The role of beach attributes in sun-and-beach destination choice: an application to Spanish domestic tourism

Llorenç Bartomeu Femenias Rosselló

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ABSTRACT

Sun-and-beach tourism is one of the most popular segments of tourism markets. Although this type of tourism generates numerous benefits for the receiving destinations, it is also the source of a variety of challenges (i.e., environmental degradation, loss of competitiveness, etc.). In this context, information about the factors that determine the choice of the destination can be a great help for public administrations and the other organizations dealing with the management of those problems associated with sun-and-beach tourism. This Master's Thesis will investigate the role that beach related attributes (natural characteristics, provision of services, …) plays on the destination choice process of sun-and-beach tourists. To achieve this purpose, a discrete choice model based on the random utility theory will be used to investigate how the characteristics of Spanish beaches, as well as other characteristics of the destinations (accommodation prices, temperature, etc.), determine domestic sun-and-beach tourism flows to Spanish coastal provinces. The results obtained indicate that the attributes most appreciated by Spanish tourists when choosing a sun-and-beach destination are related to the environmental quality of beaches. These results provide valuable information for public administrations when estimating destination ability to attract sun-and-beach tourists.

1. INTRODUCTION

Since the mid-twentieth century, sun-and-beach tourism has become one of the most important segments of the tourism market (Segreto at al., 2009). This type of tourism requires very intensive use of the natural assets of tourist destinations, representing a clear challenge for public administrations to ensure long-term environmental sustainability (Aguiló et al., 2005; Sheldon, 2005; Rodríguez et al., 2008).

The main asset of sun-and-beach tourist destinations is, as their name suggests, their beaches. Therefore, the environmental impacts that this activity has on beaches not only affects the environmental sustainability of these coastal ecosystems but also affects the competitiveness and economic sustainability of these destinations in the long term. If the environmental degeneration exceeds a certain threshold, the destination stops being attractive for tourists and loses its competitive position (Aguiló et al., 2005). In addition, related to this point, the study of the ability to maintain the competitive position of (mainly mature) sun-and-beach destinations is a recurring theme in the specialized literature (Alegre and Cladera, 2006; Claver-Cortés et al., 2007).
Therefore, ensuring the sustainability and competitiveness of sun-and-beach areas is a crucial element when managing these tourist destinations. To achieve this purpose, together with other elements, it is essential to know what are the determinants that influence the tourist destination decision process. The modeling of the decision of tourist destination is a recurring theme in the literature specialized in tourism economics, and it provides information that allows stakeholders taking more accurate decisions in terms of marketing (Buhalis, 2000), environmental management (Mihalič, 2000; Huybers and Bennett, 2003) or managing destination competitiveness (Kozak and Rimmington, 1999; Claver-Cortés et al.,2007), among others.

In the specific case of sun-and-beach destinations, the analysis of which beach related attributes are the most appreciated by tourists when choosing a destination can provide information that might improve the decision-making process of public administrations. This information can provide critical inputs when evaluating the effectiveness (in terms of greater attraction of tourists) of projects to reform beach spaces of a destination. Besides, the information provided can serve as a guide when performing actions that compensate for the loss of competitiveness (Bujosa et al., 2015) generated by the worsening of some of the attributes of the beaches. Finally, from the study of specific segments of this type of tourism (i.e., high-income tourists, family tourism, ..,), it can be determined how these attributes affect different layers of tourists, providing information of great utility in the event that a destination wants to specialize or focus on a group of tourists considered strategic or of particular interest by administrations.

Studies on tourist destination decision focus on very different aspects that influence this decision process: issues related with the climatic conditions of the destination (Bigano et al., 2006; Bujosa and Rosselló, 2013), the analysis of specific regional cases (Correira et al., 2007; Pestana et al., 2008), the analysis of specific segments of tourists (Thrane, 2008), the role of destination image (Tapachai and Waryszak, 2000), among many other examples. There exists a wide literature that relates the attributes of the beaches of a destination with different aspects related to tourism. Some examples are studies relate the attributes of the beaches with the tourist satisfaction (Pizam et al., 1978), researches that analyze the relationship between beach attributes and economic development of tourist destinations (Klein and Osleeb 2010) or studies that found the existence of different segments of sun-and-beach tourists from the preferences that these tourists reveal depending on the attributes of beaches (Onofri and Nunes 2013). The attributes typically analyzed include natural characteristics (beach kilometers, width, type of sand, vegetation, ...), environmental quality (transparency of water, presence of garbage, ...) and provision of services (hammock rental, relief services and first aid, presence of sports areas, ...). Moreover, some studies relate the characteristics of a specific beach with its probability of being chosen among a defined set of beaches within the same tourist destination (Ruyck et al., 1995; Phillips & House, 2009). However, we identify a lack of attention to the influence of the attributes or characteristics of the beaches of a destination (as a whole) in the decision process of sun-and-beach tourists.

In order to remediate this lack of information, this Master's Thesis will identify what the beach related attributes that influence the destination choice in the context of sun-and-beach tourism are. Therefore, this study aims to move from analyzing and offering information about how tourists decide to visit one beach or another within the same destination, to provide information on how the beaches of a destination influence their likelihood of being chosen by tourists. In addition, the use of an extensive set of explanatory variables directly related to the attributes of the beaches of a region, as well as the analysis of specific layers of tourists (depending on their sociodemographic characteristics), help to expand the knowledge generated from the previous research in the field of sun-and-beach destination choice.

Spain is a reference both European and global in the sun and beach tourism, being one of the traditional leaders in this tourism segment (Segreto et al.,2009). More specifically, this work focuses on domestic tourism in Spain where the sun-and-beach segments represent more than 18 million trips and the 10.4% of the domestic tourism market in 2017, according to the data provided by INE. To achieve this purpose, a Discrete Choice Model (DCM) will be used to investigate how the characteristics of the beaches, as well as other characteristics of the destinations (accommodation prices, temperature …), determine domestic tourism flows to Spanish coastal provinces. The province has been taken as the administrative level of interest when defining the limits of the different tourist destinations because a substantial part of the management of the beaches is the responsibility of these institutions.

This Master's Thesis is structured as follows. Next section reviews the literature on the modelling of destination choice and on the role of beach attributes on sun-and-beach tourism. The third section presents the DCM that will be used to analyze the choide of coastal destination in the Spanish domestic tourism market. Section four presents data sources and the main descriptive statistics of the data used. The fifth section presents the estimators of the role of beach attributes in destination choice, obtained from the application of a Discrete Choice Model. Finally, in section six, conclusions are presented.

