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Price strategies by German and British tour operators in Mallorca

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ABSTRACT

This paper analyses the price strategies used by major German and British tour operators for holiday packages in Mallorca. The analysis differentiates package holidays by price (cheap, mid price and expensive), first trying to identify the existence of different strategies for each price level and, second, whether these price strategies have changed during the recent economic crisis. The main results show that, in the German market, there is a clear market leader, while, in the British market, no price leader can be observed. The two markets have reacted differently to the economic crisis. In the German market, the leader-follower model was maintained. In the British market, the economic crisis has led to a more uniform price distribution, with reductions in the prices of cheaper holidays and price rises in the case of the top end of the market. The results were obtained by estimating a hedonic price model using quantile regressions.

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1. Introduction

The European tour operator market is a mature one dominated by German and British tour operators, and so, their behaviour largely determines the prices of package holidays at many Mediterranean destinations. The market structure of the German and British tour operator markets has the features of an oligopoly (Bastakis, Buhalis, & Butler, 2004; Baum & Mudami, 1994; Evans & Stabler, 1995; Long & Shi, 2017): 1) In both markets, a limited number of large tour operators compete with one another, alongside numerous small tour operators who do not compete with the major ones (Davies & Downward, 2007, for the British market). 2) The large tour operators' high market concentration (over 50% of the market) gives them market power (the capacity to set prices above the marginal costs). 3) At the same time, tour operators stand out for their strategic interrelations. This means that tour operator price strategies take into account rival behaviour and these strategies will vary, depending on the economic context.

A price strategy is a long-term framework for setting basic prices, whereby an initial price is set for a product together with the proposed direction of price movements across the product lifecycle (Lamb, Hair, & McDaniel, 2002). Hence it is a strategic decision that must take into account the behaviour of rival companies and it must be adapted to fit in with different economic scenarios during the product lifecycle. "A key element of the marketing strategy is companies' pricing strategy" (Kim, Natter, & Spann, 2009, p. 44). Price strategies do not only generate more benefits for the tour operator; they also constitute a key negotiating tool among agents in the tourism sector (Falzon, 2012). Consequently, familiarity with tour operator price strategies, the type of price competition in which they engage, and the changes in price strategies that they make when an economic crisis occurs can contribute to the design of better tourism price negotiation policies at destinations. The better understanding of tour operators' price strategies should contribute to a better price negotiation by the accommodation sector.

Over the years, tour operators have used different price strategies. For instance, until the early 1990s, the structure of the UK tour operator market was oligopolistic with price stability (Baum & Mudami, 1994). However, this price stability could easily be dashed given the fragility of its coordination, due to mistrust and uncertainty of its conjectural variations. Consequently, implicit price agreements might easily be broken, heralding the beginning of a price war. Evans and Stabler (1995) confirm the occurrence of price wars during this period due to the existence of strategic groups and uncooperative behaviour among UK tour operators. At the same time, given the low number of major tour operators (in both the British and German markets), this could theoretically also lead to a price leadership situation, with one tour operator acting as the market leader and setting benchmark prices while all the others

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act as followers. Because this is a mature market, non-price competition (package differentiation, advertising, quality variation) is also a possibility, which would lead to market segmentation (for instance, the family or adults-only segments) and, by extension, to less aggressive price competition. Given all the above, diverse price strategies can be used by tour operators, and it is even possible for these strategies not to revolve around prices.

Price strategies can also change in the event of a demand shock, such as one caused by an economic crisis. In such an event, the context changes and former price strategies can be drastically modified. From a situation of relative stability, a price war can begin or else there can simply be coordinated price cuts so as to maintain existing market shares (maintaining the stability). There can also be heavier specialization in segments with a higher purchasing power that are less vulnerable in crisis situations. Likewise, tour operators might choose to combine both strategies, cutting the prices of their cheaper packages (directed at the sector of the population most heavily affected by the crisis) and raising the price of their most expensive ones (aimed at the segment of the demand lesser affected by the crisis).

Given the multiple price strategies that can be used in an oligopolistic market, we thought that it would be interesting to analyse prices set by tour operators under two perspectives. First of all, a comparative analysis was made to check whether the price strategies of the German and British tour operator markets (both mature markets) differ, examining package holiday price segments (cheap, mid-price and expensive packages). Secondly, an analysis was made to see whether their price strategies have changed as a result of the recent economic crisis, comparing the price strategies used during two different periods, 2007 and 2010. In short, the aim of this paper is to analyse the price strategies used by major tour operators across the price distribution of both markets and to examine whether they undergo changes in times of crisis at a mature sun and sand destination like Mallorca.

The structure of this paper is as follows. In the following section, a review of literature is made, both on the use of the hedonic price method for package holidays and on the general application of quantile regression (QR) and their use in the field of tourism. Then, a description is given of the data that was used. Next, an outline is given of the hedonic price model within the context of QR. Subsequently, the main results are explained, before concluding with a summary and discussion of some of the tourism policies that can be derived from the obtained results.

2. Literature review

Despite the importance of the tour operating industry in the tourism sector, this industry has been subject of scant analysis. The first papers of the eighties and nineties discuss on a theoretical basis the market structure of the tour operators in different countries (Baum & Mudami, 1994; Curtin & Busby, 1999; Fitch, 1987; Sheldon, 1986; Taylor, 1996). Yale (1995) perform an in depth analysis of the business of tour operators in the UK. He states that tour operators have a great market power, and are vertically integrated. Williams (1996) also highlights the tour operators' market power in the UK and German markets.

Maybe due to the lack of relevant empirical data, the hedonic price method had been a methodology used to analyse the effect of the tour operators on the package holiday prices. Some of these studies introduced the tour operator as an explanatory variable, but very few papers focus on the tour operators' effect on prices. Taylor (1995) analyses package holiday price competitiveness in Mediterranean destinations, emphasizing tour operators' high bargaining power. Sinclair, Clewer, and Pack (1990) in Malaga, Aguiló, Alegre, and Riera (2001), Aguiló, Alegre, and Sard (2003) in Mallorca, Papatheodorou (2002) and Haroutunian et al. (2005) in different Mediterranean destinations, examine package holiday prices using hedonic price functions and conclude that there are statistically significant price differences among tour operators.

However, the hedonic method has been used to a lesser degree in tourism economics as a way of analysing price strategies. The paper of Hartman (1989) is the first to use the hedonic method to design optimal pricing strategies for luxury hotels in the business travelers segment. Regarding package tours, Aguiló et al. (2003) analyse the German and the UK tour operators' price strategies in Mallorca using the estimates of the hedonic price function. Alegre and Sard (2015) calculate a hedonic price index to analyse the effects of the crisis on the prices of package holidays to the Balearic Islands sold by a sample of British and German tour operators. The paper shows that the price management during the crisis held by tour operators was not base in dropping prices despite the evident fall in Balearic tourism demand during the period.

Nevertheless, in all these studies using the hedonic method, the implicit prices of the package holiday characteristics are econometrically estimated through a conditional mean regression. However, as Costanigro, McCluskey, and Mittelhammer (2007) point out, there is no reason to suppose that implicit prices remain constant across the price distribution. The tourist valuation need not necessarily be a static one. A QR model is an alternative means of analysing the effect of package holiday characteristics across the entire price distribution.

