmental measure need to consider the specific territorial characteristics of the tourist destination. This study explores potential strategies for saving water in a tourist destination facing important challenges regarding climate change and water availability since it allows for the formulation of multiple solutions to reduce water consumption dealing with water scarcity, and sheds new and important light on water resource management in tourist areas. It also highlights the essential role that visitors should adopt in relation to sustainable water consumption during their holiday, making them, together with Destination Management Organizations and the business sector, fundamental stakeholders in the sustainable use of natural resources.</p>
Suggested Reviewers:	
Opposed Reviewers:	
Response to Reviewers:	

Dear editorial board,

Please find enclosed the manuscript entitled “**How guest profile and tourist segment explain acceptance of economic-based water-saving measures. A Mediterranean destination case study**”, by Ariadna Gabarda-Mallorquí, Xavier Garcia, Rosa Maria Fraguell and Anna Ribas, submitted as a Research Paper to the Journal of Hospitality and Tourism Management. All co-authors have seen and agreed with the contents of the manuscript and there is no financial conflict of interest to report. We also certify that the submission is not under review by any other publication.

The main aim of this study was to determine which of the factors related to hotel guests' sociodemographic profile and the territorial specifications of the tourist destination best explain the acceptance of two economic-based environmental measures devised to save water through collaboration by guests, known as the Water tax and the Incentive tax, respectively. A total of 493 surveys were administered to guests staying at hotels that excel thanks to their best practices regarding water saving. The hotels are located in the River Ter basin in Catalonia. We used a two-step cluster analysis to analyse how acceptance of a water tax and a water incentive can be explained by the three resulting clusters. The results demonstrate the variable *Water-incent* to be clearly cluster-dependant, a fact that allows us to state that the design and application of an economic-based environmental measure needs to consider the **specific territorial characteristics of the tourist destination**.

We consider that this study may be of interest to the Journal's readership because it demonstrates that variables related to the guests' sociodemographic profile and the specific territorial characteristics of the destination can modulate acceptance of economic-based measures. The study could therefore be of great interest to **local and regional tourism and water managers**, since it allows for the formulation of multiple solutions to reduce water consumption dealing with **water scarcity**, and sheds new and important light on the field of **water resource management in tourist areas**.

Yours sincerely,

Ariadna Gabarda-Mallorquí, on behalf of the authors.

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27th July 2022

Dear Editor,

We are pleased to submit our revised version of the manuscript “How guest profile and tourist segment explain acceptance of economic-based water-saving measures. A Mediterranean destination case study”, for further consideration for publication in the *Journal of Hospitality and Tourism Management*.

We thank the reviewers for their thoughtful and very helpful comments. Below, we have indicated the main amendments made to the paper following the suggestions received. Thus, the following table summarizes the amendments performed considering reviewers’ comments.

Reviewer 1 comments	Authors’ reply	Text location
Abstract. Missing sampling technique	We added a brief sentence mentioning the sampling technique applied.	P. 1, line 12
Abstract. Line 18 and line 21: Delete 'on the one hand' and 'and on the other'	Amendment done.	
Abstract. The results and impact of the study are still not clear and need improvement.	Amendment done.	P. 1, lines 14-19 and 21-23.
Method. What is the sampling technique you are using?	We included a new paragraph detailing the sampling technique used.	P. 7, lines 23-26.
Acknowledgements. You mention that will include the main funding research agency or your institution (if available) but it's still blank	Amendment done. We anonymized the funding agency and the project’s name and reference to assure confidentiality and a consistent double-blind reviewing process. We’ll add this information in case the article is finally accepted for publication.	P. 16, lines 21-24

Reviewer 2 comments	Authors’ reply	Text location
First, author contributions, acknowledgements, and references should not be numbered.	Amendment done.	
Second, the managerial implications of the study could also be improved as the companies that are able to demonstrate good impact on	Amendment done. We included a new sentence connecting the article’s managerial impact with the multiple benefits in applying ESG actions, as stated by Lim et al (2022).	P. 15, line 53, and P. 16, lines 1-3

the environment and society could also receive higher valuation due to better ESG performance (Lim et al., 2022). In this regard, highlighting the value of ESG performance could happen as part of rounding out your paper with impact.

How guest profile and tourist segment explain acceptance of economic-based water-saving measures. A Mediterranean destination case study

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How guest profile and tourist segment explain acceptance of economic-based water-saving measures. A Mediterranean destination case study

Abstract. Saving water in tourist destinations is most effective when guests staying in rental accommodation actively participate and collaborate in it, especially in regions where water is scarce, such as the Mediterranean. There are several guest-centred water-saving measures that may be significant and therefore play an important role in saving water, including economic ones. Measures such as taxes and/or economic incentives may be worth considering as a complement to existing water-saving actions. However, little is known about how acceptable they are to guests. To research the acceptance of these measures to guests with different profiles, 493 guests from five hotels, selected by a convenience sampling approach, were surveyed. These hotels - in the Ter River basin, a region with high water stress - stand out for their good water-saving practices. A two-step cluster analysis has been applied to analyse how acceptance of a water tax and a water incentive can be explained by the three resulting clusters. The results demonstrate the water incentive-based measure to be clearly cluster-dependant, a fact that allows to state that the design and application of an economic-based environmental measure need to consider the guests' sociodemographic profiles and the specific territorial characteristics of the tourist destination. This area where the hotel is located may be decisive in explaining how acceptable such measures are, this particularly being the case with incentive-based economic measures. On the one hand, this study explores potential strategies for saving water in a tourist destination facing important challenges regarding climate change and water availability since it allows for -~~And on the~~ formulation of multiple solutions to reduce water consumption dealing with water scarcity, and sheds new and important light on water resource management in tourist areas. It also~~other, it~~ highlights the essential role that visitors should adopt in relation to sustainable water consumption during their holiday, making them, together with Destination Management Organizations and the business sector, a~~fundamental stakeholders~~ stakeholder in the sustainable use of natural resources.

Keywords: saving water, hotel, Mediterranean, guest, economic-based measures

1. Introduction

Tourism has traditionally been one of the fastest growing economic sectors, despite its sharp decline because of mobility restrictions resulting from the COVID-19 pandemic (Gössling et al., 2020). However, tourism often has a considerable environmental impact, especially in very seasonal, mass-tourism destinations. Strategic actions aimed at increasing sustainability and the reasons for and the obstacles to their implementation have become a key area of great interest for academic research (Kasim et al., 2014). This study focuses on economic measures among the various actions implemented in tourist destinations. Among these, ecotaxes aimed at alleviating the negative effects of tourism on the environment have become the most widely used (Durán-Román et al., 2020). The Organization for Economic Cooperation and Development defines ecotaxes as "those indirect rates, fees and charges affecting primarily tourism-related activities" (Organization for Economic Cooperation and Development, 2014, p. 76) that "attempt to protect natural or cultural spaces of special tourist value" (López-del-Pino et al., 2021, p. 1). It is important to mention a second alternative economic measure, based on incentives, that aims to reward those individuals and/or entities with better environmental performance through, for example, tax reduction and/or exemption (López-del-Pino et al., 2021). Both taxes and economic incentives can be particularly effective measures in tourist

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destinations where water is a highly contested and scarce commodity, such as the Mediterranean. In line with projections about the climate, a steady supply of water in sufficient quantity and quality poses significant challenges for the tourism sector (Intergovernmental Panel on Climate Change, 2021). It should be noted that, recently, the tourism sector, especially hotels, has initiated a process of adapting facilities and services to reduce water consumption and to better able to new climate scenarios. Many of these water-saving actions and/or measures are now widely acknowledged and have been the subject of study in several scientific papers (Barberán et al., 2013; Olcina et al., 2016). The factors that act as incentives or barriers to their implementation have also aroused academic interest, with the consequent publication of an increasing number of scientific articles (Chan, 2008; Torres-Bagur et al., 2019). However, although the sector is aware of its impact on water resources and has implemented numerous strategies to reduce this, achieving a significant reduction in water consumption is not possible without the active involvement of visitors, since maximum efficiency in the water-saving cycle undoubtedly requires proactive environmental behaviour by hotel guests (Gabarda-Mallorquí et al., 2020). This fact highlights the importance of collaboration between guests and hotels. In fact, integrating consumers into sustainable practices can lead to a more competitive advantage for businesses (Kashyap & Lakhanpal, 2019).