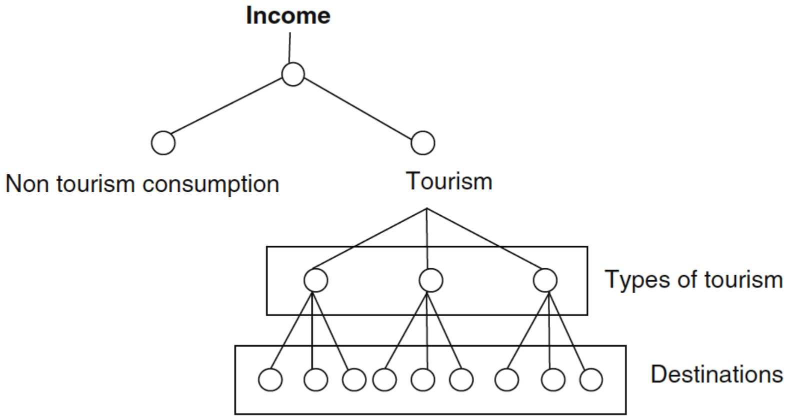
2. LITERATURE REVIEW

2.1 Destination choice modeling

Traditional economic models of tourism demand mainly focus their analysis on the purely economic factors of tourism consumption. Among them, in Lim (1999), a review of the previous research on international tourism demand found that income, relative tourism prices, and transportation costs were the most common variables included by researchers in these models. In more recent studies, new explanatory variables have been included, such as the economic growth rates of destinations as well as more complex models that take into account cyclical behaviors of tourism activity (Li et al., 2005; Song and Li, 2008).

In addition, in the last decades, new models have emerged that present a much more complete and accurate vision than those presented above. In these models, the choice of destination can be considered the last stage of a complex decision process faced by tourists. This decision takes place once tourists have determined that will dedicate a positive fraction of their income to tourism consumption, stage 1, and have determined what type of tourism they want to practice (sun-and-beach, cultural,...), stage 2. This vision of the decision-making process carried out by tourists incorporates the utility maximization theory of consumers. (Morley, 1992; Eugenio-Martin, 2003; Candela and Figini, 2012). Figure 1 shows the schematic version of the utility tree of tourist's decision process.

Figure 1. Utility tree of the tourist's choice problem



Source: Candela and Figini (2012)

The incorporation of the microeconomic theory of the utility allowed researchers to include a much higher number of explanatory variables of tourist behavior. Some examples of this broad range of views are the study of the effect of tourists' attitudes towards potential destinations (Um & Crompton, 1990), the effect of travel motivations (Moscardo et al., 1996; SooCheong and Liping, 2002), or more general combinations of sociodemographic (age, gender, level of education, civil status) and destination related attributes such as nature, culture, nightlife or climate among other (Correira et al., 2007).

The analysis of environmental factors is also a recurring theme in the modeling of the destination choice. One of the typical applications is the inclusion of climatic factors in the set of variables with the explanatory potential of the destination choice (Bigano et al., 2006). In this paper, the authors find that international tourists show very similar preferences in terms of temperature during their holidays. Some authors like Bujosa and Rosselló (2013) go a step further and study how changes in climate conditions (in this case, changes in temperature) can reconfigure the flow of tourists to sun-and-beach destinations. In this case, significant reconfigurations of sun-and-beach tourism flows are estimated towards destinations that currently present lower temperatures in the event of a generalized increase in temperatures in the Iberian Peninsula. In addition to the temperatures, variables at the provincial level have been found relevant, such as the total length of the beaches, the share of urban beaches on the total, the share of beaches with the distinctive blue flag, as well as the share of beaches with anchorage facilities.

2.2 Analysis of beach attributes

Beyond the general literature on destination choice, other applications can be of interest to guide the specification of the model in this Thesis. We found analysis more focused on the monetary valuation of natural spaces derived from the choice of tourist destination (Huybers and Bennett, 2000). It may be interesting to analyze the attributes of the beaches considered in the analysis: environmental quality level, access facilities and services offered.

Another study that can serve as a clear reference when elaborating this Master's Thesis is Bujosa et al. (2015), since the researchers analyze what attributes of the beaches can serve to compensate for the loss of competitiveness of the Spanish coastal provinces due to a hypothetical increase of temperatures caused by Climate Change. In the paper, researchers include beach attributes such as the percentage of blue flag beaches, the percentage of protected beaches and the percentage of beaches with bar, among others.

Regarding the environmental attributes of the beaches, quality, and transparency of beach waters is identified as a positive attribute when valuing beaches (Loomis and Santiago, 2013). In the same way, previous research also suggests that an increase in the amplitude of the beaches generates increases in the welfare of those who visit them (Whitehead et al., 2008; Landry and Hindsley, 2011; Pendleton et al., 2012; Parsons et al., 2013). Several studies identify a positive effect of the length of the beach on the welfare of visitors (Lew and Douglas, 2008; Pendleton et al., 2012) or on the probability of choosing a sun-and-beach destination (Bujosa and Rosselló, 2013). In Pendleton et al. (2012), authors identify increases in the levels of the welfare of the visitors if the beach is in natural areas (with the presence of vegetation or in protected areas). The preference for beaches that have vegetation and are within protected areas is reinforced with the results presented in Phillips and House (2009).

Concerning the provision of services and infrastructure, we also find studies from which we can extract relevant information when it comes to understanding which attributes of the beaches are perceived as positive by visitors. Studies identify that a higher number of accesses, as well as the presence of nearby parking lots, increases the valuation of a beach made by visitors (Oh et al., 2008; Whitehead et al., 2008). In Lew and Douglas (2008), applying a random utility model, authors found that the presence of lifeguard services increases the valuation that visitors made of beaches. This result is also confirmed in Pendleton et al. (2012). Previous evidence seems to indicate that the provinces with a higher share of beaches that receive the "blue flag" badge and a higher share of beaches with anchorage facilities have a greater probability of being chosen as a sun-and-beach tourism destination (Bujosa and Rosselló, 2013). There is also empirical evidence that identifies a negative assessment of the existence of bar/restaurant establishments on the beaches (Vaz et al., 2009; Williams & Barugh, 2014). The ease of access by bus has also been identified as a favorable factor for choosing to visit a specific beach (Ruyck et al., 1995).

Finally, regarding the climatic conditions, in Bujosa and Rosselló, (2013), an increase in the probability of choosing a tourist destination of sun-and-beach with higher temperatures is identified. However, it should be noted that, through the introduction of non-linear terms, the authors identify that from a certain level, this effect becomes contrary.

3. METHODOLOGY

With the objective of studying the role of beach attributes in tourist destination choice, a DCM will be applied. These models, also known as the Random Utility Models, were originally developed by McFadden (1973) and are based on the application of microeconometric models to data in which individuals must make decisions about a finite set of discrete choices (Haab and McConnell, 2002).

More specifically, a conditional logit model will be implemented following previous applications in the literature (Seddighi and Theocharous, 2002; Ben-Akiva and Lerman, 1985; Huybers T., 2005; Bujosa and Rosselló, 2013; English et al., 2018). In this model, we can define the probability that a tourist *i* will choose destination *k* over a set of J alternatives as:

$$Pr_i(k) = \Pr\left[v_i(y_i - c_{ik}, q_k, \varepsilon_k) > v_i\left(y_i - c_{ij}, q_j, \varepsilon_j\right)\right] \; for\ all\ j \neq k \qquad (1)$$

where $Pr_i(k)$ is the probability of tourist *i* choosing destination k, v_i represents the utility function of tourist *i,* y_i represents the income of tourist *i,* c_{ik} represents de travel cost faced by tourist *i* when travelling to destination *k*, q_k represents a vector of attributes of destination *k* and ε_k is a random error term. The role played by the variable travel cost is of vital importance when applying the model since, although the main objective of this study is not to estimate a monetary valuation of environmental attributes, this variable plays a fundamental role to the time to correctly estimate the effect of the explanatory variables on the destination choice (Haab and McConnell, 2002).