QR have been widely applied in numerous different fields, such housing (García & Raya, 2015; Liao & Wang, 2012; Chasco & Sánchez, 2012; Mak, Choy, & Ho, 2010; Zietz et al., 2008; Coulson & McMillen, 2007), education Buchinsky (1998) or healthcare (Koenker & Hallock, 2001). In tourism, some authors have used QR models, although their application to price analyses is limited (Raya, 2013). Table 1 point out the main papers using QR in tourism.

Table 1 shows that there are no previous research on the analysis of the price differences among tour operators along the price distribution. This paper aims to fill this gap and make an in-depth dual analysis of tour operator price strategies by examining whether they remain stable across the price distribution or whether they vary when cheap package holidays are compared with expensive ones and, secondly, whether the price strategies used by tour operators change with the economic crisis. Therefore, the main contribution of our paper to the literature on tourism consists of providing empirical evidence on price strategies by German and British tour operators using a new methodology. Under our knowledge, it is the first paper that uses QR to analyse the price strategies of tour operators.

3. Data and descriptive statistics

The database is based on information from the travel brochures of 6 German tour operators and 5 British ones selling packages in 3 and 4 stars hotels in Mallorca during the summer seasons of 2007 and 2010. We only analyse packages in 3 and 4 stars hotels as those are the more representative in Mallorca (both categories represent the 87.8% and the 88% of the hotels in 2007 and 2010, respectively; Agència de Turisme de les Illes Balears, 2016). These two years were chosen in order to analyse whether the tour operators modified their price strategies and in what way, during a period of economic crisis.

Information from the brochures of ITS, Jahn Reisen, Alltours, Neckerman, 1 2 Fly and TUI was used, comprising a total of 1611 and 1946 German package holidays in the Balearics in 2007 and 2010, respectively. In the case of the British market, 238 and 274 package holidays were taken into account in 2007 and 2010 respectively, sold by Thomson, Airtours, First Choice, Portland Direct and

Table 1
Main papers using QR in tourism.

Author/s (year)	Analysis
Raya (2013)	Uses QR in a hedonic price model to analyse whether the valuation of the location (of some European sun-and-sand destinations on the Mediterranean coast) and seasonality remain constant across the hotel price distribution.
Kuo and Lu (2013)	These authors combine a conditional mean regression (OLS) with a QR analysis to capture both the mean and quantile behaviours of travel expenditures in baby boomer households in Taiwan
Lew and Ng (2012)	Use the same data as Wang (2004) for expenditures by mainland Chinese visitors to Hong Kong, although, unlike Wang who estimates an OLS regression, they estimate a QR to demonstrate that this model identifies tourist spending patterns and market segments better. Even though their aim is to compare both types of regression models, they do not test whether there are significant differences in the estimated parameters of the mean regression and QR or in the quantiles
Salmasi, Celidoni and Procidano (2012)	Analyse the different effects of prices, income, socio-demographic profiles, tastes, and travel and destination characteristics on the length of stay, using a count quantile regression for different types of holidays in Italy
Kim and Kim (2011)	Analyse the determinants of executive compensation in the restaurant industry using a quantile regression.
Hung, Shang, and Wang (2010)	Use QR to analyse the main determinants of hotel room price strategies in Taiwan
Prieto-Rodríguez and González-Diaz (2008)	Analyse whether the hotels located in the Balearic and Canary Islands set higher prices once quality has been controlled, using QR to capture different effects across the hotel price distribution
Gunderson and Ng (2005)	Analyse how amenities, quality of life attributes, and tourism affect regional economic performance in rural America, using a QR analysis

Source: own elaboration.

Table 2
Tour operators, its nationality, the group at which they belong and the market share of the travel groups.

Tour operator	Nationality	Travel group	Market share 2007 (%)	Market share 2010 (%)
TUI	German	TUI group	28.36	23.1
1 2 fly	German			
Thomson	British			
First Choice	British			
Portland Direct	British			
Skytours	British			
Neckermann	German	Thomas Cook	17.36	17.89
Airtours	British			
ITS	German	Rewe Touristik	16.32	17.13
Jahn Reisen	German			
Alltours	German	Alltours	n.a	n.a

Source: own elaboration with data from Fvw International 2007/2010.

Skytours.

Table 2 shows the tour operators, its nationality, the group at which they belong and the market share of the travel groups. Three major travel groups with tour operators in the issuing market were included in the study (TUI group, Thomas Cook and REWE touristik). These three tour operators accounted for 62.04% of the market in 2007 and 58.12% in 2010 (FVW International, 2007 and 2010). Alltours is relatively smaller than the other three. In the German market, TUI and 1 2 fly are tour operators from the TUI group (the German market leader, with a market share of 28.36% in 2007 and 23.1% in 2010) (FVW International, 2007 and 2010)). TUI is the group's main brand name, while 1 2 fly is a low-cost brand name from the same group specializing in family holidays. Thomas Cook group is represented in Germany by Neckerman, its main brand name, while ITS and Jahn Reisen are part of REWE. Given the number and importance of the tour operators that were chosen, this is a representative sample since, in terms of their market share, they encompassed almost all the tour operators specializing in German package holidays to Mallorca (FVW International, 2010). In the British market, Thomson, First Choice, Portland Direct and Skytours all belong to TUI group. Thomson is the group's leading UK brand name. Meanwhile Airtours belongs to the Thomas Cook group. TUI group and Thomas Cook are both leading travel groups in the British market.

All the packages lasted for the same length of time (7 nights) and covered the same period (the first week of August). In addition, to avoid the departure airport's possible distorting effect on prices, all the packages marketed by German tour operators departed from Düsseldorf airport, since 20.9% of all German tourists to the Balearics travel from this German city, while the British ones departed from Gatwick airport, given that 29.9% of all UK tourists use this airport (Conselleria de Turismo, 2001).

Information was gathered about the prices and different characteristics of the package holidays described in the brochures. Table 3 describes the variables of the database and their descriptive statistics.[1]

4. Methodology: quantile regression model for hedonic prices

One of the aims of the present paper is to analyse the effect on prices of the tour operators along the price distribution. To do that, we used the hedonic price method. With this method, an analysis can be made of the relationship between the price of a package holiday and its characteristics including the tour operator selling the package. In this way, a comparison can be made of the effect that the tour operator has on the price of the package holiday by neutralizing all the remaining characteristics. This analysis can be conducted by taking the mean price (using a standard regression model) or by examining different parts of the price distribution (using QR). As Davino, Furno and Vistocco suggest "*QR provide a description of the whole conditional distribution of a response variable in terms of a set of explanatory variables, allowing effects to be discerned that would otherwise be lost in the classical regression model that analyses the sole conditional mean*" (Davino, Furno, & Vistocco,

[1] Due to the limited length of this paper, the descriptive results of the variables used in QR are not included although they are available on request.

Table 3
Description and descriptive statistics.

