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Introduction

1   Transport infrastructures play a key role in the development of tourist destinations. This has been studied especially, for instance, in the case of air transport and the role of low-cost carriers and airports (Bieger and Wittmer, 2006; Quintiliani, 2009; Castillo-Manzano *et al.*, 2011). More recently, analyses on the links between HSR and tourism have emerged. In some cases, the approach is performed in a prospective manner, such as the analysis by Masson and Petitot (2009) of the role that the HSR route between Perpignan (France) and Barcelona (Spain) could play in attracting tourists to these two cities, or Becker and George's (2011) study of the potential for tourism development of the proposed HSR Gulf Coast Corridor in the United States. Ex-post evidence of tourism development related to HSR, especially urban tourism, is found in Ureña *et al.* (2009), Bazin *et al.* (2010), Garmendia *et al.* (2012), Wang *et al.* (2012), Delaplace *et al.* (2014), Yin *et al.* (2014), and Pagliara *et al.* (2015) in countries such as China, France, Italy, and Spain.

2   According to Albalate and Bel (2011), passenger transport by HSR is not generating significant additional economic activity or attracting productive investment except in the service sector and in tourism. Nevertheless, Hernández and Jiménez (2014) demonstrate that local revenues improve in municipalities located within 5 km of an HSR station. In any case, it seems to be generally acknowledged that high-speed rail services are experiencing a process of diversification in terms of travel motivations and passenger profiles (Santos *et al.*, 2007; Garmendia *et al.*, 2011; Delaplace *et al.*, 2014). Within this context, there is no doubt that the use of HSR for tourism and leisure travel can be considered still an emerging issue of interest despite its importance was highlighted more than a decade ago (Bazin *et al.*, 2004).

3   The factors influencing tourists' destination choices have been analysed in academic literature, and several models have been developed, as in Um and Crompton (1991) where three sets of variables are taken into account: external inputs (as transportation), internal inputs, and cognitive constructs. Decrop (1999) performed a comprehensive review of these models in order to analyse tourists' decision-making and behaviour processes. Transportation, understood as the mode used to arrive at a destination, is included as one of the major specific factors in decision-making in Decrop and Snelders (2004). To the best of the authors' knowledge, only a few studies have analysed the influence of the existence of an HSR station on tourists' decisions to visit particular destinations. Two of these correspond to work by Delaplace *et al.* (2014) and Pagliara *et al.* (2015). In both cases, the results were obtained by means of a survey of tourists. In the first case, the tourists were arriving in Paris and Rome, and in the second case in Madrid. All respondents had travelled not only by HSR but also by plane, automobile, and other transport modes. Delaplace *et al.* (2014) concluded that 49% of tourists who arrived in Paris by means of HSR and 28% in Rome were positively influenced in their choice of destination by the presence of the HSR. Meanwhile, Pagliara *et al.* (2015) asked all the tourists interviewed about their three primary motivations for choosing Madrid as a destination. Only 0.8% indicated HSR availability as their first choice, but it must be highlighted that only 12.8% arrived in Madrid by means of HSR.

4   In this same vein, Anton Clavé *et al.* (2015) analysed the influence exerted by an HSR station on tourists' destination choices. The case study destination was Costa Daurada, a mature coastal destination located in Southern Catalonia, Spain. The authors adopt a causal probabilistic method theoretically presented and developed by Young *et al.* (2005) and referred to as a causal chain approach. This allows the study of the effect that the exposure to certain information/products/services (the availability of an HSR station close to a tourist destination) may have on the decision for its consumption (to visit the destination). The result is obtained neither by means of a binary answer (yes or no) to the question about the influence of the HSR station, as in the case of Delaplace *et al.* (2014), nor by means of choosing a reason among a set of possible responses, as in the case of Pagliara *et al.* (2015). This methodology has been also applied by Fernandez-Young and Young (2008) in the context of film tourism; by Pratt *et al.* (2010) in the context of the evaluation of the effectiveness of tourism-marketing campaigns; by Young *et al.* (2010) in the context of cultural tourism in market towns; by Saladié *et al.* (2014) and Anton Clavé *et al.* (2015) in the evaluation of the influence exerted by the availability of low-cost flight routes on tourists' destination choices; and by Saladié and Santos-Lacueva (2016) to measure the improvement in the separate collection of household waste attributable to an awareness campaign.
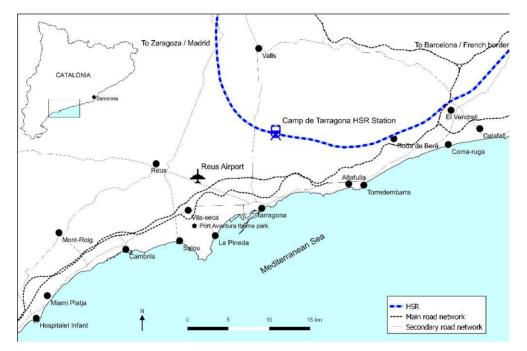
5   It is acknowledged that the increase in the probability of visiting a destination because of the availability of HSR services can vary depending on the sociodemographic and trip characteristics of visitors (Anton Clavé *et al.,* 2015). A key factor, from the destination perspective, is the concentration of repeat tourists. They exhibit differences to first-time visitors (Gitelson and Crompton, 1984; Oppermann, 1997; Fallon and Schofield, 2004; Kemperman *et al.*, 2004; Lehto *et al.*, 2004; Alegre and Juaneda, 2006), and the efforts required to attract them are lower than those required for first-time visitors (Oppermann, 1998) Repeat visitors have traditionally been considered a positive indication of tourist satisfaction. However, after a comprehensive review, Alegre and Cladera (2006) conclude that repeat visitation can be a result of other reasons: (I) alternative destinations are not perceived as different; (II) destination choice is made by inertia or routine; (III) a sense of place attachment; and (IV) repeat visitation will avoid a potential bad experience in a new destination. Otherwise, first-time visitors can visit a destination because it has been recommended by repeat visitors (Pritchard, 2003).