McFadden (1973) considers the conditional indirect utility function (V_{ik}) as additive in the explanatory variables and in the error terms (specifying a Type I extreme value distribution for the error). The applied RUM model is based on the premise that the utility that a tourist *i* gets from visiting a destination *k*[1] (V_{ik}) can be separated into two parts. A deterministic part (q_k) that is defined by a function of observable attributes of the beaches, general attributes of the destination k and travel costs (c_{ik}) assumed by tourist i when visiting destination k. The second part, it is the random component (ε_{ik}):

$$V_{ik} = v_i(y_i - c_{ik}, q_k, \varepsilon_{ki}) = \beta(y_i - c_{ik}) + \alpha q_k + \varepsilon_{ik} \qquad (4)$$

where α is the vector of parameters related to the characteristics of the destination (q_k) and β the coefficient of the travel cost variable which is usually interpreted as the marginal utility of income (Haab & McConnell, 2002).

[1] Within a set J (1, ..., j) of alternative destinations.

Finally, following the specifications and assumptions presented by McFadden (1973), the probability of a tourist choosing destination k is defined by:

$$Pr_i(k) = \frac{e^{\beta(y_i - c_{ik}) + \alpha q_k}}{\sum_{j=1}^{J} e^{\beta\left(y_i - c_{ij}\right) + \alpha q_j}} \quad (5)$$

This expression represents a logit model that must be estimated using maximum likelihood that is composed of contributions of the form specified as $\Pr(k)$ for each individual in the sample.

4. DATA

4.1 Resident Tourism Survey

The data used in this study comes from the "Resident Tourism Survey" published monthly by the Spanish National Statistics Institute since 2015. This database collects information from a representative sample of Spanish families on tourist trips, understanding tourist trips as all those journeys to a main destination outside of the person's habitual residence environment, which involve at least one overnight stay outside the aforementioned environment and have a duration of less than one year.

Among the variables collected in the survey, we found information on the region of origin (Autonomous Community) and destination region (Province) of the trips made. Other information about the trips that is also presented is the reason for the trip (sun-and-beach, cultural, sports, ...), the means of transport used, the type of accommodation in destination, among many others. We also find sociodemographic information such as age, educational level, family income of the people who make those trips. In 2017, the last year with non-provisional data, the survey collected information on 67,953 trips. It should be noted that the “Resident Tourism Survey” also includes a variable that serves as an elevation factor to transform the data provided from sample level to population level for the entire Spanish population.

This study focuses on the effect of the attributes of the beaches of a destination on a specific segment of the tourist market: sun-and-beach tourism. Therefore, only those trips taken to a coastal province to undertake sun-and-beach tourism have been considered. Additionally, a series of filters must be applied to identify those observations that we must include in the study. In the first place, only those trips made outside the Autonomous Community of origin have been considered. Secondly, since Travel Cost is a key variable when working with a DCM, it must be able to calculate for all individuals and destinations in a homogeneous way. In order to do so, we have exclusively considered the trips made by road through the use of the car within the Iberian Peninsula. This methodology is widely accepted when working with Travel Cost Methods or Discrete Choice Models (Bujosa and Rosselló, 2013).

If we focus exclusively on the trips that can be made by road and, more precisely, by car, which represent the 80.68% of the sample, we are excluding all the journeys that have as departure or destination the non-peninsular Spanish provinces. Among them are three provinces that are leaders in sun and beach tourism: Balearic Islands, Las Palmas de Gran Canaria and Santa Cruz de Tenerife. Although these three provinces are leaders in international tourism, they only represent 4.72% in the case of the Balearic Islands, 4.96% in the case of Las Palmas and 3% in the case of Santa Cruz, of the total of domestic sun-and-beach tourism in Spain in the year 2017. With the aim of guaranteeing the representativeness of all alternative destinations, following the example of previous studies (Phaneuf and Smith, 2005; Bujosa and Riera, 2009; Bujosa and

Rosselló, 2013), those provinces with a share of visits of domestic tourism of sun and beach less than 1% (Guipuzcoa, Lugo and Vizcaya) have been drop from the sample. Finally, those displacements that have taken place within the same autonomous community have also been ruled out.

The set of alternative destinations has been defined as all those peninsular Spanish coastal provinces with a weight of more than 1% in domestic sun and beach tourism, resulting in a total of 16 alternatives destinations: Alicante, Almeria, Barcelona, Cadiz, Castellon, A Corunha, Girona, Granada, Huelva, Málaga, Murcia, Asturias, Pontevedra, Cantabria, Tarragona, Valencia. Table 1 presents the descriptive statistics for some sociodemographic variables considered of interest when defining the sample of tourists with whom we will work

Table 1. Sample main descriptive statistics

Variable	Description	Mean	St.Dev.	Min.	Max.
Female	Dummy variable equal to 1 if individual is a female	0.51	0.49	0	1
Age	Age of the individual	46.15	14.19	15	85
Civil Status					
	Single	0.26	0.24	0	1
	Married	0.64	0.48	0	1
	Widower	0.03	0.18	0	1
	Separated	0.01	0.11	0	1
	Divorced	0.05	0.23	0	1
Family Income	Monthly Family Income	2412.95	1149.48	500	5000
Travelling with children	Dummy variable equal to 1 if travelling with children	0.45	0.49	0	1

Source: own elaboration from Resident Tourism Survey data.

As we can see, 51% of the observations correspond to women, the average age of the individuals who participated in the survey is 46 years, the most common marital status is married (64%) followed by singles (26%) , the average monthly income of the families of the surveyed individuals is € 2412.95 and, finally, 45% of tourists reported being traveling with their children.

4.2 Destination Choice Determinants

Although the "Resident Tourism Survey" includes a transport cost variable, this information reflects what has been the cost incurred by tourists to travel to their destination (c_k), but we do not have any information about the potential travel costs of these tourists to all the alternatives destinations (c_j). These travel costs have been inferred for each tourist and each potential alternative destination from the distances between their autonomous community of origin and the province of destination.

In order to carry out an accurate analysis of the transport costs, it is necessary to have the most accurate data on the place of origin and destination of the travelers. In our case, the database used only provided information on the Autonomous Community of origin and the province of destination of each trip. To remedy the lack of precision of this information, the centers of population severity of each Autonomous Community and each Province have been calculated[3]. Therefore, it has been considered that all the individuals of a region start from their origin from that central point. In the same way, it has been considered that the destiny of the tourists is the gravitational center of the population of the province of destination. In the second place, the distances between all the potential origins and all the potential destinations have been calculated. All these calculations have been made using the ARCGis software.

