Is there room for a room-tax in the Canary Islands?

Article *in* International Journal of Tourism Research · February 2021

DOI: 10.1002/jtr.2438

CITATIONS
0

READS
36

3 authors:

Francisco López-del-Pino
Universidad de Las Palmas de Gran Canaria
20 PUBLICATIONS **100** CITATIONS
SEE PROFILE

José María Grisolía
Universidad de Las Palmas de Gran Canaria
25 PUBLICATIONS **315** CITATIONS
SEE PROFILE

Juan de Dios Ortúzar
Pontificia Universidad Católica de Chile
255 PUBLICATIONS **6,946** CITATIONS
SEE PROFILE

Received: 22 June 2020 | Revised: 13 January 2021 | Accepted: 13 January 2021

DOI: 10.1002/jtr.2438

RESEARCH ARTICLE

WILEY

Is there room for a room-tax in the Canary Islands?

Francisco López-del-Pino[1] | **Jose M. Grisolía**[1,2] | **Juan de Dios Ortúzar**[3]

[1]Applied Economics Department, Universidad de las Palmas de Gran Canaria (Spain), Las Palmas de Gran Canaria, Spain

[2]Nottingham University Business School China, The University of Nottingham Ningbo China, Ningbo, China

[3]Transport Engineering and Logistics, Pontificia Universidad Católica de Chile, Santiago, Chile

Correspondence
Jose M. Grisolía, The University of Nottingham Ningbo China Room 369, Trent Building 199 Taikang East Road Ningbo, 315100, China.
Email: jose.grisolia@nottingham.edu.cn

KEYWORDS: discrete choice analysis, room-tax, stated preferences, tourism externalities

1 | INTRODUCTION

Tourism ranks among the most important economic activities in the world. Recent figures from the World Tourism Organisation (UNWTO, 2018) show that the number of international tourist trips reached nearly 1.4 billion in 2018, generating an economic impact estimated in US$ 1.7 billion (and 10 per cent of the jobs in the world). Despite the fast growth of many competitive destinations, Europe is still the main tourist destination with 51% of arrivals and 39% of the total income generated by international tourism.

However, there is also consensus about the substantial negative impacts of international tourism both at a global scale (mainly air transport greenhouse gas emissions) and on local communities (i.e., environmental externalities such as pollution, congestion and resource depletion). As tourism depends heavily on the physical environment but also has a significant impact on it (Tisdel, 2005), tourism sustainability has become a central issue in the last decades. A substantial academic debate has focused on the use of measures and instruments to protect the environment. Under some circumstances (Pazienza, 2011; Piga, 2003; Rinaldi, 2014; Schubert, 2010), the use of tourist related taxes might constitute an efficient way to cope with tourism related externalities. Partly for these reasons, the use of environmental taxation in this sector has been receiving increasing attention in the last decades (Backhaus, 1999; Barde & Owens, 1996; Cirer Costa & De Ibiza, 2008; Corthay & Loeprick, 2010; Gago, Labandeira, Picos, & Rodríguez, 2006; Gago, Labandeira, Picos, & Rodríguez, 2009; Gooroochurn, 2004; Hughes, 1981; Rotaris & Carrozzo, 2019; Sheng, 2011; Sheng & Tsui, 2009; Tavares, 2011).

A great variety of taxes is applied in the tourism industry (Durán Román, Cárdenas García, & Pulido Fernández, 2020; García, Marchena, & Morilla, 2018; Gooroochurn & Sinclair, 2005) and these can be applied by governments to raise funds to offset the environmental impacts of tourism, as shown by Durán Román et al. (2020) in their review of tourism taxes in the top 50 tourist destinations. The OECD (2014, page 76) defines tourism taxes as '*the indirect taxes, taxes and tributes that mainly affect the activities related to tourism*' and classifies them into the following types:

1. *Arrival and departure taxes* (taxes and fees that apply to the departure or arrival of a country, such as visas and fees for transit and movement of passengers or crew);
2. *Air travel taxes* payable at airports and normally applied to airline trips to cover costs arising from the service provided at airports;
3. *Hotels and accommodation taxes* (with different names such as *overnight-tax*, *lodging-tax*, *bed-tax*, *occupancy-tax*, *room-tax*, or *accommodation-tax)* payable at the accommodation and usually managed by regional or local administrations;
4. *Taxation on consumption*, such as value added tax (VAT) or other taxes on goods and services (although taxation affects tourists and residents, differentiated tax treatment is sometimes applied to tourism goods and services);
5. *Environmental taxes*: although the use of environmental taxes or eco-taxes is generalised, sometimes there are specific environmental taxes for tourist activities that attempt to protect natural or cultural spaces of special tourist value; and
6. *incentives*: tax reductions and exemptions for certain activities that the government wishes to promote.

Accommodation taxes (i.e., taxes paid directly by the client at the hotel, charged for each night of accommodation), are widely applied specially in the main cities of Europe and are considered the most common example of tourist-related taxes. Notwithstanding, general indirect taxes may be preferred to specific taxes as a more feasible, equitable and neutral way of obtaining tax revenues from tourism activities (Gago et al., 2009). Nevertheless, when taxes are justified to overcome the negative effects of tourism activities, Roselló and Sansó (2017) make the point that the term *tourist tax* does not refer to a tax *solely* paid by tourists, but *mainly* paid by them (Dwyer, Forsyth, & Dwyer, 2010). In this way, increases in general taxes (such as VAT) are criticised, as many of the tourism-related goods are consumed also by residents who would be paying for external costs that they do not create.

The distribution of the tax burden and the success of a tourism tax policy is also affected by the characteristics of the market. For example, Barnett (1980) shows that the benefit of an optimal tax on a monopoly can be less than the damage it causes. In fact, a higher tax would induce the monopolist to further reduce the level of production and consequently the consumer surplus. Sheng (2017), on the other hand, advises lower taxes as the market becomes more competitive and demand more price-elasticity (due to the difficulty of passing on the tax to tourists), although the existence of negative externalities may make an increase in taxes advisable. Under a classical Pigouvian approach, an optimal tax should be equal to the external marginal damage at the point where social marginal benefits equal social marginal costs (Pearce and Turner, 1989). Nevertheless, difficulties in the estimation of benefits and costs makes it difficult to apply optimal Pigouvian taxes and sub-optimal solutions have been suggested (Baumol and Oates, 1971), consisting of using cost-efficient taxes to achieve certain environmental quality standards (not necessarily optimal in the Pigouvian sense).

In the case of tourism, the existence of negative externalities is the main argument for the use of tourism taxes (OECD, 1989) as a tool to internalise the costs derived from an excessive boom in visitors. In the case of large cities, with unique attractions and a high degree of visitor loyalty (such as Venice or Barcelona), studies show limited effectiveness from tourist accommodation taxes for this purpose, due to the low elasticity of demand (Heffer-Flaata, Voltes-Dorta, & Suau-Sanchez, 2020). However, this price sensitivity increases in those destinations with less differentiation and better substitutes (typically sun and beach destinations), where demand is more sensitive to price. Thus, the response of tourists to an accommodation tax is specific to each place, which would make it advisable to carry out specific studies of preferences for each destination.

Another important reason used to justify the use of accommodation taxes, in addition to reducing the inefficiencies generated by negative externalities, is that they have proven to be an important source of revenue for governments that can be raised from non-residents and used to improve the attractiveness of the destination (Gooroochurn & Sinclair, 2005; Palmer & Riera, 2003; Sheng & Tsui, 2009).

On the contrary, the main argument of the tourism industry against this type of tax is centred on the possible loss of competitiveness. As Collins and Stephenson (2018) point out, tourists will seek alternative destinations at a lower price, which can have a significantly negative effect in those destinations highly dependent on tourism. For example, Lee (2014) argued that price increases due to a bed tax for Midlands Hotels, in the competition between geographic submarkets, would imply a significant loss of competitiveness. Also, even if an increase in the price of accommodation does not significantly reduce demand for accommodation, it may reduce demand for other goods given the composite nature of tourism demand.