There are currently several types of guest-based measures aimed at achieving visitors' collaboration in saving water and maximizing their contribution. The most popular and widely applied measures in the hotel sector are grouped into structural measures (such as dual-flush toilets and timed flow taps) and social measures (such as signs with information about how to save water, the reuse of towels, and awareness programmes). In addition to these, and in line with the 5th IPCC Report (2014), there is a third group pertaining to regulatory and institutional measures, among which could be included all those economic actions aimed exclusively at the management. As Lim (2022) proposes in a broader sense, economic actions would lead to improving sustainable performance in water use and consumption if visitors have a clear picture of the social and environmental benefits when applying them. Strategies based on creating new taxes and/or new economic, environmental incentive programmes could be key to better water management, ensuring greater efficiency of water use and consumption. Understanding and exploring the acceptance of these measures and the types of guests that are willing to accept them is fundamental to advancing the socio-environmental viability of these measures.

The aim of this study is therefore to research how acceptable guest-based economic water-saving measures are to guests staying in hotels aimed at various tourist segmentations (sun and sand, urban, nature, sport, and rural) that already have multiple water-saving mechanisms and/or strategies in place. On the one hand, the acceptance of water taxes for recuperating the cost of water-saving mechanisms and/or infrastructure is studied, and, on the other hand, the acceptance of incentives that promote the rational use of water via discounts on the bill according to how much water is saved is also analysed. In both cases, guests' profiles include the main reason for their stay and the hotel in which they are staying. Thus, it is possible to observe which profiles have a higher or lower acceptance of these measures and to know where the measures are more socio-environmentally viable. Linked to this study's main goal, the main research questions are defined as follows:

(RQ1) To what extent are economic-based measures for better hotel water-saving performance accepted by guests?

(RQ2) Are there significant differences between tourist segments in the level of acceptance of economic-based measures?

(RQ3) Could the territorial features of a specific tourist destination determine level of acceptance when it comes to economic-based measures?

The aim of this article is to contribute to the United Nations Sustainable Development Goals, specifically numbers 6, 12 and 14, since it advocates attainment of the highest levels of water efficiency in its use and consumption, while ensuring sustainable water consumption and improving environmental quality in aquatic and marine ecosystems.

2. Literature review

As noted above, negative externalities, in this case those caused by tourism, can be corrected by economic measures (Yasamis, 2011). Two of these measures, environmental taxes and incentives, the subject of this study, have been widely researched in the tourism field, especially environmental taxes. However, and as set out below, while the acceptance of environmental taxes by tourists has been extensively studied, the same is not valid in the case of incentives, whose acceptance has not been evaluated in detail.

2.1. Economic-based environmental taxes and incentives

Regarding the first, taxes allow the negative externalities of a specific activity to be internalized (Pigou, 1932); therefore, environmental taxes have a corrective effect on the environmental impact of an activity (Yasamis, 2011). The main objective of an environmental tax is to use a microeconomic measure "to regulate and control the environmental behavior of enterprises" (Zou, 2019, p. 3). Although the economic sectors with the highest environmental taxes tend to be energy, transport and/or industries with high levels of air polluting emissions, it should be noted that 21 of the top 50 tourist destinations in the world currently apply a tourist environmental tax (Durán-Román et al., 2020). Tourism has, in fact, traditionally been a sector with a low tax burden, but today it is an economic activity that is susceptible to a wide range of taxes, including environmental taxes (Gago & Labandeira, 2001). Environmental taxes are usually levied on tourism businesses or directly on visitors, although in both cases the measure can be implemented as part of a general economic taxation system and/or as part of specific sectoral plans (Gooroochurn & Sinclair, 2005). In addition, environmental taxes are clearly an economic resource from non-residents that has a direct impact on improving the environmental quality of tourist destinations (Palmer & Riera, 2003), as opposed to taxation on the consumption of goods and/or services such as VAT, which generally affects both residents and visitors (López-del-Pino et al., 2021). However, despite the benefits and the improvement in the environmental quality of destinations that apply this type of measure, environmental taxes have often not been well received by the business sector. Their main concern has been the possible loss of competitiveness versus other tourist destinations that do not tax the tourism sector's activities, causing tourists to look for lower-priced alternatives. Moreover, this loss of competitiveness may be even more evident in mass tourism destinations, where precisely what tourists look for are low prices (García & Tugores, 2013).

On the other hand, in general terms, economic incentives are understood as those mechanisms that reduce and/or alleviate the tax burden of certain activities (Durán-Román et al., 2020). In the tourism sector, measures based on the return of general consumption taxes on goods or services to those tourists who claim it (VAT refund mechanisms) aimed at promoting tourism in countries such as Israel, Mexico, and South Africa are well known (Organization for Economic Cooperation and Development, 2014). Although probably a less popular measure than VAT refunds, exemptions from certain taxes, such as those linked to home ownership, are also an

instrument for incentivizing certain tourism activities for a specific purpose. Economic incentives are often considered a very effective mechanism for the conservation and maintenance of the environment (Muchapondwa et al., 2009) because they motivate individuals to be more committed to the environment (Imran et al., 2014). However, these incentives need to be studied carefully, as an economic incentive in exchange for a more sustainable attitude may diminish the individual's sense of civic duty, causing them to be environmentally proactive solely to receive financial compensation and not because it is their duty (Frey & Oberholzer-Gee, 1997). Incentives can also take the form of aid and subsidies aimed at promoting the transition to sustainability (Clement & Hansen, 2003). Economic incentives in the form of discounts on the purchase of electric vehicles to replace highly polluting ones are well known. In the tourism sector there are also environmental incentives for those companies that improve the sustainability of their activity, these being one of the main reasons for doing so (Blanco et al., 2009).

2.2. Level of acceptance

To analyse the effectiveness of the two measures presented above and their possible socio-environmental effects, it is first necessary to study their acceptance by visitors and/or guests in various tourism contexts and types of accommodation. In the case of environmental taxes applied to the tourism sector and/or its related activities, considerable progress has been made in research on willingness-to-pay by analysing those factors that determine it. In the case of environmental incentives, relatively few references have been found for research into their acceptance by environmentally proactive visitors, although the main results are presented.

2.2.1. Acceptance of economic-based environmental taxes

In the case of environmental taxes, and given the controversy they often generate, academic studies have focused on the sociodemographic profiles of visitors to explain the willingness-to-pay (WTP) of this measure (Kostakis & Sardianou, 2012). Analysing the acceptance of environmental taxes by visitors is fundamental in forecasting the response of tourist demand (Serra, 2004). Thus, WTP has been widely explored in different contexts such as, for example, the conservation of areas of natural interest (Reynisdottir et al., 2008), the environmental management of beaches (Alves et al., 2015), or the fight against climate change (Kostakis & Sardianou, 2012). Whatever the context, there are explanatory sociodemographic variables that shape it, despite there being disparity in the results of the studies consulted. Guests' place of origin, age, level of education or professional category have an effect on their willingness to pay an environmental tax. Other variables, related to the reasons for visitors' trips, which have been timidly explored in some studies, also stand out.

Place of origin

With regards to visitors' place of origin, Davis and Tisdell (1999), having conducted surveys with 376 visitors to Ningaloo Marine Park (Western Australia), concluded that Japanese tourists, the majority of the park's visitors, were less willing to pay a fee to enter the park. However, a study of 110 visitors to Etna Park (Italy), aimed at assessing the willingness to pay a fee to enter the park, showed that domestic tourists tended to have a lower WTP than international tourists (Platania & Rizzo, 2018). Finally, a study conducted in Iceland into the WTP of 255 visitors to Skaftafell National Park and Gullfoss waterfall concluded that the users' place of origin did not affect their willingness to pay an entry fee and therefore does not significantly explain WTP (Reynisdottir et al., 2008).

