

## Tourist profiles and intra-destination visiting preferences in a mature coastal destination: More than beach

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### Abstract

This paper aims to explore if the presence of diverse tourist profiles staying in the same accommodation hub of a mature Mediterranean coastal destination also implies specific intra-destination visiting preferences. The study uses Latent Class Analysis (LCA) to detect tourist profiles according to their socio-demographic and psychographic factors, as well as their trip organisation characteristics. Then, selection corrected estimations are used to focus on the side trips each profile is more willing or reluctant to make from the accommodation hub. Results show a wide range of tourist profiles with a high level of heterogeneity regarding individual characteristics and intra-destination visiting preferences. This provides further understanding of tourist choices at a destination and empirical evidence that allows breaking away from the traditional static, beach-focused view of coastal tourists. In turn, this informs the destination and its stakeholders so that they can apply the appropriate planning, management and branding tools to adapt the destination and its products and services to the different tourism targets. The implementation of this kind of studies and the use of their results by local stakeholders as strategy for diversification and competitiveness growth would make the whole destination more competitive.

**Keywords:** Tourist intra-destination choices, tourist profiles, Latent Class Analysis, visiting preferences, mature coastal destination

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## 1. Introduction

Mature coastal destinations face certain challenges linked to the obsolescence, saturation and overcrowding of specific places, the gradual loss of market appeal, and socio-environmental issues. This drives the implementation of strategies to preserve the competitive edge in a global environment progressively more concerned about sustainability (Pulido-Fernández & López-Sánchez, 2013). Along with changes in marketing and communication strategies, destination management organisations usually support product diversification and enhanced secondary attractions to motivate dispersed tourist mobility and maintain the destination's competitiveness (Almeida & Garrod, 2018; Bujosa, Riera, & Pons, 2015). However, sometimes these initiatives are adopted without prior analysis of the tourist profiles and their related visitation patterns at destination. Just as companies identify different customer segments for developing marketing strategies (Bigné, Gnoth, & Andreu, 2007), at a destination level, managers and private tourism businesses should identify which segments are interested in specific attractions and activities. This would help tourism policymakers, transport-managers and the tourism industry to provide better tourist services and facilities, and to diversify products strategically vis-à-vis the typical challenges facing mature destinations. In fact, segmentation allows deciphering the current needs of tourism destinations, improves existing products/services, gives insight into the needs of new tourist products (Fyall, Garrod & Wang, 2012), provides essential information on sustainable destination management (Ivars, Celdrán, Triviño & Vera-Rebollo, 2016) and helps establish a better image (Xia *et al.*, 2010). Thus, knowing the different segments and their intra-destination choices can improve product development as well as destination marketing and management (Lew & McKercher, 2006).

This strategy should imply an earlier understanding of the tourist profiles and intra-destination choices, in order to be able to identify which segments are more likely to visit specific attractions. Following the literature, tourists usually choose a central accommodation (base-camp) and visit attractions located in its influence area (Lue, Crompton, & Fesenmaier, 1993; Paulino, Prats, & Schofield, 2019). However, tourist decisions at destination are influenced by several factors. The attractiveness of places and the distance from accommodation are considered to be the main determining factors in within-a-destination visitation patterns (Lew & McKercher, 2006; Paulino *et al.*, 2019; Shoval, McKercher, Ng, & Birenboim, 2011). However, factors linked to the tourist profile and their characteristics are also highly influential, including psychographic factors (Edwards & Griffin, 2013), socio-demographic characteristics (Chebli, Othmani, & Said, 2020; Domènech, Gutiérrez, & Anton Clavé, 2020; Lau & McKercher, 2006), and trip organisation (Alegre, Mateo, & Pou, 2011; Barros & Machado, 2010; McKercher, Shoval, Ng, & Birenboim, 2012; Zoltan, 2014).

Tourism market segmentation studies traditionally identify groups of tourists from an origin perspective in order to detect potential consumer trends and interests. Contrarily, there are fewer studies segmenting from a destination perspective, looking at intra-destination choices (Bigné *et al.*, 2007; Li, Yang, Shen, & Wu, 2019; Xia *et al.*, 2010). There is rising interest in identifying visitor profiles considering trip specificities and tourist-related factors affecting both their visiting preferences (Xia *et al.*, 2010; Zoltan, 2014) and their spatial behaviour at destination (De Cantis, Ferrante, Kahani, & Shoval, 2016; Dolnicar & Grün, 2008; Grinberger, Shoval, & McKercher, 2014; Lew & McKercher, 2006; McKercher & Lau, 2008). The authors have detected two gaps in the existing literature. On the one hand, most research on visitor profiles focuses on one variable or the combination of a few, with a paucity of previous studies implementing a multifactor clustering technique that includes trip-related characteristics, tourist-related features, and intra-destination visiting preferences (Xia *et al.*, 2010). On the other hand, none of the previous studies considers the different intra-destination visiting choices made by different tourist profiles, from a central accommodation hub to neighbouring attractions in mature Mediterranean coastal destinations. In fact, the existing literature tends to indicate that the

tourist profile for mature coastal destinations is mainly interested in beaches, and their mobility is mostly restricted to covering the distance from their accommodation to the beach (Bujosa *et al.*, 2015; Smallwood, Beckley, & Moore, 2012).

In this connection, the aim of the present article is to explore whether the presence of diversified tourist profiles in a mature Mediterranean coastal destination also implies a diversification of intra-destination visit choices. This would provide valuable information for mature coastal destinations to develop segmented diversification strategies. To address this issue, this paper focuses, firstly on detecting the various profiles considering different individual characteristics and trip-related factors. Secondly, it identifies the intra-destination visit choices that tourists are more willing to undertake, depending on their profile, while staying at a mature coastal destination. Instead of focusing on travel patterns based on direct tourist flows (Xia *et al.*, 2010), this paper focuses on the base-camp travel patterns (Lue *et al.*, 1993). To do so, it considers the range of attractions visited by the different tourist profiles during their stay at a central accommodation hub in the destination.

To fulfil the research objectives, we used a dataset of around 4,500 individual answers from a survey to tourists over a 12-month period in one of the most important sun and sand Spanish tourism destinations: the central Costa Daurada (Catalonia, Spain). Then, latent class analysis (LCA) clustering technique was implemented to distinguish tourist profiles, because of its important advantages compared to other methods such as regression or hierarchical clustering (Díaz-Pérez & Bethencourt-Cejas, 2016; Naldi & Cazzaniga, 2020). Finally, selection corrected estimations were used to calculate the proportion of tourists per profile that visit each tourist attraction.

