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The Determinants of Tourist Use of Public Transport at the Destination

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Abstract: Of all the activities associated with tourism, transport is the one that creates most pollution. However, the mobility of tourists at their destination is an activity that has so far received very little attention from researchers in comparison with that afforded to the transport mode used to travel from their point of origin to their destination. This paper provides new evidence about the use of public transport by tourists at their final destination. The study is based on data obtained from a survey conducted with tourists (N = 4336) on the Costa Daurada (Catalonia), a Mediterranean sun and beach resort. The empirical analysis is based on estimations made using a multinomial model of the transport mode chosen by tourists to travel to the Costa Daurada combined with another model that estimated the probability of them using public transport during their stay. The results show that the tourists who arrived by private car were the ones who least used public transport at the destination. This was despite the fact that these tourists had the profile that made them most likely to use this type of transportation. On the other hand, although the tourists who arrived by plane had the profile that made them least likely to use public transport, they were the ones who used it most. It is, therefore, possible to conclude that, in addition to tourist profile, another key factor in deciding whether tourists will use public transport at their destination is whether they will take their own car.

Keywords: public transport; sustainable mobility; tourist mobility; transport mode choice; coastal destination

1. Introduction

The mobility of visitors is a strategic question in tourist cities and regions [1–4]. Providing agile, comfortable and rapid mobility is a key factor in improving tourist satisfaction and increasing the competitiveness of the destination [5–8]. The accessibility and quality of the transport system also encourage tourists to visit more places in the immediate area and to enjoy more associated leisure activities [9]. For this reason, the cities with the best quality public transport (PT) systems tend also to become more attractive for tourists [10]. Furthermore, an efficient PT system makes it possible to better manage the increase in flows that occur during the peak tourist season (which is summer, in the case of coastal destinations). This makes it possible to mitigate the inconveniences caused to the resident population as a result of increased congestion and pressure on local transport infrastructure deriving from the increase in the number of visitors [11].

Transport services are indispensable for the development of the tourism sector. However, they are also the main source of emissions [12,13]. Strengthening and providing more sustainable patterns of mobility makes it possible to reduce the environmental impact of the increase in mobility generated by tourism [14,15]. A growing concern at tourist destinations is, therefore, how to foster more

sustainable forms of tourist mobility [16,17]. Within this framework, recent studies have highlighted the role of tourism mobility in the challenge of the global requirement for emissions reduction [18,19]. This calls for action to encourage the use of PT and also non-mechanised means of transport [20–22]. The promotion of active transport modes at the destinations (i.e., walking, cycling) is one of the key actions within this scope [23–27]. Moreover, the improvement of public transport services and information to newcomers in order to become more useful and accessible for visitors is also reported [28,29]. However, to achieve this general objective it is necessary to better understand the behaviour of tourists at their destinations, their mobility patterns, and their use of PT.

There is extensive literature on the relationship between tourism and PT, but it is particularly focused on transportation between the tourists' point of origin and their final destination. In the meantime, the mobility of tourists and their use of PT during the stay at their destination is a phenomenon that has received far less attention [4,28]. Furthermore, the studies available for urban areas pay more attention to major cities [8,11,30,31]. The relevance of the role of public transport at coastal destinations is also highlighted by Hall et al. [17]. With all of this in mind, it is necessary to carry out new lines of research that examine the mobility patterns of tourists at their destinations, and also their relationship with the use of PT, in greater detail. A better knowledge of both issues would help us to promote a greater use of PT by tourists and also encourage more sustainable patterns of mobility in tourist cities and regions.

The general aim of this paper is to contribute to this field by analysing the characteristics that most influence tourists' choice of PT for mobility at their destination. A more specific objective of the paper is to analyse the extent to which different variables explain tourists' use of PT during their stay. The study area consisted of the three municipalities that form the central Costa Daurada (Cambrils–Salou–La Pineda/Vila-seca), which is one of the main sun and beach destinations on Spain's Mediterranean coast. The study was based on data obtained from a tourist survey conducted in these three municipalities in the year 2014 (N = 4336). The survey allowed us to identify the socioeconomic profile of the tourists, the characteristics of their stays and mobility at the destination during their holidays, and also their use (or lack of use) of PT during this period. The model designed for the analysis of the data was based on the hypothesis that the transport mode used to reach the tourist destination was the main factor that conditioned their subsequent use of PT for mobility at the destination, because tourists who had arrived by private car would then be less likely to use PT. It was from here that the need to create a multinominal choice model for estimating the transport mode used to reach the destination was derived, and also the need for a model to determine the probability of using PT during the tourist's stay. This is an estimation strategy that had not previously been applied in studies of transport and mobility.

2. Data

2.1. Study Area

The Costa Daurada, which is 100 km south of Barcelona, is one of the most dynamic tourist destinations in Catalonia (receiving more than 4.5 million tourists in 2014). It has a mild climate and offers fine sand, clear water, and proximity to several UNESCO World Heritage sites and other places of historical and cultural interest. Salou is the best-known tourist destination in this area and, together with the adjacent municipalities of Cambrils and Vila-seca/La Pineda, forms the Central Costa Daurada. This area, which lies within 10 km of the cities of Tarragona (132,000 inhabitants) and Reus (104,000), has more than 90,000 permanent inhabitants (2014) and offers accommodation for more than 120,000 tourists, shared between hotel beds, campsites, and registered tourist apartments (Figure 1). The neighbouring Port Aventura theme park, which opened in 1995, is currently among the five largest theme parks in Europe and receives more than 3.5 million visitors per year [32,33].