Variables: Description	Mean/frequency (Germans)		Variables	Mean/frequency (British)	
	2007	2010		2007	2010
Price: ln of the price of the package tour	6.56	6.7		6.71	6.71
Tour operator: The tour operator marketing the holiday					
1 2 Fly	14.59	19.68	AIRTOURS	13.03	22.63
Alltours	15.33	13.21	FIRST CHOICE	26.89	21.9
ITS	14.34	15.88	PORTLAND DIRECT	18.49	12.41
Jahn Reisen	13.47	13.26	SKYTOURS	8.82	8.03
Neckermann	20.67	17.57	THOMSON	32.77	35.04
Tui	21.60	20.4			
Area: The area of Mallorca in which the hotel is located					
Bahia de Alcudia	14.84	14.85	BAHIA DE ALCUDIA	28.15	18.98
Playa de Palma	25.64	25.03	COSTA LLEVANT	26.47	41.97
Costa Llevant	22.97	22.1	BAHIA DE POLLENSA	15.13	7.3
Costa Ponent	15.89	17.06	COSTA PONENT	30.25	31.75
Costa Tramuntana	5.46	4.62	CALAS DE CAPDEPERA	10.18	11.66
Colonia De Sant Jordi	5.03	4.68			
Rating: The hotel's star rating					
3 stars	54.56	51.95		74.79	76.64
4 stars	45.44	48.05		25.21	23.36
Type of room: The beds per room					
Single	35.88	33.4		28.15	27.37
Double room	44.2	40.03		38.24	38.32
Three sharing	19.93	26.57		33.61	34.31
Type of board: The type of board					
B&B	10.92	10.74		-	-
Half Board	65.86	62.44		73.53	65.69
Full Board	6.58	6.32		7.56	6.93
All Inclusive	16.64	20.5		18.91	27.37
Sea view: Whether the room has sea views					
Yes	20.86	24.92		26.05	30.66
No	79.14	75.08		73.95	69.34
Chain: Whether the hotel belongs to a chain					
Yes	50.78	58.02		57.14	53.65
No	49.22	41.98		42.86	46.35
Distance to centre: The hotel's distance in metres to the centre of the resort	579.33	763.43		442.37	434.93
Inverse distance to beach: The inverse distance in metres to the nearest beach	0.18	0.18		0.09	0.15
N: Total number of observations	1611	1946		238	274

Source: own elaboration.

2014, p. ix). By using QR, not only can the mean of the price distribution be analysed but also what occurs at different points of the distribution. We believe that it is more relevant to examine different points of the distribution, since tour operator price strategies for the cheap, mid-price and expensive segments can be analysed. Consequently, the hedonic price model was estimated using QR.

Following, the hedonic price method and the QR is briefly explained in the context of the analysis preformed.

The hedonic price method assumes that when a product is purchased, what is really being bought is a set of characteristics (Rosen, 1974). According to the hedonic hypothesis, the price of a package holiday can be expressed in terms of the package's characteristics. In other words, we can establish what is known as the hedonic price function:

$$P = f(\text{characteristics})$$

where the price of a package holiday, P, is a function of all its characteristics. Initially, the characteristics included where those that give value to the consumer, but recently the literature has included market power variables as well, in the hedonic price function (Sinclair et al., 1990; Clewer et al., 1994; Aguiló et et al., 2003; Haroutunian et al., 2005). The characteristics in our models are those described in Table 3, being the tour operator selling the package holiday the key variable of our investigation. In this way, price differences in uniform package holidays can be identified that are attributable to the tour operator.

As said in the literature review, the analysis in other papers had be conducted by taking the mean price of the package holidays, using econometric methods (a standard regression model) to obtain the implicit prices of different characteristics at that point of the distribution. One alternative is to analyse more than one point of the price distribution, using a quantile regression model (QRM). The QRM developed by Koenker and Basset (1978) consists of estimating regressions at several quantiles of the dependent variable distribution. While a standard linear regression model specifies the conditional mean function, a QRM explains the determinants of the dependent variable at any point of the distribution of the dependent variable using conditional quantile functions (Hao and Naiman, 2007). As is commonly known, the θ-th quantile is the value y such that $P(Y \leq y) = \theta$. A QR analysis can be used to analyse the relationship between the dependent and independent variable(s) by estimating each quantile of response variables, based on the conditional quantile function (Koenker & Hallock, 2001).

For hedonic package holiday price functions, a QRM allows a statistical analysis to be made of the extent to which package holiday characteristics are differently valued across the package holiday price distribution. We can express Koenker and Basset's

linear QRM (1978) in terms of the log price of the package holidays as:

$$\ln p_i = x_i\beta_\theta + \mu_{\theta i}$$

where $\ln p_i$ is the vector of the log of the package holiday price, x_i denotes the vector of the characteristics of the package holiday (the tour operator, the category of hotel, type of board, etc), β_θ is the vector of parameters to be estimated corresponding to the θth quantile, and $u_{\theta i}$ is the vector of random disturbances. We can define $Quant_\theta(\ln p_i/x_i) = x_i\beta_\theta$ as the θth conditional quantile of ln p given x: this indicates the log price of the package with characteristics x that leaves behind a fraction θ of package holidays of the same characteristics.

The coefficients of the quantiles are interpreted as follows. Consider the partial derivative of the conditional quantile of log p with regard to one of the regressors, say j, namely, $dQuant_\theta(\ln p_i/x_i)/dx_{ij}$. This derivative is to be interpreted as the marginal change in the θth conditional quantile due to a marginal change in the jth element of x. If x contains K different variables, then this derivative is given simply by β_θ, the coefficient on the jth variable. Therefore, this QR allows the effect of the different explanatory variables to vary, depending on the position the package holidays hold in the price distribution.

The vector of coefficients is obtained as the solution to the following minimization problem:

$$\min_{\beta \in R^K} \left| \sum_{i:LnP_i \geq x_j\beta} \theta|lnp_i - x_i\beta_\theta| + \sum_{i:LnP_i \leq x_j\beta} (1-\theta)|lnp_i - x_i\beta_\theta| \right|$$

That is, QR minimize the sum of the absolute value of weighted errors.

5. Results

The empirical results of the OLS and QR were obtained by regressing the natural logarithm of the package holiday prices on a set of its own characteristics, described in Table 3. The tour operator, area, hotel rating, type of room, type of board, sea view and hotel chain were included using dummy variables in the models; the distance to the beach was included as the inverse of this distance; and the distance to the centre was included in quadratic form, as in Bull (1994) and Alegre, Cladera, and Sard (2013). In the case of the dummy variables, the following were taken as the reference category: the tour operator TUI for the German tour operator explanatory variable and Thomson for the British one; the Bay of Alcudia for the area where the hotel was located; a 3-star hotel for the hotel rating; a single room for the type of room; and all-inclusive holidays for the type of board. The difference in the areas used in our study of the two nationalities can be explained by the fact that the island of Mallorca has tourist resorts that specialize in either one nationality or another, and tour operators do not normally offer package holidays in areas specializing in other nationalities (Alegre et al., 2013).