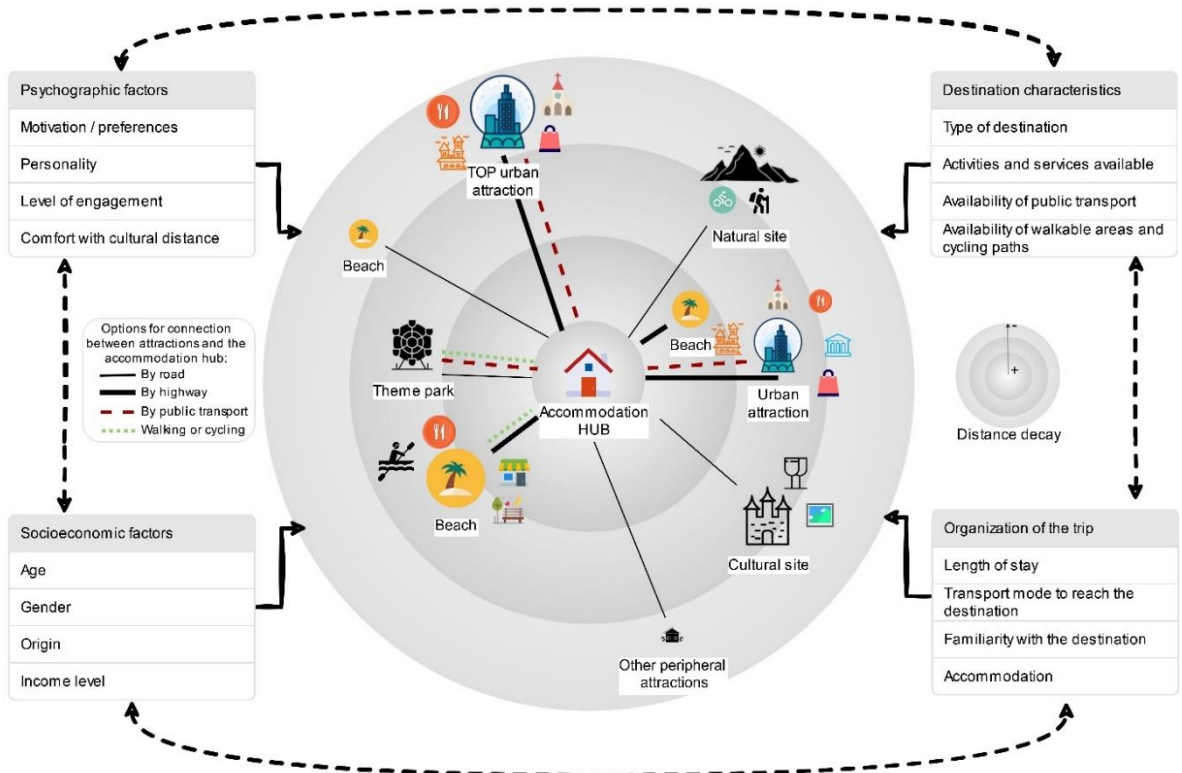
The main goal of this paper is to reveal different tourist profiles, with different visit choices, bringing to light several segments interested in more diverse visits than just the beach. Thus, the empirical evidence obtained provides critical information for the tourist sector on the tourist segments that they can attract, and those that are more prone or reluctant to visiting a particular location, which could allow the tourism industry and policymakers to adopt a segmentation strategy. This is especially relevant for mature coastal destinations in an advanced consolidation stage, such as the Costa Daurada, which typically suffer from negative external costs and overcrowding of resources, such as beaches (Almeida & Garrod, 2018; Bujosa *et al.*, 2015; Li *et al.*, 2019). Thus, understanding tourist choices depending on their characteristics may help to conveniently rejuvenate the destination by adapting products and attractions to the different targets and working to increase the most interesting segments. This study will help to establish a strategy to encourage tourist movements in a mature destination, according to their profile. Moreover, the novelty of this research lies in the fact that, to the best of the authors' knowledge, it is the first attempt to initially detect tourist profiles and subsequently identify the differences in their intra-destination choices in a whole and complex coastal tourism destination.

## 2. Literature review

### 2.1. Tourist mobility within a destination and factors affecting intra-destination visits

Literature lists multiple factors affecting the intra-destination visiting preferences (see Figure 1), pointing to the attractions and availability of services as the most explicative ones (Lew & McKercher, 2006; Paulino *et al.*, 2019; Shoval *et al.*, 2011). In fact, the number of attractions, as well as their level of attractiveness, their accessibility and their spatial distribution (e.g. whether they are clustered or dispersed) are key factors influencing travel patterns within destination (Lew & McKercher, 2006; Mckercher & Lau, 2008; Richards, 2002). Moreover, destinations need to include services, especially accommodation, used as base-camp from where tourists do side-trips to nearby attractions (Leiper, 1990; Lew & McKercher, 2006; Lue *et al.*, 1993; Mckercher & Lau, 2008; Paulino *et al.*, 2019).

In mature destinations, such as Mediterranean coastal areas, with a long list of attractions and accommodation, tourist mobility and intra-destination visiting preferences are linked more to other multiple factors (Bujosa *et al.*, 2015). The type of activities tourists are willing to engage in and their dispersion within the destination are highly influenced by tourists' inner psychographic factors, such as their personality and motivations (Fennell, 1996), preferences (Zoltan, 2014), cultural perspectives (Edwards & Griffin, 2013), as well as level of engagement and comfort with cultural distance (Cohen, 1979; Donaïre, 2012; Matoga & Pawłowska, 2018). In this regard, tourists can be classified into general groups following similar rituals: *psychocentric visitors* or *allocentric visitors*. The first group, also referred as *fordist* visitors, look for home elements and follow regular tourist itineraries. The latter, also called *globetrotter* visitors, prefer difference and exoticism, tending to go *off-the-beaten-track* (Cohen, 1979; Donaïre, 2012; Galí Espelt & Donaïre Benito, 2005; Matoga & Pawłowska, 2018).



**Figure 1.** Factors affecting visitors' intra-destination visiting preferences.

Socio-demographic criteria linked to tourist profiles, such as origin, gender, age, education or income, also play an important role in intra-destination visit choices (Chebli *et al.*, 2020; Domènech *et al.*, 2020). The tourists' origin tends to affect how familiar they are with the destination (McKercher *et al.*, 2012; Zoltan, 2014), and also how they behave at destination in terms of the intensity of visits (Lew & McKercher, 2006).

Intra-destination choices are also affected by factors linked to the trip's specific organisation, which also interrelate with the visitors' socio-demographic features. For instance, Flognfeldt (1999) focused on the origin, noticing that domestic tourists are often repeaters and show more interest in nature-related and

social activities, while international tourists often are first-timers who seek the main attractions. The degree of familiarity with the destination explains why first-time visitors tend to explore a destination more widely, while repeat visitors tend to be more selective and spatially clustered in their activities (McKercher *et al.*, 2012; Zoltan, 2014). The transport mode used to reach the destination highly influences the transport mode used at destination (Gutiérrez & Miravet, 2016; Zoltan, 2014), and subsequently, the tourists' mobility within the destination, with less extensive intra-destination visits when using public transport (Tideswell & Faulkner, 1999). In turn, trip-related factors, such as length of stay (Alegre *et al.*, 2011; Barros & Machado, 2010) or the travel party (Decrop, 2005; Lau & McKercher, 2006) influence the transport mode at destination.

### 2.2. Targets based on tourist mobility and intra-destination visiting preferences

Some studies have deepened the knowledge of tourist segmenting according to visiting preferences within a destination. There is a large variety of techniques capable of identifying tourist profiles, using either an a priori or post hoc approach, and using different segmentation criteria (Bigné *et al.*, 2007). Approaches range from common-sense segmentations, in which tourists are split according to predefined characteristics, to multidimensional data-driven approaches, where a set of tourist characteristics is used to define profiles (Dolnicar & Grün, 2008). Data-driven approaches can segment tourists according to their mobility patterns (De Cantis *et al.*, 2016), their preferences to visit specific places (Zoltan, 2014) or their individual characteristics.

Regarding the data used, some studies have been developed by using questionnaire data (Ark and Richards, 2006), whereas more recently, a growing number of studies are using new data sources thanks to new location-aware technologies (Donaire, Camprubí, & Galí, 2014; Zoltan, 2014).