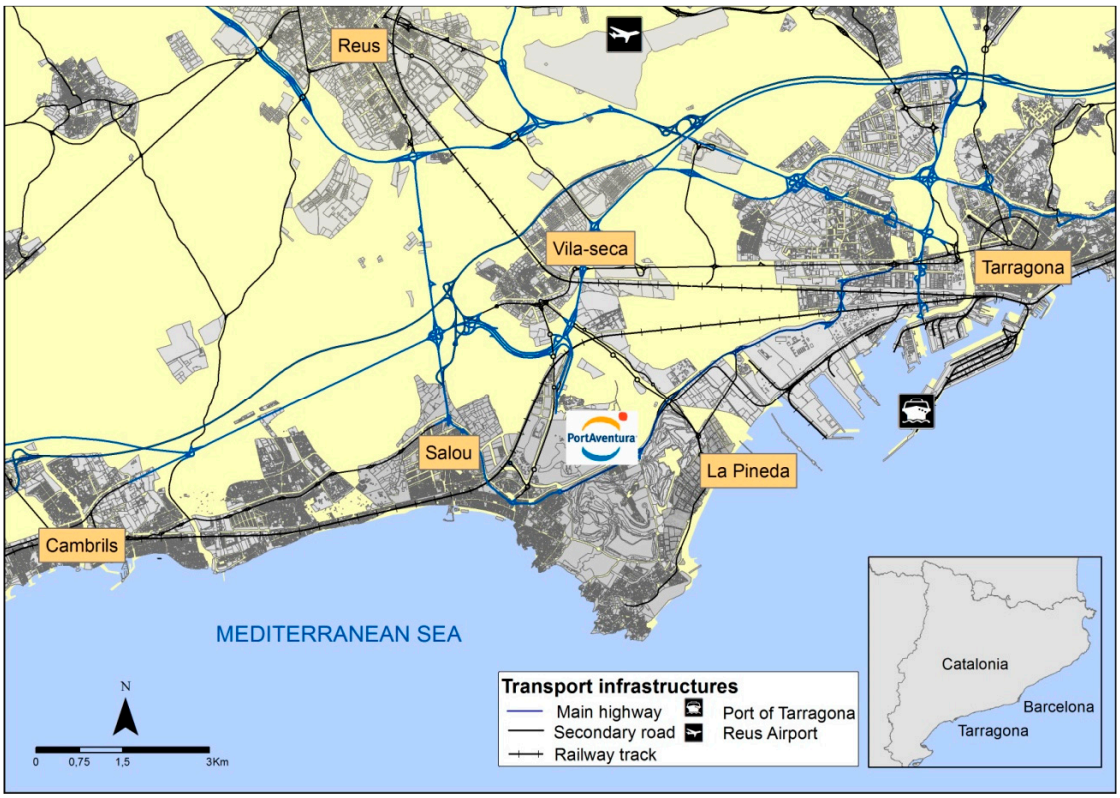

Figure 1. Study area.

This area is well connected via toll motorway: to the southwest, the AP7 motorway provides connections to Valencia and the rest of Spain's Mediterranean arc; to the northeast, it provides connections with Barcelona and the French border; while to the west, the AP2 motorway provides connections to Madrid, Zaragoza, and the River Ebro corridor. As far as air transport is concerned, the nearest infrastructure is Reus airport, located only around 10 km from both the city of Tarragona and the Central Costa Daurada. The Barcelona-El Prat airport (about 100 km away) is also an important point of arrival for tourists heading for the Costa Daurada. Cambrils, Salou, and Vila-seca also have conventional railway stations. Furthermore, the Camp de Tarragona high-speed train station came into service in December 2006. This is peripherally located station is about 15 km to the north of the city of Tarragona and around 20 km from the Central Costa Daurada.

The demand of public transport clearly reflects the impact of tourism activity, the territorial patterns of its related activities and its seasonality, within the study area. The municipalities of the study area are served for three interurban bus lines (in addition of one night bus service) that connect them to each other and to the main cities of the region: Tarragona and Reus. According to data from the Consortium of Public Transport of Camp de Tarragona for 2015, these three lines are placed within the five lines with the highest number of annual passengers of the whole region. Moreover, during the summer trimester, these three coastal lines concentrated the 69.8% of all the passengers of the interurban bus services of the region. This average falls to 33.5% during the first trimester of the year (winter). The amount of passengers of the coastal lines rises up to 1.97 million in summer (third trimester of 2015). This supposes achieving an increase of 441% in relation to winter passengers (0.36 million during the first trimester of 2015). Figure 2 summarizes these data.

