



MONOGRAPH

**DECOMPOSING THE TOURIST
SATISFACTION GAP:
THE ROLE OF EXPECTATIONS AND
COGNITIONS**

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Decomposing the Tourists' Satisfaction Gap: The Role of Expectations and Cognitions

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Abstract

In this paper we present an empirical methodology that allows decomposing the tourist's satisfaction gap between two destinations into two components. One explains the role of differences in observed characteristics of the tourists and the stay (*endowments*). The other captures the share of the gap due to differences in the utility that tourists derive from those characteristics (*cognitive*). To illustrate the use of this method, we employ data coming from a sample of tourists visiting two touristic enclaves in Tarragona (Spain). Our results indicates that the *cognitive* component explain most of or all the satisfaction gap.

Keywords: Satisfaction, expectations, cognition, touristic destination.

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1. Introduction

Self-reported satisfaction with various aspects of individuals' lives has been the focus of many psychological studies. Only recently has the subject figured on the research agenda of other scientific disciplines in social sciences. This interest stems from the fact that many individuals' decisions are aimed at maximising well-being, which in turn is determined by the level of satisfaction in certain life domains as work, housing, income or leisure (among other reasons). Given this interest, there has been an increase in the literature on the analysis of the determinants of life satisfaction, as well as satisfaction in other domains. For instance Neal et al. (1999) concluded that satisfaction with touristic destinations play an important role in determining life satisfaction.

In the field of consumer research, self-reported satisfaction has become an extremely important concept, since in many cases this variable is a feasible way of assessing the success of consumption products, among them touristic destinations. This circumstance makes that the analysis determinants of tourist's satisfaction is crucial not only for scholars, but also for managers and local governments that exploit tourism as their main economic activity. The literature is full of empirical studies aimed at studying the determinants of tourist's satisfaction with specific destinations (e.g. Hughes 1991; Kozac and Rimmington 2000; Heung and Cheng 2000; Kozac 2001; Akama and Kieti 2002; Yu and Goulden 2006; Hui et al 2007). In this context, tourist's loyalty with a touristic destination can be

determined by tourist's satisfaction with that destination (e.g. Yoon and Uysal 2005; Gallarza and Saura 2006, Chia and Qu 2007).

Since satisfaction was introduced as a field of study in tourism research, many studies have focused in analysing its determinants. The most interesting feature of this variable is that it is based on both tourist's cognitions and emotions (Jun et al 2001; Yu and Dean 2001; Rodríguez del Bosque and San Martin 2008). However, self-reported satisfaction also possesses two inconvenient features. On the one hand, two identical individuals may have a different perception of the same scale. On the other hand, this heterogeneity in tastes, cognitions and emotions across tourists may cause that similar individuals in their observable characteristics derive different utility from the same attributes of a touristic destination. The latter circumstance makes difficult disentangling the forces driving tourist's satisfaction.

Disentangling how the subjective factors mention above may affect tourist's assessment of destination becomes a difficult task. However, it is empirically feasible to determine the extent to which the satisfaction gap between two touristic destinations is due to observable characteristics of the tourist or the touristic destination, or to a *ceteris paribus*, differences in the tourist's cognition of the touristic destinations.

The main goal of this study is not only to estimate the determinants of satisfaction with a given touristic destination, but also to ascertain to what extent the satisfaction gap between two touristic destinations is due to differences in the observable characteristics of the tourist and the destination in themselves or differences in the utility that tourists derive from those characteristics, which in turn is turn is driven by tourist's expectations, aspirations and beliefs. To do so, we propose the use of a methodology, which will be explained in more detail in the empirical section, consisting in decomposing the tourist's satisfaction gap between two destinations. This decomposition allows us to separate the two concepts mentioned above, i.e. observable characteristics vs. perceived utility. We hypothesize that a different perception of the destination's environment, and hence its effect on satisfaction, might exist as a result of unfulfilled expectations regarding that destination.

In tourism research, the literature dealing with tourist's cognitions, emotions and satisfaction seems to be taking off, since in the last years there is a growing body of papers dealing with this issue. However, practically all this literature proposes alternative cognitive-emotional theoretical models to explain satisfaction (e.g. Decrop 1999; Rodríguez del Bosque and San Martín 2008). We contribute to the existing literature by proposing a plausible and straightforward empirical framework able to disentangle the effect of expectations and cognitions in explaining tourists' satisfaction gaps between touristic products and destinations. This type of analysis is a useful tool for touristic managers and local authorities.

The implications we can derive from this type of analysis are three. First, if the satisfaction gap between destinations is driven by differences in the observable characteristics of the tourist, then we can reduce the gap by raising aggregated levels of satisfaction in the less attractive destination by attracting specific groups of tourists. Second, if this gap is due to differences in the attributes of the destinations, the satisfaction gap can be reduced by redesigning the package of amenities provided by the less attractive destination. Finally, if differences in satisfaction come from tourists' heterogeneity in the cognition or perception of destinations attributes, then the design of actions for improving aggregated satisfaction of a touristic destination should aim at changing tourists' expectations and beliefs.

With the aims described above, we proceed as follows: we first estimate the determinants of satisfaction with two touristic destinations, and use the estimated coefficients in the satisfaction equations as inputs to decompose satisfaction gap between the two destinations into observable characteristics of the tourist and the destinations and differences in the cognition of these observables. To do so, we resort to a survey data referred to a sample of tourists that visited two different touristic enclaves in the province of Tarragona (Spain) in 2006 and 2010.

The remainder of this paper is organised as follows. Section 2 describes the conceptual framework. In section 3 we explain the empirical strategy used in this study. Section 4 describes the data used in the empirical analysis. Section 5

presents the results and the main empirical findings. Finally, Section 6 summarizes and concludes.

2. Conceptual framework

The balance between individual's expectations and experienced events as a determinant of individuals' well-being has its origin in psychology. However, this issue has also become relevant in consumer research and studies aiming at estimating the determinants of consumers' satisfaction. This approach has also been taken as a baseline in studies dealing with tourist's satisfaction. In the context of tourism research, this approach implies that individuals cognitively construct a reference condition for all important features of the touristic destination. The quantity or quality of the given feature will depend on individual expectations. If the perceived experience coincides or is fairly closed to expectations, tourists should manifest satisfaction, while if there exist is a non negligible gap between both situations individuals will feel dissatisfied with their touristic destination. This conceptualization of satisfaction is similar to the one provided in Engel et al (1993).