6   In this context, the main goal of this paper is to analyse the influence exercised by Camp de Tarragona's HSR station on tourists' destination choices amongst HSR users, taking into account whether it was their first visit to Costa Daurada or not; we call these two groups first-time tourists and repeat tourists. A second objective is to analyse the differences in socio-demographic profiles of the two segments.

7   The rest of the article is organised in the following manner. The second section presents the area of study; the third section is devoted to describing the data and the methodology; the fourth section presents the results and the discussion; and the final section offers the main conclusions.

Area of study

8   Costa Daurada, in Tarragona Province, is one of the most important tourist destinations in Catalonia, enjoying a mild climate and beaches with fine sand and clear water. Salou is the primary and best-known destination within this area and is located 100 km south of Barcelona. Salou, along with Cambrils and Vila-seca, form the so-called Central Costa Daurada, with more than 90,000 permanent residents in 2014. This area is included in the urban area of Tarragona, where the cities of Tarragona and Reus have the largest populations (132,000 and 105,000 inhabitants in 2014, respectively). There is no doubt about the importance of tourism in this area, with 22.4 km of coastline (including 14.1 km of beaches) and tourism supported by hotels, campsites, and 120,000 registered tourist apartments. The Port Aventura theme park, established in the area in 1995, is currently among the largest theme parks in Europe, having reached a peak of four million visitors in 2007 (Anton Clavé, 2010). In 2014, 3.5 million people visited the park (Rubin, 2015).

9   Costa Daurada hosted more than four million tourists in 2014. According to the surveys of tourists conducted by the Costa Daurada Tourism Studies Foundation, 57% were from Spain and 43% were foreigners. Most of them (59%) arrived in Costa Daurada by means of private automobile, while 26% arrived by plane, 7% by bus, 5% by train (including HSR), and 3% by other modes of transportation. Taking into account the type of accommodation selected, 41% of these tourists stay in hotels, 18% in rented apartments, 33% in second homes, and 8% in campsites.

10   Many regions of Spain, as well as the French border, are extremely well connected to Costa Daurada by the AP-7 motorway. Furthermore, the AP-2 motorway connects Costa Daurada with the interior Northwest regions and with Madrid (Figure 1). These two motorways are highly significant as means of arrival for international and domestic tourists, some of whom, due to the distance, arrive in Catalonia by plane, using the Barcelona or Reus airports. Since 2007, tourists have had the option of arriving via the Camp de Tarragona HSR station, which is an intermediate node of the HSR line Madrid-Barcelona-French border.

Figure 1. Area of study.

11   The Camp de Tarragona is a peripheral HSR station located approximately 20 km from many of the important destinations on the coast, as well as 14 km from Tarragona and 17 km from Reus. The main HSR services in the station are the AVE trains connecting with Barcelona and the French border (northbound), Zaragoza and Madrid. In addition to these long-distance trains, the station is also connected with the rest of the Catalan HSR stations (Lleida, Barcelona, Girona and Figueres) through medium-distance HSR trains (AVANT). Moreover, direct AVE trains connecting the Catalonia and Andalusia stations (bypassing Madrid station) provide services to this station. In addition to all these HSR trains, ALVIA trains (which combine HSR and conventional services) connect Camp de Tarragona with stations on the North-west side of the Ebro Corridor (Logroño, Pamplona and Bilbao, among others).

Table 1. Main railway services at Camp de Tarragona station (number of daily trains)

	Distance (km)	Travel time (hours:min)	AVE trains	AVANT trains	ALVIA/Intercity trains[1]
Barcelona	100	00:40	15	7	8

Zaragoza	240	01:10	16		5
Madrid	550	02:30	11		
Córdoba-Sevilla-Málaga[2]	870 - 1020 - 1025	04:10 - 04:50 - 05:15	5 (9) - 3 (6) - 2 (4)		
Logroño-Pamplona-Bilbao	410 - 415 - 535	03:15 - 03:15 - 06:00			3 - 5 - 3

12

SOURCE: AUTHOR'S OWN ELABORATION BASED ON RENFE WEB PAGE TIMETABLES (LAST ACCESS: 04/05/2016)

13 The Camp de Tarragona HSR station is connected by bus to Tarragona City, Reus, Valls, Cambrils, Salou, and La Pineda. In addition, the HSR station is linked by taxi service with the aforementioned towns as well as others. Regarding the last three tourist destinations, the frequency of bus service is concentrated in the summer season. Nevertheless, there is limited connectivity with the regional public-transport network, therefore affecting its accessibility (Gutiérrez, 2010) in a similar way to other peripheral stations (Facchinetti-Mannone, 2005; Ribalaygua, 2006; Bellet and Gutiérrez, 2011). The decentralized and sprawling distribution of population and activities in this region also increases the difficulty of integrating the station within a polycentric territorial structure.