To obtain the cost derived from the use of the car, the official public price set by the government of Spain, € 0.33 per kilometre[4], has been used. Once the calculation of the monetary cost of the trip has been made, it is necessary to impute the opportunity cost of the trip. For this, the time required to carry out each of these trips has been calculated from the information on the average speeds of vehicles in Spain. Finally, the travel time has been multiplied by the level of income per hour of each tourist (obtained from the available information on household income in the survey) assuming that he has a full-time occupation and, as it is a convention in the traditional economic literature, that the level of substitution work / leisure is equal to 1/3. In this way the opportunity cost of the trip has been obtained, which once added to the cost derived from the use of the car, the total Travel Cost is generated for each trip. Equation number 6 reflects how the Travel Cost of each displacement has been generated.

$$TC_{i,k} = 2 * (Distance_{i,k} * Cost\ per\ KM + Time_{i,k} * Income\ per\ hour_i * 1/3) \qquad (6)$$

Where *i* represents each tourist and *k* each of the destinations in the choice set.

Secondly, we will use "Beach Guide Viewer" of the Ministry of Agriculture and Fisheries, Food and Environment in Spain in order to obtain beach attributes data for each of the coastal Spanish provinces. Some of the variables provided are the total length of the beaches, the average amplitude, the percentage of beaches that have quality standards such as "blue flags", the proportion of beaches with vegetation , the type of sand, the fraction of beaches with certain types of services (hammocks rental, lifeguard services ...), among many others.

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[3] Unlike the calculation of the geographic centroid, which does not take into account how the population is distributed over the territory, this centre of gravity allows us to estimate the geographical position of the average individual's home in each region.

[4] Information published in BOE (9 th January 2018). It can be consulted in : https://www.boe.es/buscar/doc.php?id=BOE-A-2018-704

First of all, we will present the descriptive statistics of the attributes of the beaches of the different destinations *i* provinces and other explanatory variables as Travel Cost, hotel prices or climatic variables. These results are presented in Table 2.

Table 2. Descriptive statistics of explanatory variables

Variable	Description	Mean	St.Dev.	Min.	Max.	Source
Travel Cost	Travel Cost of a tourist i travelling to province j (in €)	228.03	126.40	10.01	781.81	Own Elaboration
Total Length	Total Length of beaches in province j (in km)	95.99	32.27	35.93	156.37	MAFFE[6]
Average Width	Average width of beaches in province j (in meters)	51.70	17.26	23.20	90.02	MAFFE
Vegetation	Share of beaches with vegetation in province j	0.65	0.20	0.16	0.91	MAFFE
Blue Flag	Share of beaches with “Blue Flag” in province j	0.31	0.14	0.09	0.57	MAFFE
Portected Space	Share of beaches with special protection in province j	0.42	0.22	0.02	0.83	MAFFE
Lifeguard	Share of beaches with lifeguard services in province j	0.66	0.15	0.40	0.90	MAFFE
Bus	Share of beaches accessible by bus in province j	0.81	0.21	0.19	1.00	MAFFE
Parking	Share of beaches with parking in province j	0.78	0.10	0.53	0.92	MAFFE
Bar	Share of beaches with bar establishment in province j	0.68	0.14	0.43	0.85	MAFFE
Anchoring Area	Share of beaches with anchoring area t in province j	0.31	0.25	0.02	0.90	MAFFE
Maximum Temperature	Maximum monthly average temperature of the province j (in ºC)	26.14	3.47	19.80	30.60	INE
Average Sun Hours	Average monthly sun hours in the province j (in hours)	320.25	65.71	180.10	399.10	INE
Hotel Prices	Average price of a hotel room in the province j (in log)	4.29	0.18	4.01	4.54	INE
Hotel Beds	Number of hotel beds in the province j	10.43	0.59	9.64	11.78	INE

Source: own elaboration

As we can see, there is significant variability in the natural attributes of the beaches of the Spanish sun-and-beach destinations. The average beach kilometer allocation between the Spanish provinces is approximately 96 kilometers. However, we find great differences between provinces since this endowment varies from the 35.9 kilometers of beach in Granada to the 156 of A Corunha. A similar case occurs in terms of the average amplitude of the beaches, with an average

[6] Spanish Ministry of Agriculture and Fisheries, Food and Environment data

of 51.7 meters, where we observe regions that are characterized by a wide range of beaches such as Tarragona (90 meters on average), and regions that are characterized by having narrow beaches such as Murcia (23.2 meters). Finally, the vegetation also shows very high rates of interprovincial variation. On average, the Spanish sun and beach destinations have a ratio of 64.8% of beaches with vegetation on the same beach or in its closest surroundings. However, in provinces such as Barcelona, only 16% of the beaches have vegetation, while in the case of Huelva this percentage increases to 90%.

Concerning the quality standards, measured through the beaches with the blue flag, there are also significant differences between the different provinces. On average, 30% of the Spanish beach kilometers have this distinctive quality, with Valencia being the leader with more than 56% of its beaches with this distinction. At the other extreme, we find Granada with only 8.6% of the beach kilometers considered to be of the highest quality. In terms of environmental protection, 41.8% of the beach kilometers of the Spanish provinces considered in this study are within environmental protection spaces. In this case, the divergence is very high since at the lower end we find Granada with only 1.59% of its kilometers of protected beaches, while at the other extreme is Asturias, with 82.66%.

Regarding the provision of services, the differences between the alternative destinations are also significant. More than two-thirds of the kilometers of beach counts on services of aid and lifeguard. We find provinces where practically all of its beaches have these services such as Cadiz or Cantabria with 89% of beach kilometers with rescue services and provinces with less than 50% of provision. In the case of the percentage of kilometers with bar or restaurant services, the average of the provinces studied is 68%, varying from provinces that does not reach 50% of beaches providing this type of services (Asturias and A Corunha), to Barcelona and Malaga, where practically 85% of the beaches have establishments of this type. On the other hand, concerning the Anchoring Areas, we observed an average of 31%, with a great interprovincial variation (standard error equal to 0.25). In this case, we find two extreme cases, that of Castellon where only 2% of the beaches have areas for the anchorage of boats, while in the case of Malaga, this percentage increases to 90.55%.

Finally, as far as accessibility to the beaches is concerned, the ease of access to them by car (due to the existence of parking) and public transport (via the bus) is very high. Specifically, 80% of the beaches are accessible by bus and 77% of them have parking. However, the variation with respect to accessibility in public transport is very high among the different destinations since we find cases such as Asturias, where only 18% of the beaches are accessible through this mean of transport, and Malaga, province that presents a ratio of accessibility by public transport of 100%.

As for the existence of car parks, the variation rates are lower and all provinces are close to 70%, with the exception of Pontevedra, where only 53% of the beaches have this type of infrastructure[9].

In the case of Travel Cost (TC), which has been calculated based on the aforementioned methodology, the estimated average TC is 228 euros per person. This indicates that the sum of the cost of transport and the opportunity cost of transport time of Spanish tourists to the sun and beach destinations of the Iberian Peninsula is on average about 228 euros. The differences between provinces are notable, with Castellon presenting the smallest average TC, € 173.04 and Cadiz showing the higher value, € 279.09[10].

Additionally, information on the number of hotel beds in the province, the average price of a hotel room in the autonomous community has been included. Because these variables are considered in logarithmic form, their interpretation is less direct, as well as they show a small interprovincial variation. In any case, the logarithm of the price of the average hotel rooms in the provinces studied is equal to 4.3, while the average logarithm of the number of hotel beds is 10.4.