Age

Again, visitors' ages are also a widely studied sociodemographic variable, but there are disparities among the results of several studies. While some studies state that the older the person, the higher the WTP (Bhandari & Heshmati, 2010; Do Valle et al., 2012; Serra, 2004), others state the opposite, claiming that younger visitors have a higher WTP (Alves et al., 2015; Iranah et al., 2018; Platania & Rizzo, 2018; Reynisdottir et al., 2008). Middle-aged tourists may also have a higher WTP (Kostakis & Sardanou, 2012).

Level of education

The influence of visitors to a particular region's level of education on their willingness to pay a tax or fee is another sociodemographic variable that has been widely studied. In this case, the results of numerous studies point in the same direction: tourists with a higher level of education show a greater predisposition to pay an environment tax during their stay (Alves et al., 2015; Bhandari & Heshmati, 2010; Reynisdottir et al., 2008; Serra, 2004).

Professional profile

A visitor's professional profile may have an influence on their WTP; acceptance of paying taxes is higher among self-employed visitors (López-Sánchez & Pulido-Fernández, 2017). However, there are also other studies that indicate that there is not a significant correlation between people's professional profile and WTP (Durán-Román et al., 2021).

Purpose of trip

Tourists' reasons for travelling is also a variable to be taken into consideration, as a way of identifying tourist destinations that receive a higher (or lower) number of tourists with a higher (or lower) WTP level. For example, a study carried out in Germany of 1000 tourists who had visited Mallorca showed that the visitors with higher WTP are those who tended to travel to less crowded tourist destinations and not those destinations only offering sun and beach tourism (Serra, 2004). Along the same lines, a study of 474 individuals visiting the beaches of the Algarve (Portugal) showed that the cluster called "Typical sun and beach tourists", who represented 82% of the sample, had a lower level of WTP (Do Valle et al., 2012). In the same study, it was found that the cluster of "Nature oriented tourists", those visitors who use beaches to enjoy the landscape and for walking, had higher levels of WTP.

2.2.2. Acceptance of economic-based environmental incentives

As previously mentioned, the acceptance of economic-based environmental incentives has been studied much less than the acceptance of economic-based environmental taxes. Nevertheless, the results of relevant studies into the acceptance by tourists of economic-based environmental measures are presented below.

In a study of 303 tourists visiting San Miguel de Allende (Mexico) that aimed to find out the main reasons why they practise good environmental practices, 43.9% of them said that they would participate in the environmental programmes of the hotel where they were staying in exchange for financial compensation, the most important reason by a long way (Berezan et al., 2014). Using a significantly different approach, the work of Ting et al. (2019) studied how two possible incentives can affect why people stay at a green hotel. Based on a survey of 327 tourists in Taiwan, the authors concluded that

guests preferred an economic incentive based on cash discounts to an incentive based on "allocating a portion of funds acquired by environmentally friendly consumer behaviour to the sponsorship of green activities". Apart from the obvious effect of an economic incentive on environmental behaviour, it should be noted that these types of measures are often also the most efficient. A study carried out in a hotel complex on Turtle Island (Thailand) studied the effect that messages asking guests to reuse bathroom towels for more than one day had on their environmental behaviour (Morgan & Chompreeda, 2015). The economic message had the greatest effect on the guests' behaviour: the rooms with the economic message were the ones with the highest number of towels hung up. Economic incentives tend to be more efficient and have a greater effect on guests' environmental behaviour.

Bearing the above in mind, this study offers a novel contribution to fill a specific research gap. As previously mentioned, sociodemographic variables have been the most explored items to date when analysing the level of acceptance of any economic-based environmental measure, especially environmental taxes. Our study, on the other hand, attempts to determine whether the combination of the tourist segment and guests' sociodemographic profile has some influence over the level of acceptance of economic-based environmental measures. It is worth noting that this exploration has in part been carried out using environmental incentive measures, the acceptability and determining factors of which are largely unknown.

3. Case study

Our case study is centred on five hotels in the Ter River basin (Girona, Spain) in the northeast of the Iberian Peninsula. The water resources of this basin are the source of supply for all local activities, but also supply the metropolitan area of Barcelona, transferring up to 140hm³ of water a year. The basin has been highly manipulated - from the second half of the 20th century onwards large hydraulic works have been built to supply the population and guarantee water during the driest periods.

The Ter basin is a region with lots of tourism. Around the upper reaches of the river there are several mountain and snow tourism destinations in the Eastern Pyrenees; in the middle reaches there is nature and rural tourism, as well as urban tourism in medium-sized cities such as Girona; and in the lower reaches there is one of the most well-established and internationally well-known sun and beach tourist regions in Spain, the Costa Brava. It is this context that makes the Ter basin especially interesting for this study, since on the one hand it is a river basin that requires efficient water management to reduce the impact of the overexploitation of water resources, and on the other hand, it is home to many different tourist destinations with many different types of tourists.

4. Method

4.1. Sample and instruments

To meet the aims of this study, information was collected from surveys of guests at the group of hotels mentioned above. These hotels are geographically distributed throughout the Ter River basin. Apart from their different idiosyncrasies and locations, the five hotels stand out for having multiple water-saving mechanisms and/or strategies, whether infrastructural and/or awareness-raising measures. They all share the same vision of sustainable tourism and use various actions and/or instruments to reduce water consumption, such as Re-use of rainwater, Planting of native plant species in gardens and/or Water consumption register, among others.

Figure 1 shows the location of these hotels in the Ter River basin. The *Hotel Vall de Núria* is located near the source of the river, in a Pyrenean mountain environment. It is a hotel for guests who do snow sports. Also located near the upper reaches of the river is the *Hotel Grèvol*, which is intended as accommodation for guests seeking contact with nature and leisure in natural surroundings. *L'Avenc de Tavertet* is a hotel complex located in the middle section of the basin, in an idyllic rural setting with great scenery. The *Hotel Ciutat de Girona* is urban accommodation in the centre of the capital, Girona. Finally, the *Hotel Medes II* is the only one of the hotels on the Costa Brava, catering for mainly sun and beach-seeking guests.

Figure 1. Location of the hotels selected for guest surveys



Authors' own work.

The questionnaire designed for the collection of information consisted of four main sections. (1) Profile of the respondent: a section with questions aimed at defining the sociodemographic characteristics of the guests. This section also contained questions about the characteristics of the guests' stay and the reasons for it. (2) Assessment of the elements that use water during the guests' stay. (3) Water saving habits and actions: in this section, guests were asked questions about their use of water during their stay using a 5-point Likert scale, where 1 stood for "Not at all" and 5 "A lot". This section also asked how acceptable the two economic measures proposed in this study were to guests. (4) Attitudes towards water saving: this last section of the survey included questions about guests' attitudes towards the need to save water.

A team of four people conducted the surveys in the five hotels. Versions of the questionnaire in Catalan, Spanish, and English were used. University graduates conducted the surveys, supervised by the two researchers and lecturers who led the research project this study is part of. Preparatory meetings were held prior to the data collection process, the status of each interviewer's tasks was periodically assessed, and the compilation of the data was controlled and coordinated. A non-probability sampling method was used in this study, concretely a convenience sampling

approach. In this sense, participants to the study were selected mainly by their availability and willingness to answer the survey. The surveys were carried out face to face with the guests prior to check-out, with the aim of ensuring that they had been able to get to know the environment and the facilities of the hotel where they had stayed. To avoid blank answers as far as possible, the surveys were conducted anonymously, and the data was treated with the utmost confidentiality and scientific rigour. The interviewer was responsible for asking the questions directly to the guests, minimizing any misunderstandings and specifying details in case of queries. As the hotels are very different, peak seasons vary for each one. Those in the mountains, such as the *Hotel Vall de Núria*, have their highest number of overnight stays during the winter; this is not the case on the coast, where the high season begins in May or June. Because of this, and to ensure the greatest possible number of completed questionnaires, the data collection processes were adapted according to the type of hotel and its peak season. Table 1 shows the periods when the fieldwork phase for each of the 5 selected hotels was carried out, as well as the number of overnight stays during the same period the previous year, the sample size, and the number of surveys completed.