We used the Stata command bsqreg to do the estimations for QR. This procedure estimates the QR with bootstrap standard errors (with 1000 repetitions), under the assumption of independent errors. The model was estimated for the 10th, 25th, 50th, 75th and 90th quantiles. Annex 1 and 2 show the estimates of OLS and QR of all the variables included in the models for both nationalities.

We will only interpret the results of the variable tour operator, the key variable of our analysis. For both markets, the main tour operator from the travel group with the biggest market share was taken as the reference category (TUI in the German case and Thomson for the British market). As a result, the obtained results show price differences between the tour operator used as the reference category and all the other ones operating in that market. This attribute's estimated implicit prices capture tour-operator-specific effects on price, interpreted as differences among tour operators not accounted for by differences in characteristics advertised in the brochures. We interpreted these price differences as different price strategies that can highlight the market structure of the tour operator market.

To analyse the price strategies of tour operators in the German and British tour operators markets from the separate estimations obtained from the QR for each market and year, a hedonic price index was drawn up for each year and each market, taking TUI and Thomson as the base normalized to 100 (since they are the tour operator reference category for each respective market). For the interpretation of the results, it must be remembered that the effect of an explanatory variable on a dependent one is the exponential of its coefficient minus 1, when the dependent variable is introduced in logarithms. Hence, to construct the index, first of all, the percentage change in relation to the tour operator reference category (TUI and Thomson, respectively) was calculated: $(e^{\beta} - 1)*100$. Then, a value of 100 was assigned to the reference category tour operator. For the remaining tour operators, the value is given by the reference value (100) plus/minus the calculated percentage change in relation to this reference category.

Figs. 1 and 2 show these hedonic price indexes for the German tour operator market for the years 2007 and 2010. These indexes allow us to draw up a ranked list of tour operators by price and to reflect the differences by price quantiles, thus revealing the price strategies of the different tour operators. From Figs. 1 and 2, it can be seen that in 2007 and 2010, TUI was the tour operator that set the highest prices, both on average and across the price distribution. Only Jahn Reisen seems to follow a similar price pattern, while the remaining four tour operators set lower prices across the price distribution in both 2007 and 2010. In 2007 (Fig. 1), ITS, Alltours, Neckermann and 1 2 Fly sell their packages at lower prices than TUI, in some cases with a price difference of up to 20%. With the exception of Jahn Reisen, these price differences are not uniform in size across the price distribution, since they are smaller in relation to TUI in the case of cheaper package holidays (the 10th and 25th quantiles) and bigger in the case of more expensive ones (the 75th and 90th quantiles).

Fig. 2 shows the hedonic price index with QR for the German tour operators in 2010. A higher degree of price segmentation can be observed, with three well-differentiated groups (as opposed to 2007, when two clear groups were detected): TUI and Jahn Reisen show the highest prices, Neckerman and ITS intermediate ones, and

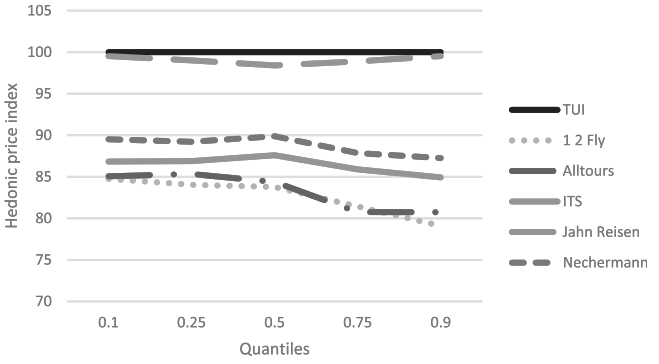

Fig. 1. Hedonic price index with QR for German tour operators in 2007 (taking TUI as the base = 100).

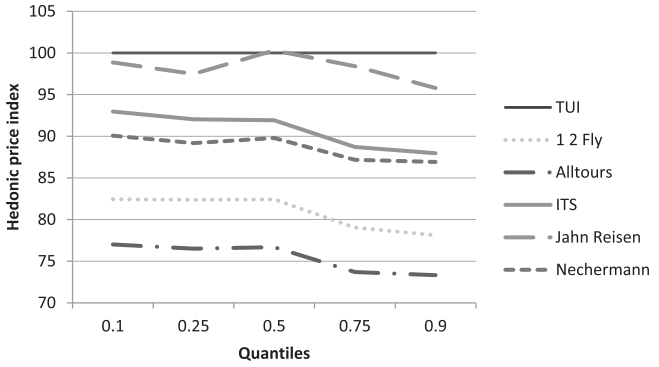

Fig. 2. Hedonic price index with QR for German tour operators in 2010 (taking TUI as the base = 100).

1 2 fly and Alltours the lowest of all. This segmentation is maintained across the entire price distribution (for the cheaper, mid-price and most expensive package holidays). Like 2007 (Fig. 1), the price differences do not remain constant across the price distribution, with the smallest differences in relation to TUI corresponding to cheaper package holidays (the 10th to 25th quantiles) and the biggest corresponding to the most expensive packages (the 75th to 90th quantiles).

Table 4 shows the change in the hedonic price index with QR for German tour operators between 2007 and 2010. It presents the differences in the values of the indexes for the two years and so absolute changes in prices are not reflected but only their evolution in relation to the reference category tour operator (TUI). Table 4 shows that Alltours is the tour operator that cut its prices the most in relation to TUI (up to a maximum of 10.33% in the case of package holidays in the 25th quantile). Faced with the economic crisis, this tour operator reacted by reducing its prices sharply in relation to the market leader. This reduction can be observed across the whole price distribution. In contrast, Neckermann did not opt for a different strategy from TUI's and it maintained the same relative position in the ranks during 2007 and 2010, with just a slight price cut in its mid-to-high priced packages and its most expensive ones (the 75th and 90th quantiles). Jahn Reisen, a tour operator that targets tourists with a high purchasing power, introduced moderate price cuts in relation to TUI in all the quantiles except for its mid-price package holidays (the 50th quantile), with the biggest cuts being made to its most expensive packages (the 90th quantile). 1 2 fly slightly reduced its prices in relation to TUI from one year to the next, with this reduction being bigger for the cheaper end of the market (the 10th quantile) and for its mid-to-high priced packages (the 75th quantile). ITS is the only tour operator that followed a strategy of bringing its prices more or less into line with those of the market leader, particularly in the case of its cheaper package holidays, which saw a rise of 7.07% in relative prices.

From the results commented on above, we can interpret that the World of Tui travel group is the market leader and that its leadership has not been affected by the crisis. TUI is its main tour operator and 1 2 fly is its low-cost tour operator specializing in the cheaper end of the market (with packages directed at families and consumers with a lower purchasing power). In its capacity as the market leader, TUI sets higher prices, while the other tour operators are forced to set lower ones, with the sharpest drop being in the mid-to-high priced bracket. The economic crisis has led most tour operators to react by cutting prices in relation to the market leader so that they can continue to attract tourists with a lower purchasing power. However, for certain quantiles in the price distribution, rather than cutting prices, ITS, Neckerman and Jahn Reisen decided to bring them more into line with TUI.