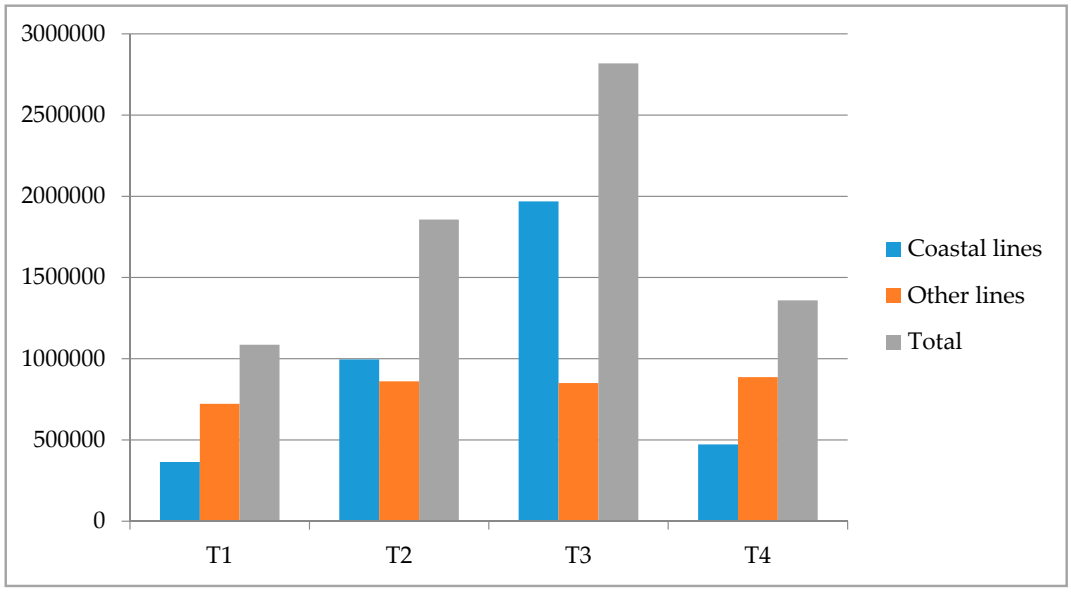

Figure 2. Number of passengers of the interurban bus services at the Camp de Tarragona region per trimester (2015).

2.2. Questionaire and Data Collection

The data for the study were obtained from a survey on tourist demand conducted by the Costa Daurada Tourism Observatory. This survey has been run each year since 2006. The sample used for the article (N = 4336) was based on the interviews conducted in 2014 at Cambrils, Salou, and La Pineda, the three main tourist destinations on the Costa Daurada. The people surveyed were adult tourists staying at hotels, hostels, boarding houses, campsites, and registered tourist apartments.

The interviews were conducted at different times of day over seven days a week during the main tourist season (from June to September) and over weekends and on public holidays during the rest of the year. The overall distribution of interviews conducted in the districts of each municipality were defined taking into account the number of tourists hosted in each area. Subsequently, different survey points were chosen in the three municipalities. All of these were key locations that attract the main tourist flows (e.g., beaches, coastal waterfronts and shopping/leisure areas). Finally, the selection of individual tourists to be surveyed at each location was randomly defined. The survey was carried out by professional staff and each individual interview took an average of about five minutes to complete.

The objective of the survey was to obtain the sociodemographic profile of the tourists visiting the Costa Daurada and the characteristics of their stays, in order to be able to characterise tourist demand. To do this, we first gathered information about the characteristics of the tourists' stays: type of accommodation and its location, duration of their stay, who was accompanying the person interviewed, whether they had visited the Costa Daurada before, and a rough estimate of how much they spent during their stay. We also collected information about trip characteristics: the transport mode used for the trip from the point of origin and how it was organised (by the tourists themselves or through a travel agency). The survey also collected information about other variables that referred to visitor characteristics and their socioeconomic profiles: sex, age, social class, and country of origin (or region of origin, in the case of Spaniards). Finally, tourists were asked about their activities and mobility patterns at their destination: places visited during their stay (in addition to the municipality in which they were staying) and the transport mode used for this mobility. It is relevant to underline that their use (or not) of PT was a dichotomous variable. It allowed distinguishing whether or not they used PT. No information was collected about the frequency with which it was used.

3. Descriptive Statistics

Table 1 presents descriptive statistics for the whole sample (1), as well as three additional sub-samples in function of the transport mode used by the tourists to reach their destination: (2) private car; (3) plane; and (4) public transport (coach or train). All variables are dichotomous, and thus, each sample observation can be only equal to 1 or 0. Thus, means must be interpreted as percentages of people surveyed who have given a specific answer. Most of the questions of the survey included more than one possible answer. In that case, the sum of the means of each answer must be equal to 1 for each category. For instance, if we take into consideration the municipality of destination, 24% of visitors stayed in Cambrils, 25% in la Pineda, and 51% in Salou, and the addition of these three items comprises the whole sample. Regarding the whole sample, firstly, it is relevant to highlight the fact that 77% of the tourists surveyed had made at least one journey outside the municipality in which they were staying. This underlined an important degree of tourist mobility once they had reached their destination. Within this context, up to 57% of the whole sample had used PT during their stay on the Costa Daurada. As far as tourist characteristics were concerned, the Spanish were the main nationality (38% of the total), followed by the French (16%). Moreover, 51% of the tourists had travelled accompanied by their family, and another 31% with their partner. The hotel was the main type of accommodation chosen (56%), although the use of second residences was also important (26%, adding together stays in the tourists' own second residences and those belonging to their friends or family). Over 50% of the tourists interviewed were staying in Salou and there were an important number of repeat-tourists (62%). The transport mode most used to travel from their point of origin to the Costa Daurada was private car (46%), followed by plane (44%) and, to a lesser degree, PT, in the form of coach or train (10%).