Finally, climate variables have been included, such as the maximum monthly average temperature in the province as well as average sunshine hours. In the first case, an average maximum monthly temperature of 26.14 degrees Celsius is observed, with Murcia having the highest temperature (over 30ºC) and Asturias the coldest, 19.8ºC. With respect to the monthly average sol hours, the average of the provinces analyzed is 320.25 hours. Cantabria presents the lowest levels of sunlight with 180 monthly hours on average, while Huelva more than doubles this level, with 399 hours.

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[9] Table 6 of the Appendix presents the results for each attribute and province

[10] Table 7 of the Appendix presents the results for each province

5. RESULTS

5.1 General Destination Choice Model

The estimated results of the Conditional Logit Model described in section 3 as well as some measure of goodness of fit are presented in Table 3. Statistical software Stata / MP version 14.0 has been used.

Table 3. Destination choice model

	(1) Non-Weighted Model	(2) Weighted Model
Travel Cost	-0.017***	-0.017***
	(0.001)	(0.000)
Total Length	0.006*	0.004***
	(0.003)	(0.000)
Average Width	0.020**	0.019***
	(0.010)	(0.000)
Vegetation	-0.009	0.198***
	(0.749)	(0.000)
Blue Flag	2.245***	2.242***
	(0.582)	(0.000)
Protected Space	2.393***	2.826***
	(0.417)	(0.000)
Lifegurad	0.822	1.594***
	(0.597)	(0.000)
Bus	0.454	0.211***
	(0.831)	(0.000)
Parking	1.734	1.631***
	(1.084)	(0.000)
Bar	0.783	-0.123***
	(1.566)	(0.000)
Anchoring Area	1.030	1.407***
	(0.775)	(0.000)
Max. Temperature	0.071***	0.086***
	(0.012)	(0.000)
Average Sun Hours	0.015***	0.014***
	(0.002)	(0.000)
Hotel Price (in ln)	-2.874***	-3.331***
	(0.951)	(0.000)
Hotel Beds (in ln)	0.453**	0.657***
	(0.193)	(0.000)
Trips	19,948	19,948
McFadden's R2	0.235	0.231
McFadden's Adj R2	0.233	0.231
Weighted	NO	YES

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

In the first column we find the estimators for the model without correcting the weight of the sample by the elevation factors provided by the "Resident Tourism Survey" that allows extrapolating the sample values to population values. Second, we find the estimators for the same model but with the included elevation factors, thus triggering the number of observations (but not the number of actual trips)[11].

[11] Both models are presented to give a greater robustness to the results since the treatment that the Stata software performs to the elevation factors magnifies the number of real observations, being able to modify slightly the significance of the estimators.

In Table 3, in the first column, where the model is presented without correcting the observations for the elevation factors of the survey, significant effects are observed on the probability of choosing a destination in the estimators of the travel cost (negative effect), total length, average width, blue flag, protected space, maximum temperature, average sun hours and number of hotel beds (all of them positive)

If we focus on column 2 of Table 3, we observe how all the presented estimators are significant with a confidence level of 99%. Therefore, once the sample is corrected, and the observations are transformed at the population level, significance is gained in all the estimators. Signs conform to expectations and do not change between the two specifications of the model for any variable, they only gain significance. First of all, we observe how the travel cost has a negative impact on the probability that a tourist destination will be chosen. This result is in line with what was predicted by both the traditional economic literature that works with travels costs in DCM (Haab and McConnell, 2002), and in the previous empirical evidence from similar studies (Bujosa and Rosselló, 2013). Therefore, the higher the economic cost of the trip, the lower the probability of choosing that tourist destination.

With regard to the environmental conditions of the beaches of a region, we observe that the higher the number of kilometers of beach, the average width and the greater percentage of the beach with the presence of vegetation, the higher the likelihood that tourists will choose that province as their sun-and-beach destination. It seems obvious that those provinces with a greater endowment of beach kilometers will be more likely to be chosen as a sun-and-beach tourism destination. At the same time, a greater amplitude also implies a greater beach surface, therefore, the expected results are in line with those expected in the case of length. Finally, there is a strong relationship between the vegetation levels of the beaches and their condition as non-urban beaches or embedded in non-urbanized environments. Therefore, the positive sign of the vegetation estimator that reveals a preference of tourists by provinces where a greater percentage of its beaches are located in natural areas. All these results are in line with those obtained by previous research (Lew and Douglas, 2008; Phillips & House, 2009; Whitehead et al., 2008; Landry and Hindsley, 2011; Pendleton et al., 2012; Bujosa and Rosselló, 2013; Parsons et al., 2013).

The Blue Flag and Protected Space variables are the ones that best reflect the preference of tourists for the environmental quality levels of the beaches. As we can see, both variables present positive and significant estimators. Moreover, both variables present the highest estimators of all presented. For this reason, it can be concluded that Spanish tourists who practice sun-and-beach tourism show high levels of preference for those destinations with high levels of environmental quality on their beaches. These results are also in line with those previously obtained by several researchers (Phillips and House, 2009; Bujosa and Rosselló, 2013; Bujosa et al., 2015).

In terms of the provision of services and infrastructures, it can be observed how accessibility by public transport (bus) as well as the existence of car parks near the beaches increases the probability of choosing a destination. These results are in line with those presented in the literature review (Oh et al., 2008; Whitehead et al., 2008). In the same sense, as predicted by previous empirical evidence (Lew and Douglas, 2008; Pendleton et al., 2012), the greater the number of kilometers of beach with lifeguard services, the greater the probability that a destination will be chosen as a sun-and-beach destination. On the other hand, the presence of bar or restaurant establishments ("bar" variable) on the beaches has a negative impact on the probability of being chosen as a destination. This result can be explained by tourists' preference for more naturalized spaces and due to the negative externalities (generation of waste, occupation of space, ...) generated by these establishments. Although this result is a little more debated in the previous literature, identifying studies that show a positive effect of these establishments on the attractiveness of sun-and-beach destinations (Bujosa et al., 2015), there is also literature that finds the opposite effect (Vaz et al., 2009; Williams & Barugh, 2014) . Finally, the existence of anchoring zones increases the probability of choosing a destination.

With regard to environmental controls and situation of the tourism sector in the region, it should be noted that all the estimators present the expected signs: the higher the temperature and the higher hours of sunlight, the greater the probability of choice; the lower the price and the greater the number of places, the greater the probability of choosing the destination[13].

5.2 Differences between tourist groups

In order to obtain more information about how the attributes studied affect the choice of destination, various interactions between the attributes of the destinations and socio-economic characteristics of the tourists have been created to find out how they affect the decision process. This exercise can provide valuable information when studying if there are differences in the effect of these attributes on the attraction capacity of tourists in different tourists groups of the sun-and-beach market. A clear example is to analyze if there are differences in the preferences of tourists when it comes to selecting sun-and-beach tourism destination depending on their level of income. For this reason, a dummy variable called "High Income" has been generated, which takes a value of 1 if the family has an income of more than € 2,500 per month (the 37% with the highest income in the sample). Finally, this variable has interacted with the other variables that have been included in the model.

[13] The robustness of the results obtained was tested by applying the same model to the data available for the years 2016 and 2015. There are hardly any variations between the estimators, indicating a good robustness for the model presented in Table 2. The results obtained are presented in table 7 of the appendix.