As for the price strategies of tour operators in the British tour operator market, Figs. 3 and 4 show the hedonic price indexes for the years 2007 and 2010 respectively. Once again, these indexes allow us to draw up a ranked list of tour operators by price and to reflect the differences by price quantiles. The results for the British market show that, in this case, there is no market leader that sets higher prices. What is more, in contrast with the German market, in both 2007 and 2010 there is a change in the tour operators' positions in the ranks across the price distribution.

In 2007, in the cheaper package holiday segment, First Choice and Airtours clearly set the highest prices, while the highest prices for the most expensive package holidays were set by Airtours, Thomson and First Choice. Fig. 3 shows that the price differences are smaller in the case of mid-price and expensive package holidays (above the 50th quantile) and bigger in the case of cheaper package holidays (the 10th and 25th quantiles). This situation changes in 2010, when First Choice and Airtours have the highest prices for all the package holidays. Portland Direct, which only had lower prices at the two extremes of the distribution in 2007, becomes the tour

Table 4
Absolute differences in the hedonic price index between 2007 and 2010 (German tour operators).

2010–2007	10th quantile	25th quantile	50th quantile	75th quantile	90th quantile
TUI	0	0	0	0	0
Jahn Reisen	−0.67	−1.54	1.92	−0.49	−3.77
Neckermann	0.62	−0.03	−0.10	−0.77	−0.38
ITS	7.07	5.93	4.94	3.28	3.58
Alltours	−9.45	−10.33	−9.11	−8.75	−9.17
1 2 Fly	−2.72	−1.99	−1.60	−2.93	−1.23

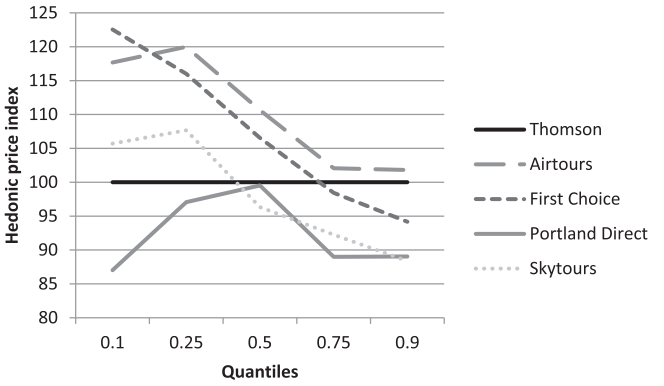

Fig. 3. Hedonic price index with QR for British tour operators in 2007 (taking Thomson as the base = 100).

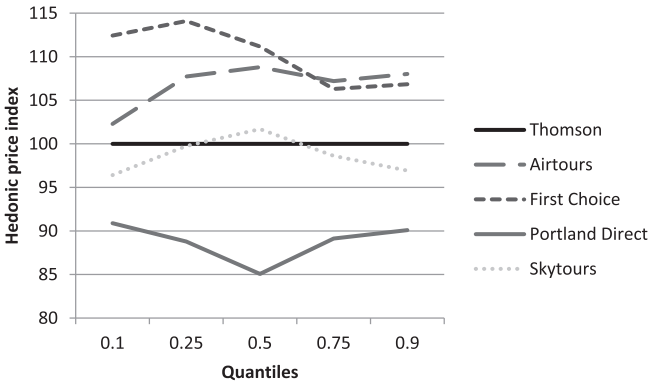

Fig. 4. Hedonic price index with QR for British tour operators in 2010 (taking Thomson as the base = 100).

operator with the lowest prices across the whole distribution in 2010. From a comparison of Figs. 3 and 4, their positions in the ranks in relation to Thomson can be seen to be more uniform (with flatter lines) across the distribution in 2010 than in 2007 (the year before the crisis).

Table 5 shows the absolute differences between the 2007 and 2010 hedonic price indexes. With the exception of Portland Direct (which displays a positive difference in the first quantile), the British tour operators have reacted to the crisis by cutting the prices of their cheaper package holidays in relation to Thomson and by raising the prices of their more expensive ones.

Consequently, there seems to be no leader-follower behaviour in the British tour operator market. The tour operators' response to the economic crisis has led to smaller price differences in their cheaper packages and bigger price differences in their more expensive ones. As a result, the tour operators have tended to align their prices in a uniform way across the price distribution.

6. Conclusions

In this paper, an analysis was made of the price structure of leading German and British tour operators at a European sun and sand destination. This structure has been dynamically described by comparing the relative price situation before and at the end of the current economic crisis. By using QR, it was demonstrated that tour operators use complex price strategies, in the sense that their positioning in relation to the market leader can vary depending on the market segment at which their packages are directed.

The (German and British) tour operator industry in Mallorca stands out for its oligopolistic characteristics. However, from the obtained results, the tour operators' price strategies can be seen to differ from one market to the other. Even though both markets are dominated by the same travel groups (World of TUI and Thomas Cook), their price policies clearly differ, depending on the nationality of the target market. Although the big tour operators function as oligopolies, the British market is a highly competitive oligopoly, battling hard for market shares, while the German market is more stable with a more obvious leader-follower type behaviour.

In the German tour operator market, TUI (the market leader) maintained its price leadership during the crisis. The remaining German tour operators acted as followers, setting lower priced packages without managing to dethrone TUI. However, their price strategies vary across the price distribution. Bigger price differences in relation to the leader can be detected in the case of mid-price and more expensive packages. Most of the tour operators have reacted to the economic crisis by cutting their prices in relation to the leader, although exceptionally one tour operator (ITS) brought its prices more into line with the leader in all the quantiles.

On the other hand, no clear leader-follower behaviour can be observed in the case of the British tour operator market and neither is there any sign of a price fixing. The results show this to be an oligopolistic market with more aggressive price competition. In comparison with the German market, this leads to more dynamic prices, at least in some segments of the price distribution. With the economic crisis, price competition has become stronger in the case of some segments, with smaller price differences in relation to Thomson in the case of cheaper package holidays (the 10th quantile) and bigger ones in the case of more expensive packages (from the 50th quantile).

Identifying the price strategies of leading German and British tour operators is fundamental in good planning and management by hotels and at the destination. The obtained results of this study can facilitate tourism decision-making by helping to ascertain tour operator price strategies. Surprisingly, on many occasions, the hotel sector is not clearly aware of the price strategies that tour operators use to sell holiday packages in their issuing markets. In negotiations in which the profit margins per hotel bed are very low, familiarity with these strategies could boost the destination's bargaining power.

Our analysis seems to confirm that the German tour operator market is based on a leader-follower pattern, where, once prices have been set by the tour operator with the highest market share, all the others set slightly lower ones in an attempt to boost their market shares. This strategy of setting lower prices can be observed across the whole price distribution (from cheaper packages to more expensive ones) in almost uniform style (although the trend is more obvious at the top end of the market). The crisis (which resulted in a predictable drop in demand) seems to have given rise to stronger price competition, and some 'follower' tour operators cut their prices even more drastically in relation to the leader, in some cases reaching a 27-point difference in the price index.