14 Nevertheless, despite the station's poor accessibility, it has become the eighth-most frequented in Spain's HSR network, and it is clearly the first peripheral station in terms of passengers (more than 730,000 in 2013). Although only 3% of visitors to this area arrive via HSR services, according to previously mentioned surveys, this volume has been increasing during recent years (in 2010, it was less than 1.5%). Otherwise, the distribution of this volume of passengers by trimesters shows a relevant specificity for the station: its highest number of passengers is achieved in summer. This is the opposite of what is happening in the whole of the Spanish HSR network, which suffers a decrease in passengers during the summer. This data is explained, as mentioned, by the relative proximity of the station to the Central Costa Daurada area and the role that it plays among tourists arriving to the area using HSR services.

Data and methodology

15 A survey of 1,225 passengers was conducted in 2014 between 13 July and 24 August at Camp de Tarragona HSR station. Taking into account the total number of passengers using the station during the same period in 2013, according to data supplied by RENFE (the Spanish rail company), the survey had a 95.5% confidence level with a margin of error of 5%. The data used for the analysis presented here corresponds to the 574 Spanish tourists in the whole sample who were returning home after having completed their holidays in the main locations of Costa Daurada. We have eliminated responses from passengers whose reason for travelling was any of the following: not on holidays; they were just arriving at the station; they were not from Spain; they did not spend the holidays in Costa Daurada; they did not answer the causal questions; and/or they did not

answer the question about whether this was their first visit to the destination. The survey included a wide range of socio-demographic questions. Tourists were asked to provide information including their age, gender, Spanish region of residence, the number of days before departure they decided on the trip, whether they arranged their own booking or used a travel agency, size of group, group structure, destination in Costa Daurada, type of accommodation, first-time visit to the destination or not, length of stay, and educational level.

16   The survey included two scale questions on which the methodology proposed for this paper is based (Young *et al.*, 2005). These two questions allow an assessment of the influence exerted by Camp de Tarragona HSR station on decisions by first-time and repeat tourists, all them HSR users, to visit Costa Daurada.

17   The existence of an HSR station near a tourist destination may be a reason for visiting that destination. Nevertheless, a cause (the existence of an HSR station) is not necessary for the decision to visit a destination since there are alternative modes of transportation available. At the same time, the existence of the HSR station is not sufficient for a visit because many potential visitors will choose not to make the visit despite its existence. The decision to visit a particular destination is the result of an aggregation of fractional effects of several causes. The existence of an HSR station adds an additional logical string of events that can lead to visiting a destination, but as stated above, it does not guarantee that the visit will happen. Therefore, there must be some other event or events that also occur if the visit is to happen. Furthermore, the visit to the destination could happen regardless of the existence of the HSR station. The visit will take place if there is a completed path from the origin of events to the outcome. This concept of cause is in contrast to an "injection" model, in which a specific cause is sufficient (and perhaps even necessary) for the outcome.

18   These two types of uncertainty lead to two causal probabilities. The first is the probability of causality, or the probability that the visit (V) will take place given the cause (the existence of an HSR station or S). The second is the probability of causation, which is the probability that, but for S, V would not occur. Thus, the existence of an HSR station increases the probability of the visit being made to the destination because it adds another way for the visit to actually happen. Henceforth, Δp (equation 1) is the increase in probability of a visit to the destination, i.e., the increase in probability of the visit given the existence of an HSR station minus what the probability of a visit would have been if the HSR station did not exist.

19    $\Delta p \equiv P(V|S) - P(V|{\sim}S)$ (equation 1)

20   The two aforementioned questions used for the application of the methodology are as follows:

21   Q1. *On a scale from 0 to 10, how true is it to say that you came to the destination in Costa Daurada because of the existence of the Camp de Tarragona HSR station?*

22   Q2. *On a scale from 0 to 10, how true is it to say that you would have come to the destination in Costa Daurada even if there was no Camp de Tarragona HSR station?*

23   The first of these questions is designed to elicit the probability of the visit being made given the existence of the HSR station or the probability in causality (k_i in equation 2). The second elicits the probability that without the HSR station, the visitor would have come to the destination anyway or the background probability of the visit being made (1

$-c_i$). Then, c_i (equation 2) is the probability that without the existence of the HSR station, there would not have been any visit (probability in causation).