Table 1. Sample size

Hotel name	Data collection period (2019)	Guests during this period (2018)	Required sample (10% margin of error)	Surveys completed
Hotel Vall de Núria	February and March	4136	98	122
Hotel Grèvol	May and June	1226	93	91
L'Avenc de Tavertet	January to June	2429	96	44
Hotel Ciutat de Girona	January to June	4546	98	117
Hotel Medes II	July and August	1551	94	119
Total	-	13,888	478	493

The sample size was calculated following Hair et al. (1999), taking into account the total number of visits to each hotel throughout 2018, and a margin of error of 10%. This margin of error can be considered acceptable because in this study we wanted to deduce trends and infer results in an exploratory way. The resulting sample size was 478 surveys, distributed proportionately among the 5 hotels. In the end, a total of 493 surveys were completed between January and August 2019 (Table 1). Although fieldwork was carried out on different days of the week in all the hotels, most of the surveys were conducted on Sunday mornings, as this is the day with the highest number of departing guests.

4.2. Study variables

To define or classify the main guest profiles, a set of analysis variables was selected from those listed in sections 1 and 3 of the questionnaire (Table 2).

Table 2. Selected variables and their description

Variable name	Description	Values	Type of variable
Sociodemographic variables			
Age	Age of respondent	Age (> 18)	Discrete
Prof_cat	Professional category	Businessperson with employees = 1 Businessperson without employees = 2 Self-employed = 3 Employed = 4 Student = 5	Nominal

Variable name	Description	Values	Type of variable
		Unemployed = 6 Retired = 7	
<i>Origin</i>	Place of origin	Province of Girona = 1 Barcelona Metropolitan Area = 2 Rest of Catalonia = 3 Rest of Spain = 4 Rest of Europe = 5 Rest of the world = 6	Nominal
<i>Educ_level</i>	Level of education	No education = 1 Primary education = 2 Compulsory secondary education = 3 Vocational training/Baccalaureate = 4 University = 5	Ordinal
Type of stay and purpose of trip variables			
<i>Nights</i>	Number of nights stay	Nights	Discrete
<i>Loyalty</i>	Is this the first time you have stayed here?	0 = No 1 = Yes	Binary
<i>Mot_business</i>	The reason for your stay is business	1 = Not at all 2 = Not a lot 3 = A certain amount 4 = Quite a lot 5 = A lot	Ordinal
<i>Mot_congress</i>	The reason for your stay is a convention		
<i>Mot_shopping</i>	The reason for your stay is shopping		
<i>Mot_culture</i>	The reason for your stay is culture and historical heritage		
<i>Mot_food</i>	The reason for your stay is gastronomy		
<i>Mot_events</i>	The reason for your stay is events		
<i>Mot_sports</i>	The reason for your stay is sport		
<i>Mot_nature</i>	The reason for your stay is walking and nature and the countryside		
<i>Mot_beach</i>	The reason for your stay is the sun and the beach		
Economic measures variables			
<i>Water_incent</i>	Would you be willing to reduce your in-room water consumption during your stay if it were associated with a reduction in the price of your stay?	0 = No 1 = Yes	Binary
<i>Water_tax</i>	Would you be willing to pay a tax on your stay if this money was invested in water-saving infrastructure in the hotel?		

4.3. Statistical analysis

Two-step cluster analysis was used to define distinct profiles of guests who visited hotels in the Ter river basin (Chiu et al., 2001). This type of analysis allows the natural groupings (or clusters) of a set of data of both qualitative and quantitative variables to be detected. The latter is possible assuming that the variables are independent, allowing a normal joint multinomial distribution to be applied to continuous and categorical variables. It also allows automatic and better selection of the number of clusters, using model quality measures for a dataset, such as the Bayesian Information Criterion (as used in this case) (Bacher et al., 2004). The variables used to define the profiles of guests in this study were sociodemographic variables and the type of stay and the reason for it. The characterization of the clusters was carried out by cross-referencing the variables used in the cluster analysis with the results of the cluster analysis itself. The Kruskal-Wallis non-parametric test and the chi-squared test were applied to the quantitative and qualitative variables, respectively, to determine whether there were significant differences between the resulting clusters in terms of the variables used to define the profiles. The clusters were also compared according to type of accommodation. Finally, the resulting clusters were analysed in relation to the acceptance of economic measures aimed at improving water saving in hotels

(Water_incent and Water_tax variables). A chi-squared test was also applied to find out if being part of a particular cluster implied a higher (or lower) acceptance of these two economic measures. All analyses were performed using the SPSS 15® statistical package.

5. Results

5.1. Profiles of visitors to the Ter River basin

It was possible to use 466 of the 493 surveys, the rest being rejected due to a lack of data for some of the variables selected for this study. The two-step cluster analysis gave the optimal solution of three clusters of guests. Table 3 shows the characteristics of the different clusters in relation to the variables used to classify the cases. Only three of the variables seemed not to contribute significantly to the definition of the guest profiles: Loyalty, Mot_shopping and Mot_culture. Therefore, these were not taken into account when explaining the characteristics of each cluster.

From these results, it was possible to define guest profiles according to sociodemographic characteristics, type of stay and reason for their stay (Table 3). Cluster 1 (called "Nature-based tourists", n=270, 57.94%) stood out for being largely made up of guests who were businesspeople with employees, and also employed people and students. These guests' place of origin was preponderantly Catalonia, and they had a high level of education. They tended to spend only a few nights in the hotel and cited events, gastronomy, sport, and nature as the main reasons for their stay. Cluster 2 ("Beach-based tourists", n=170; 36.48%) mostly included older, retired or self-employed people, and largely came from other European countries. They tended to stay more nights on average than people in the other clusters, and reported being motivated mostly by the sun and the beach. Cluster 3 ("Business-based tourists", n=26; 5.58%), with the lowest number of guests, was largely made up of businesspeople with employees and employed people, from the rest of Spain and other countries (mostly from outside the EU), and with a high level of education. Their main reason for travel was normally businesses and conventions.

As was to be expected from the fact that the chosen hotels are very different and are in very different environments, the members of each cluster were not randomly distributed among them. Specifically, Nature-based tourists stayed most often at *Hotel Vall de Núria*, *Hotel Grèvol*, and *L'Avenç de Tavertet*; Beach-based tourists stayed at *Hotel Medes II*; and Business-based tourists at *Hotel Ciutat de Girona*. This result reinforces the validity of the classification resulting from the two-step cluster analysis.

Table 3. Make up of each cluster according to sociodemographic, type of stay and purpose of trip variables

Variable	Category	Total	Nature-based tourists	Beach-based tourists	Business-based tourists	Statistic test and significance
Hotel [†]	Vall de Núria	122 (26.18%)	114 (42.22%)	8 (4.71%)	0 (0%)	Chi-square = 320.08**
	Grèvol	74 (15.88%)	58 (21.48%)	16 (9.41%)	0 (0%)	
	L'Avenc de Tavertet	41 (8.80%)	38 (14.07%)	2 (1.18%)	1 (3.85%)	
	Ciutat de Girona	110 (23.61%)	51 (18.89%)	34 (20%)	25 (96.15%)	
	Medes II	119 (25.54%)	9 (3.33%)	110 (64.71%)	0 (0%)	
Sociodemographic variables						