The main criteria found in the literature to identify different tourist profiles is a long list of geographical, socio-economic, demographic, psychographic and behavioural factors (Bigné *et al.*, 2007). Certain literature focused on a single factor, such as Grinberger, Shoval, & McKercher (2014) who analysed different tourist choices, by clustering tourists only according to time-space allocation measurements. Instead, other studies combined multiple factors, such as Xia *et al.* (2010) who segmented the most frequent travel sequences or patterns from the perspective of the linear travel patterns (direct flows) considering multiple factors related to their socio-demographic attributes and trip-related features.

Overall, a growing number of studies have focused on identifying and segmenting tourist profiles with a specific emphasis and a variety of techniques. Examples of this are Lau & Mckercher (2006) who explored the trip specificities and the factors affecting tourist choices by implementing an exploratory analysis based on map representation to identify several factors affecting tourist choices. Focused on cultural tourism segmentation, Ark & Richards (2006) distinguished types of cultural tourists according to their visiting frequency and the perceived attractiveness of 19 European cities. Donaire, Camprubí & Galí (2014) revealed different ways of seeing a tourism destination; by detecting clusters sharing similar photographic behaviour in the Spanish Pyrenees from a list of predetermined attributes in the photos. Zoltan (2014) analysed destination smartcards with information on the attractions visited and the public transport used by tourists to implement activity-based segmentation. De Cantis *et al.* (2016) identified cruise passenger profiles according to their spatial behaviour at destination. Li *et al.* (2019), analysed destination choices by segmenting tourists between joint and single-ticket purchasers. Wang, Correia, van Arem & Timmermans (2018), segmented tourists depending on the characteristics of the space they move through and its geographical location, in order to understand traveller preferences for different types of trip destination. Díaz-Pérez, García-González, & Fyall (2020) explored the differences in the visiting behaviour of tourists and residents at natural attractions by using the CHAID algorithm and

found several sub-segments for non-residents and residents determined by several variables. Finally, some authors have identified tourist segments considering the mobility between destinations based on the network characteristics of tourism routes (Asero, Gozzo, & Tomaselli, 2015; Xia *et al.*, 2010).

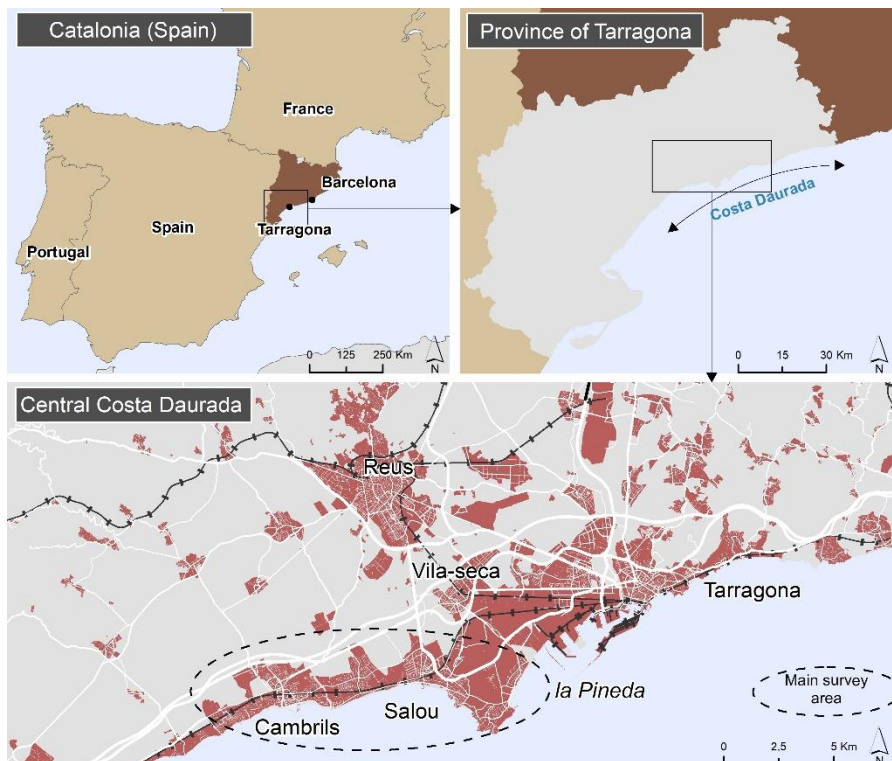
However, as explained in the introduction, the existing literature reveals a paucity of previous studies implementing a multifactor clustering technique that includes trip-related characteristics, tourist-related features, and intra-destination visiting preferences (Xia *et al.*, 2010). Furthermore, there is a lack of studies addressing the different intra-destination choices made by tourists with different profiles staying in a central accommodation hub in a mature coastal destination.

### 3. Data

#### 3.1. Case study

The present study is based on one of the most important coastal destinations in Spain: Costa Daurada (Province of Tarragona). Particularly, the research is focused on the main accommodation hub in the Costa Daurada centre, made up of the coastal towns of Salou, Cambrils and La Pineda (Vila-seca), which are clustered in the destination's core area (Figure 2).

During the data collection period (2015), the province of Tarragona received 5.3 million tourists, representing 19.3 million overnights. The economic tourism activity in this area is focused within the three clustered municipalities of Cambrils, Salou and Vila-seca, with 55% of the total overnight stays in the Tarragona province during the data collection year (Eurecat, 2020).



**Figure 2.** Location of the three accommodation hubs. Source: Authors

### 3.2. Data collection

The database consists of 4,494 surveys answered in 2015 by tourists staying overnight in the clustered accommodation hub in Cambrils, Salou and la Pineda. Participants were randomly selected at optimal locations such as main accommodation sites and key attractions, identified by the professional Tourism Observatory team of Eurecat. The surveying period comprised the main tourist season (from June to September), as well as weekends and public holidays all year round with different schedules. Respondents were asked to identify the side visits made from their accommodation during their stay at the destination. The responses identified eight main attractions visited within the clustered area. Some of them were urban settlements: villages belonging to central Costa Daurada other than the accommodation site: Tarragona, Reus, and Barcelona. The rest included different places located further away which receive a lower number of visitors, such as beaches not located within the accommodation hub, cultural heritage sites, natural attractions and other locations (Table 1).

**Table 1.** *Intra-destination visits. Source: Authors*

Destination	Type	Description	Distance	Public transport access
<b>Barcelona</b>	Urban	Large city visited by 12M tourists (2019). Cultural attractions and heritage, along with shopping are the main attractions	109km	Frequent services. 60-120 minutes journey, depending on the service.
<b>Tarragona</b>	Urban	Medium city visited by 0.5M tourists (2018). Cultural attractions and heritage, along with shopping are the main attractions	12km	Very frequent services. 30 minutes journey.
<b>Reus</b>	Urban	Inland medium city with cultural attractions and heritage, along with shopping	10km	Very frequent services. 30 minutes journey.
<b>Costa Daurada</b>	Urban/ coastal	Medium coastal towns (Salou, Cambrils and Vila-seca), visited by 3.8M tourists (2018). Port Aventura theme park is the most popular attraction, with 2.8M visitors (2019).	0-10km	Very frequent services. Under 30-minute journey.
<b>Beaches</b>	Coastal	Beaches outside the selected accommodation hub	0-100km	Low public transport frequencies and transport combination required in many cases. Some places are not connected by, public transport. Private car use is usually required or more optimal.
<b>Cultural sites</b>	Urban/ rural	Cultural sites located in urban (i.e. Montblanc) or rural areas (i.e. Poblet cloister). Cultural sites from Barcelona, Tarragona and Reus are excluded.	0-100km	Low public transport frequencies and complex combination of transports required. Private car use is more optimal.
<b>Natural sites</b>	Rural	Natural areas (i.e. the mountain ranges of Prades, Montsant and els Ports and the Ebro Delta).	0-100km	Most places are not connected by public transport
<b>Further attractions</b>	Urban/ rural	Visits located further than 100km.	>100km	Montserrat and Girona are accessible by public transport, the rest not.