24    $\Delta p_i = k_i * c_i$ (equation 2)

25   These two questions solicit from the passengers the quantification of the influence level exerted by the Camp de Tarragona HSR station on the choice of destination. In Q1, 0 means no influence, and 10 means that the visit was absolutely due to the existence of the HSR station (analogous in Q2). Thus, HSR passengers can associate the influence level (lower or higher) with a value from 0 to 10. There is a wide range of combinations of answers to these two questions, although it is expected that those indicating a number close to 0 for Q1 will also answer with a number close to 10 for Q2 and vice versa. If one interviewee responds with 1 to Q1 (the influence of the HSR station in the choice of destination is very low) and 9 to Q2 (it is very likely that the visit would have taken place without the existence of the HSR station), the increase in the probability of the visit to the destination due to the existence of the HSR station is 1%. In this example, k_i^3 is 0.1; 1 $-c_i$ is 0.9, and therefore, c_i is 0.1 (1-0.9). Hence, Δp_i is 0.01.

26   The extremes of the range of responses are: a) visitors stating that the existence of the HSR station had no influence at all and that they definitely would have visited the destination anyway (k and c values equal to 0); and b) visitors stating that they would not have chosen the destination if the HSR station did not exist; thus, they resolved to book their visit due to the HSR station's existence (k and c values equal to 1). In the first group, the HSR station does nothing at all to make the visit more likely, while in the second group, its existence raises the probability of this visit from 0 to 1.

27   In summary, Δp_i (equation 2) is the fraction of the individual visit that can be ascribed to the existence of the HSR station. This allows for a measurement of the contributions of all passengers (Δp in equation 3) rather than making a binary classification of visitors. The effect of the HSR station on any group of visitors would be missed if the fractional contributions had not been investigated.

28    $\Delta p = \Sigma_{i=1}^{N} (k_i * c_i) / N$ (equation 3)

29   Therefore, the main objective of this study is to determine whether or not there are differences in the increase in probability created by the availability of the Camp de Tarragona HSR station among tourists who stated it was, or was not, the first time they chose Costa Daurada as a destination. We call them, respectively, first-time tourists and repeat tourists. Previously, the differences in the profiles for each of these two groups have also been analysed. A Z-test has been applied to evaluate whether or not the differences between the two segments (first-time and repeat tourists) are statistically significant at the 5% level. We have compared the proportion or the mean obtained for both first-time tourists and repeat tourists in each one of the variables analysed.

Results

30   Next, we present the results in order to determine the increase in probability that Costa Daurada was chosen as a tourist destination by HSR passengers because of the existence of the Camp de Tarragona HSR. Previously, profile differences between the two segments of HSR users (first-time and repeat tourists) will be shown.

How different are the two types of tourists?

31   The results show that only 65 passengers (11.3%) reported that it was the first time they had visited Costa Daurada. Meanwhile, 509 (almost 90% of the whole sample) stated that they had visited the destination at least once previously. The number of new tourists who arrived at their destination by means of the Camp de Tarragona HSR station is low. However, another 179 tourists who said that this was not their first visit to the destination also indicated that it was the first time they had used the Camp de Tarragona HSR station. Hence, more than one-third of them changed the way they arrived at their destination. On one hand, we cannot state that the Camp de Tarragona HSR station is attracting a determinate number of new tourists because they might have chosen Costa Daurada as a destination regardless of the existence of the HSR station. On the other hand, despite most of them having visited the destination previously, it could be possible that one of the reasons for their repeat visit is the existence of the Camp de Tarragona HSR station. Therefore, we want to know the role played by the HSR station in the destination choice in each one of the two aforementioned segments.

32   Table 2 shows the passengers' distribution taking into account gender, age, the number of days before departure they decided on the trip, length of stay, method of booking the trip, and educational level. This information refers to the two segments analysed in this study, i.e., first-time tourists and repeat tourists.

33   There are no statistically significant differences in regard to gender. The data reveal that there are more women in both segments: 53.8% of first-time passengers were women who stated that they were visiting the destination for the first time, and 58.1% of repeat passengers were women who said that they had visited it previously. The average age of first-time tourists was 39 years old, and for repeat tourists, it is 42. This second group is slightly older than the first, but there is only a three-year gap, and the difference is not statistically significant. Taking into account the age thresholds defined, the distribution is very close in both segments, especially between people younger than 40 years old. The highest value (41.5%) in the case of first-time tourists is obtained in the 41–60-year-old threshold, while it is in the 26–40-year-old threshold in the case of repeat tourists (38.1%). The difference is statistically significant only in the case of people older than 60. This threshold accounts for 3.1% of first-time tourists, and it rises to 12.6% for repeat tourists. Senior tourists prefer choosing a place they already know as a holiday destination.

Table 2. Sample distribution according to socio-demographic variables (I).