This description of the German market does not augur well for the hotel sector at the destination. The latter finds it hard to negotiate higher prices for its beds, not only with the market leader but also with all the other tour operators, who try to boost their market share by pushing for even lower prices. This type of analysis could be useful in helping to pinpoint 'follower' tour operators that might be inclined to set better prices even though they have a lower market share for at least one segment in the distribution. Having said that, the obtained results show that this is not the case of the German market in Mallorca, where there has been a uniform drop in prices by almost all the tour operators (in relation to the leader) across the entire price distribution.

In contrast, there is stronger competition among tour operators in the British market. This means that the tour operator with the biggest share (Thomson in this case) does not manage to set benchmark prices. Neither before nor during the crisis did the prices of Thomson's packages act as a constraint for those set by other rival tour operators. This wide diversity of prices implies the existence of both higher and lower prices than those set by Thomson across all types of packages. This behaviour should be an advantage in negotiations with the hotel sector, since the study shows that it should be possible to reap greater profits by working with certain tour operators and focusing on certain package holiday segments.

Finally, we address some potential directions for future research. It could be interesting to conduct the same analysis with other online distribution markets, such as OTAs and compare the results obtained in this paper. Another research line could be to perform the same analysis in different sun and sand destinations to contrast weather the tour operators' price strategies differ among destinations. Moreover, with the availability of data (at least quantity) it could be interesting to test empirically some theoretical oligopoly models.

Table 5
Absolute differences between the 2007 and 2010 hedonic price indexes (British tour operators).

2010–2007	10th quantile	25th quantile	50th quantile	75th quantile	90th quantile
Thomson	0	0	0	0	0
Airtours	−13.09	−10.22	−1.66	5.03	6.10
First Choice	−8.25	−1.64	4.35	7.97	13.44
Portland Direct	4.44	−8.52	−14.54	0.15	1.17
Skytours	−8.81	−7.36	5.55	6.90	9.65

Acknowledgement

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Annex 1. Estimations of the Germans models (2007/2010)

LNeuros	OLS regression				Quantile regression at 0.10 quantile						Quantile regression at 0.25 quantile						Quantile regression at 0.5 quantile						Quantile regression at 0.75 quantile						Quantile regression at 0.90 quantile					
	2007		2010		2007			2010			2007			2010			2007			2010			2007			2010			2007			2010		
	Coef.	sig	Coef.	sig	Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig	
tour operator																																		
1 2 Fly	-0.20	*	-0.22	*	-0.17	*	#	-0.19	*	#	-0.17	*	#	-0.19	*	#	-0.18	*	#	-0.19	*	#	-0.21	*	#	-0.24	*	#	-0.23	*	#	-0.25	*	#
Alltours	-0.20	*	-0.30	*	-0.16	*	#	-0.26	*	#	-0.16	*	#	-0.27	*	#	-0.17	*	#	-0.27	*	#	-0.21	*	#	-0.31	*	#	-0.21	*	#	-0.31	*	#
ITS	-0.16	*	-0.11	*	-0.14	*	#	-0.07	*	#	-0.14	*	#	-0.08	*	#	-0.13	*	#	-0.08	*	#	-0.15	*	#	-0.12	*	#	-0.16	*		-0.13	*	#
Jahn Reisen	-0.01		0.00		0.00		#	-0.01		#	-0.01		#	-0.03	**	#	-0.02		#	0.00		#	-0.01		#	-0.02		#	0.00		#	-0.04	***	#
Nechermann area	-0.12	*	-0.13	*	-0.11	*	#	-0.10	*		-0.11	*	#	-0.11	*		-0.11	*	#	-0.11	*		-0.13	*	#	-0.14	*		-0.14	*		-0.14	*	
Playa de Palma	-0.02	***	-0.02	**	0.01			0.01			0.01		#	0.02	*	#	0.01		#	0.02	**	#	-0.05	**	#	-0.04	***		-0.05	***		-0.12	*	#
Costa Llevant	-0.03	*	-0.03	*	0.02		#	0.03	**	#	0.01		#	0.03	*	#	0.00		#	0.01		#	-0.07	*	#	-0.05	**	#	-0.06	**	#	-0.11	*	
Costa Ponent	0.03	*	0.01		0.02		#	0.00			0.04	*	#	0.02	***	#	0.05	*	#	0.02		#	-0.01			0.02			0.05		#	0.02		
Costa Tramuntana	0.00		-0.02		0.03	***	#	0.00			0.03	**	#	0.02		#	0.00		#	0.00			-0.06	***		-0.02			-0.01			-0.07	**	
Calas de Capdepera	-0.02		-0.04	*	0.01			0.00			0.01			0.01			0.01			0.01			-0.04	**	#	-0.05	**	#	-0.06	**	#	-0.12	*	#
Colonia de Sant Jordi	0.06	*	0.05	*	0.08	*	#	0.07	*	#	0.06	*	#	0.08	*	#	0.08	*	#	0.09	*	#	0.05			0.02			0.05	***		-0.09	*	#
rating																																		
4 star	0.20	*	0.20	*	0.18	*	#	0.15	*	#	0.18	*	#	0.16	*	#	0.19	*	#	0.18	*	#	0.22	*	#	0.22	*	#	0.24	*	#	0.25	*	#
type of room																																		
Double room	-0.12	*	-0.12	*	-0.09	*	#	-0.08	*	#	-0.11	*	#	-0.10	*	#	-0.11	*	#	-0.12	*	#	-0.13	*	#	-0.13	*	#	-0.14	*	#	-0.14	*	#
Three sharing	-0.15	*	-0.15	*	-0.14	*	#	-0.11	*	#	-0.15	*	#	-0.12	*	#	-0.15	*	#	-0.14	*	#	-0.16	*	#	-0.15	*	#	-0.18	*	#	-0.17	*	#
type of board																																		
B&B	-0.20	*	-0.19	*	-0.19	*	#	-0.19	*	#	-0.19	*	#	-0.19	*	#	-0.19	*	#	-0.17	*	#	-0.17	*		-0.19	*	#	-0.20	*	#	-0.22	*	#
Half board	-0.16	*	-0.15	*	-0.13	*		-0.14	*		-0.15	*		-0.14	*		-0.15	*		-0.14	*		-0.15	*		-0.16	*		-0.16	*		-0.16	*	
Full board	-0.10	*	-0.10	*	-0.04	**	#	-0.07	*	#	-0.06	*	#	-0.06	*	#	-0.07	*	#	-0.08	*	#	-0.10	*	#	-0.11	*	#	-0.13	*	#	-0.11	*	#
Sea view	0.06	*	0.07	*	0.05	*	#	0.04	*	#	0.05	*	#	0.04	*	#	0.06	*	#	0.05	*	#	0.06	*	#	0.07	*	#	0.05	*	#	0.09	*	#
Chain	0.06	*	0.05	*	0.02	**	#	0.05	*	#	0.04	*	#	0.05	*	#	0.06	*	#	0.05	*	#	0.07	*	#	0.03	*	#	0.07	*	#	0.02	*	#
Distance to centre	0.00		0.00	*	0.00		#	0.00	*	#	0.00	*	#	0.00	*	#	0.00		#	0.00	*	#	0.00	**	#	0.00	*	#	0.00	**	#	0.00		#
Distance to centre squared	0.00	***	0.00		0.00		#	0.00	**	#	0.00	**	#	0.00	**	#	0.00		#	0.00		#	0.00	*	#	0.00		#	0.00	**	#	0.00		#
Inverse distance to beach	0.06	*	0.00		0.02			0.02			0.04	**	#	0.03	**	#	0.03	***		0.01			0.04	**	#	0.02			0.17	*	#	0.04	**	#
Intercept	6.75	*	6.88	*	6.58	*	#	6.71	*	#	6.63	*	#	6.75	*	#	6.69	*	#	6.81	*	#	6.84	*	#	6.97	*	#	6.92	*	#	7.11	*	#
Adjusted R-squared	0.71		0.75																															
Pseudo R-squared					0.48			0.52			0.49			0.53			0.48			0.53			0.53			0.49			0.54			0.58		