All these analyses regarding expectations, satisfaction and touristic destinations crucially hinge on estimating the determinants of tourist's satisfaction. One of the most interesting features of this variable is that it captures aspects of the touristic experience that cannot be captured by other observable variables. Tourist's satisfaction, like many other satisfaction variables, is the result of both objective

and subjective factors and is more complex than standard variables. Tourists' satisfaction is the result of how individuals perceive salient attributes of the destination environment and their consequent evaluation according to certain standards of comparison, which in turn are constructed according to expectations. Thus, the determinants of tourist's satisfaction can be divided into three groups of factors: i) objective characteristics of the touristic destination; ii) objective characteristics of the tourists, and; iii) subjective factors such as beliefs, aspirations and expectations.

The most difficult issue in the treatment of satisfaction originates in the fact that tourists' perception of the amenities offered by a given destination is subject to a large degree of heterogeneity, which in turn is mainly determined (among others) by the group of subjective factors mentioned in iii). In this context, the tourist's motivations could be crucial in picking up some of this heterogeneity. This way of linking expectations and perceptions to self-reported levels of satisfaction is the conceptual approach employed in most of the studies aimed at estimating the determinants of consumer satisfaction (Engel et al 1993).

In this paper, we conceptualise self-reported tourist's satisfaction as a variable reflecting the gap between tourist's expected utility and the experienced utility in the touristic destination. Since satisfaction is commonly measured on an ordinal scale, a tourist fulfilling his/her expectations will feel fully satisfied, and hence, it is expected he/she will report the highest value on the scale. However, tourists

may also experience dissatisfaction with aspects of the touristic destination, and this, in turn, will probably have an impact on their overall satisfaction with that destination.

Our key assumption is that changes in tourists' satisfaction with a given destination, or differences in satisfaction between two destinations can be determined by three reasons: i) changes in the characteristics of the tourist; ii) changes in the characteristics of the destination, and; iii) differences in the tourist's expectations regarding that destination. We think that i) and ii) can be easily captured by comparing characteristics of the tourists and the destination. Although measuring tourists' expectations is not straightforward, we think that a model estimating the determinants of tourist' satisfaction, contains all the relevant information to capture most, or at least some, of this subjective dimension of tourist's satisfaction.

The theoretical framework of this paper is simple, and we take as baseline the well-known concept in economics of utility, which in turn is the force that drives individuals' choices. That is, an individual will choose an option over an alternative one only if the first provide him/her more utility than the other. The extension of this idea to the context of our research, i.e. tourist's assessment of a destination, is straightforward. We follow the model of product differentiation presented in Rosen (1974) (i.e. goods are valued for their utility-bearing characteristics). In our case, we assume that the tourist's utility, $U(\cdot)$, derived from

a given touristic experience in destination j depends on a set of k destination's attributes, w_{kj} , and a set of g tourist's characteristics, y_{gi} :

$$U_{ij} = U(w_{kj}; y_{gi}); \quad k=1,2,\dots,K; \quad g=1,2,\dots,G \quad (1)$$

In equation (1) tourists have the same attributes to value in each alternative j and the scales of measurement are identical. However, tourists may differ in how they value these characteristics. Assume that individuals have to choose between two alternative destinations, say j and l , whose utility functions can be defined as:

$$\begin{aligned} U_{ij} &= f(\gamma_{jk} w_{ijk}; \delta_{jg} y_{ijg}) \\ U_{il} &= f(\gamma_{lk} w_{ilk}; \delta_{lg} y_{ilg}) \end{aligned} \quad (2)$$

where γ_{jk} and δ_{jg} are the contribution of destination and individual characteristics to the tourist's utility. Individual i is indifferent between the two alternative destinations if $U_{ij} = U_{il}$. It should be remembered that our hypothesis is that identical destination attributes might provide different utility to tourists depending on their expectations. If this hypothesis is true, in equation (2) it will be $\gamma_{jk} \neq \gamma_{lk}$ for all or some k . Analogously, we could also observe that condition to his/her expectations, the same type of tourist could derive different utility per se, therefore $\delta_{jk} \neq \delta_{lk}$.

The conceptual framework developed here, allows us to formulate the following hypotheses:

Hypothesis 1: The impact of destination characteristics (gamma) on tourists utility (U_{ij}) is driven by expectations, beliefs or aspirations.

Hypothesis 2: If after controlling for the set of observable characteristics of the tourist and the destination, we still observe that $\gamma_{jk} \neq \gamma_{lk}$ or $\delta_{jk} \neq \delta_{lk}$. Then, this different impact of the observables on tourist's utility comes from differences in tourists' expectations visiting both destinations.

Although the concept of utility is not easy to measure, the interesting feature of this framework is that the utilities expressed in equation (2) can be approached using a satisfaction function S_{ij} , for which $S_{ij} > S_{il}$ only if $U_{ij} > U_{il}$.

3. Empirical framework

Tourist's satisfaction is generally measured on an ordinal scale. Therefore, the propensity of an individual i to report a certain level of satisfaction is driven by the following linear relationship: $S_{ij}^* = \beta' X_{ij} + e_{ij}$, where S_i^* is a latent outcome, X_i are the determinants of the outcome, and e_i is a random error term. The matrix $X_{ij} = [W_j, Z_{ij}]$ contains the set of characteristics of the destination and its environment (W_j), as well as the set of individual characteristics (Z_i). We do not observe S_{ij}^* but instead an indicator variable of the type $S_{ij}=h$ if $\mu_{h-1} < S_{ij}^* \leq \mu_h$ ($h=1, \dots, H$), where h is any point in the satisfaction scale. Based on this

observability rule, we obtain that $P(S_{ij} = h) = F(\mu_h - \beta' X_{ij}) - F(\mu_{h-1} - \beta' X_{ij})$,

where $F(\bullet)$ can be either the cumulative normal or cumulative logistic distribution. In this context, ordinal logit or probit is the most suitable method of estimation. However, in order to fit this empirical framework to the conceptual framework described in the previous section, we find more convenient to collapse the satisfaction scale into a binary indicator simply reflecting satisfaction or dissatisfaction. This approach also allow for a more straightforward interpretation of the results. Now the problem becomes:

$$y_{ij} = I(y_{ij}^* > 0) = I(\beta' X_{ij} + e_{ij} > 0), \quad (3)$$

where $I(\bullet)$ is a binary indicator function that takes the value one if the argument is true and zero otherwise, X_{ij} is a vector of explanatory variables, β is the vector of coefficients to be estimated, which determine the impact of the covariates on satisfaction, and e_{ij} is the error term. The natural candidate to estimate this binary model would be either the logit or probit model. However, given the methodology we propose bellow to decompose the satisfaction gap, the linear probability model (LPM) is a more convenient estimation method.