Additionally, as Aguiló, Riera, and Rosselló (2005) point out, the contraction in tourism demand may be greater if the destination of the tax revenues does not respond to the preferences of tourists or if these preferences are not used to improve the attractiveness of the destination (Rotaris and Carozzo, 2019). The level of acceptance of the tax is affected by factors such as the perceived fairness of the amount collected (Chung, Kyle, Petrick, & Absher, 2011) as well as the existence of a clear explanation of the collection mechanism and how the amount of tax collected will be used (Rotaris and Carozzo, 2019). Some studies show that tourists are more willing to pay taxes when they are linked to environmental outcomes (Cantallops, 2004; Lee & Pearce, 2002), rather than general taxes for tourism development (Edwards, 2009). Other studies conclude that willingness to pay a tax for tourist accommodation depends on the profile of the tourist. Thus, according to Do Valle, Pintassilgo, Matias, and André (2012) in the case of the Algarve (Portugal), tourists who showed a lower willingness to pay corresponded to the segment of 'typical sun and beach tourists', while the willingness to pay increased as the tourist profile became more environmentally friendly. Thus, the analysis of tourists' preferences is one of the most important elements in the success of a tourism rate. Another important issue is the analysis of the different preferences between residents and tourists, a comparison that is not generally addressed in the literature, with some exceptions such as the studies by Brau, Scorcu, and Vici (2009) and Figini, Castellani, and Vici (2009) for the case of Rimini in Italy.

In relation to the methodology used to analyse tourism taxes (see Biagi, Brandano, & Pulina, 2017) we can find different types of models. A first type uses panel data or time series (Aguiló et al., 2005; Arguea & Hawkins, 2015; Heffer-Flaata et al., 2020) which allow for the estimation of tourism demand elasticities and the prediction of the effects on tourism flows of the imposition of a tax; however, they have the disadvantage of requiring a series of data over a long period of time. Other types of models analyse the impacts of taxes from a macroeconomic perspective considering intersectoral relations using input–output or general equilibrium models (Forsyth, Dwyer, Spurr, & Pham, 2014; Gago et al., 2009; Ihalanayake, 2012; Ponjan & Thirawat, 2016; Sheng & Tsui, 2009). Although these are static analyses, these types of models also require large datasets and are not applicable for analysing the effects of applying a tourism rate in a specific location.

Most studies analysing the effects of tourism taxes have been carried out after they have been implemented, so they are *ex-post*

analyses the conclusions of which cannot be applied to the design of the tax. The optimal design of a tax requires estimating preferences and the response of tourists before applying it, which advises the use of stated preference techniques such as discrete choice models. Since scenarios in discrete choice models can be constructed with hypothetical attributes, this technique allows for the estimation of the reaction to certain policies before they are implemented. However, the use of these techniques is rare, with a few exceptions such as the study by Rotaris and Carrozzo who applied contingent valuation to estimate the willingness to pay for tourism taxes according to the use of tax revenues in the Italian context.

In the case of tourism, discrete choice models have been applied in different areas (see the review by Crouch & Louviere, 2000); for example, to model individual preferences on attributes of the demand for tourism goods or services (Boto-García, Mariel, Pino, & Alvarez, 2020; Chen, Masiero, & Hsu, 2019; Masiero, Heo, & Pan, 2015) the choice of destinations (Huybers, 2003), the environmental and recreational value of cultural or natural heritage (Lee, Mjelde, Kim, Lee, & Choi, 2019; Lupu, Padhi, Pati, & Stoleriu, 2020; Perez Loyola, Wang, & Kang, 2019), or the effects of certain policies, such as environmental conservation policies (see for example, Bocci, Sohngen, Lupi, & Milian, 2020; Xu et al., 2020). Nevertheless, Rosselló and Sansó (2017) noted two difficulties in applying choice models to assess the effect of a tax increase on the international demand for a tourist destination: (a) the use of the distance variable as an indicator of price, makes it impossible to analyse price increases as a result of the tax, and (b) the difficulty of having a representative sample of international tourists with information about alternative destinations. These difficulties may explain the scarcity of studies using discrete choice models to analyse the effects of tourism taxes before applying them to a specific location.

This review of literature allows us to conclude that the design of a new accommodation tax would be greatly enhanced by having a previous study about the preferences of both tourists and residents, specific to the destination. Discrete choice models also allow us to obtain valuations of the different attributes of a tax and of the preferred destination of the funds collected, which could condition the degree of acceptance of the tax. To the best of our knowledge, there is a scarcity of studies with these characteristics, so the analysis of a possible room tax opens up the possibility of making a valuable contribution to the existing literature on this subject.

This paper analyses the public's response to a hypothetical room-tax applied to overnight stays in the Canary Islands. For this we used an opinion survey, based on a Likert-scale questionnaire, and a discrete choice experiment to estimate the willingness to pay for a room-tax and the factors that determine its acceptability.

The methodology was applied separately to tourists and residents of the islands, allowing for a comparison of their preferences. Specifically, we wanted to answer the following questions:

1. under what conditions would tourists/residents be willing to accept the introduction of a new tax and, thus,
2. how should the tax be designed to better meet both the preferences of tourists and residents?

The remainder of the paper is structured as follows: Section 2 reviews the use of room taxes in Spain; the methodology and fieldwork are explained in Section 3; Section 4 summarises the main findings from the opinion survey; Section 5 presents the main results of our stated choice survey and accompanying discrete choice model estimation and, finally, Section 6 reveals our main conclusions.

2 | TOURISM ACCOMMODATION-TAXES IN SPAIN

According to the last figures published by the United Nations World Tourism Organisation (UNWTO, 2018), Spain was ranked as the second international tourist destination in 2019 (with 83 million international arrivals) just behind France (with 89 million). Despite that, there are just two experiences with using accommodation taxes in Spain: the first, in the Balearic Islands, which was applied in two periods: from 2002 to 2003 and from 2016 to date (Aguiló et al., 2005; Amer, 2003; Ariño, 2002; Garin-Muñoz & Montero-Martín, 2007; Nadal & Sansó, 2017; Palmer & Riera, 2003). The second was applied in Catalonia since 2017 (Font-Farolera, Colom, & Imbert-Bouchard, 2018; Goodwin, 2016).

The Balearic *eco-tax* was initially adopted by the Balearic Islands government in 2002 (Act 7/2001, 23rd April), but it was appealed by the Spanish central government, suffered strong opposition from the tourism companies and was finally abolished in 2003, after a change in local government (Ariño, 2002; Serra, 2004). During those 2 years, the eco-tax collected more than €80 million (García et al., 2018) and the funds were mainly used for conserving and improving green areas, and to recover environmental damages.

A new tourist tax was introduced in the Balearic Islands on July 1st 2016. Rates varied from €0,5 (for campsites) to €2 (for 5-star hotels). Nadal and Sansó (2017) estimated the price elasticity of demand, suggesting reductions between 0.4 and 0.8% in the total number of tourist's stays with respect to 2014, as a consequence of the tax implementation. Nevertheless, an increase in both the number of international arrivals (6.3%) and expenditure (12.2%) was observed[1] in 2017 with respect to 2016. The Balearic eco-tax has shown great capacity to raise funds, with more than €40 million collected in 2016 and €64 million in 2017. From May 2018, the Balearic Islands government doubled the rate (now ranges from €1 to €4) collecting over €120 million in 2018.[2]

The regional government of Catalonia has also applied a tax on overnight stays in touristic establishments since November 2012, popularly known as *touristic-tax* (Act 5/2012, of 20th March). This tax was created in a context of public expenditure cuts and shortage of public revenues, and ranges between €0.45 and €2.25 per person per day (or day fraction, with a maximum of 7 days), depending on the category of the accommodation (exemptions apply to visitors under the age of 16). The funds have to be devoted to projects and actions with the following objectives: (a) tourism promotion of Catalonia; (b) fostering the sustainability, responsiveness and quality of tourism, as well as the protection, preservation and recovery of touristic resources; (c) promotion, creation and improvement of touristic

TABLE 1 International inbound tourism by autonomous community in Spain

Autonomous community (ranked by number of tourists in 2019)	2016	2017	2018	2019
Catalonia	18,139,177	19,118,421	19,196,344	19,358,203
Balearic Islands	12,997,549	13,792,296	13,851,598	13,680,923
Canary Islands	13,259,567	14,214,222	13,752,022	13,147,009
Andalusia	10,589,642	11,518,262	11,681,256	12,079,017
Valencian Community	7,731,770	8,925,959	9,206,908	9,566,566
Community of Madrid	5,783,137	6,699,785	7,139,775	7,638,375
Rest of Autonomous Communities	6,814,166	7,599,577	7,980,510	8,230,918
Total	75,315,008	81,868,522	82,808,413	83,701,011

Source: Spanish National Institute of Statistics (INE).

products and (d) development of tourism-related infrastructures (Decree 161/2013, 30 April).

The revenues raised by this tax were €43.5 million in 2015 (García et al., 2018) with an annual increase rate of 5.5% between 2014 and 2015. Nevertheless, there is some controversy about how funds should be distributed among different government levels—regional or local (Colom, Font-Garolera, & Imbert-Bouchard, 2016). The Barcelona Council Authority has requested handling 100% of its tourist tax to tackle the growing impacts of tourism in the city (Goodwin, 2016).