Variable	Category	Total	Nature-based tourists	Beach-based tourists	Business-based tourists	Statistic test and significance
Age	-	47.55 (14.42)	42.33 (11.09)	56.43 (15.14)	43.81 (12.31)	Kruskal-Wallis H = 95.54**
Prof_cat	Businessperson with employees	32 (6.87%)	25 (9.26%)	0 (0%)	7 (26.92%)	Chi-square = 200.25**
	Businessperson without employees	21 (4.51%)	19 (7.04%)	1 (0.58%)	1 (3.85%)	
	Self-employed	29 (6.22%)	12 (4.44%)	16 (9.41%)	1 (3.85%)	
	Employed	276 (59.23%)	193 (71.48%)	66 (38.82%)	17 (65.39%)	
	Student	20 (4.29%)	16 (5.93%)	4 (2.35%)	0 (0%)	
	Unemployed	9 (1.93%)	4 (1.48%)	5 (2.94%)	0 (0%)	
	Retired	79 (16.95%)	1 (0.37%)	78 (45.88%)	0 (0%)	
Origin	Province of Girona	40 (8.58%)	37 (13.70%)	3 (1.77%)	0 (0%)	Chi-square = 228.47**
	Barcelona Metropolitan Area	169 (36.27%)	127 (47.04%)	39 (22.94%)	3 (11.54%)	
	Rest of Catalonia	87 (18.67%)	69 (25.56%)	17 (10%)	1 (3.85%)	
	Rest of Spain	45 (9.67%)	19 (7.04%)	21 (12.35%)	5 (19.23%)	
	Rest of Europe	96 (20.60%)	2 (0.74%)	86 (50.59%)	8 (30.77%)	
	Rest of the world	29 (6.22%)	16 (5.93%)	4 (2.35%)	9 (34.62%)	
Educ_level	-	5.12 (1.24)	5.46 (0.92)	4.44 (1.46)	5.92 (0.27)	Kruskal-Wallis H = 95.54**
Type of stay and purpose of trip variables						
Nights	-	2.82 (2.63)	1.66 (0.88)	4.75 (3.41)	2.19 (1.10)	Kruskal-Wallis H = 150.57**
Loyalty	No	140 (30.04%)	74 (27.41%)	61 (35.88%)	5 (19.23%)	Chi-square = 5.10
	Yes	326 (69.96%)	196 (72.59%)	109 (64.12%)	21 (80.77%)	
Mot_business	-	1.19 (0.82)	1.01 (0.11)	1.00 (0.00)	4.23 (1.48)	Kruskal-Wallis H = 344.64**
Mot_congress	-	1.04 (0.40)	1.00 (0.06)	1.00 (0.00)	1.73 (1.54)	Kruskal-Wallis H = 70.03**
Mot_shopping	-	1.09 (0.37)	1.11 (0.38)	1.04 (0.23)	1.23 (0.82)	Kruskal-Wallis H = 4.28
Mot_culture	-	2.46 (1.59)	2.50 (1.53)	2.42 (1.68)	2.31 (1.62)	Kruskal-Wallis H = 0.75
Mot_food	-	2.22 (1.54)	2.35 (1.57)	2.12 (1.50)	1.50 (1.24)	Kruskal-Wallis H = 9.04*
Mot_events	-	1.41 (0.97)	1.52 (1.06)	1.28 (0.82)	1.12 (0.59)	Kruskal-Wallis H = 11.34**
Mot_sports	-	2.10 (1.63)	2.59 (1.76)	1.43 (1.10)	1.46 (1.30)	Kruskal-Wallis H = 56.59**
Mot_nature	-	3.12 (1.80)	3.72 (1.68)	2.48 (1.66)	1.15 (0.78)	Kruskal-Wallis H = 80.87**
Mot_beach	-	1.91 (1.64)	1.11 (0.65)	3.31 (1.91)	1.00 (0.00)	Kruskal-Wallis H = 200.26**

[†]This variable has not been used in the cluster analysis

**Significant at the 0.01 level

*Significant at the 0.05 level

5.2. Acceptance of economic-based water-saving measures

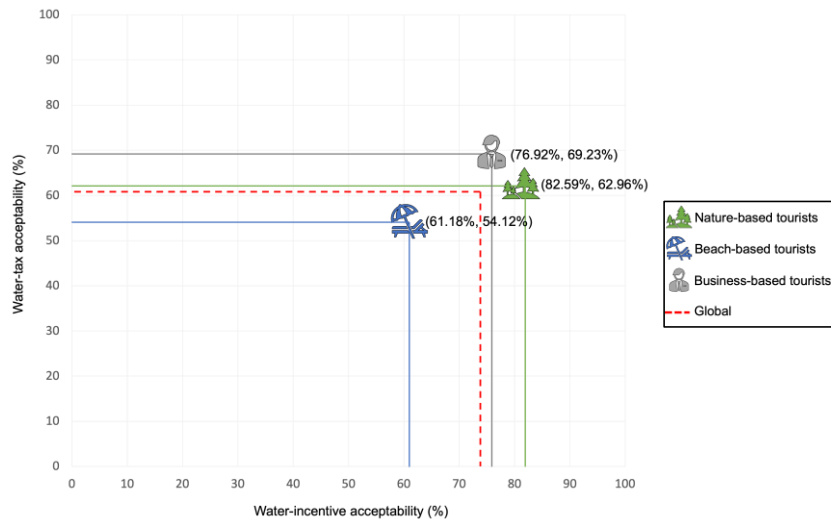
Table 4 shows the frequency and percentage of members of the three clusters who accepted or didn't accept these measures. Broadly speaking, water taxes were the less popular measure, although in all three clusters support for them was over 50%. Water incentives were, a priori, more widely accepted; the data show that, overall, approximately 75% of the respondents were in favour of them.

Table 4. Relationship between clusters and acceptance of water taxes and water incentives

Variable		Total		Nature-based tourists		Beach-based tourists		Business-based tourists	
Nom	Cat.	n	%	n	%	n	%	n	%
Water_incent	No	119	25.54	47	17.41	66	38.82	6	23.08
	Yes	347	74.46	223	82.59	104	61.18	20	76.92
Water_tax	No	186	39.91	100	37.04	78	45.88	8	30.77
	Yes	280	60.09	170	62.96	92	54.12	18	69.23

These statistical results show that belonging to one cluster or another did not imply a higher acceptance of water taxes (Chi-square = 4.36; $p > 0.1$). However, the type of guest did tend to be a significant factor in the acceptance of water incentives (Chi-square = 25.25; $p < 0.01$). Specifically, Nature-based tourists were the most supportive of water incentives, with 82.59% of them agreeing with them. In contrast, Beach-based tourists showed the least approval, with only 61.18% of them accepting them (Figure 2).

Figure 2. Positioning of the clusters according to acceptance of the two measures



6. Discussion

According to the results, both measures were generally accepted by most of the guests surveyed: 74.46% would accept water incentives and 60.09% would accept water taxes. Despite some differences in acceptance of the two measures, it is worth

1 noting that a large proportion of the guests staying in the chosen hotels were willing to
2 accept the application of an economic-based environmental measure to help save
3 water during their stay. In one way or another, the respondents were aware of the need
4 for some kind of measure, because they perceived the impact of tourism on the
5 region's water resources. It should be stressed, however, that these results seem, a
6 priori, to be contradictory: why would an individual accept having to pay an
7 environmental tax and at the same time also accept an economic incentive in the form
8 of a discount? A study in Mexico reached similar conclusions: when asked if they would
9 be willing to pay an environmental tax, 85.5% of respondents answered yes, while
10 43.9% would also accept a discount (Berezan et al., 2014). In both cases there is a
11 certain social desirability bias that would explain the lack of fit of the replies, making
12 them difficult to interpret. To reduce the bias, in future research in this area the two
13 questions relating to acceptance should be reformulated as a single, one-choice
14 question.

15 Our results did show, however, that water taxes have a lower acceptance than
16 water incentives. This can be explained by the fact that any environmental tax applied
17 to the tourism sector does not differentiate between visitors who are more or less
18 environmentally proactive during their stay. This could explain the higher rejection by
19 those visitors who do adopt good water consumption practices during their stay. Taking
20 the well-known principle "the polluters pay" of the 1992 Rio Declaration as a reference,
21 the vision "the largest water consumers pay" does not fit the intention of a water tax
22 applied to tourism, because it does not take the multiple levels of different visitors'
23 environmental proactivity into account. This means it has a lower acceptance than
24 other, less generalized, economic measures with a lower tax rate.

25 In contrast to water taxes, water incentives offer visitors the chance of receiving
26 financial compensation in exchange for good environmental behaviour during their
27 stay. This discount, which directly implies the active collaboration of the guest, is more
28 socio-environmentally viable because of benefits in two areas. On the one hand,
29 guests see that the cost of their stay can be reduced. On the other, the natural
30 environment receives less pressure on its water resources. This win-win vision of water
31 incentives may explain their generally higher acceptance. However, at this point it is
32 important to point out the possible motivation crowding effect. This effect occurs when
33 economic incentives displace the original reason an individual acts in favour of the
34 environment (Huang et al., 2014). It follows that economic incentives often actually
35 undermine intrinsic motivations, such as a moral commitment to the preservation of
36 natural resources (Rode et al., 2015). However, it is interesting to note at this point
37 that there are also studies that claim just the opposite and show that economic
38 incentives can reinforce social norms (Rommel et al., 2015), especially when the
39 incentives are more altruistic (Heyman & Ariely, 2004).