The lowest percentage of use of PT for moving around at the destination (40%) corresponded to the tourists that had arrived at the Costa Daurada by private car. In contrast, 66% of those who had arrived by coach or train, and 73% of those who had arrived by plane, used PT to get around during their stay at the destination. This largely suggested the hypothesis that the use of PT during the tourists' stays would be conditioned by the transport mode used to arrive at their destination. Even so, it was possible to deduce another element that should also be taken into consideration. The points of origin of the tourists varied substantially for each transport mode. Thus, 62% of the tourists who used their own car were from mainland Spain, while those arriving from Spain only represented 38% of the whole sample. On the other hand, the tourists who had travelled over 2000 km to visit the Costa Daurada amounted for only 2% of those who had arrived by private car. However, these long-distance tourists represented 82% of those who had travelled to the Costa Daurada by plane. This contrasts with the relatively modest weight of Spaniards within the total number of tourists arriving by plane (6%). Finally, 68% of the trips to the Costa Daurada made by train or coach began at points in mainland Spain.

Table 1. Descriptive statistics.

Variable	Description	(1) Mean N = 4336	(2) Mean N = 1997	(3) Mean N = 1919	(4) Mean N = 420
PT	Use of public transport during holidays	0.57	0.40	0.73	0.66
Transport-own	Transport mode to arrive: own vehicle	0.46	-	-	-
Transport-plane	Transport mode to arrive: plane	0.44	-	-	-
Transport-pt	Transport mode to arrive: public transport	0.10	-	-	-
Origin-Spain	Origin: mainland Spain (excluding Balearic Islands, Canary Islands and Ceuta)	0.38	0.62	0.06	0.68
Origin-France	Origin: France, Andorra and Monaco (excluding Corsica)	0.16	0.29	0.03	0.09
Origin-2000 km	Origin: countries located less than 2000 km from the destination (excluding France and Spain)	0.09	0.07	0.10	0.12

Table 1. *Cont.*

Variable	Description	(1) Mean N = 4336	(2) Mean N = 1997	(3) Mean N = 1919	(4) Mean N = 420
Origin-further	Origin: countries over 2000 km from the destination and overseas territories	0.38	0.02	0.81	0.11
Class-high	Upper class	0.35	0.25	0.49	0.18
Class-mid	Middle class	0.36	0.39	0.33	0.32
Class-low	Low class	0.26	0.32	0.15	0.46
Class-unknown	Unknown social class	0.03	0.03	0.03	0.05
Accom-2home	Accommodation in second residence	0.20	0.37	0.04	0.14
Accom-other	Unknown accommodation	0.01	0.02	0.00	0.01
Accom-apart	Accommodation in rented apartment	0.12	0.16	0.10	0.08
Accom-camp	Accommodation at a camp site	0.04	0.07	0.01	0.01
Accom-family	Accommodation in residence of friends or relatives	0.06	0.08	0.04	0.08
Accom-hotel1	Accommodation in a 1, 2 or 3 star hotel	0.26	0.13	0.38	0.36
Accom-hotel2	Accommodation in a 4 or 5 star hotel	0.30	0.18	0.44	0.31
Age-24	Up to 24 years old	0.06	0.05	0.06	0.09
Age-44	From 25 to 44 years old	0.35	0.31	0.43	0.18
Age-64	From 45 to 64 years old	0.38	0.41	0.36	0.30
Age-older	65 years old and older	0.21	0.23	0.14	0.43
Expenses-low	Spending at the destination: low	0.27	0.33	0.20	0.33
Expenses-mid	Spending at the destination: medium	0.26	0.23	0.30	0.22
Expenses-high	Spending at the destination: high	0.26	0.17	0.39	0.17
Expenses-unknown	Spending at the destination: unknown	0.20	0.27	0.11	0.28
Place-Cambrils	Municipality of destination: Cambrils	0.24	0.35	0.14	0.16
Place-Pineda	Municipality of destination: La Pineda	0.25	0.26	0.24	0.22
Place-Salou	Municipality of destination: Salou	0.51	0.39	0.62	0.62
Duration-1week	Duration of stay, 1 week or less	0.47	0.59	0.35	0.48
Duration-2weeks	Duration of stay between 8 and 14 days	0.40	0.23	0.58	0.40
Duration-longer	Duration of stay of longer than 14 days	0.12	0.18	0.07	0.13
Who-friends	Accompanied by: friends	0.09	0.07	0.10	0.13
Who-firm	Accompanied by: business trip	0.01	0.00	0.01	0.02
Who-school	Accompanied by: study trip	0.00	0.00	0.00	0.02
Who-family	Accompanied by: family trip	0.13	0.18	0.09	0.13
Who-children	Accompanied by: family trip with children	0.38	0.36	0.44	0.13
Who-partner	Accompanied by: trip with partner	0.31	0.34	0.28	0.29
Who-senior	Accompanied by: IMSERSO trip	0.04	0.01	0.05	0.18
Who-alone	Accompanied by: travelling alone	0.05	0.04	0.04	0.10
Repeat	Not the first visit to the Costa Daurada	0.62	0.82	0.39	0.67
Sex-man	Male	0.49	0.50	0.48	0.44
No visiting	Not making any tourist trips during the stay	0.23	0.32	0.13	0.29
Org-other	Organisation of the trip: organised by others	0.49	0.21	0.76	0.63
Org-own	Organisation of the trip: organised by self	0.24	0.24	0.22	0.33
Org-unknown	Organisation of the trip: organised by unknown person/entity	0.27	0.55	0.02	0.04

(1) Whole sample N = 4336; (2) private car N = 1997; (3) plane N = 1919; and (4) public transport N = 420.