Although the possibility of introducing room-taxes in other Spanish regions was a matter of theoretical analysis 20 years ago (Moiche, 1999; Perdomo, 2000), more recently we find some practical studies focused on the most touristic areas. Table 1 shows the relative touristic importance of the different Spanish regions. Apart from Catalonia and the Balearic Islands, the Canary Islands, Andalusia and the Valencian Community are the most demanded regions by international tourists. Not surprisingly, these are also the regions that concentrate the scarce number of studies about room-taxes: Andalusia (García et al., 2018; Tapias, 2003), Valencia (Gascó, González-Ramírez, Llopis, & Monllor, 2017) and the Canary Islands (Jusmet, Ventosa, & Hercowitz, 2004, for the case of Lanzarote). So, it may be only a matter of time that new room-taxes are applied in some of these regions. The delay in applying the measure may be explained by concerns about its public acceptability, mainly from the tourism industry (Cantallops, 2004).

Regarding the acceptability of room-taxes, opposition from the tourism industry and governments in general have been based on the potential loss of competitiveness of the touristic destinations. This issue is obviously more relevant for mass tourism destinations, where the strategy is usually based on maintaining low prices (García & Tugores, 2013). Cantallops (2004) reviewed the responses among different stakeholders to the initial eco-tax in the Balearic Islands, showing a clearly favourable attitude from tourists, residents, and the trade sector, but a strong opposition from part of the tourism industry. In general, a similar pattern is observed in any attempt to discuss this issue in other regions, although there are some differences according to the characteristics of tourists (Hall et al., 2016) which justifies the need to analyse preferences on a case-by-case basis.

Studies analysing these taxes in Spain have focused on their *ex-post* effects, that is, after their application. Therefore, they are not useful for designing a tax to achieve the highest degree of acceptance. As mentioned above, the use of discrete choice models allows us to analyse the hypothetical response to an accommodation tax. In the next sections we apply this approach to the Canary Islands (the third most important tourist destination in Spain) and carry out a differentiated analysis of the preferences of tourists and residents in the destination.

3 | METHODOLOGY AND DATA COLLECTION

3.1 | Methodology

Stated choice (SC) experiments are designed to model individual preferences on the basis of their response to hypothetical choices (Louviere, Hensher, & Swait, 2000). We will use the SC approach here, rather than trying to obtain revealed preferences, since environmental taxes in the Canaries are yet to be implemented.

To examine data obtained in SC experiments we normally use models based on random utility theory. Under this paradigm, several classes of models can be estimated (Ortúzar & Willumsen, 2011; Train, 2009). The simplest one is the multinomial logit (MNL) model, which assumes that alternatives are independent and homoscedastic, and that tastes are fixed among the population (McFadden, 1974). Unlike the MNL, the Mixed Logit (ML) model relaxes all these assumptions and also allows for an adequate treatment of the so-called *pseudo panel effect*, associated with having several observations by respondent in SC data (Ortúzar & Willumsen, 2011, Chapter 8). In its most common specification, the Random Parameters (RP) model, the vector of parameters β_q in the utility function of the ML may vary across respondents (with a pre-specified distribution), allowing for random variation in tastes leading to the following utility specification:

$$U_{qj} = \underline{\beta}_q \underline{x}_{qj} + \varepsilon_{qj} \quad (1)$$

where U_{qj} represents the utility of alternative j for individual q, x_{qj} are attributes that describe each alternative and ε_{qj} is an independent and

identically distributed (IID) error term, that follows an Extreme Value Type I distribution, as in the MNL.

When using SC data, each individual is asked to make several choices; for this reason, we may also introduce an extra error component (assumed to distribute Normal with mean zero and standard deviation σ) to capture the correlation between individual observations (Train, 2009). This yields an Error Components (EC) mixed logit specification, which turned out to be our best specification. In this case, the parameters are fixed as in the MNL and to allow for heterogeneity, we can resort to testing for *systematic taste variations* (i.e., interactions of the x_{qj} attributes with socioeconomic or other variables, see Ortúzar & Willumsen, 2011, page 279).

Estimating willingness to pay (WTP) is an important outcome of discrete choice studies. In its simplest form, the WTP is obtained as the marginal rate of substitution between the marginal utility of an attribute of interest and the marginal utility of income. In most cases, a payment mechanism needs to be used as a proxy for the latter (Jara-Díaz, 2007), although the selection of an appropriate payment mechanism has not received much attention in the literature. In some cases, it is fairly straightforward (i.e., the bus fare or parking cost in an experiment involving a transport component, see González, Román, & Ortúzar 2019), but for non-market goods, such as in environmental or health economics, it is nearly always necessary to find an indirect payment (see the discussions in Iglesias, Greene, & Ortúzar, 2013; Grisolía, López-del-Pino, & Ortúzar, 2015a).

In some occasions taxes may be used for this purpose; in others, it could be a special contribution or bill related to the good being measured (i.e., water rates and water pollution). Finally, the payment mechanism can simply be the price of a complementary good (i.e., the rent in the case of residential location, linked to certain attributes of interest such as pollution, see Torres, Greene, & Ortúzar, 2013).

Estimating WTP using the ratio of marginal utilities is only correct for fixed parameter models and even in that case the ratio of the point estimates may provide insufficient information, as the parameter estimates are asymptotically Normal distributed variables (Armstrong, Garrido, & Ortúzar, 2001). In the case of random parameter models, different methods have been applied in practice but not all of them are appropriate (see the discussion by Sillano, & Ortúzar, 2005). In linear-in-the parameters models such as (1), WTP is simply equal to the ratio of the coefficient of an attribute of interest (say the *kth* one) and that of the cost coefficient, as in (2):

$$WTP = \frac{\beta_k}{\beta_{\text{cost}}} \tag{2}$$

3.2 | Data and experimental design

After two focus groups and considering previous work in the area, we designed a questionnaire including 17 questions about agreement with opinions regarding room taxes (using 5 level Likert scales), and a choice experiment with 12 scenarios per respondent.

To capture the preferences of residents and tourists separately, two questionnaires were conducted in Spanish and English. The Spanish version was distributed using Google forms to residents of Gran Canaria. The residents have the double characteristic of being recipients of tourism (when they value foreign tourism) and of being tourists themselves (since a relevant part of the residents also carry out inland tourism within the Canary Islands during their holidays). In the latter case, respondents were asked to answer the questions of the survey thinking about the last trip they made within the Canary Islands. Instead, the English version required face-to-face interviews to external visitors in the most touristic areas of this island (interviewers were trained university students, selected from the last course of a tourism degree). A final random sample of 1052 individuals was achieved (comprising 580 residents and 472 visitors).

Since residents come from all islands, the Google forms were distributed using a snowball sampling. To check on possible biases from using different sampling methods for residents and visitors, we applied the *mixed data paradigm* (Ben-Akiva and Morikawa, 1990; Louviere et al., 2000) testing the equality of coefficients assumed in the model estimated with both datasets, against a more general model allowing for the coefficients to be different in both samples, and incorporating a scale factor associated with the potential difference in error variance in both datasets. The scale factor turned out to be not significantly different from one and a likelihood ratio test (Ortúzar & Willumsen, 2011, page 325) allowed us to accept the null hypothesis of equal coefficients at the 99% level.

Regarding the choice experiment, we considered alternative types of accommodations for the holidays, described in terms of the following attributes: accommodation category (two hotel classes, apartments and rural houses), price (considering a realistic range), taxes (in line with existing Spanish room-taxes), use of the tax revenues and different tax payment exemptions. A description of the attributes and levels considered in our choice experiment is given in Table 2.

We generated 24 scenarios applying a D-efficient design (Rose, Bliemer, Hensher, & Collins, 2008) using the Ngene software (Choice Metrics, 2009). Scenarios were blocked into two subsets of 12 each to avoid fatigue and respondent burden (Caussade, Ortúzar, Rizzi, & Hensher, 2005). In each case, respondents were asked to choose between two alternatives and a *non-purchase option*, to avoid bias (Ortúzar & Willumsen, 2011, page 113) using cards as the one shown in Figure 1. The room-tax value received a special treatment, as it was presented either as a quantity per night (euros per person per night) or as a percentage increase over the price of the room.

4 | OPINION SURVEY RESULTS

The first part of the survey had three general questions about room-tax acceptance, the results of which are shown in Table 3. The

TABLE 2 Stated choice experiment attributes and levels

Type of accommodation	Price (€ per night)	Room tax (€ per person per night) [a]	Use of tax revenues	Exemptions (yes/no)
Rural house	30; 40; 50	0.5; 1; 4	Conservation of historical heritage (base); Touristic promotion; Environmental protection; Social spending	Children (<18); Residents; Handicapped; Over 7 days stay
Apartment	40; 50; 65			
3* Hotel (base)	50; 65; 80			
5* Hotel	80; 100; 125			

[a]The room-tax was also presented as a percentage of the room price.