In order to disentangle the role of tourist's cognition in explaining the satisfaction gap between two touristic destinations, we propose the use of the Oaxaca-Blinder's (1973) decomposition method. This methodology is also useful in order to assess the determinants of the satisfaction gap for the same destination in two

different moments in time. We find this last framework still more attractive, since the characteristics of the destination are expected to be the same or very similar in the two periods of time we are comparing. This circumstance would facilitate disentangling the role of tourist's cognition in the satisfaction gap. That is, differences in the impact of identical destination characteristics on tourist's satisfaction in two different moments in time are expected to be caused by a different cognition of the same characteristics.

If we assume that equation (3) can be estimated using the LPM,¹ then, following Oaxaca-Binder (1973), the tourist's satisfaction gap between two touristic destinations j and l , can be decomposed as follows:

$$\hat{P}_j - \hat{P}_l = (\bar{X}_j - \bar{X}_l)\hat{\beta}_l + \bar{X}_l(\hat{\beta}_j - \hat{\beta}_l), \quad (4)$$

where \hat{P}_j is the estimated value for the probability of reporting satisfaction with destination j . $\hat{\beta}_j$ and $\hat{\beta}_l$ are the estimated coefficients picking up the impact of observable characteristics on tourist's satisfaction in both destinations j and l . And, \bar{X}_j and \bar{X}_l are the average values for the observed characteristics of the tourists and the destinations j and l , respectively. The left-hand side measures the estimated gap in the probability of reporting satisfaction between destinations j

¹ In the context of binary models, the decomposition proposed in Fairlie (2005) is more suitable. However, this decomposition method is quite sensitive to the order of the groups used to compute the gap in the outcome variable. That is, G₁-G₂ could not provide the same results in the decompositions than G₂-G₁. In this sense, the Oaxaca-Blinder's (1973) decomposition is more stable. Therefore, if the LPM performs well in terms of predicted probabilities and provide similar marginal effects of the explanatory variables, we recommend the use of this decomposition method.

and l . The first term of the right-hand side represents the part of the satisfaction gap attributed to differences in observed characteristics (*endowments*), and the second term shows the part of the difference that is due to the differences in the obtained rewards in terms of satisfaction from those observable characteristics (*cognition*).² In practice, the interpretation would be the following: the larger the proportion of the gap explained by the *cognition* component, the larger the difference in the satisfaction derived (perceived utility) from the set of destination characteristics between j and l . As we hypothesize in the previous section, these cognitive differentials of the same attributes between similar tourists can be attributable to differences in expectations or aspirations. On the contrary, the proportion of the gap explained by the *endowments* component will pick-up the impact of changes in the tourist's profile and destination amenities between the two destinations, which are observable.

The extension of this interpretation in the context of analysing the satisfaction gap between two different periods, t and $t+1$, for the same destination j is straightforward. Now the decomposition defined in equation (4) becomes:

$$\hat{P}_{j,t+1} - \hat{P}_{j,t} = (\bar{X}_{j,t+1} - \bar{X}_{j,t})\hat{\beta}_{j,t} + \bar{X}_{j,t}(\hat{\beta}_{j,t+1} - \hat{\beta}_{j,t}), \quad (5)$$

² The most usual application of the Oaxaca-Blinder decomposition is to measure wage gaps. Originally, the method was created to study the level of discrimination in gender wage gaps. Therefore, what we label as *perception*, in the labour economics literature is commonly considered as a measure of *discrimination*.

4. Data and variables

The data used in this paper is provided by the *Fundació d'Estudis Turísitcs de la Costa Daurada* (FETCD). Since 2006, this institution carries out annual surveys to tourists visiting the *Costa Daurada* and *Terres de l'Ebre*. There are two survey waves every year. More specifically, the data used in this study refers to two years, 2006 and 2010. The 2006 data comes from a random sample of 2478 individuals, 2000 visiting *Costa Daurada* and 478 visiting *Terres de l'Ebre*. The 2010 data is based in a sample of 783 tourists visiting *Terres de l'Ebre*.

Both touristic enclaves are geographically located in the Mediterranean coast of the province of Tarragona (Southern Catalonia – Spain). Both touristic destinations exhibit quite different characteristics. While *Costa Daurada* is a typical destination for tourists seeking beach and sun, the main reason to visit *Terres de l'Ebre* is that this touristic enclave is endowed with a natural park. Hence, we could expect that tourists visiting these destinations might differ not only in their observable characteristics, but also in their motivations, and hence in their expectation about these touristic destinations.

The survey collects information regarding the socio-demographic characteristics of the tourist, the characteristics of the stay in the touristic destination and variables reflecting the tourist's motivation for visiting that destination. Elicited responses also refers to tourist's satisfaction in different domains regarding the touristic destination, among them overall satisfaction. Individuals are asked to rate

their satisfaction on a five-point scale ranging from ‘not satisfied at all’ (1) to ‘fully satisfied’ (5). However, as we mention in the previous section, our outcome variable is a binary indicator taking the value of 1 if self-reported tourist satisfaction is equal to 4 or 5 and 0 otherwise.

Our vector of explanatory variables (X_{ij}) in equation (3) accounts for various types of determinants of tourist’s satisfaction: tourist’s characteristics (i.e. age, gender, education, nationality and loyalty); characteristics of the stay in the touristic destination (i.e. length of the stay, type of accommodation and expenditure during the stay). The variable *loyalty* refers to whether the individual visited the destination for the first time or not. One interesting feature of the variable *tourist’s expenditure* is that it can be also taken as a proxy of tourist’s income.