Furthermore, respondents were asked several contextual questions concerning their socio-demographic profile, the trip characteristics, their previous experience at the destination and the motivations behind the destination choice (Table 2).

**Table 2.** Descriptive statistics.

Variables	% (N=4,494)
<b>Origin:</b>	
(1) Mainland Spain (excluding Ceuta, Balearic and Islands)	47.37%
(2) France (excluding Corsica), Andorra and Monaco	14.29%
(3) Countries within 2,000km of the destination (excluding France and Spain)	21.92%
(4) Countries over 2,000km from the destination and overseas	16.42%
<b>Gender:</b>	
(1) Male	51.96%
(2) Female	48.04%
<b>Age:</b>	
(1) Up to 24 y/o (years old)	7.32%
(2) From 25 to 44 y/o	33.44%
(3) From 45 to 64 y/o	38.36%
(4) 65 or more y/o	20.69%
(5) Unknown	0.18%
<b>Education level</b>	
(1) Without studies	1.07%
(2) Primary	19.25%
(3) High school	29.26%
(4) University	48.31%
(5) Unknown	2.11%
<b>Accommodation:</b>	
(1) Second home	25.48%
(2) Rented apartment	10.66%
(3) Campsite	4.92%
(4) Friends/family	2.78%
(5) 1/2/3* hotel	27.08%
(6) 4/5* hotel	28.86%
(8) Unknown	0.22%
<b>Length of stay:</b>	
(1) Up to 1 week	52.69%
(2) From 1 to 2 weeks	35.34%
(3) Longer than 2 weeks	11.97%
<b>Expenses at the destination (Excluding transportation and accommodation):</b>	
(1) Low	25.77%
(2) Medium	28.19%
(3) High	28.13%
(4) Unknown	17.91%
<b>Season of the stay:</b>	
(1) Summer (21 <sup>st</sup> of June to 23 <sup>rd</sup> of September)	55.52%
(2) Rest of the year (24 <sup>th</sup> of September to 20 <sup>th</sup> of June)	44.48%
<b>Trip organised by:</b>	
(1) Travel agency	57.41%
(2) Self-organised	4.78%
(3) Unknown	37.81%
<b>Accommodation place:</b>	
(1) Cambrils	24.54%
(2) Salou	51.74%
(3) La Pineda	23.72%
<b>Motivation to visit the destination:</b>	
(1) Port Aventura theme park	3.29%
(2) Professional reasons	0.80%



Variables	% (N=4,494)
(3) Cultural and natural sites	3.78%
(4) Sun and beach	12.35%
(5) Characteristics of the destination (price, accommodation quality, restaurants, etc.)	19.56%
(6) Visit family	6.03%
(7) Frequent visitors	20.78%
(8) Recommended by others	5.27%
(9) Not own decision	1.05%
(10) Party and night life	0.93%
(11) Rest	3.05%
(12) Unknown	23.1%
<b>Repeater</b>	
(1) First timer	33.04%
(2) Repeater	66.96%
<b>Travel party:</b>	
(1) Friends	6.94%
(2) Firm/business trip	0.71%
(3) Family trip	4.45%
(4) Family with children	39.70%
(5) Partner	43.48%
(6) Alone	0.29%
(7) Unknown	4.43%
<b>Visits outside the accommodation municipality:</b>	
(1) Visiting other places outside the accommodation municipality	52.56%
(2) Not visiting other places	23.03%
(3) Unknown	24.41%

#### 4. Methods

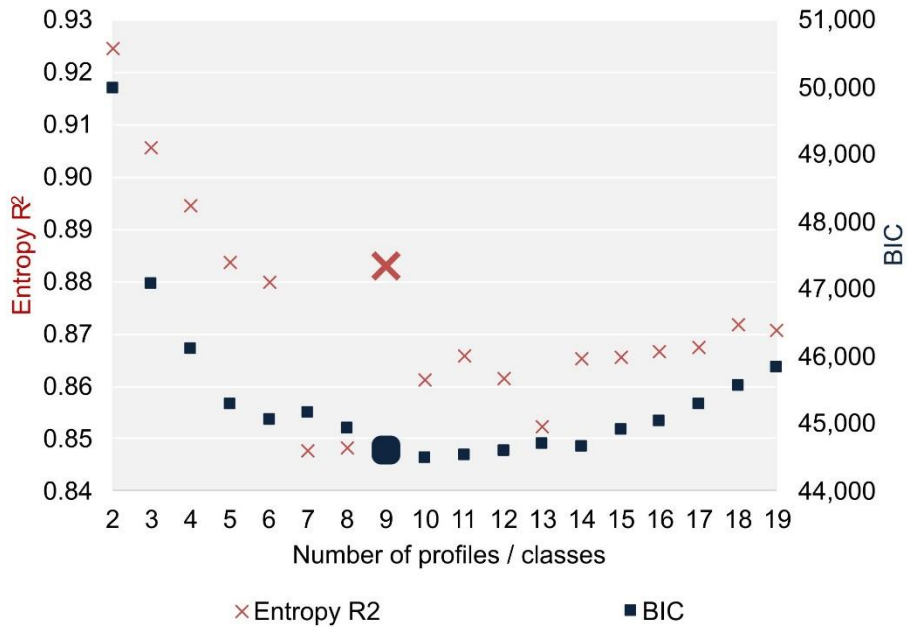
This paper's empirical approach is based on a clustering analysis of the 4,494 surveys to distinguish tourist profiles by means of Latent Class Analysis (LCA). After depicting the tourist profiles, the pattern of visits for each one is examined. Specifically, selection corrected estimations are applied to overcome potential selection biases.

##### 4.1. Latent Class Analysis (LCA)

Lazarsfeld and Henry (1968) first introduced the LCA statistical method, which is suitable for identifying subtypes of related cases (latent classes) from multivariate categorical data (Lanza, Flaherty, & Collins, 2003). Compared with other data segmentation methods, such as regression or hierarchical clustering, LCA derives clusters using a formal probabilistic approach, and it can be used in conjunction with multivariate methods to estimate parameters (Díaz-Pérez & Bethencourt-Cejas, 2016; Naldi & Cazzaniga, 2020). This technique has been widely used in tourism research, e.g. to represent tourists' heterogeneous destination choices and travel party (Wu *et al.* 2011), to find distinct types of cultural tourists according to visiting frequency and perceived attractiveness (Andries van der Ark & Richards 2006), or to explore tourist experience choices depending on their past vacation experience choices, travel motivations, and demographic characteristics (Crouch *et al.* 2014).

The variables listed in Table 2 have been incorporated into the LCA analysis, only excluding the variable related to the places visited during the tourists' stay. Hence, the demand has been segmented over the whole sample of 4,494 tourists, assigning each case to its corresponding group, regardless of this last variable. The decision on the optimal number of classes is not a minor issue when applying this technique. Models ranging from 2 to 20 classes have been estimated, as presented in Figure 3. Following

Nylund *et al.* (2007), who stated that BIC (Bayesian information criterion) outperforms the rest of the “IC’s”, and Gutiérrez *et al.* (2020), who used entropy to complement the “IC’s”, the 9-classes model is considered to be the best choice.