Gender	First-time tourists	Repeat tourists
Female	53.8%	58.1%
Male	46.2%	41.9%
Age	First-time tourists	Repeat tourists
Mean	39 years old	42 years old
18–25 years old	15.4%	15.4%

26–40 years old	40.0%	38.1%
41–60 years old	41.5%	33.9%
> 60 years old*	03.1%	12.6%
Trip decided before departure	First-time tourists	Repeat tourists
Mean*	55 days	77 days
Length of stay	First-time tourists	Repeat tourists
Mean	7 nights	8 nights
≤ 7 nights*	83.1%	69.0%
> 7 nights*	16.9%	31.0%
Booking	First-time tourists	Repeat tourists
Travel agency*	29.2%	10.3%
Own booking*	70.8%	89.7%
Educational level	First-time tourists	Repeat tourists
No studies	03.2%	01.0%
Primary studies	14.6%	13.0%
Secondary studies	27.4%	18.1%
University studies	54.8%	67.9%

Statistically significant differences between first-time tourists and repeat tourists at the 5% level are indicated with an asterisk.

Source: Author's own elaboration

34   By contrast, the difference is statistically significant when taking into account how long in advance the trip had been decided on and planned. Repeat tourists replied 77 days on average, and this number decreases to 55 days with first-time tourists. Therefore, a tourist who repeats a visit to a destination decides on the trip an average of three weeks earlier than a tourist who visits a destination for the first time. In our case, almost 90% of HSR passengers are repeat tourists, and the choice of destination was made 2.5 months before departure. This is very valuable information for the hospitality industry, especially for accommodations if visitors are staying in hotels, campsites, or rented lodgings. Another characteristic that differentiates repeat tourists from first-time tourists is the length of stay. Although there is only a one-night difference (seven and eight nights on average, respectively), a greater proportion of repeat tourists stay more than seven nights (31%) as opposed to first-time tourists (16.9%). Length of stay is one of the key variables to consider in regard to tourists' destinations. A decline in tourists' lengths of stay has been detected in the academic literature (Alegre and Pou, 2006; Salmasi *et al.,*

2012). There is a relationship between the age of tourists and their lengths of stay (Martínez-García and Raya, 2008), and, in our case, repeat tourists are slightly older than first-time tourists. Nevertheless, tourists staying fewer than eight nights predominate in both segments. Similarly, most of the respondents in both segments, 89.8% of repeat tourists and 70.8% of first-time tourists, reported that they did their own booking. The differences are statistically significant.

35   The distribution of tourists according to educational level shows that the predominant response for both segments is university studies, followed by those with secondary studies. More than two-thirds of repeat tourists indicated that they completed their university studies, while this was true for just over half, or 54.8%, of first-time tourists. On average, the presence of HSR passengers with secondary studies is higher in the case of first-time tourists. Nevertheless, the differences are not statistically significant.

36   Table 3 shows HSR passenger distribution taking into account the size of the group, group structure, destination, type of accommodation, and region of residence in Spain. One person travelling alone is the most frequent group in both segments. Nevertheless, the value reaches 52.7% of repeat tourists and is 29.2% of first-time tourists. The distribution declines as the size of the group increases among repeat tourists; two people travelling together is the second (23%), while only 5.5% consist of groups with more than four people. That pattern is not as clear in the case of first-time tourists. The second-most important group is three travellers (24.6%), and groups with more than four people reached 10.8%. The differences between first-time tourists and repeat tourists are all statistically significant except when the size of a group is two travellers.

37   Regarding group structure, the largest is a person travelling alone in the case of repeat tourists, followed by adult relatives and families with children (19.8% and 18.1%, respectively). Only 9.4% are adult friends. By contrast, the largest group structure among first-time tourists is a family with children (36.9%), followed by a person travelling alone (29.2%). The values for adult relatives are very close in both segments. The differences are statistically significant in two of the four typologies of group structure: (i) one person travelling alone and (ii) a family with children. A family trip predominates in the case of tourists who discover Costa Daurada for the first time and one person travelling alone predominates among those having visited the destination several times.

38   The analysis of the destinations of these travellers shows that the highest percentage of first-time tourists corresponds to Salou (38.5%), which is the main and best-known destination in Costa Daurada. Only 10.8% stayed in Tarragona City. It must be highlighted that 30% indicated they were located in the "rest of Tarragona Province." This category includes coastal locations such as Torredembarra, Altafulla, El Vendrell, and Calafell as well as inland locations such as Reus, the second-most populated town in the province, or other small villages. By contrast, although Salou received 23.8% of repeat tourists, the most frequently chosen destination was the "rest of Tarragona Province" (35%). Tarragona City received 15.2%. The values are very close in the case of Cambrils: 16.9% of first-time tourists and 18.9% of repeat tourists. Salou, together with Cambrils and La Pineda (Central Costa Daurada), account for almost 60% of first-time tourists. The value declines to 49.8% in repeat tourists. The results reveal a higher concentration in the case of first-time tourists; they visited the destination for the first time and chose the best-known places, especially Salou. By contrast, tourists who stated that this was not their first visit to the destination are more scattered throughout the territory. However, the differences are statistically significant only in the cases of Salou and La Pineda.

Table 3. Sample distribution according to socio-demographic variables (II).