4.1. Costa Daurada vs. Terres de l’Ebre

In table 1 we show a summary statistics of the explanatory variables included in our analysis comparing the satisfaction gap between *Costa Daurada* and *Terres de l’Ebre*. We provide separate statistics for both touristic destinations and the result of the test of the equality of means for both enclaves. We observe that there remarkable differences between the characteristics of the tourists visiting both destinations. Respect to *Costa Daurada*, tourists visiting *Terres de l’Ebre* are significantly younger (47 vs. 42 years), Catalan (20% vs 49%), more educated, and less loyal (66% vs. 50%). Regarding the characteristics of the stay, those visiting *Terres de l’Ebre* tend to expend more (450 vs. 562€), however, they seek

for cheaper accommodation since they then tend to be accommodated more frequently in two stars hotel or go to camping. Finally, as we could expect, since the two touristic enclaves are intrinsically different, beach/sun vs. nature, we also observe remarkable differences in the motivations that lead tourists visiting both destinations. Respect to *Costa Daurada*, tourists visiting *Terres de l'Ebre* are more likely to be motivated by nature and mountain (8.7% vs. 47.1%), quietness (16.6% vs. 23%), work (1.5% vs. 3.3%), it is in my way (0.4% vs. 4%) and family trip (1.4% vs. 4.6%). On the contrary, they are less likely to be motivated by beach (53% vs. 36%), second residence (24% vs. 0.8%), habit (12.1% vs. 7.5%), Portaventura (9.7% vs. 3.1%), organized trip for retired (9% vs. 0.4%) and for fun (2.4% vs. 0.2%).

Table 2 reports the differences in the average satisfaction in each domain. We observe that respect to *Costa Daurada*, tourists visiting *Terres de l'Ebre* tend to feel more satisfied with quality-price ratio (52.2% vs. 60.2%), cleaning (60.4% vs. 68%) and natural resources (63.3% vs. 73.1%). However, they tend to feel less satisfied with signposting (80.5% vs. 74.5%), accommodation (81.3% vs. 76.5%) and pedestrian facilities (82.5% vs. 67.6%). Regarding our variable of interest, overall satisfaction with destination, tourists visiting *Terres de l'Ebre* tend to feel less satisfied than the ones visiting *Costa Daurada*. For the firsts the probability of reporting satisfaction was 79.2% while for the latter this probability was of 88.7%.

[Insert table 1, about here]

[Insert table 2, about here]

4.2. Terres de l'Ebre: 2010 vs. 2006

In table 3 we show summary statistics of the explanatory variables included in our analysis. We provided separate statistics for 2006 and 2010 and the result of the test of the equality of means for both years. We observe that characteristics of the tourists have changed between 2006 and 2010. The most important changes regard the nationality of the tourists and their gender. The percentage of Catalan tourists has risen by almost 7%, while the share of non-Spanish tourists has decreased by 5.6%. Analogously, the percentage of females has increased by 6.3%. Regarding the characteristics of the stay, the most remarkable change regards the tourist's expenditure in the destination and the accommodation. Between 2006 and 2010 tourist's expenditure has fallen dramatically from 562€ to 355€ (36.8%), while the percentage of tourists going to camping as accommodation has decreased by 16.5%.

Table 4 reports the changes in average satisfaction in each domain. We observe that between 2006 and 2010 satisfaction only increased significantly in the domain regarding the quality-price relation. The probability of reporting satisfaction in this domain increased by 8.5 percentage points. On the contrary, the satisfaction has decreased in a remarkable number of domains, these are: signposting (-14.7), historic resources (-15.8), leisure and night life (-29.7),

accommodation (-7.7), kindness (-11.4), pedestrian facilities (-12.1) and natural resources (-10.5). However, our results reveal a paradoxical situation. While satisfaction in most of the domains has decreased between 2006 and 2010, overall satisfaction, our variable of interest, has significantly increased by 10.4 percentage points.

[Insert table 3, about here]

[Insert table 4, about here]

5. Econometric results: The determinants of tourist's overall satisfaction

5.1. Costa Daurada and Terres de l'Ebre 2006

In this section we report the regression results of our analysis comparing *Costa Daurada* and *Terres de l'Ebre*, which are reported in table 5. We run a pooled model including both destinations. We use both the Probit and the Linear Probability Model (LPM). For the first, in order to allow for comparisons across alternative models and specifications, we provide the marginal effects instead of the estimated coefficients. Since both estimation methods, the Probit and LPM, provide a similar performance we resort to the Probit model in order to explain the effect of the explanatory variables on satisfaction.

First at all, it is important to remark that the dummy variable *Costa Daurada* reports a statistically significant marginal effect of 0.094. This result indicates that after controlling for the set of observable characteristics and motivations of the

tourist and characteristics of the stay, tourists visiting *Costa Daurada* are still more likely to report satisfaction than those visiting *Terres de l'Ebre* by 9.4 percentage points. Since the difference between the raw means is 0.095 (table 2), this result implies that none of the observable characteristics, including tourist's motivation, retain any portion of the satisfaction gap. With this result we are able to anticipate that the role of the observable characteristics (*endowments*) when decomposing the satisfaction gap will negligible or fairly modest.

Our results also indicate that the effect of age on satisfaction is inverted U-shape, i.e. positive but decreasing with age. The birthplace of the tourist has also turned out to be statistically significant. Respect to Catalan tourists, for the Spaniards the probability of reporting satisfaction decreases by 0.035. Satisfaction also increases with education and loyalty, since tourists with higher education and more loyal are more likely to report satisfaction, about 0.03. However, length of stay reports a negative effect, since tourists that spend more than two weeks are 5.2 percentage points less like to report satisfaction. Surprisingly, the amount expended in the destination has turned out to be non-statistically significant as well as accommodation and gender. Surprisingly, we find that motivations are not very relevant in determining tourist's satisfaction, since only three of the motivations included in the regressions have reported a statistically significant (positive) effect (culture, quietness and for recommendation). However, although theoretical models predict an important role of motivations in determining satisfaction, many

some empirical studies linking tourist's motivation with satisfaction also report a modest effect (e.g. Meng et al 2008).