**Figure 3.** Bayesian Information Criterion (BIC) value and Entropy R<sup>2</sup> per number of profiles detected through Latent Class Analysis (LCA). Source: Authors

4.2. Selection corrected estimations

A straightforward strategy to assess to what extent each tourist profile adopts different visit choices, would have involved calculating the percentage of visits each profile made to the various attractions. However, this is compromised by the percentage of non-respondents. Table 3 shows the non-random distribution of the missing information among the different tourist profiles.

**Table 3.** Distribution of the information missing from visits among tourist profiles. Source: Authors

Class	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Total
Missing (%)	41.6%	21.6%	22.7%	9.6%	22.2%	17.1%	31.2%	21.6%	21.3%	24.4%

Getting rid of the non-respondents would result in the loss of about 24% of the observations and adding a bias to the sample due to the non-random distribution of non-respondents. Through a two-step econometrical technique, this bias can be circumvented in linear regressions with a continuous dependent variable (Heckman, 1979), adapted to traditional probit regressions with dichotomous variables (Van de Venn and van Praag, 1981). Thus, selection corrected models have been implemented to overcome this problem. The equation related to the number of categories of attractions visited can be expressed as:

$$y_j = x_j\beta + u_{1j} \tag{1}$$

$y_j$  refers to the number of categories of visits undertaken by tourist  $j$ .  $x_j$  is a vector of dichotomous variables which signal the class to which tourist  $j$  belongs,  $\beta$  expresses the vector of parameters to be estimated.  $u_{1j}$  is an error term that follows a normal distribution.

$y_j$  is not always observed. In fact, it is only observed when the tourist provides an answer:

$$z_j\gamma + u_{2j} > 0 \quad (2)$$

$z_j$  is a vector of observable characteristics which account for the probability that the tourist gives information on their visits. These observed characteristics are associated to the vector of parameters to be estimated  $\gamma$ .  $u_{2j}$  is an error term that follows a normal distribution.

The correlation coefficient between the error terms  $u_1$  and  $u_2$  is denoted by  $\rho$ :

$$\begin{aligned} u_1 &\sim N(0, \sigma) \\ u_2 &\sim N(0, 1) \\ \text{corr}(u_1, u_2) &= \rho \end{aligned} \quad (3)$$

With respect to the dichotomous variable that indicates whether a category of intra-destination attraction is visited, we can only observe whether it is visited if the following condition is satisfied:

$$m_j\delta + u_{3j} > 0 \quad (4)$$

Analogously to (1),  $m_j$  is a vector of dichotomous variables that signal the class to which tourist  $j$  belongs,  $\delta$  expresses the vector of parameters to be estimated.  $u_{3j}$  is an error term that follows a normal distribution.

Again,  $m_j$  is not always observed. It is only observed in the event of:

$$z_j\eta + u_{4j} > 0 \quad (5)$$

Following (2),  $z_j$  is a vector of observable characteristics that account for the probability that the tourist provides information on their visits. These observed characteristics are associated to the vector of parameters to be estimated  $\eta$ .  $u_{4j}$  is an error term that follows a normal distribution.

The correlation coefficient between the error terms  $u_3$  and  $u_4$  is denoted by  $\rho$ :

$$\begin{aligned} u_3 &\sim N(0, \sigma) \\ u_4 &\sim N(0, 1) \\ \text{corr}(u_3, u_4) &= \rho \end{aligned} \quad (6)$$

The biasing impact of the missing values has been assessed by means of the significance test ( $\chi^2$ ) for  $\rho$ , indicating only two models with no significant  $\rho$ : those with Barcelona and the further locations as dependent variables (Table 4). Thus, the proportion of visitors for each profile has been calculated in a straightforward way for these destinations. Contrastingly, the predictions obtained by applying the Heckman linear model and its adaptation to the probit model, have been applied to the remaining equations. The predicted values of the visits derived from these models are presented in the following sections<sup>1</sup>.

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<sup>1</sup> Full estimations available under request.

**Table 4.** Wald significance test ( $\chi^2$ ) for  $p$ .

Visits (1)	Number of visits (2)	Barcelona (3)	Tarragona (4)	Reus (5)	Costa Daurada (6)	Beach (7)	Cultural heritage (8)	Natural attractions (9)	Further locations (10)
3.67 *	10.9***	0.37	12.32 ***	6.40**	9.78***	3.93**	5.34**	2.95*	1.66

\* Significant at 10%,

\*\* significant at 5%,

\*\*\* significant at 1%

## 5. Results

### 5.1. Profiles detected

The results of the clustering analysis of tourists who overnighted in the Costa Daurada centre accommodation hub are presented in Table 5. The number of individuals making up each class/group oscillates from 167 (Class 8) to 1,167 (Class 9), without groups below 3.5% in the overall observations. Each class includes individuals with similar characteristics/profile, the main elements of which have been identified in the taxonomy (Table 6). The diversity of profiles proves the profound heterogeneity among the tourists visiting the Costa Daurada centre.

**Table 5.** Main characteristics of the classes detected through the LCA.

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9
<b>Origin</b>									
Spain	2%	79%	0%	94%	26%	28%	43%	48%	84%
France	10%	20%	0%	6%	43%	33%	18%	25%	10%
2000 km	89%	0%	1%	0%	31%	18%	39%	25%	6%
Further away	0%	0%	99%	0%	0%	20%	0%	2%	0%
<b>Accommodation type</b>									
Second Home	0%	0%	0%	0%	0%	26%	0%	1%	93%
Apartment rental	11%	8%	3%	0%	27%	55%	5%	50%	1%
Campsite	1%	9%	0%	0%	69%	0%	0%	3%	0%
Family/friends	0%	0%	0%	0%	0%	17%	0%	5%	6%
1/2/3* hotel	33%	45%	47%	64%	4%	0%	40%	29%	0%
4/5* hotel	56%	38%	50%	36%	0%	0%	55%	10%	0%
Other	0%	0%	0%	0%	0%	1%	0%	2%	0%
<b>Age</b>									
Up to 24 y/o	8%	1%	6%	0%	2%	6%	9%	63%	4%
From 25 to 44 y/o	56%	73%	56%	22%	19%	53%	7%	26%	16%
From 45 to 64 y/o	34%	26%	37%	0%	47%	37%	56%	11%	43%
65 or more y/o	2%	0%	1%	78%	31%	5%	27%	0%	36%
Unknown	0%	0%	0%	0%	0%	0%	1%	0%	0%
<b>Length of stay</b>									
Up to 1 week	52%	90%	17%	51%	26%	30%	70%	80%	57%
From 8 to 14 days	47%	10%	76%	48%	39%	46%	29%	10%	17%
More than 2 weeks	1%	0%	6%	1%	35%	24%	1%	11%	26%
<b>Education level</b>									
Without education	0%	1%	0%	6%	1%	0%	0%	2%	1%
Primary	8%	20%	0%	54%	27%	12%	26%	10%	24%
High school	49%	31%	5%	20%	39%	22%	42%	34%	28%
University	41%	48%	94%	19%	33%	65%	26%	54%	43%
Unknown	2%	0%	0%	2%	0%	1%	6%	0%	3%
<b>Level of Expenditure</b>									
Low	20%	44%	9%	46%	32%	31%	15%	19%	30%
Medium	37%	31%	29%	26%	28%	26%	27%	24%	26%
High	35%	12%	54%	2%	23%	22%	41%	41%	16%