Table 4 presents the results obtained. Each column corresponds to a different specification that includes an interaction between the level of income and specific attributes of the beaches of a destination. In all cases, we have worked with the travel sample for the year 2017 and correcting the sample by the elevation factors of the survey. Finally, it should be noted that although the estimators are not presented for the sake of brevity, climatic controls, as well as those of the tourism sector, are included in all the specifications.

Table 4. Destination choice model: income effects

	(1) Interaction: Parking	(2) Interaction: Bus	(3) Interaction: Protected Space	(4) Interaction: Blue Flag	(4) Interaction: Vegetation	(5) Interaction: Bar	(6) Interaction: Anchoring Area
Travel Cost	-0.017***	-0.017***	-0.017***	-0.018***	-0.017***	-0.017***	-0.017***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total Length	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Average Width	0.020***	0.019***	0.019***	0.019***	0.019***	0.019***	0.020***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Vegetation	0.200***	0.208***	0.198***	0.131***	0.028***	0.199***	0.188***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Blue Flag	2.242***	2.214***	2.235***	3.130***	2.230***	2.235***	2.271***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Protected Space	2.825***	2.831***	2.756***	2.866***	2.820***	2.828***	2.829***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Lifegurad	1.596***	1.568***	1.585***	1.608***	1.576***	1.586***	1.617***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bus	0.211***	0.431***	0.213***	0.140***	0.207***	0.218***	0.200***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Parking	1.552***	1.599***	1.615***	1.506***	1.595***	1.622***	1.675***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bar	-0.127***	-0.101***	-0.109***	0.038***	-0.075***	0.014***	-0.157***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Anchoring Area	1.408***	1.366***	1.392***	1.439***	1.377***	1.396***	1.247***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Parking*Income	0.185***						
	(0.000)						
Bus*Income		-0.428***					
		(0.000)					
Portected *Income			0.152***				
			(0.000)				
Blue Flag*Income				-1.783***			
				(0.000)			
Vegetation*Income					0.379***		
					(0.000)		
Bar*Income						-0.294***	
						(0.000)	
Anchoring *Income							0.449***
							(0.000)
Trips	19,948	19,948	19,948	19,948	19,948	19,948	19,948
Climate Var.	YES	YES	YES	YES	YES	YES	YES
Tourism S. Var.	YES	YES	YES	YES	YES	YES	YES
McFadden's R2	0.231	0.231	0.231	0.231	0.231	0.231	0.231
McFadden's Adj R2	0.231	0.231	0.231	0.231	0.231	0.231	0.231
Weighted	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

In the first place, it should be mentioned that the estimators of the variables without interacting are practically not modified concerning those presented in the linear model of Table 3. Regarding the estimators of the interactions, the high-income interactions with the variables parking, protected space, vegetation, and anchoring area are positive. This indicates that there are differences in the effect that an increase in the percentage of beach kilometers with these characteristics have on the probability of choosing a tourist destination depending on the level of income. In other words, higher-income tourists have a higher preference for destinations with more accessible beaches with parking, more beaches in areas of natural protection, more vegetation, and the presence of anchoring areas, lower-income tourists. On the other hand, the estimators of the interactions with variables autobus, blue flag, and establishments are negative and significant. This indicates that tourists with high monthly income levels show a lower preference for these attributes than tourists with low incomes.

From these results, a few interesting conclusions can be drawn. First, tourists with high levels of income demonstrate preferences for accessing beaches by private vehicle and not by public transport. Secondly, the higher the level of income, the greater the importance given to environmental factors when choosing a destination for sun-and-beach tourism. The positive estimator of the anchorage areas is not surprising since the rental or use of private vessels is considered a luxury good, therefore increasing the rent will increase the chances of using one of these. Finally, it should be noted that in column 5, the establishment estimator without interacting becomes positive when we include the income interaction. This result helps to explain the negative estimator obtained in Table 3: the disaffection felt by tourists with high purchasing power by the presence of food and drink establishments in beaches is what causes the establishment estimator to be negative in the first model analyzed.

Therefore, in this last variable we observe a very clear difference between the different income levels. While for tourists with low monthly income the presence of food and drink establishments on the beaches increases the probability of choosing a tourist destination (the positive sign of the estimator establishment of column 5 of Table 4), for tourists with high income the result is the opposite.

The second group of tourists that may be of interest is that of tourists who practice family sun-and-beach tourism. More specifically, those tourists who travel with their children. This segment is of particular importance for those destinations that want to specialize in a more family tourism. Table 5 shows the results of the model that includes interactions of specific attributes of the beaches with a dummy variable that takes value equal to one if the tourist reports having traveled with their children.

As in Table 4, where the estimators of the income effects model are presented, each column of Table 5 includes a different interaction. In the first place, it is observed how the estimators of the variables without interaction practically do not change with respect to those presented in the general model of Table 3. Secondly, it is observed that those tourists who travel with children show a greater preference for destinations with a greater number of beaches with parking and that are in areas of environmental protection, than those who do not travel with children. On the other hand, this segment, in spite of positively evaluating all these attributes, shows a lower preference for access by bus, beaches with blue flags, the existence of catering establishments and the provision of lifeguard services, than those tourists who do not travel with children.

Table 5. Destination choice model: travelling with children effects

	(1) Interaction: Parking	(2) Interaction: Bus	(3) Interaction: Protected Space	(4) Interaction: Vegetation	(5) Interaction: Bar	(6) Interaction: Blue Flag	(7) Interaction: Lifeguard
Travel Cost	-0.017***	-0.017***	-0.017***	-0.017***	-0.017***	-0.017***	-0.017***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total Length	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Av. Width	0.019***	0.019***	0.019***	0.019***	0.019***	0.019***	0.019***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Vegetation	0.207***	0.200***	0.206***	-0.079***	0.198***	0.193***	0.196***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Blue Flag	2.227***	2.239***	2.235***	2.238***	2.241***	2.502***	2.240***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Prot. Space	2.824***	2.824***	2.495***	2.821***	2.826***	2.827***	2.826***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Lifegurad	1.589***	1.593***	1.585***	1.585***	1.594***	1.592***	1.785***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bus	0.231***	0.467***	0.216***	0.212***	0.209***	0.205***	0.206***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Parking	1.129***	1.616***	1.601***	1.619***	1.626***	1.625***	1.624***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bar	-0.144***	-0.118***	-0.112***	-0.113***	-0.047***	-0.110***	-0.112***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Anchoring	1.394***	1.400***	1.386***	1.394***	1.405***	1.405***	1.402***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Parking*Chil	0.858***						
	(0.000)						
Bus*Child		-0.424***					
		(0.000)					
Prot*Child			0.536***				
			(0.000)				
Veget*Child				0.461***			
				(0.000)			
Bar*Child					-0.117***		
					(0.000)		
B. Flag*Child						-0.429***	
						(0.000)	
Lifeg *Child							-0.321***
							(0.000)
Trips	19,948	19,948	19,948	19,948	19,948	19,948	19,948
Climate Var.	YES	YES	YES	YES	YES	YES	YES
Tourism Var.	YES	YES	YES	YES	YES	YES	YES
McFadden R2	0.231	0.231	0.231	0.231	0.231	0.231	0.231
McFadden's Adj	0.231	0.231	0.231	0.231	0.231	0.231	0.231
Weighted	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

As in the case of the bar/restaurant establishments in the model interacted by the level of income, in this table, it is interesting to look at the model presented in column 4. It includes the interaction between the variable vegetation and the variable dummy travel with children. As we can see, the estimator of the vegetation variable without interacting becomes negative. In contrast, the interacted variable presents a positive sign and a larger estimator than the variable without interaction (0.461 vs -0.079). This result indicates that there is a difference between the effect of the presence of vegetation on the beaches of a tourist sun-and-beach destination on the probability of choosing the destination, depending on whether the tourist travels with children or not. While for family tourists, the vegetation on the beaches is an attractor attribute of tourist destinations, for tourists who do not travel with children, this attribute is perceived as negative.