Size of group	First-time tourists	Repeat tourists
One*	29.2%	52.7%
Two	21.6%	22.9%
Three*	24.6%	11.0%
Four*	13.8%	07.9%
More than four*	10.8%	05.5%
Group structure	First-time tourists	Repeat tourists
Alone*	29.2%	52.7%
Family with children*	36.9%	18.1%
Adult relatives	20.0%	19.8%
Adult friends	13.9%	09.4%
Destination	First-time tourists	Repeat tourists
Salou*	38.5%	23.8%
Cambrils	16.8%	18.9%
La Pineda*	03.1%	07.1%
Tarragona City	10.8%	15.2%
The rest of Tarragona Province	30.8%	35.0%
Type of accommodation	First-time tourists	Repeat tourists
Hotel*	58.5%	20.9%
Campsite	04.6%	03.4%
Friends or relatives' lodgings*	27.7%	42.4%
Own lodging*	01.5%	21.8%
Rented lodging	07.7%	08.7%
Other	00.0%	02.8%
Region of residence	First-time tourists	Repeat tourists
Madrid*	47.7%	36.1%

Ebro river corridor*[4]	20.0%	40.9%
Catalonia[5]	03.1%	10.2%
Andalusia*	20.0%	05.1%
Rest of Spain	09.2%	07.7%

Statistically significant differences between first-time tourists and repeat tourists at the 5% level are indicated with an asterisk.

Source: Author's own elaboration

39   Friends or relatives' lodgings were the most important type of accommodation for repeat tourists (42.4%), followed by personally owned residences and hotels (21.8% and 20.9%, respectively). The rest of the options represent less than 10% each. By contrast, more than half of first-time tourists were accommodated in hotels, followed by friends or relatives' lodgings (27.7%). No other option achieves 10%, and only 1.5% of first-time tourists stayed in personally owned residences. The differences in the three aforementioned types of accommodation are statistically significant. The results show, as expected, that it is easier to become a repeat tourist if people personally own a residence at the destination but especially if they can be accommodated by a friend or a relative. It is not usual for tourists to personally own a residence in their first-time visit to the destination, and although 27.7% of them were accommodated by friends or relatives, this value is 15 points lower than in repeat tourists. Thus, 58.5% of first-time tourists chose to stay in a hotel. There are very small differences in regard to campsites or rented lodgings. Although discussions exist about the specific nature of tourism regarded in the "visiting friends and relatives" (VFR) category (Dobruszkes *et al.,* 2015), VFR is well established among tourism scholars as a substantial reason for travel (Jackson, 1990; Backer, 2010) and has strong links to other types of accommodations (Dwyer *et al.,* 2014). Otherwise, VFR as a motivation does not have the same significance as VFR as a type of accommodation, which is the case in our study.

40   A final interesting result is obtained when the origin of the tourists is analysed. On one hand, tourists from the Ebro River Corridor are the largest group in the case of repeat tourists, and Madrid is the second-most important origin. On the other hand, Madrid is the Spain's region contributing more tourists in their first visit to a destination, almost half of them. Tourists arriving from the Ebro River Corridor account for only 20%, and it is half of that in the case of repeat tourists. In this case, the distance between the region of origin and the destination is likely to be a key factor. The numbers of tourists from the Ebro River Corridor as well as from the rest of Catalonia are higher in the case of repeat tourists than first-time tourists (51.1% and 23.1%, respectively). Meanwhile, there is a greater presence of tourists from Madrid and Andalusia among first-time tourists (67.7%) than among repeat tourists (41.2%).

41   In this circumstance the differences between first-time and repeat tourists shown in Table 2 and Table 3 make sense. There is a greater presence of passengers travelling alone in the case of repeat tourists because most of them are lodged in private homes (their own or those of relatives or friends). They arrive at the destination where their friends or relatives are waiting for them (or where they are waiting for their relatives). Conversely, families with children represent the most frequent group structure among first-time

tourists, and more than half of them chose a hotel for accommodation in the two best-known towns in the destination area (Salou and Cambrils). This also explains why arranging one's own booking is more frequent among repeat tourists, as well as the differences in lengths of stay. In addition to age, length of stay is also linked to group size (Alegre and Pou, 2006), cost/type of accommodation (Salmasi, 2012), or tourist origin in terms of distance to the destination (Thrane, 2012).

42   We can state that tourists on their first-time visit to Costa Daurada arriving by means of the Camp de Tarragona HSR station are mainly from Madrid and are lodged in a hotel (32.3%) or in a hotel in Salou (29.2%). By contrast, repeat tourists mainly travelling alone and staying with friends or relatives represent 27.3%, or if they travel alone and choose to stay in the "rest of Tarragona Province", they represent 23.0%.
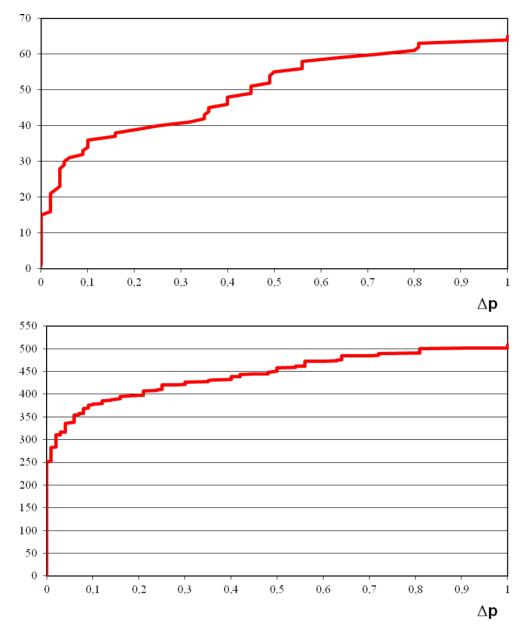
High-speed rail services and destination choice