[Insert table 5, about here]

5.2. *Terres de l'Ebre*: 2006 and 2010

In this section we report the regression results for the analysis of the determinants of satisfaction for the tourists visiting *Terres de l'Ebre* in 2006 and 2010 (Table 6). As in the previous analysis, we use both the Probit and the Linear Probability Model (LPM). Since for 2010 we do not have information about tourist's motivations, this set of variables has been kept out for this analysis. In the descriptive analysis, we observed that the average probability of reporting satisfaction was 10.4 percentage points larger in 2010 than in 2006 (table 4). However, after controlling for the observable characteristics of the tourist and the stay, the satisfaction gap between 2006 and 2010 decreases by only 1.1 percentage points, indicating again that observable characteristics retain a very little portion of the time variation of tourist' overall satisfaction, though some of these, some of these variables are statistically significant in explaining overall satisfaction.

As we do in the previous analysis, we resort to the Probit model to explain the effect of the explanatory variables on satisfaction. Interestingly, age has reported a cubic effect, i.e. the effect is negative but increasing for middle-aged tourists and decreasing for oldest tourists. This result contrasts with the inverted U-shaped effect observed in *Costa Daurada*. The nationality of the tourist has also

turned out to be statistically significant. Respect to Catalan tourists, for the Spaniards the probability of reporting satisfaction decreases by 0.061, while for non-Spanish this probability falls by 0.073. Contrary to the observed in *Costa Daurada*, in *Terres de l'Ebre* tourist's expenditure in the destination has reported a statistically significant inverted U-shaped effect, i.e. expenditure in the destination exert a negative but increasing effect on satisfaction. Accommodation is the factor that has reported the strongest effect. Between 2006 and 2010, the probability of reporting satisfaction decreases by 0.134 for those tourists accommodated in 4-5 star hotels, while the fall in the probability was about 0.06 for those accommodated in 3 stars hotels. This result indicates that, contrary to what we observe in *Costa Daurada*, in *Terres de l'Ebre* alternative forms of accommodation to hotels are valued more positively by tourists. Finally, gender, education, loyalty and length of stay have not reported any statistically significant effect.

[Insert table 6, about here]

5.3. Decomposing the tourist' overall satisfaction gap

In table 7 we report the results of the decomposition of the tourist's overall satisfaction gap. In this table we report the results of both decomposition exercises, i.e. the cross-section gap in 2006 between *Costa Daurada* and *Terres de l'Ebre* and the time satisfaction gap in *Terres de l'Ebre* between 2006 and 2010. We use the Oaxaca-Blinder's decomposition explained in section 3, which

is a method designed for linear models. Therefore, this decomposition method uses as inputs the coefficients of the LPM used to estimate de determinants of overall tourist's satisfaction, instead of the ones provided by the probit model. We expect this decomposition to perform well, since both models LPM and Probit perform in a similar way in terms of predicted probabilities and estimated marginal effects of the explanatory variables.

We start by commenting the results of the decomposition of the satisfaction gap between *Costa Daurada* and *Terres de l'Ebre* in 2006. Our estimates indicate that differences in the characteristics of the tourists, the stay and motivations (*endowments*) do not contribute to explain the satisfaction gap. This result implies that if the characteristics of the average tourist/stay and their motivations were exactly the same in both destinations, the satisfaction gap between the two touristic enclaves will remain exactly the same as observed. The implication of this result is that policies aimed at changing the characteristics of the tourists might exert no impact in the aggregated level of satisfaction of the touristic destination. We find striking the fact that motivations do not exert any significant effect in explaining the satisfaction gap. However, although not statistically significant, the effect is negative, what means that if tourists visiting both destinations exhibited exactly the same motivations, the gap would increase. On the contrary, the *cognitive* component of the decomposition, i.e. differences in the estimated effects on satisfaction between both destinations fully explain the satisfaction gap. This component refers to how differences in the cognition and

valuation of the observable characteristics in both destinations affect the satisfaction gap between the two destinations.

Results regarding the decomposition of the satisfaction gap between 2006 and 2010 in *Terres de l'Ebre* are a bit different from the ones obtained in the previous decomposition. Now, we observe that almost 20% of the satisfaction gap is explained by the changes in the characteristics of the tourists and the stay (*endowments*). More specifically, tourist's characteristics (age, gender, nationality, education and loyalty) explain 8.8% of the gap, while the tourist's expenditure in the destinations explains 9.6% of the gap. This result implies that if the characteristics of the average tourist/stay had been the same in 2006 and 2010, the satisfaction gap between the two periods had decreased by about 20%. Again, the implication of this result is that policies aimed at changing the characteristics of the tourists might have a limited impact in the aggregated level of satisfaction of this touristic destination. The *cognitive* component of the decomposition, i.e. differences in the estimated effects on satisfaction between 2006 and 2010, represents most of the satisfaction gap, a bit more of 80%.

[Insert table 7, about here]

6. Summary and concluding remarks

In this paper we propose a methodology to explain the role of tourists' cognitions, which are driven by to tourists' expectations, and observable characteristics of the

tourist/destination in disentangling the satisfaction gap between two touristic enclaves. We hypothesize that the impact of these observable characteristics on tourist's satisfaction will be driven by subjective factors such as tourist's beliefs, aspirations and expectations. Hence, estimated coefficients of the satisfaction regressions can be used to quantify what share of the satisfaction gap can be attributed by differences in the utility derived from the same observable characteristics, which in turn are caused by a different cognition of these characteristics. With this aim, we propose the use the Oaxaca-Blinder's (1973) decomposition method, which allows us to decompose the satisfaction gap into two components, one picking up the effect of observable characteristics (*endowments*), and the other picking up the effect of tourist's cognitions (*cognitive*).

This methodology can be used to analyse not only the satisfaction gap between two touristic destinations, but also satisfaction gaps throughout time for the same touristic enclave, or any other satisfaction domains regarding a touristic destination, touristic products, etc. This type of analysis can be useful for managers of the touristic industry and local governments for the design of policies aimed at improving aggregated levels of tourists' satisfaction with destinations or touristic products. However, we have to acknowledge that this methodology also has a limitation. That is, if in the satisfaction regression analysis we omit relevant variables determining the tourist's satisfaction, estimated coefficients might be biased, and hence the results of the decomposition. In this scenario, the

endowments component will tend to be underestimated, while the *cognitive* component will tend to be overestimated. Therefore, the larger the number of relevant variables included in the satisfaction equations, the more the reliability of the results.