40 The clusters showed that there were differences in the acceptance of both
41 measures depending on guests' profiles. First, it is worth mentioning that only water
42 incentives were profile-dependant since its acceptance was determined by guests'
43 sociodemographic profile and by the main reason for their stay. Specifically, the only
44 significant result was the acceptance of water incentives by Nature-based tourists,
45 especially in comparison with Beach-based tourists (82.59% v 61.18%). The results
46 therefore show that Nature-based tourists were very happy to receive financial
47 compensation for their good environmental actions. This wide acceptance shows that
48 their application would be feasible in the hotels where Nature-based tourists usually
49 stay. This greater preference of Nature-based visitors to incentivize water saving
50 through economic means may derive from the personal values and norms of guests
51 with this profile. The results of the study by Do Valle et al. (2012) showed that this type
52 of tourist tended to show a certain emotional attachment to nature, which is associated

with greater environmental proactivity. In the same vein, Serra (2004) stated that economic-based environmental measures were more acceptable to precisely those tourists who seek high environmental quality inland surroundings. Beach-based tourists, on the other hand, showed a more modest acceptance of water incentives. Those visitors staying in coastal environments tended to show a lower level of environmental proactivity. In fact, the Beach-based tourists typology is often associated with profiles associated with “fun and excitement or self-centred values” (Do Valle et al., 2012, p. 1415). Linked to this is the fact that it is precisely those individuals with a strong egocentric component, who prioritize fun, pleasure and comfort, who tend to be less committed to the fight against climate change (Bouman & Steg, 2020).

The non-significance of the correlation between the acceptance of water taxes and the clusters indicates that this type of environmental measure is not profile-dependant. According to our results, analysis of the acceptance of water taxes should not be based on guests’ socio-demographic profiles. The variables included in the cluster analysis were not significant and did not explain the WTP of water taxes, in line with the results of other studies (Durán-Román et al., 2021; Reynisdottir et al., 2008). Further research is needed to see if there are other variables that explain the WTP of water taxes. Similarly, acceptance of water taxes was not determined by the type of hotel where the tourists stayed or by the reason for their trip. Acceptance of water taxes, therefore, did not correspond to a specific tourist location. Respondents answered similarly regardless of where they stayed. Considering that 60.09% of all respondents replied favourably regardless of where they stayed, the overall acceptance of water taxes can be explained by the fact that a tourist tax already exists in Catalonia. Although this tax was not designed exclusively for environmental purposes, it has become an educational tool for visitors to Catalonia, making it generally more widely accepted.

Although the results of our research show that an economic-based environmental tax is not profile-dependant, intuition says that the local area and the tourism environment may directly influence the acceptance of economic-based environmental measures, causing acceptance to vary depending on the local surroundings of the hotels studied. It follows from this idea that location-specific water-saving strategies in the tourism sector should be implemented while trying to tailor those measures that are particularly acceptable in a specific environment as much as possible. That being said, any conclusions must be considered with caution since multiple other conditions could potentially exist when conducting new research on this specific topic, as stated by Lim (2021).

7. Conclusions

Changes in water availability in the Mediterranean region are now one of the main environmental challenges in the sustainable management of the region’s tourist destinations. Any strategy for the sustainable development of tourism must clearly include the conservation and efficient use of water. This study is based, with total conviction, on the idea that efficient water management in hotels is only possible with the full cooperation and participation of their guests. Sustainability in the use and consumption of water, understood as a shared process between all the agents involved, is especially necessary in water-scarce areas. Studying the acceptance of possible guest-centred water conservation measures is therefore essential to making serious progress towards sustainable water consumption.

This study presents three important contributions. The first one refers to the acceptance of two economic-based guest-centred environmental measures that can be applied in hotels to promote water saving among guests. The results of our research

show that guests prefer incentives to taxes. Those actions that offer discounts call for a change in guests' behaviour, allowing them to increase their "sustainable intelligence", understood as "the ability of tourists to apply their experience and knowledge regarding the effects of tourism on the environment in which it is practised" (López-Sánchez & Pulido-Fernández, 2016, p. 61). Water incentives make it possible to encourage guests' good environmental behaviour and make them more proactive. However, it is necessary to exercise caution and consider the possible bias arising from a motivation crowding effect (Huang et al., 2014), as mentioned previously. In contrast to incentive measures, measures such as water taxes do not imply, a priori, any change in the environmental behaviour of tourists. However, it would be possible to channel the revenue from this tax to improving water resources, for example by restoring the ecological status of water bodies as required by the Water Framework Directive (2000/60/EC). This is particularly critical in river basins where water resources are highly exploited and equally contested among multiple end-users. Actions to increase economic resources for the protection of water ecosystems are now essential for the sustainable development of intensively exploited river basins.

This study's second contribution is the idea that, generally, any environmental economic measure should consider the multiple tourist activities that use the area's resources. Our analysis of the acceptance of water incentives showed how visitors to a very specific location are more willing to accept this measure. The design and implementation of any strategic action aimed at adapting to climate change must be studied according to the idiosyncrasies of each context and each type of tourism. There is not just one "tourist", or even one "tourism", but many types of visitors with different profiles, each with their own particular interaction and emotional bond with the environment. The socio-environmental feasibility of water-saving measures will vary according to different groups of tourists and tourist destinations. Relevant experts and scholars have also posited this idea in a broader sense, since specific strategies aimed at dealing with climate change and improving the adaptive capacity of tourist destinations need to consider the multiple tourist segments involved (Jopp et al., 2021). In this sense, our study contributes to the notable but scarce literature that has employed tourist clustering as a useful and essential method in designing destination strategies to take into account multiple visitor types (Sung et al., 2016). It is therefore necessary to think of mechanisms adapted to a specific area. However, this idea is not without its challenges, and it can be difficult to implement. The keystone is the debate about the governance of actions aimed at reducing water consumption in the tourism sector. Mechanisms are needed for more dynamic management that adapts strategies, and corresponding actions, to the specific local characteristics of tourist destinations. Any measure will probably not show the same degree of socio-environmental viability in sun and beach tourism environments as in rural or urban areas. Hence the importance of a new local approach to the management of saving water in the tourism sector, going beyond administrative and jurisdictional limits, and integrating them with other delimitations such as hydrographic basins, landscape units and/or type of tourist use.

Thirdly, from a managerial point of view, applying economic-based measures for environmental purposes entails significant benefits for hotels. Based on this, two important management implications can be drawn from this study. On the one hand, companies with better environmental management improve their environmental performance by reducing their impacts through different actions. This undoubtedly leads to an advantage in terms of differentiation, since environmental practices contribute to reducing operational costs (Molina-Azorín et al., 2015). Exploring guests' acceptance of water-saving taxes and incentives allows companies to broaden their knowledge with regard to reducing water consumption, and so improve their environmental performance and competitive advantage (Larrán et al., 2015). On the

other hand, the fact that the economic-based measures analysed allow hotel companies to improve their environmental performance adds great value (Baboukardos, 2018), automatically resulting in a triple win-win situation for the environment, society and the economy. connecting with the fact that any environmental-social-governance action (ESG) delivers multiple favourable outcomes, such as providing capital market benefits and/or reducing organisational risks, as stated by Lim, Ciasullo, Douglas and Kumar (2022).

To conclude, it is worth re-emphasizing that this study makes a conscious contribution to UN SDGs 6, 12 and 14. In this sense, the main aim of this article is inextricably linked to Target 6.4 (SDG 6) regarding water-use efficiency, since potential economic-based measures and their acceptance are widely explored to promote and ensure better water-saving performance in the tourism sector. Moreover, the specific guest-centred approach of both measures contributes significantly to a better understanding of actions aimed at providing visitors with relevant information and awareness for sustainable development, as specified in Target 12.8 (SDG 12). And finally, in reference to Target 14.1 (SDG 14), if sewage production is effectively reduced through water-saving actions, then the quality of aquatic and marine ecosystems will immediately improve due to pollution prevention and reduction.