There were also other significant differences in the tourist profiles of the three subgroups. Those arriving by private car mainly stayed at second residences (37%), while those who arrived by plane and PT mostly stayed in hotels (82% and 67%, respectively) and showed a greater concentration in Salou (62% in both cases). The tourists who arrived using PT were mainly over 64 years old (43%), while those arriving by plane were the youngest (49% were under 45). Moreover, those who arrived by plane mainly defined themselves as upper class (49%) and had the highest level of spending at their holiday destination. In contrast, those who arrived by PT mainly defined themselves as low class (46%), and those arriving by private car tended to define themselves as middle class (39%). Members of these last two groups tended to spend less than those travelling by plane. Those arriving by plane stayed the longest (58% for more than a week), while those arriving by private car were the ones who made the shortest stays (59% for less than a week). These were also the tourists who showed the greatest loyalty to the destination (82% were repeat tourists).

Finally, this led us to consider the hypothesis of the existence of a direct relationship between the transport mode chosen to travel to the Costa Daurada and the tourists' point of origin. This relationship conditioned the strategy adopted to provide a consistent estimation procedure.

4. Methodology: Model Specification

Descriptive statistics suggested that the use (or non-use) of PT at the destination was strongly conditioned by the transport mode used to travel to the Costa Daurada. Secondly, the data have led us to consider that there was a direct relationship between the transport mode used to travel to the Costa Daurada and the points of origins of the tourists. Based on these assumptions, the transport mode ceased to be an exogenous variable, as its choice was subject to where the tourist travelled from. On short trips within continental Europe, it would be reasonable to expect that the private car would assume the greatest use and that this would gradually decrease with increasing distance. In the same way, for transcontinental travel, or trips from island territories, the plane would be expected to be the preferred option. Moreover, the hypothesis was that the use of PT (coach or train) to travel to the Costa Daurada should decrease as the distance travelled increased. However, it could be a preferred option to the use of private car for medium-distance journeys. Taking these considerations into account, the transport mode should be included in the model as an endogenous variable. As a result, the strategy to estimate the probability of visitors using PT during their stay on the Costa Daurada should be conditioned by this reasoning. Consequently, it was necessary to define a model to determine the probability of choosing each transport mode to travel to the destination. Thus, the following expressions included the hypothesis of the endogeneity. The choice of the transport mode used to reach the Costa Daurada could therefore be expressed as:

$$\Pr\left(m_i|z_i, l_i\right) = \frac{exp\left(z_i{}' \propto_j + \delta_j l_{ij}\right)}{1 + \sum_{k=1}^{J} exp\left(z_i{}' \propto_k + \delta_j l_{ik}\right)}$$

This equation expresses the likelihood of an individual i using a transport mode j in function of a series of observed variables z_i and a group of unobserved variables l_{ij}, and δ_j represents the loading factor associated with each transport mode.

On the other hand, the individual decision relating to the use of PT at the destination could be expressed as:

$$\Pr\left(t_{i,}|x_i, m_i, l_i\right) = \frac{exp\left(x_i'\beta + \sum_{j=1}^{J} \gamma_j m_{ij} + \sum_{j=1}^{J} \lambda_j l_{ij}\right)}{1 + exp\left(x_i'\beta + \sum_{j=1}^{J} \gamma_j m_{ij} + \sum_{j=1}^{J} \lambda_j l_{ij}\right)}$$

This equation estimates the likelihood of an individual i using PT during their stay on the Costa Daurada, in function of a series of control variables x_i, which include travel and tourist chacteristics, the transport mode used to reach the Costa Daurada m_i, and the unobserved heterogeneity l_{ij}, with their respective loading factors λ_j. Each λ_j captures the impact of the unobserved heterogeneity

associated with the use of each transport mode used to arrive at the destination on their probability of using PT there.

These expressions suggest the existence of a correlation between the unobserved heterogeneity of the two dependent variables. This would lead to us obtaining biased estimators if the estimation of the probability of the tourists using PT was carried out directly. In this sense, to estimate the model using instrumental variables is a valid strategy for linear ones. Faced with non-linear models, such as the one presented here, Wooldridge [34] points out that the methods that fitted values obtained in a first stage and then plugged in a second stage instead of the original variables are generally inconsistent with respect to the structural parameters. They are also inconsistent for other values of interest, such as partial and marginal effects. This highlights the need to consider other alternatives, such as the estimation of the multinomial model of transport mode choice joint with the model that estimates the probability of using public transport during the tourist's stay. This estimation strategy is based on the methodology established by Deb and Trivedi [35,36], which allows us to estimate the effect of an endogenously chosen multinomial treatment on an outcome variable, contemplating the existence of two sets of exogenous control variables.

Deb and Trivedi [35] note the absence of extensions of traditional count data models that would make it possible to appropriately estimate this type of model in the presence of endogeneity. As a result, they propose a specific methodology to combat the effects of an endogenous multinomial treatment on a non-negative integer-valued outcome. One of the main advantages of this methodology lies in the fact that the latent factors can be interpreted as proxies for the unobserved variables. These are introduced into the equation in the same way as the observed variables. As a result, their associated factor loadings can be interpreted as the coefficients of the unobserved variables. In the same work, the authors also highlight a second advantage of the proposed methodology: the latent factors allow the use of different distributions from those considered in their work—the multinomial logit and the negative binomial—while maintaining the same structure and principles.