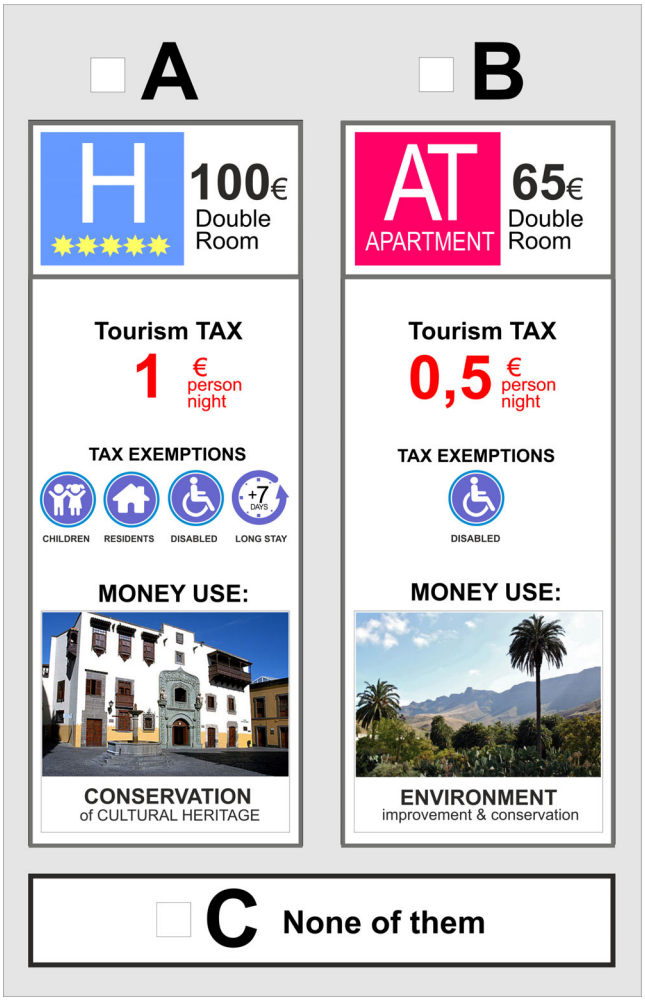

FIGURE 1 Example of choice scenario [Colour figure can be viewed at wileyonlinelibrary.com]

percentage of people clearly against room taxes (27.4%) is higher than that of people clearly in favour (17.6%). Nevertheless, more than half of the sample (55%) would not be totally against a room-tax if the question was subject to a clause indicating its 'correct application'. Although the questionnaire did not specify what should be understood by 'correctly applied', it serves to show that the position of not being against the tax could increase to 72.6% depending on the characteristics of the tax scheme applied. Also, as shown by previous experience with taxes, people usually reject them before they are implemented, but acceptance increases once they are applied. The figures in Table 3 show that the support for a room-tax is roughly twice as large for people with knowledge or experience about such taxes than for people who had never heard about them in the past. Also, visitors show higher acceptance of the tax than residents (22.7 and 13.4% respectively).

In the second part of the survey, respondents had to score their level of agreement with a series of sentences using a 5-level Likert scale (ranging from 1: totally disagree to 5: totally agree). Table 4 presents the main results obtained, by aggregating the answers revealing disagreement (1 and 2 in the scale) and agreement (values 4 and 5), and also comparing the opinions between residents and visitors (t-statistics for a test of difference of means between these two subsamples are included in the last column).

In general, 68% of respondents perceive the existence of environmental problems caused by tourism, but the figure is significantly higher for visitors (73.1%) than for residents (63.8%). The perception of overcrowding problems at the destination is also important (48.3% agree with this), slightly higher for residents (50.9%). Also, more than 43% of respondents declare support for the idea of charging a fee to tourists, although around 32% think that such a measure would be unfair.

When people were questioned about their expected response to room-taxes, around 60% declared that they would not be affected (if the tax was reasonable). In line with this, a majority of people declared that enforcement of a room-tax would not be a strong enough reason to look for another destination; this opinion is statistically stronger in the case of visitors (53%) than residents (40.5%). When questioned about changes in their spending habits (question 6), people were evenly distributed showing no clear response pattern.

On another hand, there is a clear consensus about using the revenues from the room-tax to protect the environment (82.8% of the sample) and to preserve the cultural and architectonic heritage of the island

TABLE 3 General agreement/disagreement with a room-tax (percentages)

	Previously heard about tourist-tax?		Previously been in an accommodation with a tourist-tax?		Residents	Visitors	Total
Opinions (%)	No (n = 362)	Yes (n = 690)	No (n = 681)	Yes (n = 371)	(n = 580)	(n = 472)	(n = 1052)
I am in favour	11.3	20.9	13.5	25.1	13.4	22.7	17.6
If applied correctly, I would not be totally against	54.7	55.2	57.6	50.4	57.6	51.9	55.0
I am against	34.0	23.9	28.9	24.5	29.0	25.4	27.4

TABLE 4 Opinions about a room-tax in gran Canaria (percentage)(Likert scale: 1 totally disagree 5: Totally agree)

	Residents (n = 580)		Non-residents (n = 473)		Total sample (n = 1052)		
	Disag. (%)	Agree (%)	Disag. (%)	Agree (%)	Disag. (%)	Agree (%)	t-statistic
Tourism Problems							
1. Tourism creates environmental problems that need to be controlled	14.5	63.8	9.1	73.1	12.1	68.0	2.91
2. This tourist destination is overcrowded with tourists	17.9	50.9	19.1	45.1	18.4	48.3	−1.76
Room-tax opinion							
3. I am in favour of charging a fee to tourists	32.1	41.9	28.6	45.1	30.5	43.3	0.32
4. I think this type of taxes are unfair	42.2	35.2	52.1	27.8	46.7	31.8	−2.44
Personal adaptation to room-tax							
5. If a tourist fee was applied, I would not come here. I would look for another destination	40.5	29.8	53.0	22.7	46.1	26.6	−3.51
6. If a tourist fee was applied, I would come but I would spend less on other things	28.6	38.3	35.0	36.9	31.5	37.6	−1.59
7. If the tax was reasonable, I think I would not be affected	20.3	58.3	15.7	61.9	18.3	59.9	0.88
Use of revenues							
8. The money of the room-tax should be used to protect the environment	6.6	83.3	3.4	82.2	5.1	82.8	−1.13
9. The money of the room-tax should be used for tourist promotion of the Canary Islands	24.3	53.1	27.3	46.2	25.7	50.0	−2.36
10. The money of the room-tax should be used to preserve the cultural and architectonic heritage	9.0	75.0	8.7	73.9	8.8	74.5	−1.69
11. The money of the room-tax should be used to maintain the tourist infrastructure	19.3	56.0	16.3	60.8	18.0	58.2	0.53
12. The money of the room-tax should be used for social purposes (health, education, etc).	27.1	51.4	23.7	47.2	25.6	49.5	−0.31
13. The money of the room-tax should be used to guarantee the residents' pensions	38.3	35.7	40.7	33.7	39.4	34.8	−1.18
Tax discounts							
14. There should be a discount for residents	9.0	79.5	14.8	60.4	11.6	70.9	−7.98
15. There should be a discount for children (less than 18)	12.6	70.0	8.9	79.0	10.9	74.0	2.24
16. There should be a discount for the disabled	12.4	74.0	7.8	77.8	10.4	75.5	1.37
17. There should be a discount for long stay durations (more than one week)	16.4	68.4	10.8	71.4	13.9	69.8	2.28

(74.5% agree). These are followed, but far apart, by maintenance of the touristic infrastructure (58.2%). There are statistically significant differences between residents and visitors regarding the use of funds for touristic promotion of the destination (53.1% of residents and 46.2% of visitors support it). Finally, the use of revenues for non-tourism purposes has the lowest acceptance rates (only about half of the sample for social purposes and just over a third for pensions).

Considering the application of some kind of discount to the tax, people agree with them in general (more than 70% of the sample), especially if they apply to the disabled and to children under 18. Nevertheless, there are statistically significant differences between residents and visitors in the discounts for children and long stays (mostly preferred by tourists) and the discount for residents (quite reasonably preferred by the island residents).