	<b>Class 1</b>	<b>Class 2</b>	<b>Class 3</b>	<b>Class 4</b>	<b>Class 5</b>	<b>Class 6</b>	<b>Class 7</b>	<b>Class 8</b>	<b>Class 9</b>
Unknown	8%	13%	8%	26%	17%	21%	18%	16%	28%
<b>Gender (male)</b>	58%	47%	46%	43%	62%	52%	58%	55%	51%
<b>Trip organised by</b>									
Travel agency	97%	89%	99%	78%	35%	0%	89%	45%	0%
Self-organized	1%	8%	1%	2%	47%	0%	6%	5%	0%
Unknown	3%	3%	0%	20%	18%	100%	5%	50%	100%
<b>Trip Party</b>									
Friends	0%	2%	7%	14%	2%	3%	7%	66%	4%
Work mates	0%	0%	0%	2%	0%	0%	0%	15%	0%
Family	3%	2%	4%	4%	2%	5%	5%	3%	7%
Children	82%	85%	59%	0%	33%	72%	2%	0%	21%
Partner	14%	11%	25%	79%	59%	15%	81%	8%	60%
Alone	0%	0%	0%	0%	0%	0%	0%	1%	1%
Unknown	0%	0%	5%	0%	3%	5%	5%	7%	8%
<b>Accommodation place</b>									
Cambrils	4%	19%	13%	3%	65%	45%	19%	4%	41%
Salou	67%	59%	64%	76%	13%	34%	63%	80%	30%
la Pineda	29%	22%	24%	21%	21%	21%	18%	16%	28%
<b>Reasons</b>									
Frequent visitors	5%	12%	1%	10%	21%	25%	12%	1%	53%
Professional	0%	0%	0%	0%	2%	1%	0%	14%	1%
Port Aventura	6%	11%	8%	0%	0%	2%	0%	2%	0%
Rest	2%	4%	2%	5%	2%	6%	3%	1%	3%
Cultural & natural sites	3%	4%	3%	17%	3%	2%	6%	3%	1%
Recommended by others	5%	4%	14%	25%	0%	2%	1%	2%	0%
Visit family	8%	4%	10%	2%	5%	14%	3%	8%	4%
Sun-and-sand	11%	14%	17%	5%	22%	14%	14%	19%	7%
Dest. characteristics	15%	26%	21%	25%	21%	15%	29%	7%	14%
Not own decision	1%	0%	0%	7%	0%	0%	1%	4%	0%
Party and nightlife	1%	0%	0%	0%	0%	1%	0%	20%	0%
Unknown	43%	21%	24%	3%	22%	18%	31%	20%	17%
<b>Repeater</b>	37%	69%	34%	59%	77%	70%	70%	48%	99%
<b>Season (summer)</b>	78%	50%	95%	1%	60%	96%	42%	60%	34%
Tourists per class	534	473	679	291	239	304	656	167	1,151

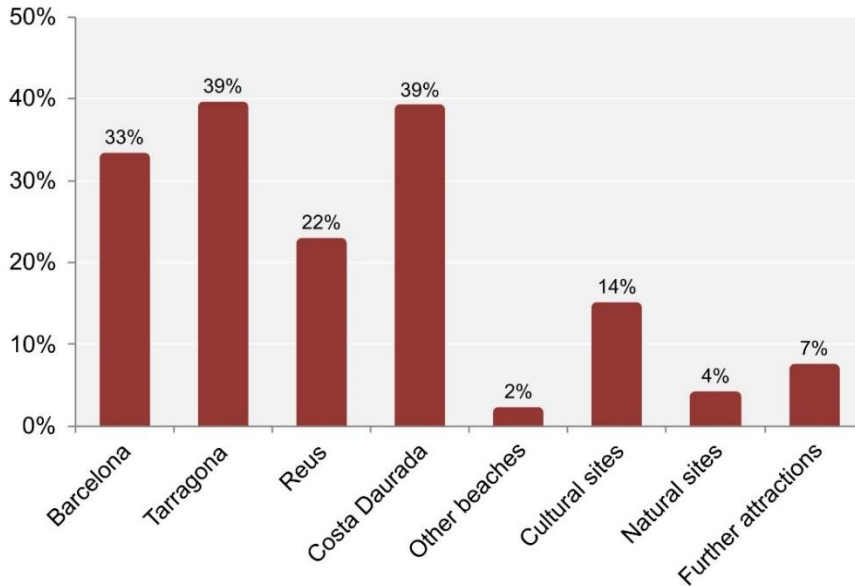
**Table 6. Suggested taxonomy.**

	<b>Taxonomy</b>
<b>Class 1</b>	European families travelling with children who stay at hotels
<b>Class 2</b>	Spanish families travelling with children who have short stays at hotels with low-mid level of spending and short stays
<b>Class 3</b>	Travelers from afar staying at hotels longer than a week with high level of spending and a high level of education
<b>Class 4</b>	Spanish older visitors travelling with their partner who stay at hotels and have low-mid level of spending
<b>Class 5</b>	Visitors who travel with their partner or to a lesser extent families with children who stay longer than a week at campsites and rented apartments.
<b>Class 6</b>	Families with children staying at second homes or apartments
<b>Class 7</b>	Mid-aged tourists travelling with their partner who stay at hotels with high-mid level of spending
<b>Class 8</b>	Young travellers staying for short periods of time in apartments and hotels with high-mid level of expenditure
<b>Class 9</b>	Frequent mid/old-aged visitors who travel with their partner, stay at a second home, and have low-mid level of expenditure.

## 5.2. Intra-destination visits

### 5.2.1 General intra-destination visits

Descriptive statistics of the overall behaviour of tourists staying in the Costa Daurada centre show clear differences between the visiting options (Figure 4). These are explained by the differences between attractions based on attractiveness and ease of access. Most frequent side trips from the accommodation hub are easily accessible urban locations, such as Tarragona and other municipalities belonging to the central Costa Daurada (39%), followed by Barcelona (33%). This comes as no surprise since they are flagged destinations, acting as an attraction pole for a large amount of tourists (Donaire, 2012; Lew & McKercher, 2006; Mckercher & Lau, 2008; Paulino *et al.*, 2019; Richards, 2002). Another example is Reus, located nearby and well connected by public transport with the accommodation towns on the coast. This explains why tourists do more side trips to Reus (22%) compared with other cultural heritage attractions (14%) (Paulino *et al.*, 2019; Shoal *et al.*, 2011; Zoltan, 2014). Finally, further locations, beaches and natural heritage constitute less than 10% of the side trips. Distance decay acts as a friction factor in tourists' decisions regarding further locations and natural heritage. The former because they are geographically far away, and the latter because they involve a lot of travelling time due to secondary roads and lack of public transport connections (Mckercher & Lau, 2008; Paulino *et al.*, 2019; Smallwood *et al.*, 2012). The 'beach' category includes beaches located in different towns to the one staying overnight. Its low frequency shows tourists' preference to visit the closer option between two similar beaches, as market access theory indicates (Lew & McKercher, 2006).