6. CONCLUSIONS

Since the mid-twentieth century, sun-and-beach tourism has become one of the most important segments of the tourism market (Segreto at al., 2008). The beaches are, without any doubt, the most essential tourist asset of these destinations. This tourist practice generates a large number of challenges for public administrations. Maintaining the competitive position or improving the tourist attraction capacity of the destination is one of these challenges (Alegre and Cladera, 2006; Claver-Cortés et al., 2007). The environmental degradation generated by the same tourist practice (Aguiló et al., 2005) or the appearance of new competitors are some of the reasons that can lead to a loss of competitive position.

Knowing the determinants that influence the decision-making process of tourist destination is a crucial aspect when managing the competitive position of tourist destinations. Specifically, in the case of the sun-and-beach tourist destinations, knowing which attributes of beaches influence the destination choice process is of vital importance. This information can provide valuable inputs when evaluating the effectiveness of projects to reform beach spaces of a destination. In addition, the information provided can serve as a guide when performing actions that compensate for the loss of competitiveness generated by the worsening of some of the attributes of the beaches (Bujosa et al., 2015).

In order to provide this information, this project has studied what attributes of the beaches are most appreciated by Spanish domestic sun-and-beach tourists. To achieve this purpose, the destination choice of these tourists has been modeled applying a discrete choice model to the data provided by the "Resident Tourism Survey".

The results obtained indicate that those attributes most valued when choosing sun-and-beach destination are those that are closely related to the environmental quality of the beaches: percentage of kilometers of beach with blue flag and beaches in spaces of environmental protection in the destination province. Therefore, it seems clear that the investments aimed at improving the environmental quality of the beaches (following the criteria defined when evaluating whether a beach deserves the distinctive blue flag), as well as protecting its natural environments, are the investments that they can present a greater return in terms of increased tourist attraction capacity.

The provision of services such as lifeguard, as well as the existence of parking infrastructure and anchoring zones also positively influence the probability of choosing a destination. With positive effects, but at a lower influence, we found the presence of vegetation on the beaches and accessibility by public transport (bus). However, there is a negative effect of the presence of bar and restaurant establishments on the probability of choosing a destination. All these results are in line with those obtained in the previous literature.

Finally, from the study of specific segments of this type of tourism, it can be determined how these attributes affect different layers of tourists, facilitating the specialization of the destination in the segments that public administrations consider strategic or of special interest. In the case of this Thesis, two segments have been analyzed: tourists of high incomes and family tourism (with children).

In the case of higher-purchasing power tourists, there is a greater preference for attributes related to environmental quality (vegetation and protected areas), as well as the existence of parking lots and anchoring zones. On the other hand, tourists with medium and low incomes have a higher attraction for destinations with greater access to the beaches through public transport and with the “Blue flag” distinctive. The most important result obtained from this analysis is that tourists with medium and low incomes show a positive assessment of the presence of restaurants on the beaches, while for tourists with high incomes, the presence of these establishments is a disincentive at the time of choosing a destination.

In the case of family tourism, there is a higher preference for the existence of parking and attributes of environmental quality (vegetation and protected space). At the same time, it is detected that while the family-type tourists present preference for vegetation on the probability of choosing a destination, this same attribute has a disincentive effect in the case of tourists who do not travel with children.

This information is of great value when it comes to managing the competitiveness of the sun-and-beach Spanish destinations. The information provided by this study, following the example of Bujosa et al. (2015), allows computing the economic value tourists assigned to certain beach attributes[14]. In addition, from the application of these data to specific destination cases, it can be estimated to what extent the provision of an attribute should increase to compensate for the loss of competitiveness generated by the worsening of another one.

This Thesis also contributes to the previous literature thanks to the specific focus it performs on the effect of the attributes of the beaches in the destination choice process, including a set of variables of specific attributes more complete than previous studies. In addition, it makes a new contribution in the field of destination choice by including the study of differences between specific groups of tourists.

However, some of the limitations are determined by the lack of knowledge of the external validity of these results since, for example, domestic tourism behaves differently from international tourism. Another limitation is due to the lack of precision of the variable Travel Cost due to the lack of data at the municipal level on origins and destinations, limiting the validity of the

[14] As example, in the "Welfare Analysis" section of the appendix we present the valuation that tourists assigns to an increase of 10% in the beach kilometers that provide each of attribute for each destination studied.

calculations. The inclusion of a greater number of explanatory variables could also be an area of improvement in this analysis. Analyzing this decision-making process of tourists defining the destination at other levels (i.e., municipal example) can also contribute to a better understanding of the results presented. Including another intermediate step in the decision process in which the tourist makes a more exact definition of the potential destinations by separating the destinations, into two large groups, Mediterranean and Cantabrian Sea destinations, could contribute to the improvement of the estimators presented. More research is needed to address all these limitations.

It should also be noted that the present Thesis opens up future research lines that have been little explored until now. One of them is the analysis of how beach attributes affect differently more specific segments of sun and beach tourism (ie, couples' tourism, tourism with friends, sociodemographic strata from age, civil status, etc.).

APPENDIX

Table 6. Beach attributes for each provicne

	Total Lenght	Average width	Vegetation	Blue Flag	Lifeguard	Bus	Parking	Bar	Anchoring Zone	Protected Space
Alicante	114,528	35,241	66,40%	51,27%	74,76%	94,89%	80,05%	75,57%	32,16%	29,70%
Almeria	118,092	54,733	41,93%	30,84%	48,93%	87,18%	67,50%	52,09%	35,75%	45,34%
Barcelona	76,646	65,044	16,01%	35,73%	82,67%	94,30%	76,45%	85,43%	56,00%	11,33%
Cadiz	138,793	55,804	74,48%	35,39%	89,45%	93,24%	84,67%	79,30%	22,50%	36,77%
Castellon	70,347	33,069	63,55%	52,80%	68,39%	74,80%	92,38%	64,53%	2,06%	36,79%
Corunha	156,369	45,799	83,96%	17,99%	59,22%	94,50%	69,04%	48,27%	14,14%	58,60%
Girona	62,266	53,967	68,57%	30,09%	73,09%	79,33%	80,64%	81,26%	58,85%	32,52%
Granada	35,926	43,476	29,80%	8,60%	68,35%	88,24%	79,68%	72,65%	53,21%	1,59%
Huelva	115,720	64,985	90,49%	21,47%	39,25%	51,99%	73,64%	60,25%	14,30%	65,69%
Malaga	134,538	29,592	62,09%	29,71%	64,42%	100,00%	88,73%	84,28%	90,55%	26,02%
Murcia	106,704	23,204	60,77%	14,32%	58,65%	75,65%	86,21%	54,56%	27,54%	23,60%
Asturias	71,883	65,791	85,23%	10,53%	60,73%	18,77%	66,58%	42,52%	5,46%	82,66%
Pontevedra	92,847	40,086	84,00%	30,25%	43,34%	96,72%	53,43%	60,62%	53,87%	40,87%
Cantabria	51,680	75,331	71,52%	26,70%	89,22%	99,36%	87,65%	84,67%	8,62%	78,91%
Tarragona	98,698	90,024	68,18%	42,68%	58,02%	65,44%	80,23%	75,95%	12,23%	47,92%
Valencia	90,759	51,109	69,14%	56,78%	79,96%	78,94%	79,99%	66,05%	4,99%	51,25%