TABLE 5 Error components model

	Attribute	General description	Value	Robust t-ratio
Constant	**NPO**	Non-purchase option	−2.34	−17.99
Error component	**Sigma**	Standard deviation of error component	1.86	25.98
Monetary variables	**Price**	Price paid for hotels	−0.00526	−4.35
	Tax	Environmental or Room Tax	−0.164	−11.60
	Tax · young	Tax for young	0.0463	2.65
From 3* hotel to …	**5* Hotel/R. House**	From base (3*hotel) to 5* hotel or rural house	0.183	4.16
Exceptions of payment	**Children**	Children are exempted	0.259	10.00
	Resident · Resident	Residents do not pay, view by residents	0.190	6.08
	Handicapped	Handicapped do not pay taxes	−0.131	−6.22
Preferred allocation of revenues in relation to protecting historical heritage	**Environment**	Environmental protection x only young	0.0686	2.30
	Promotion	Touristic promotion	−0.294	−3.09
	Promotion · educa	Promotion · educated people	−0.332	−3.61
	Promotion · heard	Promotion · heard about taxes before	−0.161	−1.75
	Promotion · rich	Promotion · rich	−0.143	−1.10
	Social	To be used in social benefits	0.123	1.28
	Social · educated	Social benefits · educated people	−0.133	−1.60
	Social · heard	Social benefits · heard about taxes before	−0.260	−3.19
	Social · rich	Social benefits · rich	−0.261	−2.13
	Social · young	Social benefits · young	0.157	2.05
Observations			11,844	
Individuals			987	
Log-likelihood at convergence			−10810.52	
Number of parameters			19	

5 | MODELLING RESULTS

With the data described above,[3] we estimated an EC mixed logit model allowing for systematic taste variations, using the freeware Apollo application in (Hess & Palma, 2019). The final model results are shown in Table 5. We also tested other specifications, as discussed below, but the EC model was clearly superior.

5.1 | Overview of results

Constant: We specified an alternative specific constant for the non-purchase option (NPO). Its negative and strongly significant value suggests that individuals were rather satisfied with the purchase options available in the experiment.

Monetary variables: The two monetary variables, *price* and *tax*, presented remarkable differences. Both were significant at the 99% level, but *tax* was 31 times larger. The larger coefficient for tax might be because of the association of price with a private good (hotels) and tax with a public good (environment). During our specification searches, we also estimated a random parameters (RP) mixed logit model with Normal distributed parameters for *price* and *tax*. In general, the *tax* parameter was also larger, suggesting that individuals are unhappier with paying a tax, compared with price. The RP model allowed us to estimate the negative range of values of each parameter which was 87% and 74%, respectively, for tax and price (i.e., the expected number of individuals with a positive sign was not high, see Sillano, & Ortúzar, 2005).[4] It is also interesting to mention that young people appear to be more willing to pay this tax, since we found a significant positive interaction in this case. Thus, acceptance of a room-tax is presumably larger among the youngest group.

Service attributes: related to the accommodation type. The original reference alternative (with a parameter fixed to zero) was a three-star hotel, and we started our specification searches with another three types: an apartment, a five-star hotel and a rural house (which is also a popular choice at this destination). However, since the apartment parameter turned out to be not significantly different from zero, the reference was changed to being either a three-star hotel or an apartment. From this base, the client could upgrade to a five-star hotel or to a rural house. Both parameters turned out to be positive and significant with an almost identical value, so it was eventually merged. It seems that rural tourism has a potential expansion based on visitors that are relatively older and are willing to pay more for the extra tranquillity and a more direct contact with nature.

Use of revenues: A crucial aspect of this experiment was the potential use of the tax revenues. Revenue allocation has been determinant in leading public acceptance (see, for example, Grisolía, López-del-Pino, & Ortúzar, 2015b). In this case, we tested different options,

as discussed in the focus groups, which involved using the money for either:

- *Preserving the historical heritage*: The Historical Heritage of the Canaries Law (Act 4/1999, 15 March) considers different types of buildings as historical heritage: monuments, historical complexes (set of buildings, such as a historic city centre), gardens, and other sites with historical (i.e., linked to historical events), archaeological, paleontological or ethnological value. Besides, the historical heritage also includes cultural goods and goods such as paintings, sculptures furniture, and even expressions of popular culture and traditions.
- *Touristic promotion of the islands*: mainly supporting marketing campaigns in international Tourism Fairs with the aim of increasing the islands' attractiveness as a touristic destination and, thus, the number of international tourist arrivals.
- *Environmental preservation and recovery*: dealing with any action to improve the quality of the environment, reduce the negative impacts from tourism (on water, air and soil) and preserve the natural islands' values (landscape, wildlife and flora); although an important part of the territory is under some degree of environmental protection, the natural resources in the archipelago, as a whole, are still under great pressure due to mass tourism activities.
- *Social needs*: using the tax revenues to finance social services, such as the local health system, support the pensions system or any other social need; although it was not clearly stated what social benefits were considered, this use reflected any other uses of the funds not directly related to the tourism activity.

In this case, the reference allocation was *historical heritage*. Thus, every coefficient represents the variation of utility if revenues were spent in another way. As an average, individuals prefer that revenues are used for environmental purposes. This preference is very strong, with a remarkably positive and significant coefficient. It comes without saying, that this preference is quite sensible since we are examining an environmental tax.

On the other hand, touristic *promotion* turned out to be negative: all respondents appeared to dislike the idea that money was spent in promoting tourism, but we found a considerable degree of heterogeneity; those who especially disliked it were the more educated, the wealthiest, and those who had heard about environmental taxes. The general rejection to promotion can be explained by the implicit contradiction in collecting a tax to curb excessive demand and then use revenues in increasing demand through marketing. That position was raised during the focus group sessions.

Spending the revenues in *social benefits* instead of protecting the historical heritage, revealed a weak preference; it was only really supported by the young and rejected by the rest of the groups. It seems here that youngsters have a particular ranking, where *social benefits* occupy the first priority, followed by *historical heritage*. Finally, as most people are happy with *historical heritage* as a priority spending, this use of the funds should be included among the priorities for spending.

Exemptions: refers to what extent individuals agree that in certain situations, or for certain individuals, the tax should be zero. In general, people rejected any exemptions with two exceptions: residents and those who travel with children; however, the exemption for residents was only significant for the residents in the sample.

Correlation across choices: sigma is the standard deviation of the Normal error component; it allows to consider the potential correlation in the 12 responses of each individual; the strongly significant estimated value supports the importance of considering this effect.

5.2 | Heterogeneity

We have referred already to *systematic taste variations* and the analysis of preferences when social interactions are considered. In this section we will create a taxonomy of individuals in the sample using a method proposed by Amaris et al. (2020). The idea is to select the most relevant socioeconomic characteristics in the model to create types of individuals, and segment the sample considering a combination of these variables; then, estimate the weights of every segment in the sample (see Table 6) and, finally, determine the probability of rejecting a taxed hotel for every segment. The idea is to estimate the acceptability of a room tax per segment, and for that we considered three possible revenue allocations: *environmental protection*, *heritage protection* and *social benefits*. We did not include *touristic promotion* as it was clearly unpopular.

Table 7 shows the probabilities of not choosing the NPO alternative, that is, the impact of a room-tax for the three selected use of revenues, considering the range of taxes in the experiment. Results are the difference in market shares versus a tax = 0, a situation which represents the *status quo*. As can be seen, even for a tax of €4 per day, the impact on the market is limited, and clearly the best strategy seems to promote the tax as a means to protect the environment. Therefore, for the maximum value of the tax (€4), hotel demand would be reduced by 4% in the worst of cases.

It is interesting to combine these results with the profile types of Table 6; for example, what would be the market share of a room-tax equal to €4/day, when the funds are allocated to protect the environment for a given respondent type?

In Table 8, we represent the rejection rate (i.e., choosing the NPO) for this case, combined with the size of each segment. To arrive at this result, we calculated the market shares for every alternative using the sample enumeration approach (Ortúzar & Willumsen, 2011, page 338).

$$P_{jq} = \frac{1}{Q}\sum_{q} f_j(X_q) \tag{3}$$

where P_{jq} represents the market share of alternative j, which is obtained by averaging the probability of choosing this alternative for the entire sample. The market reductions in Table 8 might represent a choice outside the Canary Islands, since all hotels are taxed in this example. First, note that rejection rates are again very low (i.e., at the

TABLE 6 Segmentation of the sample

Type of respondent						Share of respondents (%)	
Male	Female	Education	Age	Knowledge	High income	Male	Female
1	17	Degree holder	Above 40	Yes	Yes	1.62	1.42
2	18				No	3.34	5.47
3	19			No	Yes	0.20	0.30
4	20				No	1.01	1.32
5	21		Below 40	Yes	Yes	2.12	1.72
6	22				No	6.18	11.65
7	23			No	Yes	0.40	0.92
8	24				No	3.14	6.99
9	25	Non degree holder	Above 40	Yes	Yes	1.01	0.71
10	26				No	7.70	8.11
11	27			No	Yes	0.10	0.81
12	28				No	3.45	3.95
13	29		Below 40	Yes	Yes	0.60	0.50
14	30				No	4.86	8.00
15	31			No	Yes	0.20	0.30
16	32				No	5.78	6.08

TABLE 7 Market shares of a room taxed hotel versus NPO (%)

Resource allocation/tax (€)	0.5	1	4
Environmental protection	99.65	99.30	96.59
Historical heritage	99.64	99.25	96.37
Social protection	99.60	99.16	95.98

maximum it is less than 5%). Second, the variability among the various segments is also small.