8. Author contributions

Author 1: Conceptualization; Data curation; Writing- Original draft preparation.
Author 2: Methodology; Formal analysis. **Author 3:** Conceptualization; Writing- Reviewing and Editing. **Author 4:** Conceptualization; Writing- Reviewing and Editing; Funding acquisition.

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10. References

- Alves, B., Rigall-I-Torrent, R., Ballester, R., Benavente, J., & Ferreira, Ó. (2015). Coastal erosion perception and willingness to pay for beach management (Cadiz, Spain). *Journal of Coastal Conservation*, 19(3), 269–280. <https://doi.org/10.1007/s11852-015-0388-6>
- Baboukardos, D. (2018). The valuation relevance of environmental performance revisited: The moderating role of environmental provisions. *British Accounting Review*, 50(1), 32–47. <https://doi.org/10.1016/j.bar.2017.09.002>
- Bacher, J., Wenzig, K., & Vogler, M. (2004). *SPSS Twostep Cluster: a First Evaluation*. Lehrstuhl für Soziologie.
- Barberán, R., Egea, P., Gracia-de-Rentería, P., & Salvador, M. (2013). Evaluation of water saving measures in hotels: A Spanish case study. *International Journal of Hospitality Management*, 34, 181–191. <https://doi.org/10.1016/j.ijhm.2013.02.005>
- Berezan, O., Millar, M., & Raab, C. (2014). Sustainable Hotel Practices and Guest Satisfaction Levels. *International Journal of Hospitality and Tourism Administration*, 15(1), 1–18. <https://doi.org/10.1080/15256480.2014.872884>

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- 1 Bhandari, A. K., & Heshmati, A. (2010). Willingness to pay for biodiversity
2 conservation. *Journal of Travel and Tourism Marketing*, 27(6), 612–623.
3 <https://doi.org/10.1080/10548408.2010.507156>
- 4 Blanco, E., Rey-Maqueira, J., & Lozano, J. (2009). Economic incentives for tourism
5 firms to undertake voluntary environmental management. *Tourism Management*,
6 30(1), 112–122. <https://doi.org/10.1016/j.tourman.2008.04.007>
- 7 Bouman, T., & Steg, L. (2020). Engaging City Residents in Climate Action: Addressing
8 the Personal and Group Value-Base Behind Residents' Climate Actions.
9 *Urbanisation*, 245574712096519. <https://doi.org/10.1177/2455747120965197>
- 10 Chan, E. S. W. (2008). Barriers to EMS in the hotel industry. *International Journal of*
11 *Hospitality Management*, 27(2), 187–196.
12 <https://doi.org/10.1016/j.ijhm.2007.07.011>
- 13 Chiu, T., Fang, D., Chen, J., Wang, Y., & Jeris, C. (2001). A robust and scalable
14 clustering algorithm for mixed type attributes in large database environment.
15 *Proceedings of the Seventh ACM SIGKDD International Conference on*
16 *Knowledge Discovery and Data Mining*, 263–268.
- 17 Clement, K., & Hansen, M. (2003). Financial incentives to improve environmental
18 performance: A review of nordic public sector support for SMEs. *European*
19 *Environment*, 13(1), 34–47. <https://doi.org/10.1002/eet.308>
- 20 Davis, D., & Tisdell, C. A. (1999). Tourist levies and willingness to pay for a whale
21 shark experience. *Tourism Economics*, 5(2), 161–174.
22 <https://doi.org/10.1177/135481669900500203>
- 23 Do Valle, P. O., Pintassilgo, P., Matias, A., & André, F. (2012). Tourist attitudes
24 towards an accommodation tax earmarked for environmental protection: A survey
25 in the Algarve. *Tourism Management*, 33(6), 1408–1416.
26 <https://doi.org/10.1016/j.tourman.2012.01.003>
- 27 Durán-Román, J. L., Cárdenas-García, P. J., & Pulido-Fernández, J. I. (2020).
28 Taxation of tourism activities: A review of the top 50 tourism destinations. *Revista*
29 *de Economía Mundial*, 55, 49–78. <https://doi.org/10.33776/rem.v0i55.3838>
- 30 Durán-Román, J. L., Cárdenas-García, P. J., & Pulido-Fernández, J. I. (2021). Tourist
31 tax to improve sustainability and the experience in mass tourism destinations: The
32 case of andalusia (spain). *Sustainability (Switzerland)*, 13(1), 1–20.
33 <https://doi.org/10.3390/su13010042>
- 34 Frey, B., & Oberholzer-Gee, F. (1997). The Cost of Price Incentives : An Empirical
35 Analysis of Motivation Crowding-Out. *The American Economic Review*, 87(4),
36 746–755.
- 37 Gabarda-Mallorquí, A., Garcia, X., Fraguell, R. M., & Ribas, A. (2020). Are hotel stay
38 characteristics influencing guests' environmental behaviour? Predicting water
39 conservation habits. *Current Issues in Tourism*, 24(16), 2342–2356.
40 <https://doi.org/10.1080/13683500.2020.1829565>
- 41 Gago, A., & Labandeira, X. (2001). Turismo y fiscalidad ambiental: análisis comparado
42 del impuesto eco-turístico balear. *VIII Encuentro de Economía Pública: Cáceres*,
43 8 y 9 de Febrero de 2001, 1–22.

1 <http://dialnet.unirioja.es/servlet/articulo?codigo=3141031>

2 García, D., & Tugores, M. (2013). Differentiation in the tourism sector: an evolutionary
3 analysis. *Tourism Economics*, 19(5), 1107–1122.
4 <https://doi.org/10.5367/te.2013.0330>

5 Gooroochurn, N., & Sinclair, M. T. (2005). Economics of tourism taxation: Evidence
6 from Mauritius. *Annals of Tourism Research*, 32(2), 478–498.
7 <https://doi.org/10.1016/j.annals.2004.10.003>

8 Gössling, S., Scott, D., & Hall, M. (2020). Pandemics, tourism and global change: a
9 rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 1–20.
10 <https://doi.org/10.1080/09669582.2020.1758708>

11 Hair, J., Anderson, R., Tatham, R., & Black, W. (1999). *Análisis multivariante* (3rd ed.).
12 Prentice Hall.

13 Heyman, J., & Ariely, D. (2004). Effort for payment. A tale of two markets.
14 *Psychological Science*, 15(11), 787–793. [https://doi.org/10.1111/j.0956-](https://doi.org/10.1111/j.0956-7976.2004.00757.x)
15 [7976.2004.00757.x](https://doi.org/10.1111/j.0956-7976.2004.00757.x)

16 Huang, H. C., Lin, T. H., Lai, M. C., & Lin, T. L. (2014). Environmental consciousness
17 and green customer behavior: An examination of motivation crowding effect.
18 *International Journal of Hospitality Management*, 40, 139–149.
19 <https://doi.org/10.1016/j.ijhm.2014.04.006>

20 Imran, S., Alam, K., & Beaumont, N. (2014). Environmental orientations and
21 environmental behaviour: Perceptions of protected area tourism stakeholders.
22 *Tourism Management*, 40, 290–299.
23 <https://doi.org/10.1016/j.tourman.2013.07.003>

24 Intergovernmental Panel on Climate Change. (2014). Climate Change 2014: Impacts,
25 Adaptation, and Vulnerability. In *IPCC International Panel on Climate Change*.
26 <http://www.ipcc.ch/report/ar5/wg2/>

27 Intergovernmental Panel on Climate Change. (2021). *Climate Change 2021: The*
28 *Physical Science Basis. Contribution of Working Group I to the Sixth Assessment*
29 *Report of the Intergovernmental Panel on Climate Change*. Cambridge University
30 Press.