In order to illustrate the use of this methodology, we analyse the determinants of tourist's overall satisfaction with two Catalan (Spain) touristic enclaves, *Costa Daurada* and *Terres de l'Ebre*. Both destinations differ in that the first is a typical destination for tourists seeking sun and beach, while the second is characterized by visitors seeking for nature. Firstly, we decompose the satisfaction gap between tourists visiting both destinations in 2006. Secondly, we decompose the satisfaction gap between 2006 and 2010 for tourists visiting *Terres de l'Ebre*. In both cases we observe that observable characteristics of the tourists and the stay explain very little of the satisfaction gap. We obtain that observables explain up to almost 20% of the time satisfaction gap in *Terres de l'Ebre*, while in the other decomposition observables are not statistically significant in explaining the satisfaction gap between *Costa Daurada* and *Terres de l'Ebre*. While keeping in mind that in the analyses we have probably omitted relevant variables, the fact that most of the or all satisfaction gap can be attributed to the *cognitive* component, implies that policies aimed at changing the observable characteristics considered in the analysis may have a limited impact in reducing the satisfaction gap.

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Table 1: Descriptive statistics explanatory variables (*Costa Daurada* vs. *Terres de l'Ebre*, 2006)

| | <i>Costa Daurada (CD)</i> | | <i>Terres Ebre (TE)</i> | | Mean gap | |
|---------------------------|---------------------------|-------------|-------------------------|-------------|-----------------|---------------|
| | Mean | S.D. | Mean | S.D. | CD-TE | T-test |
| Age | 47.139 | 17.633 | 42.269 | 12.189 | -4.870 | -7.13 |
| Woman | 0.470 | 0.499 | 0.504 | 0.501 | 0.034 | 1.34 |
| Catalan | 0.204 | 0.403 | 0.490 | 0.500 | 0.286 | 11.63 |
| Spanish | 0.531 | 0.499 | 0.272 | 0.445 | -0.259 | -11.13 |
| Non-Spanish | 0.273 | 0.445 | 0.243 | 0.429 | -0.030 | -1.35 |
| Primary | 0.430 | 0.495 | 0.331 | 0.471 | -0.099 | -4.11 |
| Secondary | 0.238 | 0.426 | 0.337 | 0.473 | 0.099 | 4.20 |
| University | 0.333 | 0.471 | 0.333 | 0.472 | 0.000 | 0.01 |
| Loyalty | 0.661 | 0.474 | 0.450 | 0.498 | -0.211 | -8.39 |
| Less than 7 days | 0.587 | 0.493 | 0.563 | 0.497 | -0.024 | -0.94 |
| 7 - 14 days | 0.266 | 0.442 | 0.230 | 0.421 | -0.036 | -1.66 |
| More than 14 days | 0.148 | 0.355 | 0.207 | 0.406 | 0.060 | 2.95 |
| Expenditure | 4.505 | 6.082 | 5.624 | 6.680 | 1.119 | 3.35 |
| 4-5 stars hotel | 0.143 | 0.350 | 0.132 | 0.339 | -0.011 | -0.62 |
| 3 stars hotel | 0.369 | 0.483 | 0.385 | 0.487 | 0.016 | 0.66 |
| 2 stars hotel | 0.014 | 0.115 | 0.029 | 0.169 | 0.016 | 1.94 |
| Camping | 0.074 | 0.261 | 0.454 | 0.498 | 0.380 | 16.17 |
| <i>Motivations</i> | | | | | | |
| Beach | 0.534 | 0.499 | 0.360 | 0.480 | -0.174 | -7.05 |
| Culture | 0.185 | 0.388 | 0.151 | 0.358 | -0.034 | -1.85 |
| Second residence | 0.239 | 0.427 | 0.008 | 0.091 | -0.231 | -22.15 |
| Nature and mountain | 0.087 | 0.282 | 0.471 | 0.500 | 0.384 | 16.19 |
| Habit | 0.121 | 0.326 | 0.075 | 0.264 | -0.045 | -3.20 |
| Quietness | 0.163 | 0.369 | 0.230 | 0.421 | 0.068 | 3.23 |
| Portaventura | 0.097 | 0.296 | 0.031 | 0.175 | -0.066 | -6.33 |
| Retired | 0.090 | 0.286 | 0.004 | 0.065 | -0.086 | -12.17 |
| Visit relatives | 0.054 | 0.225 | 0.048 | 0.214 | -0.005 | -0.49 |
| Climate | 0.065 | 0.246 | 0.054 | 0.227 | -0.010 | -0.86 |
| For fun | 0.024 | 0.152 | 0.002 | 0.046 | -0.021 | -5.38 |
| Work | 0.015 | 0.122 | 0.033 | 0.180 | 0.018 | 2.13 |
| For recommendation | 0.011 | 0.102 | 0.021 | 0.143 | 0.010 | 1.50 |
| By chance | 0.004 | 0.059 | 0.040 | 0.196 | 0.036 | 4.01 |
| Family trip | 0.014 | 0.115 | 0.046 | 0.210 | 0.033 | 3.27 |
| Other | 0.023 | 0.148 | 0.094 | 0.292 | 0.072 | 5.20 |
| Sample size | 2000 | | 478 | | | |

Table 2: Descriptive statistics satisfaction variables (*Costa Daurada* vs. *Terres de l'Ebre*, 2006)

| | <i>Costa Daurada (CD)</i> | | | <i>Terres Ebre (TE)</i> | | | Mean gap | |
|-----------------------|----------------------------------|-------------|-------------|--------------------------------|-------------|-------------|-----------------|---------------|
| | N | Mean | S.D. | N | Mean | S.D. | CD-TE | T-test |
| Overall | 1870 | 0.887 | 0.317 | 466 | 0.792 | 0.406 | 0.095 | 4.69 |
| Restaurant | 1368 | 0.726 | 0.446 | 420 | 0.733 | 0.443 | -0.007 | -0.30 |
| Signposting | 1804 | 0.805 | 0.396 | 458 | 0.745 | 0.437 | 0.060 | 2.69 |
| Quality-price | 1815 | 0.522 | 0.500 | 462 | 0.602 | 0.490 | -0.080 | -3.12 |
| Historic resources | 573 | 0.606 | 0.489 | 138 | 0.623 | 0.486 | -0.018 | -0.38 |
| Beach equipments | 1539 | 0.650 | 0.477 | 407 | 0.612 | 0.488 | 0.039 | 1.43 |
| Beach cleaning | 1800 | 0.646 | 0.478 | 427 | 0.660 | 0.474 | -0.015 | -0.58 |
| Leisure & night life | 949 | 0.652 | 0.477 | 260 | 0.631 | 0.484 | 0.021 | 0.64 |
| Cleaning | 1881 | 0.604 | 0.489 | 456 | 0.680 | 0.467 | -0.075 | -3.06 |
| Security | 1216 | 0.671 | 0.470 | 410 | 0.717 | 0.451 | -0.046 | -1.77 |
| Accommodation | 1119 | 0.813 | 0.390 | 429 | 0.765 | 0.425 | 0.049 | 2.06 |
| Kindness | 1864 | 0.841 | 0.366 | 463 | 0.836 | 0.371 | 0.005 | 0.25 |
| Pedestrian facilities | 1846 | 0.825 | 0.380 | 407 | 0.676 | 0.469 | 0.149 | 6.01 |
| Natural resources | 1816 | 0.633 | 0.482 | 424 | 0.731 | 0.444 | -0.098 | -4.02 |