The larger rejection rates correspond to segments 3, 4, 9 and 11 and the largest is for segment 4 (4.47%), which represents men, holding a degree, older than 40, without previous knowledge about the tax, and with low income. On the other hand, segments 9 and 11 incorporate non-degree holders, above 40 years, with and without previous knowledge.

The combination with the size of the segments does not bring a clear picture. For instance, the largest segment, representing 11.65% of the sample (type 22: women, degree holder, and below 40 years old), shows a low rejection rate. Analysing the data carefully, we find that the only clear pattern here is age: with youngsters showing a higher degree of acceptance compared with individuals above 40 years old (shadowed with grey).

TABLE 8 Market share of room taxed hotel versus NPO

Type of respondent		Sample weight (%)		Market reduction (%)	
Male	Female	Male	Female	Male	Female
1	17	1.62	1.42	4.20	4.12
2	18	3.34	5.47	4.30	4.13
3	19	0.20	0.30	4.56	3.97
4	20	1.01	1.32	4.47	4.00
5	21	2.12	1.72	2.76	2.69
6	22	6.18	11.65	2.68	2.67
7	23	0.40	0.92	2.61	2.73
8	24	3.14	6.99	2.68	2.68
9	25	1.01	0.71	4.42	4.00
10	26	7.70	8.11	4.06	4.14
11	27	0.10	0.81	4.40	4.31
12	28	3.45	3.95	4.08	3.97
13	29	0.60	0.50	2.70	2.88
14	30	4.86	8.00	2.58	2.62
15	31	0.20	0.30	2.76	2.74
16	32	5.78	6.08	2.51	2.56

5.3 | Willingness to pay

As explained before, for linear-in-parameters utility functions, the WTP is given by the ratio of the parameter corresponding to the attribute of interest and the cost parameter. To obtain confidence intervals in this case, we applied the method proposed by Armstrong et al. (2001).

Since we have two monetary attributes (tax and price) we can, in principle, calculate the confidence intervals using either parameter. Now, since the parameter of the tax attribute is much larger, we would expect considerable differences (i.e., much smaller WTP when the parameter of tax is used). We gave some thought to this problem and decided that a sensible way forward was to link the monetary valuation with the cost attribute that was more appropriate in each case;

TABLE 9 Confidence intervals for WTP

		Estimated using Price (€)			Estimated using Tax (€)		
		Upper limit	Point estimate	Lower limit	Upper limit	Point estimate	Lower limit
From base (3*hotel) to	5*hotel or rural house	55.53	34.79	20.37	1.75	1.12	0.54
From base (historical heritage) to	Env. protection (only young)	29.98	13.04	1.95	0.80	0.42	0.06
	touristic promotion	−25.32	−55.89	−92.54	−0.64	−1.79	−3.07
	social benefits	90.46	23.38	−10.20	1.91	0.75	−0.41

that is, the price for the service attributes related to the accommodations; and the tax for attributes that described its particular characteristics (i.e., revenue allocations). These has been highlighted in grey in Table 9.

In summary, according to our model individuals would be willing to pay between €20.37 and €55.53 to be upgraded from a three-star hotel or an apartment to a five-star hotel or rural house; this is coherent with the actual range of prices in the islands.

In relation to the use of revenues, recall that the reference use of the room-tax funds was to preserve the islands' historical heritage. Given this, our results imply that only young people would be willing to pay a premium if the tax money was used to protect the environment. Our results also imply that individuals are against using the tax revenues for touristic promotion. Finally, using the room-tax funds for social protection is only accepted by young people and non-educated and relatively poor individuals who have never heard about the tax. Their premium, though, is larger compared with using the funds to protect the environment.

Considering the rejection rates in our model, we can simulate the effect of a tax accounting for revenues and the decrease in visitors. According to the Spanish National Statistics Institute, 13.1 million tourists visited the region in 2019 (INE, 2019). The average length of each visit was 6.8 days with a daily spending of €138 (ISTAC, 2019). However, a breakdown of these expenses reveals that only €98.5 of them would remain in the archipelago, as the rest was part of the journey paid at the origin.

Using this information, we found that a tax of €1 would reduce the number of visitors by 91,838 (i.e., 0.6%) but would still generate over €88 million in revenues per year, clearly offsetting any losses in the sector. By the same token we estimated the break-even tax in €6.17.Therefore, it seems that there are possibilities to apply a tax to tourism in the Canary Islands, as described above, starting with cautiously reduced values similar to those currently applied in other tourist destinations in Spain.

6 | CONCLUSIONS

We analysed the acceptance of a room tax in the Canary Island and forecasted its impact on touristic demand following a dual approach: (a) a qualitative questionnaire with opinions graded on Likert scales and (b) a stated choice exercise followed by the estimation of a flexible discrete choice model.

We were able to answer the research questions posed initially. Our qualitative data reveals polarised opinions about this type of tax, with 27% of respondents clearly against it and 17% in favour. However, the majority of individuals (55%) gravitated around a conditional acceptance of a well-managed tax. Further, as individuals gain experience with these taxes, through knowledge or previous travels, they tend to increase their degree of acceptance. In this sense, international travellers seem to be less reluctant to such a taxation system. In addition, the majority of respondents stated that a room-tax would not deter them from visiting the Canary Islands.

These results were confirmed by our quantitative analysis. Our best model specification suggests that although the tax is not popular, the demand response is inelastic. In fact, our model predicts a reduction in demand of about half a point (i.e., less than 92,000 people) from the application of a €1 tax, as well as revenues of around €88 million.

Our model also shows that the proper allocation of tax revenues is a very important contributor to a general acceptance of this type of taxes. Protecting historical heritage and the environment are the favourite options. Notwithstanding, younger sample members appear to be willing to pay a small premium for securing the tax revenues are used for environmental protection rather than caring for the historical heritage. It is important to avoid using the tax revenues in touristic promotion, a sort of contradictory loop that is negatively perceived by respondents. Some exemptions to the tax, such as resident and children, could also increase the popularity of the measure. Finally, we found that the degree of acceptance of the policy increases notably among younger people.

Therefore, we can conclude that there seems to be room for a room-tax in the Canary Islands, considering the estimated impact on demand and its degree of acceptance. A moderate tax of between 1 and 2 euros per night (similar to those already applied in other tourist destinations in Spain) would be advisable, to start with, if the tax revenues are intended to increase environmental protection and/or preserve the historical and natural heritage of the Canary Islands. Previous experience in Spain seems to confirm this result.

ENDNOTES

[1] See: https://www.ultimahora.es/noticias/local/2018/02/03/325163/ecotasa-recauda-millones-euros-baleares-durante-2017.html.

[2] See: https://www.agenttravel.es/noticia-033129_El-impuesto-turistico-balear-recauda-mas-de-122-millones-en-2018-.html.

[3] We removed 63 respondents that always chose the same alternative. They might be lexicographic (non- traders) or did not understand the questionnaire.

[4] In a RP model it is assumed that each parameter distributes randomly across individuals in the sample. We typically choose a Normal distribution and during model estimation we obtain the mean and standard deviation of this distribution (the so-called *population parameters*). For this reason, we are able to estimate the percentage of individuals that are within a particular range of values (Sillano and Ortúzar, 2005).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Jose M. Grisolía https://orcid.org/0000-0001-7147-8851

REFERENCES

Aguiló, E., Riera, A., & Rosselló, J. (2005). The short-term price effect of a tourist tax through a dynamic demand model: The case of the Balearic Islands. *Tourism Management*, *26*, 359–365.

Amaris, G., Dawson, R., Gironás, J., Hess, S., & Ortúzar, J. de D. (2020). Understanding the preferences for different types of urban greywater uses and the impact of qualitative attributes. *Water Research*, *184*, 116007.

Amer, J. (2003). Empresariado hotelero e implementación de un impuesto turístico: el caso de la "Ecotasa" en Baleares. *Cuadernos de Turismo*, *12*, 165–178 (in Spanish).

Arguea, N. M., & Hawkins, R. R. (2015). The rate elasticity of Florida tourist development (aka bed) taxes. *Applied Economics*, *47*, 1823–1832.