Source: own elaboration from Ministry of Agriculture and Fisheries, Food and Environment data

Table 7. Travel Cost by province

	Mean	St.Dev.
Alicante	187,08	103,06
Almeria	219,17	119,77
Barcelona	248,78	130,96
Cadiz	279,09	133,88
Castellon	173,04	95,81
Coruna	281,78	138,05
Girona	276,78	141,14
Granada	218,25	115,55
Huelva	261,40	129,80
Malaga	247,73	123,60
Murcia	191,18	100,56
Asturias	225,06	124,03
Pontevedra	269,72	132,22
Cantabria	193,42	119,33
Tarragona	215,41	119,48
Valencia	173,05	92,702
Total	228,03	126,40

Source: own elaboration

Table 8. Destination choice model robustness checks

	(1) Non-Weighted Model	(3) 2016 Model	(4) 2015 Model
TC	-0.017***	-0.017***	-0.015***
	(0.001)	(0.000)	(0.000)
Total Longitude	0.006*	0.010***	0.004***
	(0.003)	(0.000)	(0.000)
Average Width	0.020**	0.017***	0.030***
	(0.010)	(0.000)	(0.000)
Vegetation	-0.009	-0.997***	0.385***
	(0.749)	(0.000)	(0.000)
Blue Flag	2.245***	1.174***	1.965***
	(0.582)	(0.000)	(0.000)
Protected Space	2.393***	2.388***	2.045***
	(0.417)	(0.000)	(0.000)
Lifegurad	0.822	0.408***	0.917***
	(0.597)	(0.000)	(0.000)
Bus	0.454	0.682***	1.008***
	(0.831)	(0.000)	(0.000)
Parking	1.734	1.309***	2.453***
	(1.084)	(0.000)	(0.000)
Bar	0.783	1.313***	-0.889***
	(1.566)	(0.000)	(0.000)
Anchoring Area	1.030	0.051***	1.448***
	(0.775)	(0.000)	(0.000)
Max. Temperature	0.071***	0.090***	0.075***
	(0.012)	(0.000)	(0.000)
Average Sun Hours	0.015***	0.012***	0.013***
	(0.002)	(0.000)	(0.000)
Hotel Price 2017 (in ln)	-2.874***		
	(0.951)		
Hotel Beds 2017 (in ln)	0.453**		
	(0.193)		
Hotel Price 2016 (in ln)		-4.003***	
		(0.000)	
Hotel Beds 2016 (in ln)		0.551***	
		(0.000)	
Hotel Price 2015 (in ln)			-4.078***
			(0.000)
Hotel Beds 2015 (in ln)			0.481***
			(0.000)
Observations	39,274	1.09833e+14	1.10717e+14
McFadden's R2	0.235	0.215	0.192
McFadden's Adj R2	0.233	0.215	0.192
Year	2017	2016	2015
Weighted	NO	YES	YES

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Appendix. Welfare Analysis

The estimators obtained in the general model presented in Table 3, have been used to estimate the assessment that tourists assign to increases of 10% of the beach kilometers that have a specific attribute. Equations 7 and 8 presents the methodology used to calculate this valuation.

$$WTP_{i,q,k} = \frac{lne^{\alpha q_k^1}}{\beta_{i,k}^{TC}} - \frac{lne^{\alpha q_k^0}}{\beta_{i,k}^{TC}} \quad (7)$$

$$Average\ WTP_{q,k} = \frac{\sum_{i=1}^{i} WTP_{i,q,k}}{Number\ of\ tourists} \quad (8)$$

where q_k^0 represents a vector of original attributes of destination *k*, q_k^1 represents a vector of attributes of destination *k* when an increase of 10% in the provision of one attribute incrases maintaining all other attributes constant, α is the vector of parameters related to the characteristics of the destination (q_k) and β the coefficient of the travel cost variable which is usually interpreted as the marginal utility of income. This methodology is in line with that presented in papers as Bujosa et al., (2015).

$WTP_{i,q,k}$ represents the willingness-to-pay of a tourist *i* for an increase of 10% of the beach kilometers with a specific attribute *q*, keeping all other attributes constant in destination *k*. $Average\ WTP_{q,k}$ represents the average willingness-to-pay of all tourists for an increase of 10% of the beach kilometers with a specific attribute *q*, keeping all other attributes constant in destination *k*. Table 9 shows the results of the Average WTP for each attribute and province.

Table 9. Average WTP for each attribute and province

	WTP Vegetation	WTP Blue Flag	WTP Protected Sp.	WTP Lifeguard	WTP Bus	WTP Parking	WTP Bar	WTP Anchore
Alicante	0,08	6,61	4,83	6,85	1,15	7,51	-0,54	2,60
Almeria	0,05	0,40	0,74	0,45	0,11	0,63	-0,04	0,29
Barcelona	0,02	0,46	0,18	0,76	0,11	0,72	-0,06	0,45
Cadiz	0,08	0,46	0,60	0,82	0,11	0,79	-0,06	0,18
Castellon	0,07	0,68	0,60	0,63	0,09	0,87	-0,05	0,02
A Corunha	0,10	0,23	0,95	0,54	0,11	0,65	-0,03	0,11
Girona	0,08	0,39	0,53	0,67	0,10	0,76	-0,06	0,48
Granada	0,03	0,11	0,03	0,63	0,11	0,75	-0,05	0,43
Huelva	0,10	0,28	1,07	0,36	0,06	0,69	-0,04	0,12
Malaga	0,07	0,38	0,42	0,59	0,12	0,83	-0,06	0,73
Murcia	0,07	0,18	0,38	0,54	0,09	0,81	-0,04	0,22
Asturias	0,10	0,14	1,34	0,56	0,02	0,62	-0,03	0,04
Pontevedra	0,10	0,39	0,66	0,40	0,12	0,50	-0,04	0,44
Cantabria	0,08	0,34	1,28	0,82	0,12	0,82	-0,06	0,07
Tarragona	0,08	0,55	0,78	0,53	0,08	0,75	-0,05	0,10
Valencia	0,08	0,73	0,83	0,73	0,10	0,75	-0,05	0,04

Source: own elaboration

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