43   Almost 35% of the repeat tourists said that it was not true to say that they came to the destination in Costa Daurada because of the existence of the Camp de Tarragona HSR station, insofar as they answered 0 to Q1 (Table 4). Conversely, only 5.7% of that segment indicated that it was absolutely true (Q1 = 10). Conversely, 44.4% answered 10 to Q2, so it was absolutely true to say that they would have come to the destination in Costa Daurada even if the Camp de Tarragona HSR station did not exist, and only 2.8% responded to the contrary (Q2 = 0). The results vary if the first-time tourist segment is analysed. Only 13.8% answered 0 to Q1, but 9.2% responded 10 to Q2. Meanwhile, 20% said that it was absolutely true to say that they would have come to the destination in Costa Daurada even if the Camp de Tarragona HSR station did not exist in answer to Q2 (10), and 3.1% answered 0.

44   Taking into account the combined answers to question 1 and question 2, only 3.1% of HSR users on holidays in Costa Daurada who said it was their first visit to the destination (new tourists) can be considered "tourists linked to an HSR station" because they answered 10 to Q1 and 0 to Q2. It was absolutely true to say that they came to the destination in Costa Daurada because of the existence of the Camp de Tarragona HSR station and that they would not have come to the destination if there was no HSR station. Nevertheless, the value declines to 1.6% in the case of tourists who said it was not their first visit (repeat tourists). Conversely, 30.8% of this last segment can be considered "loyal destination tourists" (Q1 = 0; Q2 = 10). It was not true to say that they came to the destination in Costa Daurada because of the existence of the Camp de Tarragona HSR station and that they would have chosen the destination regardless of the existence of the HSR station. This category is achieved by only 10.8% of the first-time tourists, and the difference is statistically significant.
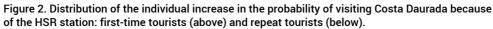
Table 4. Distribution of extreme answers to the causal questions

	Q1		Q2	
	0*	10	0	10*
First-time tourists	13.8%	9.2%	3.1%	20.0%
Repeat tourists	34.8%	5.7%	2.8%	44.4%

Statistically significant differences at the 5% level are indicated with an asterisk.
Source: Author's own elaboration

45   The increase in the probability of visiting the destination because of the existence of the Camp de Tarragona HSR station in each one of the interviewed tourists is shown in Figure 2 for both first-time tourists (above) and repeat tourists (below). In the first group, the increase in probability is zero for 15 passengers (23.1%). This value includes those answering 0 to Q1 and 10 to Q2, as well as those answering 0 to Q1 and different from 10 to Q2 and those answering 10 to Q2 and different from 0 to Q1. In the second group, the value rises to 49.3% (251 respondents). Conversely, 50 first-time tourists and 258 repeat tourists using HSR services were influenced by the existence of the Camp de Tarragona HSR station. In these two cases, the increase in the probability of the visit varies from 0.01 (1%) to 1 (100%). Nevertheless, a detailed analysis of Figure 2 shows that the increase in probability is lower than 10% in almost half of the 258 repeat tourists and in more than one-third of 50 first-time tourists. By contrast, the increase in the probability is over 80% in only 19 repeat tourists and 4 first-time tourists.

46   The results are summarized in Table 5. The influence of the Camp de Tarragona HSR station (k-value) in destination choice among HSR users amounts the 31.5% in the case of repeat tourists and increases to almost 50% in the case of first-time tourists. As expected, the availability of the Camp de Tarragona HSR station exerts a stronger influence when tourists visit the destination for the first time as opposed to those making a repeat visit. In the first group, the HSR station plays a remarkable role in the choice of destination, mainly in Salou with lodgings in a hotel. It must be highlighted again that two-thirds of the first-time tourists are from distant regions such as Madrid and especially Andalusia.

Figure 2. Distribution of the individual increase in the probability of visiting Costa Daurada because of the HSR station: first-time tourists (above) and repeat tourists (below).

Source: Author's own elaboration

47   By contrast, the background probability $(1-c)$ of the second group shows a high probability (78.9%) that they would have chosen the tourist destination regardless of the presence of the HSR station. Although the probability that first-time tourists would have come to the tourist destination regardless of the HSR station is noteworthy (64.3%), it is more than 14 points below the other segment. Almost two-thirds of repeat tourists stayed with friends, relatives, or in their owned residences. We can state that the possibility of staying in these kinds of lodging makes it easier to visit the destination again. The means used to arrive in Costa Daurada is not very important because the Camp de Tarragona HSR station is only one of the available options; nevertheless, it is the option chosen. Tourists from the Ebro River Corridor (which includes Aragon, the nearest region to Catalonia), together with all the other provinces of Catalonia (except Tarragona),

represent half of the repeat tourists visiting Costa Daurada and less than a quarter of the first-time tourists.