Table 3: Descriptive statistics explanatory variables (*Terres de l'Ebre*: 2006 vs. 2010)

| | 2006 | | 2010 | | Mean gap | |
|----------------------|-------------|-------------|-------------|-------------|------------------|---------------|
| | Mean | S.D. | Mean | S.D. | 2010-2006 | T-test |
| | | | | | | |
| Age | 42.269 | 12.189 | 43.564 | 12.741 | 1.295 | 1.80 |
| Female | 0.504 | 0.501 | 0.567 | 0.496 | 0.063 | 2.17 |
| Catalan | 0.490 | 0.500 | 0.558 | 0.497 | 0.069 | 2.36 |
| Rest of Spain | 0.272 | 0.445 | 0.262 | 0.440 | -0.010 | -0.39 |
| Not Spanish | 0.243 | 0.429 | 0.186 | 0.390 | -0.056 | -2.33 |
| Loyalty | 0.450 | 0.498 | 0.493 | 0.500 | 0.043 | 1.49 |
| Length of stay | 13.389 | 22.544 | 11.338 | 21.093 | -2.051 | -1.60 |
| noches7_d | 0.563 | 0.497 | 0.655 | 0.476 | 0.092 | 3.25 |
| noches714_d | 0.170 | 0.376 | 0.230 | 0.421 | 0.060 | 2.63 |
| noches14_d | 0.207 | 0.406 | 0.175 | 0.380 | -0.032 | -1.40 |
| Expenditure (x 100€) | 5.624 | 6.680 | 3.551 | 5.791 | -2.072 | -5.61 |
| 4-5 stars hotel | 0.132 | 0.339 | 0.100 | 0.300 | -0.032 | -1.71 |
| 3 stars hotel | 0.385 | 0.487 | 0.337 | 0.473 | -0.048 | -1.71 |
| 2 stars hotel | 0.029 | 0.169 | 0.038 | 0.192 | 0.009 | 0.87 |
| Camping | 0.454 | 0.498 | 0.289 | 0.453 | -0.165 | -5.90 |
| Sample size | 476 | | 782 | | | |

Table 4: Descriptive statistics satisfaction variables (*Terres de l'Ebre*: 2006 vs. 2010)

| | 2006 | | | 2010 | | | Mean gap | |
|-----------------------|------|-------|-------|------|-------|-------|-----------|--------|
| | N | Mean | S.D. | N | Mean | S.D. | 2010-2006 | T-test |
| | | | | | | | | |
| Overall | 466 | 0.792 | 0.406 | 394 | 0.896 | 0.306 | 0.104 | 4.28 |
| Restaurant | 420 | 0.733 | 0.443 | 392 | 0.737 | 0.441 | 0.004 | 0.13 |
| Signposting | 458 | 0.745 | 0.437 | 529 | 0.597 | 0.491 | -0.147 | -4.99 |
| Quality-price | 462 | 0.602 | 0.490 | 526 | 0.686 | 0.464 | 0.085 | 2.77 |
| Historic resources | 138 | 0.623 | 0.486 | 172 | 0.465 | 0.500 | -0.158 | -2.81 |
| Beach equipments | 407 | 0.612 | 0.488 | 382 | 0.560 | 0.497 | -0.052 | -1.47 |
| Beach cleaning | 427 | 0.660 | 0.474 | 323 | 0.622 | 0.486 | -0.038 | -1.08 |
| Leisure & night life | 260 | 0.631 | 0.484 | 234 | 0.333 | 0.472 | -0.297 | -6.91 |
| Cleaning | 456 | 0.680 | 0.467 | 488 | 0.637 | 0.481 | -0.043 | -1.38 |
| Security | 410 | 0.717 | 0.451 | 412 | 0.752 | 0.432 | 0.035 | 1.15 |
| Accommodation | 429 | 0.765 | 0.425 | 291 | 0.687 | 0.464 | -0.077 | -2.27 |
| Kindness | 463 | 0.836 | 0.371 | 201 | 0.721 | 0.449 | -0.114 | -3.17 |
| Pedestrian facilities | 407 | 0.676 | 0.469 | 447 | 0.555 | 0.498 | -0.121 | -3.65 |
| Natural resources | 424 | 0.731 | 0.444 | 265 | 0.626 | 0.485 | -0.105 | -2.85 |

Table 5: Determinants of tourist's overall satisfaction (Costa Daurada and Terres de l'Ebre, 2006)