Deb and Trivedi [36] start from the same methodology in order to present evidence of the existence of selection biases that affect the estimation of the impact of the type of medical insurance contracted with respect to the number of medical visits. The outcome variables used are non-negative count variables, or binary variables. As a result, the authors take the negative binomial-2 density as the density function, as well as the normal distribution, which leads to the Probit model. Even so, the authors admit that a Poisson density function, in the case of the non-negative count variables, and a logistic density function are logical alternative options to the ones that they use. However, the methodology proposed by Deb and Trivedi [35,36] does not constitute the only option with which to tackle this type of problem. Shane and Trivedi [37] compare the results obtained using the estimation of the combined model, following Deb and Trivedi [35,36], with those obtained from the GMM (generalized method of moments). As highlighted by the authors, the specification in this last case is much less stringent with regard to the functional form of the model. Even so, the GMM does not offer any coefficients associated with the latent factors. Once the results of both specifications have been obtained, the work states that the comparison is favourable for the joint model, accepting its formal assumptions.

The use of the econometric methodology proposed by Deb and Trivedi [35,36] has not only been applied to the field of medical insurance. It has also been applied in a wide variety of fields of study, and particularly in those related labour, health, and education economics. Using this econometric technique it has, thus, been possible to study other topics, including how women combine work and family duties [38], the impact of migration on socio-economic status of the families [39], the relationship between mothers' work pathways and health [40], the impact of different degrees of activity on the psychological wellbeing of midlife and older adults [41], admission processes in the intensive care units of hospitals [42], the relationship between social class and obesity [43], the implications for the academic results of students of them combining work and study [44], the satisfaction and work-related

decisions of people with doctorate degrees [45], and the impact of the choice of educational centre on the implication of parents in the education of their children [46].

However, to date, no applications of this econometric technique have been found in the field of transport, despite the fact that it makes it possible to approximate the effect of the unobserved characteristics of individuals on the outcome variable of the model. In this case, in particular, the application of this methodology makes it possible to evaluate the impact of the profiles of the travellers who use a specific transport mode for their journey to a tourist destination and on their use of public transport once they reach their final destination.

The MTREATREG routine, which was tailor-made for STATA, facilitates the joint estimation of the two equations [38] via simulated maximum likelihood using Halton sequences. In our study, 200 simulation draws were generated. Deb [47] suggests using a greater number of simulation draws than the square root of the number of observations. As the sample was composed of 4236 observations, the number of simulation draws obtained was more than sufficient.

5. Results and Discussion

5.1. The Probability of Using Different Transport Modes to Reach the Destination

Table 2 presents the results of the estimation of the multinomial model, which include the factors that determine the probability of a tourist using a plane or PT (coach or train), as opposed to a private car, to travel to the Costa Daurada. Firstly, it is necessary to underline the impact that the point of origin of the tourists' trip has on their chosen transport mode which, therefore, reinforces the existence of endogeneity. There were no significant differences between tourists from Spain and France when it came to choosing to travel by plane. However, important differences emerged as the distance from the Costa Daurada increased. The probability of travelling by plane, as opposed to by private car, increased considerably with longer journeys. When the comparison was made between using PT and a private car, French visitors showed a greater probability of choosing to travel by car. However, the visitors who had to travel the greatest distances to reach the Costa Daurada proved more probable to increase the use of PT than a private car. Even so, the differential of probability was not as high as in the case of the plane. These results were a response to the fact that getting to the Costa Daurada using PT is much easier from within mainland Spain than from France. It is also confirmed that, over greater distances, travelling by private car becomes increasingly less competitive than PT, particularly in the case of trips by coach.

Table 2. Mixed multinomial logit estimation.

	Plane vs. Own Car		**Public Transport vs. Own Car**	
	Coefficient	**St. Error**	**Coefficient**	**St. Error**
Intercept	−1.3797	(0.2984) ***	−0.8812	(0.2993) ***
Origin-Spain	Reference category		Reference category	
Origin-France	0.0112	(0.2125)	−1.6446	(0.228) ***
Origin-2000 km	3.4979	(0.2241) ***	0.4288	(0.2614)
Origin-further	6.6010	(0.2666) ***	1.4150	(0.2988) ***
Class-mid	Reference category		Reference category	
Class-high	0.0765	(0.1928)	0.0388	(0.2027)
Class-low	−0.0361	(0.1998)	0.1790	(0.1945)
Class-unknown	−0.0595	(0.4552)	0.0705	(0.3933)

Table 2. *Cont.*

	Plane vs. Own Car		Public Transport vs. Own Car	
	Coefficient	**St. Error**	**Coefficient**	**St. Error**
Accom-hotel1	Reference category		Reference category	
Accom-2home	0.8245	(0.3661) **	1.1214	(0.3759) ***
Accom_other	−0.3175	(1.0515)	0.4761	(1.2082)
Accom-apart	−0.2888	(0.2559)	−0.6208	(0.2796) **
Accom-camp	−3.6304	(0.549) ***	−2.2502	(0.5839) ***
Accom-family	2.2367	(0.3929) ***	2.6558	(0.4231) ***
Accom-hotel2	−0.8299	(0.2035) ***	−0.4375	(0.1972) **
Age-44	Reference category		Reference category	
Age-24	0.5973	(0.3355) *	1.6863	(0.3173) ***
Age-64	0.5102	(0.1958) ***	0.6108	(0.2104) ***
Age-older	1.6950	(0.2632) ***	1.7540	(0.2689) ***
Expenses-mid	Reference category		Reference category	
Expenses-low	−0.1180	(0.2014)	−0.0167	(0.2039)
Expenses-high	0.2133	(0.215)	−0.0090	(0.2355)
Expenses-unknown	−0.1403	(0.244)	0.1352	(0.2291)
Place-Salou	Reference category		Reference category	
Place-Cambrils	−0.9157	(0.2064) ***	−0.8112	(0.2112) ***
Place-Pineda	−0.3930	(0.199) **	−0.4523	(0.1918) **
Duration-1week	Reference category		Reference category	
Duration-2weeks	1.1038	(0.1694) ***	0.6254	(0.1824) ***
Duration-longer	0.1891	(0.31)	0.3534	(0.2905)
Repeat	−1.1093	(0.1683) ***	−0.4795	(0.1731) ***
Sex-man	−0.3114	(0.1502)**	−0.3487	(0.1507) **
No visiting	−0.6039	(0.1772) ***	0.0683	(0.1667)
Org-other	Reference category		Reference category	
Org-own	−0.1350	(0.1832)	−0.3811	(0.1828) **
Org-unknown	−4.6563	(0.3523) ***	−5.5251	(0.4779) ***