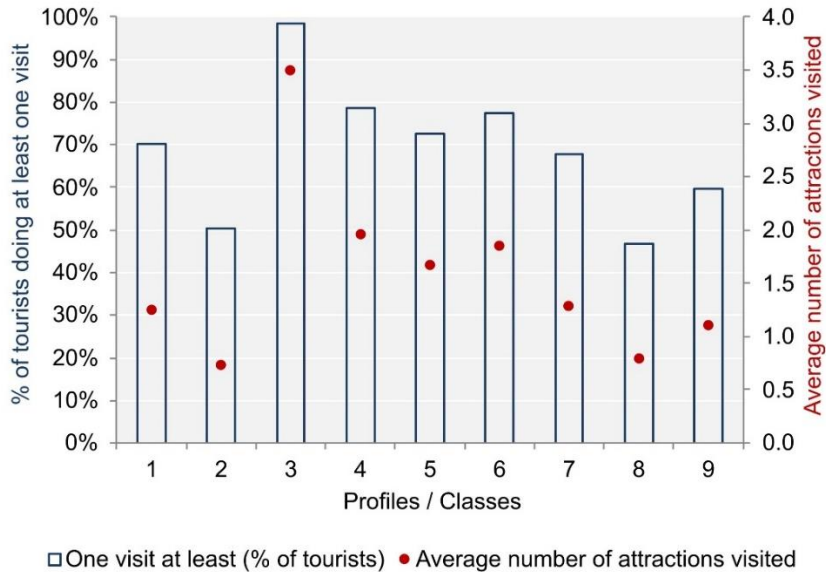


**Figure 4.** Estimated percentage of tourists visiting the different intra-destination options.

### 5.2.2. Each tourist profile's propensity to undertake visits

The various tourist profiles show substantial differences in their visitation patterns when considering the percentage of tourists who undertake at least one side visit and the average number of side visits (Figure 5). Regarding the variable of having done at least one side trip, the most significant differences emerged between classes 3, 2 and 8. Class 3, where 98% undertake at least one side trip, mainly includes long stay tourists from countries located further than 2,000 km away and with a high level of education. Contrastingly, in the case of class 2 and class 8, the percentage of at least one side trip drops to 50%; the former class is predominantly made up of Spanish families travelling with children who overnight less than a week, and the latter consists of young tourists staying for short periods of time. These results are in line with the existing literature, since tourists travelling longer distances to a destination are more prone to visiting the destination intensely, whereas short stay tourists tend to prioritise their visits to closer attractions (Barros & Machado, 2010; Lau & McKercher, 2006) or just adopt a static behaviour (Bujosa *et al.*, 2015; Smallwood *et al.*, 2012). Furthermore, families travelling with children for a short stay are prone to more static patterns. Also young visitors travelling with friends for short periods of time and mainly motivated to partying and going to the beach, are less responsive to doing side trips (Alegre *et al.*, 2011; Barros & Machado, 2010; Decrop, 2005).

When analysing the average number of visited attractions (Figure 5), class 3 is again clearly above the other tourist profiles, with 3.5 visits. Compared to other profiles, class 3 has the highest percentage of first timers (64%), more available time to explore the destination more intensely (the 82% stay longer than a week), higher cultural level (95% with university education) and higher expenses (54% of them reported high expenses). Ranked next, classes 4, 6 and 5 emerge with values close to 2 visits. Class 4 mainly consists of senior partners interested in cultural and natural sites near their accommodation, whilst classes 5 and 6 show a greater interest in the beach and activities with family and relatives. The remaining classes are all below 1.5 visits, whereas class 8 and 2 appear even below 1, again constituting the more static segments, whose behaviour has traditionally been associated with beach destinations (Bujosa *et al.*, 2015; Smallwood *et al.*, 2012).



**Figure 5.** Estimated percentage of tourists, per profile, undertaking at least one intra-destination visit and estimated average number of intra-destination visits.

### 5.2.3. Differences in choices of tourist profiles

The percentages of visits to each intra-destination category show a general and transversal tendency among classes to visit closer urban locations with easy transport access (Figure 6), coinciding with the general trend of base-camp travel patterns (Lew & Mc Kercher, 2006; Paulino *et al.*, 2019; Shoval *et al.*, 2011; Tidswell & Faulkner, 1999). Conversely, the decision to undertake non-urban and further visits is much more uneven. This is due to the divergent preferences of each tourist profile and ability to reach the location in terms of available time and transport alternatives (Alegre *et al.*, 2011; Barros & Machado, 2010; Tidswell & Faulkner, 1999).

Looking into the specificities of each group, the active profile of tourists belonging to class 3 (further travellers) is the most likely to visit Barcelona, Tarragona, Reus, cultural heritage, and further destinations. In contrast, they rank fourth when visiting other villages belonging to Costa Daurada, and they are a laggard for natural heritage and beaches. Thus, influenced by the longer distances travelled to reach the destination and the wish to visit flagged destinations, this tourist profile seems to be attracted by urban environments, and is less affected than the other classes by the distance to attractions (Donaire, 2012; Lew & Mc Kercher, 2006; Paulino *et al.*, 2019).

Class 4 is one of the most active profiles, but shows a distinct pattern of visits. This class ranks second in the number of visits to Tarragona, Reus, and cultural heritage sites, and first in visiting Costa Daurada villages, beaches, and natural heritage. However, the percentage of visits plummets when the distances increase, such as in the case of Barcelona and further locations. Differences in origin (Chebli *et al.*, 2020) and the level of spending (Domènech *et al.*, 2020) seem to be critical for these differences.

Class 1 is in second position when considering visits to Barcelona, as opposed to the rest of categories. Tourists from class 6 show relatively more interest than other profiles in visiting more renowned urban



destinations, even though it requires travelling longer distances, following the flagged attractions effect demonstrated in the literature (Lew & McKercher, 2006; Mckercher & Lau, 2008; Paulino et al., 2019). Their visits to Barcelona, Tarragona, and cultural and natural heritage rank third, while they are second for further locations and Reus.