* Significantly different quantile regression or OLS coefficient from zero at the 1% significance level.
** Significantly different quantile regression or OLS coefficient from zero at the 5% significance level.
*** Significantly different quantile regression or OLS coefficient from zero at the 10% significance level.
# Significantly different quantile regression coefficient from OLS coefficient at the 5% significance level, when the OLS is outside of the quantile regression coefficient confidence interval.

Annex 2. Estimations of the British models (2007/2010)

LNeuros	OLS regression				Quantile regression at 0.10 quantile					Quantile regression at 0.25 quantile					Quantile regression at 0.5 quantile					Quantile regression at 0.75 quantile					Quantile regression at 0.90 quantile				
	2007		2010		2007			2010			2007		2010			2007		2010			2007			2010			2007			2010		
	Coef.	sig	Coef.	sig	Coef.	sig		Coef.	sig		Coef.	sig	Coef.	sig		Coef.	sig	Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig		Coef.	sig	
tour operator																															
Airtours	0.10	*	0.07	*	0.16	*		0.02			0.18	*	0.07	*		0.10		0.08	*		0.02		#	0.07	**		0.02		#	0.08	**	
First Choice	0.09	*	0.09	*	0.20	*	#	0.12	*		0.15	*	0.13	*	#	0.06		0.11	*		-0.02		#	0.06	**		-0.06		#	0.07	***	
Portland Direct	0.00		-0.14	*	-0.14	**		-0.10	*	#	-0.03		-0.12	*		0.00		-0.16	*		-0.12	*	#	-0.12	*		-0.12	*	#	-0.10	*	
Skytours	-0.01		-0.01		0.06			-0.04			0.07		0.00			-0.04		0.02			-0.08			-0.01			-0.12	*	#	-0.03		
area																															
Costa Llevant	-0.10	*	-0.03	***	0.03		#	-0.06	*		-0.06		-0.05	*		-0.15	**	-0.02			-0.18	*		-0.06	**		-0.20	*	#	-0.05	**	
Bahía de Pollensa	-0.01		0.04		0.01			0.07	**		-0.04		0.05	***		-0.03		0.05			-0.01			-0.04			0.02			0.01		
Costa Ponent	-0.05	**	0.01		-0.06	***		0.00			-0.06		0.02			-0.08		0.02			-0.12	*		-0.02			-0.08	**		-0.04		
rating																															
3 star	-0.10	*	-0.13	*	-0.11	*		-0.07	**	#	-0.14	*	-0.12	*		-0.08		-0.15	*		-0.06			-0.18	*		-0.01		#	-0.19	*	#
type of room																															
Double room	-0.10	*	-0.09	*	-0.11	*		-0.08	*		-0.12	*	-0.10	*		-0.09	*	-0.10	*		-0.10	*		-0.09	*		-0.11	*		-0.07	*	
Three sharing	-0.16	*	-0.13	*	-0.18	*		-0.13	*		-0.16	*	-0.14	*		-0.16	*	-0.14	*		-0.15	*		-0.12	*		-0.16	*		-0.11	*	
type of board																															
Half board	-0.13	*	-0.14	*	-0.15	*		-0.11	*		-0.12	*	-0.15	*		-0.12	*	-0.16	*		-0.13	*		-0.12	*		-0.14	*		-0.11	*	
Full board	-0.02		-0.05	***	-0.07			-0.05	***		-0.04		-0.07	**		0.01		-0.07	*		-0.03			-0.06	*		-0.08	***		-0.10	*	
Sea view	0.00		0.07	*	0.03			0.06	*		0.04		0.06	*		0.02		0.06	*		0.02			0.06	*		0.03			0.08	*	
Chain	-0.01		0.00		-0.01			0.06	*	#	-0.01		0.02			0.01		-0.02			0.05			-0.03			-0.01			-0.03		
Distance to centre	0.00	*	0.00	*	0.00		#	0.00	*		0.00		0.00	*		0.00	***	0.00	*		0.00	***		0.00	**		0.00	*		0.00		
Distance to centre squared	0.00	*	0.00	*	0.00		#	0.00	*		0.00		0.00	*		0.00		0.00	*		0.00			0.00	**		0.00	*		0.00	***	
Inverse distance to beach	0.10	**	0.03		-0.14	***	#	0.06			-0.05		0.01			0.13		-0.04			0.21	***		0.00			0.35	*	#	-0.01		
Intercept	6.97	*	6.97	*	6.89	*		6.78	*	#	6.90	*	6.90	*		6.95	*	7.01	*		7.11	*		7.11	*	#	7.13	*	#	7.16	*	#
Adjusted R-squared	0.56		0.71																												
Pseudo R-squared					0.49			0.61			0.37		0.55			0.33		0.50			0.42			0.48			0.56			0.54		

* Significantly different quantile regression or OLS coefficient from zero at the 1% significance level.
** Significantly different quantile regression or OLS coefficient from zero at the 5% significance level.
*** Significantly different quantile regression or OLS coefficient from zero at the 10% significance level.
# Significantly different quantile regression coefficient from OLS coefficient at the 5% significance level, when the OLS is outside of the quantile regression coefficient confidence interval.

References

Aguiló, P. M., Alegre, J., & Riera, A. (2001). Determinants of the price of German tourist packages on the island of Mallorca. *Tourism Economics, 7*(1), 59–74.

Aguiló, E., Alegre, J., & Sard, M. (2003). Examining the market structure of the German and UK tour operating industries through an analysis of package holiday prices. *Tourism Economics, 9*(3), 255–278.

Alegre, J., Cladera, M., & Sard, M. (2013). 'Tourist areas: Examining the effects of location attributes on tour operator package holiday prices'. *Tourism Management, 38*, 121–141.

Alegre, J., & Sard, M. (2015). When demand drops and prices rise. Tourist packages in the Balearic Islands during the economic crisis. *Tourism Management, 46*, 375–385.

Bastakis, C., Buhalis, D., & Butler, R. (2004). The perception of small and medium sized tourism accommodation providers on the impacts of the tour operators' power in Eastern Mediterranean. *Tourism Management, 25*, 151–170.

Baum, T., & Mudami, R. (1994). A Ricardian analysis of the fully inclusive tour industry. *Services Industries Journal, 14*(1), 85–93.