Ariño, O. B. (2002). Sustainable tourism and taxes: An insight into the Balearic Eco-tax Law. *European Environmental Law Review*, *11*, 169–174.

Armstrong, P., Garrido, R. A., & Ortúzar, J. de D. (2001). Confidence intervals to bound the value of time. *Transportation Research Part E: Logistics and Transportation Review*, *37*, 143–161.

Backhaus, J. G. (1999). The law and economics of environmental taxation: When should the ecotax kick in? *International Review of Law and Economics*, *19*, 117–134.

Barde, J. P., & Owens, J. (1996). *The evolution of eco-taxes. OECD Observer 198*, *11*. Organisation for Economic Cooperation and Development.

Barnett, A. H. (1980). The Pigouvian tax rule under monopoly. *The American Economic Review*, *70*, 1037–1041.

Baumol, W. J., & Oates, W. E. (1971). The use of standards and prices for protection of the environment. In: P. Bohm & A. V. Kneese (eds). *The economics of environment*, (53–65). London: Palgrave Macmillan. https://doi.org/10.1007/978-1-349-01379-1_4.

Ben-Akiva, M., & Morikawa, T. (1990). Estimation of switching models from revealed preferences and stated intentions. *Transportation Research Part A: General*, *24*(6), 485–495.

Biagi, B., Brandano, M. G., & Pulina, M. (2017). Tourism taxation: A synthetic control method for policy evaluation. *International Journal of Tourism Research*, *19*, 505–514.

Bocci, C., Sohngen, B., Lupi, F., & Milian, B. (2020). Timber or carbon? Evaluating forest conservation strategies through a discrete choice experiment. *Ecological Economics*, *171*, 106601.

Boto-García, D., Mariel, P., Pino, J. B., & Alvarez, A. (2020). Tourists' willingness to pay for holiday trip characteristics: A discrete choice experiment. *Tourism Economics*, 1–22. https://doi.org/10.1177/1354816620959901

Brau, R., Scorcu, A. E., & Vici, L. (2009). Assessing visitor satisfaction with tourism rejuvenation policies: The case of Rimini, Italy. *Journal of Environmental Planning and Management*, *52*, 25–42.

Cantallops, A. S. (2004). Policies supporting sustainable tourism development in the Balearic Islands: The Ecotax. *Anatolia*, *15*, 39–56.

Caussade, S., Ortúzar, J. de D., Rizzi, L. I., & Hensher, D. A. (2005). Assessing the influence of design dimensions on stated choice experiment estimates. *Transportation Research Part B: Methodological*, *39*, 621–640.

Chen, N., Masiero, L., & Hsu, C. H. (2019). Chinese outbound tourist preferences for all-inclusive group package tours: A latent class choice model. *Journal of Travel Research*, *58*, 916–931.

Choice Metrics. (2009). *Ngene v1.0, User Manual and Reference Guide*. Sydney, Australia: Choice Metrics Ltd.

Chung, J. Y., Kyle, G. T., Petrick, J. F., & Absher, J. D. (2011). Fairness of prices, user fee policy and willingness to pay among visitors to a national forest. *Tourism Management*, *32*, 1038–1046.

Cirer Costa, J.C. & De Ibiza, E.D.T. (2008). Climate change, environmental taxes and the future of tourist destinations on beach sun. MPRA Paper 9172, Munich Personal RePEc Archive.

Collins, C. G., & Stephenson, E. F. (2018). Taxing the travellers: A note on hotel tax incidence. *Journal of Regional Analysis and Policy*, *48*, 7–11.

Colom, M., Font-Garolera, J., & Imbert-Bouchard, D. (2016). La sostenibilidad económica de la promoción y el fomento del turismo: el impuesto sobre las estancias en establecimientos turísticos (IEET) promovido por el Gobierno de Cataluña. *ARA: Revista de Investigación en Turismo*, *6*, 21–32 (in Spanish).

Corthay, L., & Loeprick, J. (2010). *Taxing tourism in developing countries: Principles for improving the investment climate through simple, fair, and transparent taxation*. Investment Climate in Practice No. 14. Washington, DC: World Bank.

Crouch, G. I., & Louviere, J. J. (2000). A review of choice modelling research in tourism, hospitality, and leisure. *Tourism Analysis*, *5*, 97–104.

Do Valle, P. O., Pintassilgo, P., Matias, A., & André, F. (2012). Tourist attitudes towards an accommodation tax earmarked for environmental protection: A survey in the Algarve. *Tourism Management*, *33*, 1408–1416.

Durán Román, J., Cárdenas García, P., & Pulido Fernández, J. (2020). Taxation of tourism activities: A review of the top 50 tourism destinations. *Revista de Economía Mundial*, *55*, 49–78.

Dwyer, L., Forsyth, P., & Dwyer, W. (2010). *Tourism economics and policy*. Bristol, England: Channel View Publications.

Edwards, P. E. (2009). Sustainable financing for ocean and coastal management in Jamaica: The potential for revenues from tourist user fees. *Marine Policy*, *33*, 376–385.

Figini, P., Castellani, M., & Vici, L. (2009). Estimating tourism effects on residents: A choice modelling approach to the case of Rimini. In A. Matias, P. Nijkamp, & M. Sarmento (Eds.), *Advances in tourism economics*. Heidelberg, Germany: Physica-Verlag.

Font-Farolera, J., Colom, M., & Imbert-Bouchard, D. (2018). El impuesto turístico de Cataluña. Un primer balance de su aplicación. *Scripta Nova. Revista Electrónica de Geografía y Ciencias Sociales*, *22*, 593 (in Spanish).

Forsyth, P., Dwyer, L., Spurr, R., & Pham, T. (2014). The impacts of Australia's departure tax: Tourism versus the economy? *Tourism Management*, *40*, 126–136.

Gago, A., Labandeira, X., Picos, F., & Rodríguez, M. (2006). *Taxing tourism in Spain: Results and recommendations*. Nota di Lavoro N° 40. Milan, Italy: The Fondazione Eni Enrico Mattei.

Gago, A., Labandeira, X., Picos, F., & Rodríguez, M. (2009). Specific and general taxation of tourism activities. Evidence from Spain. *Tourism Management*, *30*, 381–392.

García, A. M., Marchena, M. J., & Morilla, A. (2018). Sobre la oportunidad de las tasas turísticas: el caso de Sevilla. *Cuadernos de Turismo*, *42*, 161–183 (in Spanish).

García, D., & Tugores, M. (2013). Differentiation in the tourism sector: An evolutionary analysis. *Tourism Economics*, *19*, 1107–1122.

Garin-Muñoz, T., & Montero-Martín, L. F. (2007). Tourism in the Balearic Islands: A dynamic model for international demand using panel data. *Tourism Management*, *28*, 1224–1235.

Gascó, J. L., González-Ramírez, R., Llopis, J., & Monllor, F. (2017). La tasa turística: una aproximación a su impacto en la Comunidad Valenciana. In M. D. Pitarch, T. González, & J. Hermosilla (Eds.), *Las Claves del Turismo en la Comunitat Valenciana: Orientaciones para la Toma de Decisiones*. Valencia, Spain: Tirant lo Blanch (in Spanish).

González, R. M., Román, C., & Ortúzar, J. de D. (2019). Preferences for sustainable mobility in natural areas: The case of Teide National Park. *Journal of Transport Geography*, *76*, 42–51.

Goodwin, H. (2016). *Managing tourism in Barcelona*. Working Paper 1, Responsible Tourism Partnership. Manchester, England. https://responsibletourismpartnership.org/.

Gooroochurn, N. (2004). Tourism taxation: A theoretical and empirical investigation. In *ECOMOD International Conference on Input-Output and General Equilibrium: Data, Modelling and Policy Analysis. Global Economic Modelling Network (EcoMod) and the International Input-Output Association (IIOA), Brussels*.

Gooroochurn, N., & Sinclair, T. (2005). Economics of tourism taxation: Evidence from Mauritius. *Annals of Tourism Research*, *32*, 478–498.

Grisolía, J. M., López-del-Pino, F., & Ortúzar, J. de D. (2015a). Burying the highway: The social valuation of community severance and amenity. *International Journal of Sustainable Transportation*, *9*, 298–309.

Grisolía, J. M., López-del-Pino, F., & Ortúzar, J. de D. (2015b). Increasing the acceptability of a congestion charging scheme. *Transport Policy*, *39*, 37–47.

Hall, C. M., Dayal, N., Majstorović, D., Mills, H., Paul-Andrews, L., Wallace, C., & Truong, V. D. (2016). Accommodation consumers and providers' attitudes, behaviours and practices for sustainability: A systematic review. *Sustainability*, *8*, 625.