Robust standard errors within parenthesis. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Accommodation emerged as another fundamental factor that influenced decisions regarding which transport mode to use. Tourists staying in one-, two-, and three-star hotels were more prone to travel by car that those staying in four- and five-star hotels. However, the greatest increase in probability was found when the type of accommodation chosen was a campsite. In the case of second residences, and even more so in the case of stays at second residences belonging to friends and relatives, the probabilities were inverted, and the plane and PT became the most probable transport modes. When the comparison was made with apartments, there was a greater probability of visitors opting for PT than for the private car. No significant differences were appreciated in the case of the plane. The municipality where the tourists stayed also played an important role. The probability of opting for the private car as opposed to the other transport modes was greater if the visitor stayed in Salou than in Cambrils or La Pineda. Results revealed that the duration of the stay had a significant impact. For stays of between one and two weeks, the plane and PT were preferred to the car, when we compared stays of seven days or less, or of more than two weeks. Tourists who had previously stayed on the Costa Daurada were more probable to choose the private car. Significant differences in favour of using the private car as opposed to the plane were also appreciated for those who did not have any intention of making tourist visits to the local area during their stay. Meanwhile, those tourists who organised their trips by themselves proved more likely to use private cars than PT than those who organised their trips through travel agencies. Finally, the personal characteristics of the tourists also had an important influence. Men were more likely to use the private car than women. In the case of age, tourists aged

between 25 and 44 were the ones most associated with the use of private cars. The youngest age group (under 25) was the one that showed the greatest preference for PT. The oldest group (65 and over) was the one least inclined to use the private car. In contrast, social class and the level of spending at the destination did not seem to have any significant impact on decision-making.

5.2. The Probability of Using Public Transport at the Destination

Once the results of the multinominal model had been analysed, it was time to evaluate what determined the probability of using PT at the destination. These results are presented in Table 3. The transport mode chosen to travel to the Costa Daurada emerged, as was to be expected, as the most determining factor according to the model. The probability of using PT during the stay was much greater if PT had also been used to travel to the Costa Daurada than if the private car had been used, and even more so than if the trip had been made by plane. From this result, it was possible to deduce that the availability of private car during the stay was the key factor for determining whether the tourist used PT, and that other factors had a more limited influence. Even so, the lambda coefficient associated with the plane was significantly negative, which tended to correct downwards the strong impact of the decision to travel by plane. According to this result, the unobserved characteristics of the tourists who decided to travel to the Costa Daurada by plane would have reduced their probability of using PT at the destination. On the other hand, in the case of tourists who opted to use PT to travel to the Costa Daurada, the lambda coefficient was positive, but not significant. The interpretation of this result was interesting. Travelling by plane pushed the tourists into using PT at the destination, even though the profile of those who travelled by plane would have tended to suggest the opposite. It was possible to confirm that the profile of the tourists who had the greatest likelihood of travelling by plane was linked to a different set of motivations than that of those who travelled by private car. It could be deduced that those travelling by plane tended to have less need to visit other places during their stay on the Costa Daurada in search of attractions other than the sun, beach, and leisure that the place in which they were staying could offer them. Even so, when these tourists visited other places, they mainly did so using PT. In contrast, the profile of the tourists who arrived by private car could more active; they showed a particular interest in visiting neighbouring settlements, mainly doing this using their own private cars. The range of tourist attractions in the region (gastronomy, shopping, culture, heritage, etc.) was notably greater when the visitors were willing to travel around.

Empirical evidence attributed to the unobservable heterogeneity a moderating role on the impact that the transport mode used to reach the destination. However, to validate these results, it was necessary to test the hypothesis that, indeed, the transport mode used to reach the destination is an endogenous variable, which was the assumption on which the model was built. For this reason, a test to contrast their exogeneity in order to test the robustness of the model had been carried out. Following the methods of Deb and Trivedi [36] it had been built a likelihood ratio to test the null hypothesis of $\lambda s = 0$ and, therefore, $\lambda plane = \lambda public\ transport = 0$. The likelihood ratio followed a distribution χ^2 (q), where q was the number of parameters λ, whereby q = 2. The probability that $\lambda plane = \lambda public\ transport = 0$ was equal to 5.36×10^{-6}. This means that the null hypothesis of exogeneity could be rejected and, therefore, the estimation strategy was appropriate.

Table 3. Endogeneity corrected logit estimation.