48 Finally, the increase in probability (Δp) of a visit to Costa Daurada and to the rest of Tarragona Province created by the presence of the Camp de Tarragona HSR station is 23.9% in the case of first-time tourists and 12.9% for repeat tourists (calculated from the fractional responses of HSR users). This means that only of every eight repeat tourists and only one of every four first-time tourists travelling by means of HSR services visited the destination because of the availability of this transport infrastructure. Therefore, 23.9% and 12.9% of the tourist expenditure of HSR users in the destination can be attributed to the availability of the Camp de Tarragona HSR station. The magnitude of the influence is much larger in the case of first-time tourists, and the differences are statistically significant. The Camp de Tarragona HSR plays a more important role in the decision to visit the destination in the case of first-time tourists than in the case of repeat tourists. Nevertheless, it must once again be noted that first-time tourists account for only 11.3% of the total.

Table 5. Causal effect of the Camp de Tarragona HSR station.

	First-time tourists	Repeat tourists
k^*	0.475	0.315
$1-c^*$	0.643	0.789
Δp^*	0.239	0.129

Statistically significant differences between first-time tourists and repeat tourists at the 5% level are indicated with an asterisk.

Source: Author's own elaboration

Conclusions

49 This paper analyses the effect of the existence of an HSR station on the destination decisions of tourists using HSR services, taking into account whether the tourists are visiting the destination for the first time or are repeat visitors. We designate them as first-time tourists and repeat tourists. The probabilistic methodology applied (Young *et al.*, 2005) is a useful way to assess the influence using the individual fractional contribution of each of the HSR passengers rather than using them in a binary classification.

50 The results obtained show that HSR users visiting the Costa Daurada as tourists cannot be considered homogeneous in regard to the influence on their destination choice exercised by the Camp de Tarragona HSR station. Significant differences between both analysed segments are found by means of the two scale questions. The decision to travel to Costa Daurada among HSR users is influenced more by the availability of the Camp de Tarragona HSR station in the case of first-time tourists than in repeat tourists (47.5% and 31.5%, respectively). Conversely, repeat tourists show a higher background probability that they would have come to the chosen destination even if the HSR station were not available in comparison to first-time tourists (78.9% and 64.3%, respectively). The

increase in probability created by the Camp de Tarragona HSR station is almost twice as high in first-time tourists as in repeat tourists using trains. We can affirm that 12.9% of first-time tourists and 23.9% of repeat tourists arriving at Costa Daurada by means of the Camp de Tarragona HSR station chose this destination because of the availability of this station. Almost one-quarter of expenditures in the destination by first-time tourists and 12.9% by repeat tourists can be attributed to the availability of the Camp de Tarragona HSR station.

51   This study opens the door to further research on this subject and could provide key information for the promotion strategies for HSR services among their most likely users and to promote the destination in the areas linked to the Costa Daurada destination. At the same time, similar surveys could be replicated in regard to other HSR stations located near coastal or urban destinations in order to explore patterns and develop interpretation models according to the nature, scope, evolution, and characteristics of the HSR services in each specific location.

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NOTES

1. ALVIA trains allow long-distance trips using HSR and conventional railway tracks. These trains have the ability to use both Iberian and international gauge.
2. The numbers of AVE trains noted in brackets include non-direct services. That is, the connection services available between Barcelona-Madrid and Madrid-Sevilla trains.
3. Here the values of k_i, $1-c_i$ and c_i vary from 0 to 1.
4. This category includes Aragon, La Rioja, the Basque Country, and Navarra.
5. Except Tarragona Province

ABSTRACTS

This paper explores the effects of high-speed rail (HSR) services on the destination choice of first-time tourists and repeat tourists arriving in the Costa Daurada, a mature coastal destination in Catalonia, using HSR services. The analysis is based on a probabilistic method and uses data from a survey of HSR passengers at the Camp de Tarragona HSR station during the summer of 2014. It concludes that the increase in probability of visiting this particular destination because of the existence of the HSR station among this specific group of visitors is quite larger in the case of first-time tourists (23.9%) than in repeat tourists (12.9%). At the same time, significant differences are found in the profiles of both segments of HSR passengers.

Cet article propose d'explorer les effets du train à grande vitesse (TGV) dans le choix de la Costa Daurada, en Catalogne, comme destination touristique. Nous distinguons les voyageurs qui ont visité pour la première fois la destination de ceux qui ont visité la destination autrefois. On a appliqué une méthode probabiliste de causalité pour calculer l'augmentation de la probabilité de fréquentation de cette destination touristique grâce à l'existence de la gare du TGV. Les résultats nous montrent que la probabilité est plus élevée pour les usagers du TGV qui ont visité pour la première fois la destination (23,9%-12,9%). On a relevé aussi des différences importantes dans les caractéristiques sociodémographiques des voyageurs ainsi que dans les caractéristiques du voyage et du séjour.

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