Buchinsky, M. (1998). Recent advances in quantile regression models: A practical guideline for empirical research. *Journal of Human Resources, 33*, 88–126.

Bull, A. O. (1994). Pricing a motel's location, International. *Journal of Contemporary Hospitality Management, 6*(6), 10–15.

Chasco, C., & Sánchez, B. (2012). Externalidades ambientales y precio de la vivienda en Madrid: Un análisis con regression cuantílica. *Revista Galega de Economía, 21*(2).

Clewer, A., Pack, A., & Sinclair, M. T. (1994). Price competitiveness and inclusive tour holidays in European cities. In P. Jonhnson, & B. Thomas (Eds.), *Choices and demand in tourism* (pp. 123–143). London: Mansell.

Costanigro, M., McCluskey, J. J., & Mittelhammer, R. (2007). Segmenting the wine market based on price: Hedonic regression when different prices mean different products. *Journal of Agricultural Economics, 58*, 454–466.

Conselleria de Turismo. (2001). *El turisme a les Illes Balears. Dades informative*. Palma de Mallorca: Govern de les Illes Balears.

Coulson, N., & McMillen, D. (2007). The dynamics of intra-urban quantile house price indexes. *Urban Studies, 44*(8), 1517–1537.

Curtin, S., & Busby, G. (1999). Sustainable destination development: The tour operator perspective. *International Journal of Tourism Research, 1*, 135–147.

Davies, B., & Downward, P. (2007). Exploring price and non-price decision making in the UK package tour industry: Insights from small-scale travel agents and tour operators. *Tourism Management, 28*, 1236–1261.

Davino, C., Furno, M., & Vistocco, D. (2014). *Quantile regression: Theory and applications*. J. Wiley & Sons.

Evans, N., & Stabler, M. (1995). A future for the package tour operator in the 21st century. *Tourism Economics, 1*(3), 245–263.

Falzon, J. (2012). The competitive position of Mediterranean countries in tourism: Evidence from the Thomson brochure. *Tourism Management, 33*(5), 1080–1092.

Fitch, A. (1987). Tour operators in the UK: Survey of the industry, its markets and product diversification. *Travel and Tourism Analyst*. March, 29–43.

FVW International dokumentation (2007). Europäische Veranstalter, 2007.

FVW International dokumentation (2010). Europäische Veranstalter, 2010.

García, J., & Raya, J. M. (2015). Use of a gini index to examine housing price heterogeneity: A quantile approach. *Journal of Housing Economics, 29*, 59–71.

Gunderson, R. J., & Ng, P. T. (2005). Analysing the effects of amenities, quality of life attributes and tourism on regional economic performance using regression quantiles. *Journal of Regional Analysis and Policy, 35*(1), 1–22.

Hao, L., & Naiman, D. Q. (2007). *Quantile regression*. Thousand Oaks, CA: SAGE Publications.

Haroutunian, S., Mitsis, P., & Pashardes, P. (2005). Using brochure information for hedonic analysis of holiday packages. *Tourism Economics, 11*(1), 69–84.

Hartman, R. S. (1989). Hedonic methods for evaluating product design and pricing strategies. *Journal of Economics and Business, 41*(3), 197–212.

Hung, W., Shang, J., & Wang, F. (2010). Pricing determinants in the hotel industry: Quantile regression analysis. *International Journal of Hospitality Management, 29*(2010), 378–384.

Kim, S. H., & Kim, W. G. (2011). Re-examining the determinants of executive compensation in the restaurant industry: A quantile regression approach. *Tourism Economics, 2011, 17*(5), 1035–1054.

Kim, J. Y., Natter, M., & Spann, M. (January 2009). Pay what you want: A new participative pricing mechanism. *Journal of Marketing, 73*, 44–58.

Koenker, R., & Bassett, G. (1978). Regression quantiles. *Econometrica, 46*(1), 33–50.

Koenker, R., & Hallock, K. F. (2001). Quantile regression. *Journal of Economic Perspectives, 15*(4), 143–156.

Kuo, H., & Lu, C. (2013). Expenditure-based segmentation: Application of quantile regression to analyse the travel expenditures of baby boomer households. *Tourism Economics, 2013, 19*(6), 1429–1441.

Lamb, C., Hair, J., & McDaniel, C. (2002). In *Marketing* (6th ed., pp. 607–610). International Thomson Editors.

Lew, A. A., & Ng, P. T. (2012). Using quantile regression to understand Visitor spending. *Journal of Travel Research*, 51–278.

Liao, W., & Wang, X. (2012). Hedonic house prices and spatial quantile regression. *Journal of Housing Economics, 21*(2012), 16–27.

Long, Y., & Shi, P. (2017). Pricing stretegies of tour operators and online travel agency based on cooperation to achieve O2O model. *Tourism Management, 62*, 302–311.

Mak, S., Choy, L., & Ho, W. (2010). Quantile regression estimates of Hong Kong real estate prices. *Urban Studies, 47*, 2461–2472.

Papatheodorou, A. (2002). Exploring competitiveness in Mediterranean resorts. *Tourism Economics, 8*(No 2), 133–150.

Prieto-Rodríguez, J., & González-Diaz, M. (2008). Is there an economic rent for island hotels? *Tourism Economics, 14*(No 1), 131–154.

Raya, J. M. (2013). Destination and seasonality valuations: A quantile approach. *Tourism Economics, 19*(4), 835–853.

Rosen, S. (1974). Hedonic prices and implicit markets: Product differentiation in pure competition. *Journal of Political Economy, 82*(1), 34–55.

Salmasi, L., Celidon, M., & Procidano, I. (2012). Length of Stay: Price and income semi-elasticities at different destinations in Italy. *International Journal of Tourism Research, 14*, 515–530.

Sheldon, P. J. (1986). The tour operator industry: An analysis. *Annals of Tourism Research, 13*, 349–365.

Sinclair, M. T., Clewer, A., & Pack, A. (1990). Hedonic prices and the marketing of package holidays: The case of tourism resorts in Malaga. In G. J. Ashworth, & B. Goodall (Eds.), *Marketing tourism places* (pp. 85–103). London: Routledge.

Taylor, P. (1995). Measuring changes in the relative competitiveness of package tour destinations. *Tourism Economics, 1*(2), 169–182.

Taylor, P. (1996). Oligopoly or contestable markets in the UK package tour industry? *Service Industries Journal, 16*, 379–388.

Williams, A. M. (1996). Mass tourism and international tour companies. In M. Barke, J. Towner, & M. T. Newton (Eds.), *Tourism in Spain: Critical issues* (pp. 119–135). Wallingford: CAB International.

Yale, P. (1995). *The business of tour operators*. Harlow: Longman.

Zietz, J., Zietz, E., & Sirmans, G. (2008). Determinants of house prices: A quantile regression approach. *The Journal of Real Estate Finance and Economics, 37*(4), 317–333.

Webgraphy

Agència de Turisme de les Illes Balears. (2016). Allotjaments turístics de les Illes Balears 2004-2016). http://www.caib.es/sites/estadistiquesdelturisme/ca/allotjaments_turastics/ (retrieved 24/7/2017).