	Coefficient	St. Error
Intercept	−1.5097	(0.3234) ***
Transport-own	Reference category	
Transport-plane	2.4575	(0.4378) ***
Transport-pt	1.2113	(0.5313) **
Class-mid	Reference category	
Class-high	0.2771	(0.1273) **
Class-low	0.1604	(0.137)
Class-unknown	0.5089	(0.2777) *
Accom-hotel1	Reference category	
Accom-2home	0.7999	(0.2829) ***
Accom_other	−0.4722	(0.4653)
Accom-apart	0.0272	(0.1776)
Accom-camp	0.0192	(0.2912)
Accom-family	−0.0985	(0.264)
Accom-hotel2	−0.1731	(0.1351)
Age-44	Reference category	
Age-24	−0.0759	(0.2236)
Age-64	−0.0325	(0.1171)
Age-older	−0.2537	(0.1758)
Expenses-mid	Reference category	
Expenses-low	−0.4723	(0.1465) ***
Expenses-high	0.2729	(0.1393) *
Expenses-unknown	−0.6883	(0.1813) ***
Place-Salou	Reference category	
Place-Cambrils	−0.3273	(0.1452) **
Place-Pineda	0.1441	(0.1198)
Who-children	Reference category	
Who-friends	0.0572	(0.1874)
Who-firm	−0.4853	(0.6181)
Who-school	−0.3568	(0.8384)
Who-family	0.1141	(0.1595)
Who-partner	−0.0001	(0.1215)
Who-senior	0.1140	(0.2912)
Who-alone	0.1575	(0.2373)
Duration-1week	Reference category	
Duration-2weeks	0.5984	(0.1549) ***
Duration-longer	1.0765	(0.2506) ***
Repeat	0.8010	(0.1875) ***
Sex-man	0.0296	(0.092)
No visiting	−0.6598	(0.1545) ***
Org-other	Reference category	
Org-own	0.0327	(0.1336)
Org-unknown	0.1854	(0.291)
Lambda plane	−1.1709	(0.4107) ***
Lambda PT	0.8250	(0.9521)

Robust standard errors within parenthesis. * Significant at 10%, ** significant at 5%, *** significant at 1%.

The rest of the variables in the model registered an important impact, though less than that of the transport mode used to reach the destination. Firstly, it is important to underline the incidence of the length of the stay. The probability of using PT increased as the length of the stay increased. The same logic was reported by various previous studies [48–50]. Longer stays suppose that tourists could visit

more places, and it could increase their probability to use public transport. However, in some cases it has been reported an increasing of the use of private car for longer stays [51,52]. Repeating a stay on the Costa Daurada also increased the probability of the tourist using PT. This could have been attributable to their greater knowledge of the network and the range of transport options available for moving around than those visiting the destination for the first time. Masiero and Zoltan [53] found the same patterns in their study on tourists' use of public transport in the Canton of Ticino (Switzerland) in summer. On the other hand, the tourists who said that they had no interest in going to other neighbouring places would have less need to use PT. This explains the negative sign and highly significant coefficient associated with this variable.

The social class that the person interviewed professed to belong to was another variable that had a significant effect. Jehanfo and Dissanayake [54] also found that class level could become a determinant in the visitors' use of public transport. They reported that high income travellers are more sensitive to access and waiting time. In our case, members of the high social class had a greater tendency to use PT than members of the middle class. This result was consistent with that obtained for the level of spending, which also showed a positive correlation with the probability of using PT. On the other hand, lower levels of spending were linked to making less use of PT. Finally, none of the other variables had a significant effect; the only exception to this general rule was that of overnight stays in a second residence, which increased the probability of using PT with respect to staying in one-, two-, or three-star hotels. Other studies have reported significant effects of variables as education level [8,49], age [7,55], or party structure [56]. Our results provided evidence in the same direction of the mentioned literature: a higher education level supposed a greater use of PT; as increasing the age, decreased the use of PT (this dynamic is noted for Le-Klähn et al. [8,49], for tourists in urban areas); and the family, friends, and those travelling alone are more likely to use PT. However, in our case, these variables reported less significance than the length of the stay, the type of accommodation, the social class of the visitors, their spending level during the holiday, or their familiarity with the destination.

6. Conclusions

The empirical evidence provided by the model allowed identifying the profile of tourists most likely to use public transport for their travels to neighbouring areas during their stay at Costa Daurada. They were those from the upper class, who had the highest level of spending at the destination, stayed in second residences, and had already visited the Costa Daurada on previous occasions. Thus, as reported for previous studies, the socioeconomic and demographic characteristics of the tourists, such as their age, education level, social class, or country of origin affect their use of public transport at the destination. In our case, the most determinant variables were the social class and the country of origin. The characteristics of their stay, such as the expenditure level, the party structure, the length of the stay, their familiarity with the destination, or the type of accommodation, have been highlighted as relevant variables in the literature, as well. In our case, the expenditure level during the holidays and the type accommodation were the more influential variables. However, above all, our findings evidence that the transport mode used to reach the Costa Daurada, directly influenced by the country of origin, proved to be the most important factor in determining the transport mode chosen to move around once at the destination. The tourists who arrived by private car were the ones who least used public transport at the destination. In contrast, those who arrived by plane, train, or coach were the ones who used it most, even though their profile would have suggested otherwise. These differences between those who arrived by private car and the rest added to the weight of the tourists who come to Costa Daurada by car (46% of the total), which led us to identify this collective as a clear target for policies aimed at promoting the use of public transport.

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