31 Iranah, P., Lal, P., Wolde, B. T., & Burli, P. (2018). Valuing visitor access to forested
32 areas and exploring willingness to pay for forest conservation and restoration
33 finance: The case of small island developing state of Mauritius. *Journal of*
34 *Environmental Management*, 223, 868–877.
35 <https://doi.org/10.1016/j.jenvman.2018.07.008>

36 Jopp, R., Kalantari, H., Lim, W. M., Wee, L. L. M., & Lim, A. L. (2021). Tourist segments
37 of eco-cultural destinations. *Current Issues in Tourism*, 0(0), 1–16.
38 <https://doi.org/10.1080/13683500.2021.1955843>

39 Kashyap, A., & Lakhanpal, P. (2019). A framework for assessing collaboration
40 between buyers and suppliers on sustainability goals. *Global Business and*
41 *Organizational Excellence*, 39(1), 46–56. <https://doi.org/10.1002/joe.21975>

42 Kasim, A., Gursoy, D., Okumus, F., & Wong, A. (2014). The importance of water

management in hotels: a framework for sustainability through innovation. *Journal of Sustainable Tourism*, 22(7), 1090–1107. <https://doi.org/10.1080/09669582.2013.873444>

Kostakis, I., & Sardanou, E. (2012). Which factors affect the willingness of tourists to pay for renewable energy? *Renewable Energy*, 38(1), 169–172. <https://doi.org/10.1016/j.renene.2011.07.022>

Larrán, M., Herrera, J., Martínez-Martínez, D., & Lechuga, M. P. (2015). Competitiveness and environmental performance in Spanish small and medium enterprises: is there a direct link? *Journal of Cleaner Production*, 101, 26–37. <https://doi.org/10.1016/j.jclepro.2015.04.016>

Lim, W. M. (2021). Conditional recipes for predicting impacts and prescribing solutions for externalities: the case of COVID-19 and tourism. *Tourism Recreation Research*, 46(2), 314–318. <https://doi.org/10.1080/02508281.2021.1881708>

Lim, W. M. (2022). The Sustainability Pyramid: A Hierarchical Approach to Greater Sustainability and the United Nations Sustainable Development Goals With Implications for Marketing Theory, Practice, and Public Policy. *Australasian Marketing Journal*, 30(2), 142–150. <https://doi.org/10.1177/18393349211069152>

Lim, W. M., Ciasullo, M. V., Douglas, A., & Kumar, S. (2022). Environmental social governance (ESG) and total quality management (TQM): a multi-study meta-systematic review. *Total Quality Management and Business Excellence*, 1–23. <https://doi.org/10.1080/14783363.2022.2048952>

López-del-Pino, F., Grisolia, J. M., & Ortúzar, J. de D. (2021). Is there room for a room-tax in the Canary Islands? *International Journal of Tourism Research*, January, 1–14. <https://doi.org/10.1002/jtr.2438>

López-Sánchez, Y., & Pulido-Fernández, J. I. (2016). In search of the pro-sustainable tourist: A segmentation based on the tourist “sustainable intelligence.” *Tourism Management Perspectives*, 17, 59–71. <https://doi.org/10.1016/j.tmp.2015.12.003>

López-Sánchez, Y., & Pulido-Fernández, J. I. (2017). Factors influencing the willingness to pay for sustainable tourism: a case of mass tourism destinations. *International Journal of Sustainable Development and World Ecology*, 24(3), 262–275. <https://doi.org/10.1080/13504509.2016.1203372>

Molina-Azorín, J. F., Tarí, J. J., Pereira-Moliner, J., López-Gamero, M. D., & Pertusa-Ortega, E. M. (2015). The effects of quality and environmental management on competitive advantage: A mixed methods study in the hotel industry. *Tourism Management*, 50, 41–54. <https://doi.org/10.1016/j.tourman.2015.01.008>

Morgan, M., & Chompreeda, K. (2015). The relative effect of message-based appeals to promote water conservation at a tourist resort in the gulf of Thailand. *Environmental Communication*, 9(1), 20–36. <https://doi.org/10.1080/17524032.2014.917689>

Muchapondwa, E., Biggs, H., Driver, A., Matose, F., Moore, K., Mungatana, E., & Scheepers, K. (2009). Using economic incentives to encourage conservation in bioregions in South Africa. *Working Paper* 120, 120. <http://core.kmi.open.ac.uk/download/pdf/6674240.pdf>

- 1 Olcina, J., Baños, C. J., & Rico, A. M. (2016). Medidas de adaptación al riesgo de
2 sequía en el sector hotelero de Benidorm (Alicante, España). *Revista de*
3 *Geografía Norte Grande*, 153(65), 129–153. [https://doi.org/10.4067/s0718-](https://doi.org/10.4067/s0718-34022016000300007)
4 [34022016000300007](https://doi.org/10.4067/s0718-34022016000300007)
- 5 Organization for Economic Cooperation and Development. (2014). *OECD Tourism*
6 *Trends and Policies 2014*. <https://doi.org/http://dx.doi.org/10.1787/tour-2014-en>
- 7 Palmer, T., & Riera, A. (2003). Tourism and environmental taxes. With special
8 reference to the “Balearic ecotax.” *Tourism Management*, 24, 665–674.
9 [https://doi.org/10.1016/S0261-5177\(03\)00046-3](https://doi.org/10.1016/S0261-5177(03)00046-3)
- 10 Pigou, C. (1932). *The Economics of Welfare*. Macmillan.
- 11 Platania, M., & Rizzo, M. (2018). Willingness to pay for protected areas: A case of Etna
12 Park. *Ecological Indicators*, 93, 201–206.
13 <https://doi.org/10.1016/j.ecolind.2018.04.079>
- 14 Reynisdottir, M., Song, H., & Agrusa, J. (2008). Willingness to pay entrance fees to
15 natural attractions: An Icelandic case study. *Tourism Management*, 29(6), 1076–
16 1083. <https://doi.org/10.1016/j.tourman.2008.02.016>
- 17 Rode, J., Gómez-Baggethun, E., & Krause, T. (2015). Motivation crowding by
18 economic incentives in conservation policy: A review of the empirical evidence.
19 *Ecological Economics*, 117, 270–282.
20 <https://doi.org/10.1016/j.ecolecon.2014.11.019>
- 21 Rommel, J., Buttmann, V., Liebig, G., Schönwetter, S., & Svart-Gröger, V. (2015).
22 Motivation crowding theory and pro-environmental behavior: Experimental
23 evidence. *Economics Letters*, 129, 42–44.
24 <https://doi.org/10.1016/j.econlet.2015.01.025>
- 25 Serra, A. (2004). Policies supporting sustainable tourism development in the Balearic
26 Islands: The Ecotax. *Anatolia*, 15(1), 39–56.
27 <https://doi.org/10.1080/13032917.2004.9687143>
- 28 Sung, Y. K., Chang, K. C., & Sung, Y. F. (2016). Market Segmentation of International
29 Tourists Based on Motivation to Travel: A Case Study of Taiwan. *Asia Pacific*
30 *Journal of Tourism Research*, 21(8), 862–882.
31 <https://doi.org/10.1080/10941665.2015.1080175>
- 32 Ting, C. Te, Hsieh, C. M., Chang, H. P., & Chen, H. S. (2019). Environmental
33 consciousness and green customer behavior: The moderating roles of incentive
34 mechanisms. *Sustainability (Switzerland)*, 11(3).
35 <https://doi.org/10.3390/su11030819>
- 36 Torres-Bagur, M., Ribas, A., & Vila-Subirós, J. (2019). Incentives and barriers to water-
37 saving measures in hotels in the Mediterranean: A case study of the Muga river
38 basin (Girona, Spain). *Sustainability (Switzerland)*, 11(13).
39 <https://doi.org/10.3390/su11133583>
- 40 Yasamis, F. D. (2011). Economic instruments for environmental management.
41 *Proceedings of the International Academy of Ecology and Environmental*
42 *Sciences*, 1(2), 97–111. <https://doi.org/10.4324/9781315071657>

- 1 Zou, L. (2019). The Research on Influence of Tourism Economy and Environment
- 2 Based on Environmental Taxation. *IOP Conference Series: Earth and*
- 3 *Environmental Science*, 252(4). <https://doi.org/10.1088/1755-1315/252/4/042056>
- 4