Heffer-Flaata, H., Voltes-Dorta, A., & Suau-Sanchez, P. (2020). The impact of accommodation taxes on outbound travel demand from the United Kingdom to European destinations. *Journal of Travel Research*, 1–12. https://doi.org/10.1177/0047287520908931

Hess, S., & Palma, D. (2019). Apollo: A flexible, powerful and customisable freeware package for choice model estimation and application. *Journal of Choice modelling*, *32*, 100170.

Hughes, H. L. (1981). A tourism tax—The cases for and against. *International Journal of Tourism Management*, *2*, 196–206.

Huybers, T. (2003). Domestic tourism destination choices—A choice modelling analysis. *International Journal of Tourism Research*, *5*, 445–459.

Iglesias, P., Greene, M., & Ortúzar, J. de D. (2013). On the perception of safety in low income neighbourhoods: Using digital images in a stated choice experiment. In S. Hess & A. J. Daly (Eds.), *Choice Modelling: The state of the art and the state of practice*. Cheltenham, England: Edward Elgar Publishing.

Ihalanayake, R. (2012). Economic effects of tourism tax changes in Australia: Empirical evidence from a computable general equilibrium model. *Tourism Economics*, *18*, 181–202.

INE. (2019). *Estadística de Movimientos Turísticos en Fronteras (FRONTUR)*. Madrid, Spain: Instituto Nacional de Estadísticas (www.ine.es) (in Spanish).

ISTAC. (2019). *Encuesta sobre gasto turístico*. Gran Canaria, Spain: Instituto Canario de Estadística. (www.gobiernodecanarias.org/istac/) (in Spanish).

Jara-Díaz, S. R. (2007). *Transport economic theory*. Amsterdam, the Netherlands: Elsevier Science.

Jusmet, J. R., Ventosa, I. P., & Hercowitz, M. (2004). La propuesta de impuesto turístico (Ecotasa) para Lanzarote. *Revista de Estudios Regionales*, *70*, 203–221 (in Spanish).

Lee, C. K., Mjelde, J. W., Kim, T. K., Lee, E., & Choi, Y. (2019). Willingness-to-pay for whale tour attributes using a choice experiment. *Asia Pacific Journal of Tourism Research*, *24*, 606–617.

Lee, D., & Pearce, P. L. (2002). Community attitudes to the acceptability of user fees in natural settings. *Tourism and Hospitality Research*, *4*, 158–173.

Lee, S. K. (2014). Revisiting the impact of bed tax with spatial panel approach. *International Journal of Hospitality Management*, *41*, 49–55.

Louviere, J. J., Hensher, D. A., & Swait, J. D. (2000). *Stated choice methods: Analysis and application*. Cambridge, England: Cambridge University Press.

Lupu, C., Padhi, S. S., Pati, R. K., & Stoleriu, O. M. (2020). Tourist choice of heritage sites in Romania: A conjoint choice model of site attributes and variety seeking behaviour. *Journal of Heritage Tourism*, *16*(1), 62–78. https://doi.org/10.1080/1743873X.2020.1818763

Masiero, L., Heo, C. Y., & Pan, B. (2015). Determining guests' willingness to pay for hotel room attributes with a discrete choice model. *International Journal of Hospitality Management*, *49*, 117–124.

McFadden, D. (1974). Conditional logit analysis of qualitative choice behaviour. In P. Zarembka (Ed.), *Frontiers in econometrics*. New York, NY: Academic Press.

Moiche, S. B. (1999). La fiscalidad de las prestaciones turísticas: la posibilidad de que las Comunidades Autónomas establezcan la "tasa turística". *Civitas Revista Española de Derecho Financiero*, *102*, 243–260 (in Spanish).

Nadal, J. R., & Sansó, A. (2017). Taxing tourism: The effects of an accommodation tax on tourism demand in the Balearic Island (Spain). *Cuadernos Económicos de ICE*, *93*, 157–174.

OECD. (1989). *L'utilisation des instruments economiques pour la protection de l'environnement*. Paris: Organisation for Economic Co-operation and Development (in French).

OECD. (2014). *Tourism trends and policies 2014*. Paris, France: Organisation for Economic Co-operation and Development.

Ortúzar, J. de D., & Willumsen, L. G. (2011). *Modelling Transport*. Chichester, England: John Wiley and Sons.

Palmer, T., & Riera, A. (2003). Tourism and environmental taxes. With special reference to the "Balearic ecotax". *Tourism Management*, *24*, 665–674.

Pazienza, P. (2011). Should we tax tourism? Theoretical justifications from the economics of non-renewable resource use. *Environmental Economics*, *2*, 8–16.

Pearce, D. W., & Turner, R. K. (1989). *Economics of Natural Resources and the Environment*. London: Hemel Hempstead, Harvester Wheatsheaf.

Perdomo, M. A. (2000). La 'ecotasa' que ha de llegar. *Cuadernos del Guincho*, *8*, 136–140 (in Spanish).

Perez Loyola, R., Wang, E., & Kang, N. (2019). Economic valuation of recreational attributes using a choice experiment approach: An application to the Galapagos Islands. *Tourism Economics*, *27*(1), 86–104. https://doi.org/10.1177/1354816619885236

Piga, C. A. (2003). Pigouvian taxation in tourism. *Environmental and Resource Economics*, *26*, 343–359.

Ponjan, P., & Thirawat, N. (2016). Impacts of Thailand's tourism tax cut: A CGE analysis. *Annals of Tourism Research*, *61*, 45–62.

Rinaldi, A. (2014). Externalities and tourist tax. Evidence from Italy. *Rivista di Scienze del Turismo-Ambiente Cultura Diritto Economia*, *3*, 79–91.

Rose, J. M., Bliemer, M. C. J., Hensher, D. A., & Collins, A. T. (2008). Designing efficient stated choice experiments in the presence of reference alternatives. *Transportation Research Part B: Methodological*, *42*, 395–406.

Rosselló, J., & Sansó, A. (2017). Yearly, monthly and weekly seasonality of tourism demand: A decomposition analysis. *Tourism Management*, *60*, 379–389.

Rotaris, L., & Carrozzo, M. (2019). Tourism taxes in Italy: A sustainable perspective. *Journal of Global Business Insights*, *4*, 92–105.

Schubert, S. F. (2010). Coping with externalities in tourism: A dynamic optimal taxation approach. *Tourism Economics*, *16*, 321–343.

Serra, A. (2004). Policies supporting sustainable tourism development in the Balearic Islands: The ecotax. *Anatolia*, *15*, 39–56.

Sheng, L. (2011). Taxing tourism and subsidizing non-tourism: A welfare-enhancing solution to "Dutch disease"? *Tourism Management*, *32*, 1223–1228.

Sheng, L. (2017). Factors determining the success or failure of a tourism tax: A theoretical model. *Tourism Review*, *72*, 274–287.

Sheng, L., & Tsui, Y. (2009). Taxing tourism: Enhancing or reducing welfare? *Journal of Sustainable Tourism*, *17*, 627–635.

Sillano, M., & Ortúzar, J. de D. (2005). Willingness-to-pay estimation with mixed logit models: Some new evidence. *Environment and Planning Part A: Economy and Space*, *37*, 525–550.

Tapias, J. A. P. (2003). ¿Hacia un cambio de modelo turístico? Reflexiones desde Andalucía a partir de la ecotasa. *Revista de Fomento Social*, *58*, 469–500 (in Spanish).

Tavares, K. (2011). Trends in taxation on tourism services and products. Student Papers 2011-04-01, School of Hospitality and Tourism Management, University of Guelph.

Tisdel, C. (2005). *Economics of environmental conservation*. Cheltenham, England: Edward Elgar Publishing.

Torres, I., Greene, M., & Ortúzar, J. de D. (2013). Valuation of housing and neighbourhood attributes for city centre location: A case study in Santiago. *Habitat International*, *39*, 62–74.

Train, K. E. (2009). *Discrete choice methods with simulation*. Cambridge, England: Cambridge University Press.

UNWTO. (2018). *Tourism highlights* (2018th ed.). Madrid, Spain: United Nations World Tourism Organisation.

Xu, L., Ao, C., Mao, B., Cheng, Y., Sun, B., Wang, J., Liu, B., & Ma, J. (2020). Which is more important, ecological conservation or recreational service? Evidence from a choice experiment in wetland nature reserve management. *Wetlands*, *40*, 2381–2396. https://doi.org/10.1007/s13157-020-01348-8

How to cite this article: López-del-Pino F, Grisolía JM, Ortúzar JD. Is there room for a room-tax in the Canary Islands? *Int J Tourism Res*. 2021;1–14. https://doi.org/10.1002/jtr.2438