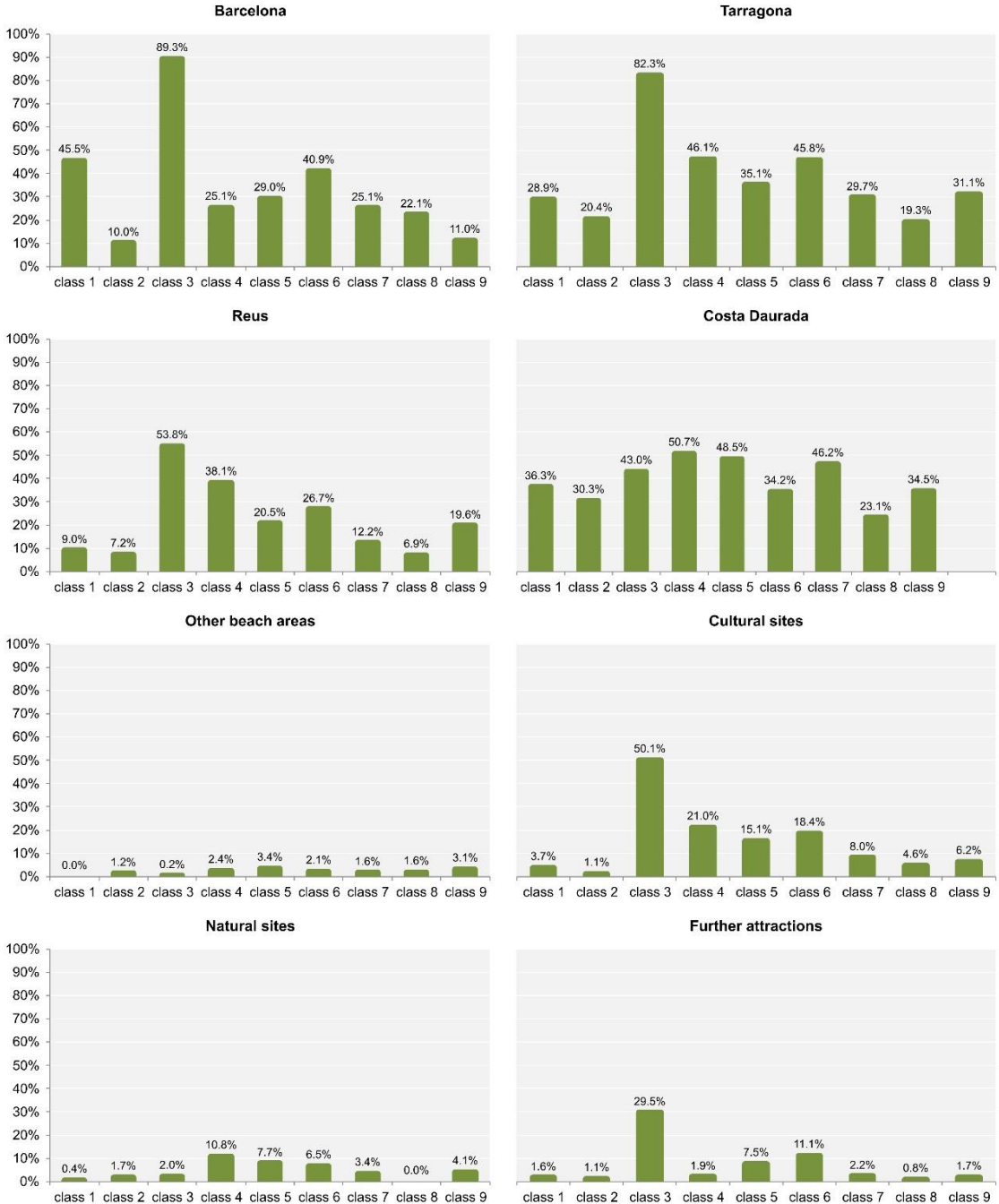


Figure 6. Estimated percentage of tourists, per profile, visiting each intra-destination option.

Class 5 shows more preference for visiting Costa Daurada villages, natural heritage (2<sup>nd</sup>) and beaches (1<sup>st</sup>) in comparison to other profiles.

Both class 7 and 9 share a relatively high interest in visiting Costa Daurada villages and Tarragona (class 7: 46% and 30% respectively; class 9: 34% and 31% respectively). The difference between them is that tourists in class 7 are more prone to going to Barcelona than class 9 (25% and 11% respectively).

Concerning the less active groups, young tourists who stay short periods of time (class 8) show relative interest in visiting Barcelona (22%) at similar levels to senior (class 4: 25%) and mid-aged tourists travelling with their partner and staying at hotels (class 7: 25%) or in campsites and rented apartments (class 5: 29%).

## 6. Discussion and conclusions

### 6.1. Main findings and implications

This study contributes to a greater understanding of within-a-destination patterns which, to-date, have received little research attention, especially in Mediterranean coastal destinations in an advanced consolidation stage. It provides evidence that sun-and-sand destinations such as Costa Daurada, attract multiple tourist profiles other than the typical profile which traditionally has been associated with static behaviour or a reduced movement pattern covering the distance from the accommodation to the beach (Smallwood *et al.*, 2012). In fact, the study reveals that most of the detected profiles usually undertake side-trips to surrounding attractions, and only two of the detected profiles show more static behaviour traditionally associated with sun-and-sand destinations.

Although there is a general tendency for tourists to visit attractions that are well connected with the selected accommodation hub, (Donaire, 2012; Lew & McKercher, 2006; Mckercher & Lau, 2008; Paulino *et al.*, 2019; Richards, 2002; Zoltan, 2014), the findings show that the main differences in intra-destination visits among the profiles lie in socio-economic and trip-related characteristics. In this regard, multidimensional data-driven segmentation allowed identifying a wide range of heterogeneous tourist profiles with notable differences in terms of their propensity to move at destination and to select the attractions to visit. The findings, therefore, pinpoint a complexity and variety of tourism activities that can take place in mature coastal destinations, compared to the classical behaviour of beach tourists (Smallwood *et al.*, 2012) or to the more homogeneous behaviour of tourists when visiting urban destinations (van der Ark & Richards, 2006).

The implications of the study for practitioners are related to the critical information that this kind of empirical approach may bring for the tourist sector. Firstly, regarding the tourist segments a destination attracts and, secondly, concerning which tourist profiles are more prone or reluctant to visit specific attractions within the destination. In a context where mass tourism may induce negative externalities linked to the overcrowding of common-pool resources, such as beaches (Almeida & Garrod, 2018; Bujosa *et al.*, 2015; Li *et al.*, 2019), it is fundamental to deepen the knowledge on the specific tourists' interests. This will allow establishing a strategy capable of encouraging and redistributing movements and potential benefits. Along these lines, one of the main contributions in this paper consist of providing evidence of the wide range of tourist profiles interested in visiting a diversity of places, much more than the beach. Thus, destination competitiveness can also be triggered by enhancing the range of visiting preferences from the accommodation hub as a strategy to tackle different markets. In fact, being able to retain (build loyalty) differentiated visitor profiles allows destinations to be more resilient in the face of adverse situations, such as the recent health crisis generated by COVID-19 which diffculted the resilience of those destinations more dependent on international markets (Duro *et al.* 2021).

This study helps destination management organizations and suppliers of tourist services and activities (e.g. accommodation, tourist guide industry, etc.) to both develop tailor-made marketing campaigns to improve the visitor's experience (Lew & McKercher, 2006) and design tourist routes and packages according to the interests of the various tourist profiles. The results show that transportation is also an essential factor when choosing what to visit once at destination. Thus, policy strategies should focus on initiatives integrating transportation and multiple visiting preferences that are currently difficult to reach. This will allow improved accessibility to side-attractions and distribute flows and benefits throughout the destination. The actions to be adopted to enhance side trips should distinguish between tourist profiles, by designing marketing campaigns and offering tailor-made options.

It would also be advisable for the accommodation hub to cooperate with the activities and services of the surrounding, considering the different tourist profiles. This would allow complementing the offer once the tourists have reached the accommodation, making the destination more attractive and competitive as a whole (Crouch and Ritchie, 1999). Furthermore, this strategy could also attract specific profiles from the origin. In this sense, the empirical approach undertaken in this study can help to decipher which segments of demand are attractive for a particular city, town or tourist attraction, and which reasons prevented those segments from visiting a place.

### 6.2. Limitations

The present work is focused on the visited attractions classified in eight different categories, in order to identify patterns for each class. However, it implied simplifying the visitation patterns, resulting in a certain loss of data quality. The study set aside some calculations that could provide interesting information on the intensity of visits, such as the ratio between the number of side trips and the total length of stay. Furthermore, the data collection does not include the distance or time used to go and return from side-visits, the particular transport mode used or the stops-over on the way from the accommodation to the attractions visited, which could provide a detailed view of the way tourists consume the destination.

### 6.3. Future research

For future research, it would be interesting to include other variables in the dataset such as excursion frequency or the time frame in which they were performed, in order to disentangle differences in intensity and spatiotemporal patterns between different tourist segments. However, this would require using other data sources including location-aware technologies (i.e. mobile phone data, GPS devices, etc.).

Further analysis of the underlying determinants driving each tourist profile to visit a place would also be valuable for planning and marketing purposes. The dataset could also be enriched by including survey questions about the motivations and transportation related with the different side-trips.

Future research could also compare the changes in tourist profiles attracted by mature coastal destinations and shifts in travel behaviour both in the short and long term. For instance, despite the global impact of the COVID-19 pandemic, the local effects across tourism destinations have been uneven (Duro *et al.* 2021). Similarly, the impacts of the current climatic emergency and the need for a transition towards a more sustainable model induce changes in tourist preferences (Hall, 2019). Therefore, it is important to monitor the performance and evolution of tourism destinations in terms of the visitor profiles they can attract and their spatial and temporal behaviour and its effects.

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