| | LPM | | Probit | |
|------------------------------------|--------|---------|--------|---------|
| | M.E. | t-stat | M.E. | t-stat |
| <i>Costa Daurada</i> | 0.096 | 4.30*** | 0.094 | 3.98*** |
| Age | 0.006 | 2.35*** | 0.006 | 2.42*** |
| Age squared | 0.000 | -1.70* | 0.000 | -1.76* |
| Woman | 0.013 | 0.91 | 0.012 | 0.85 |
| <i>Nationality (base: Catalan)</i> | | | | |
| Spanish | -0.040 | -2.15** | -0.035 | -1.96** |
| Non-Spanish | -0.021 | -0.95 | -0.018 | -0.80 |
| <i>Education (base: primay)</i> | | | | |
| Secondary | -0.003 | -0.15 | 0.000 | 0.01 |
| Higher | 0.031 | 1.73* | 0.030 | 1.76* |
| Loyalty | 0.034 | 1.96** | 0.029 | 1.73* |
| <i>Length (base: 7 to 14 days)</i> | | | | |
| Less than 7 days | -0.020 | -1.10 | -0.024 | -1.32 |
| More than 14 days | -0.047 | -1.97** | -0.052 | -2.09** |
| Expenditure | -0.002 | -0.79 | -0.006 | -1.73* |
| Expenditure squared | 0.000 | 1.39 | 0.000 | 1.87* |
| Accomodation | | | | |
| 4-5 stars hotel | -0.034 | -1.45 | -0.034 | -1.45 |
| 3 stars hotel | 0.007 | 0.35 | 0.008 | 0.42 |
| <i>Motivation</i> | | | | |
| Beach | 0.019 | 1.03 | 0.019 | 1.09 |
| Culture | 0.042 | 1.79* | 0.033 | 1.65* |
| Second residence | 0.033 | 1.31 | 0.033 | 1.37 |
| Nature and mountain | 0.034 | 1.42 | 0.029 | 1.37 |
| Habit | 0.036 | 1.38 | 0.029 | 1.23 |
| Quietness | 0.044 | 1.98** | 0.036 | 1.80* |
| Portaventura | 0.042 | 1.45 | 0.037 | 1.45 |
| Retired | -0.012 | -0.33 | -0.018 | -0.52 |
| Visit relatives | 0.053 | 1.51 | 0.044 | 1.44 |
| Clima | 0.033 | 1.03 | 0.028 | 1.00 |
| For fun | -0.016 | -0.30 | -0.011 | -0.23 |
| Work | 0.060 | 1.09 | 0.048 | 1.08 |
| For recommendation | 0.153 | 2.29*** | 0.102 | 1.99** |
| By chance | -0.016 | -0.23 | -0.004 | -0.06 |
| Familiar | 0.040 | 0.77 | 0.038 | 0.87 |
| Other | -0.038 | -0.96 | -0.031 | -0.83 |
| N | 2332 | | | |

Significant at 1% (***) , 5% (**) and 1% (*)

Table 6: Determinants of tourist's overall satisfaction (Terres de l'Ebre, 2006 and 2010)

| | Probit | | LPM | |
|------------------------------------|---------------|---------------|-------------|---------------|
| | <i>M.E.</i> | <i>z-stat</i> | <i>M.E.</i> | <i>z-stat</i> |
| 2010 | 0.081 | 3.16*** | 0.083 | 3.21*** |
| Age | -0.033 | -1.66* | -0.031 | -1.64* |
| Age squared | 0.001 | 1.75* | 0.001 | 1.72* |
| Age cubic | 0.000 | -1.72* | 0.000 | -1.70* |
| Woman | 0.026 | 1.07 | 0.029 | 1.14 |
| <i>Nationality (base: Catalan)</i> | | | | |
| Spanish | -0.061 | -1.99** | -0.061 | -2.03** |
| Non-Spanish | -0.073 | -2.02** | -0.060 | -1.74* |
| <i>Education (base: primay)</i> | | | | |
| Secondary | -0.010 | -0.31 | -0.013 | -0.40 |
| Higher | 0.031 | 1.04 | 0.029 | 0.96 |
| Loyalty | 0.023 | 0.85 | 0.021 | 0.79 |
| <i>Lenght (base: 7 to 14 days)</i> | | | | |
| Less than 7 days | -0.028 | -0.86 | -0.027 | -0.81 |
| Between 7 and 14 days | -0.027 | -0.63 | -0.032 | -0.77 |
| Expenditure | -0.010 | -1.84* | -0.007 | -1.70* |
| Expenditure squared | 0.000 | 1.53 | 0.000 | 1.65* |
| <i>Accomodation</i> | | | | |
| 4-5 stars hotel | -0.134 | -3.08*** | -0.124 | -3.13*** |
| 3 stars hotel | -0.060 | -1.97** | -0.058 | -1.96** |
| N | | 785 | | |

Significant at 1% (***) , 5% (**) and 1% (*)

Table 7: Decomposition of the satisfaction gap

| | <i>Costa Daurada vs. Terres Ebre</i> | | | <i>Terres Ebre (2006 vs. 2010)</i> | | |
|--------------------------|---|---------------|--------------------|---|---------------|--------------------|
| | <i>Coef</i> | <i>z-stat</i> | <i>% explained</i> | <i>Coef</i> | <i>z-stat</i> | <i>% explained</i> |
| <u>Endowments</u> | | | | | | |
| Tourist characteristics | -0.004 | -0.47 | -4.3% | 0.009 | 1.65* | 8.8% |
| Length of stay | 0.002 | 1.43 | 2.4% | -0.001 | -0.34 | -1.0% |
| Expenditure | 0.001 | 0.49 | 1.0% | 0.010 | 1.54 | 9.6% |
| Accommodation | -0.001 | -0.78 | -0.6% | 0.002 | 0.62 | 1.9% |
| Motivation | -0.001 | -0.1 | | | | |
| Total | -0.003 | -0.18 | -2.7% | 0.020 | 2.20** | 19.3% |
| <u>Cognitive</u> | | | | | | |
| Tourist characteristics | 0.095 | 0.46 | 100.9% | 0.331 | 0.69 | 322.1% |
| Length of stay | 0.025 | 0.67 | 26.8% | 0.049 | 1.00 | 47.2% |
| Expenditure | 0.019 | 0.75 | 20.6% | 0.020 | 0.77 | 19.6% |
| Accommodation | 0.055 | 2.28*** | 58.3% | 0.016 | 0.60 | 15.2% |
| Motivation | -0.083 | -1.11 | -88.4% | | | |
| Constant term | -0.015 | -0.06 | -15.5% | -0.333 | -0.70 | -323.5% |
| Total | 0.096 | 4.03*** | 102.7% | 0.083 | 3.38*** | 80.7% |
| Prediction (Group 1) | 0.887 | 121.09 | | 0.896 | 58.21 | |
| Prediction (Group 2) | 0.793 | 42.16 | | 0.793 | 42.15 | |
| Satisfaction Gap | 0.094 | 4.65*** | | 0.103 | 4.23*** | |

Significant at 1% (***) , 5% (**) and 1% (*)