A REFERENCE-DEPENDENT APPROACH TO WTP FOR PRIORITY

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Abstract

This article introduces the notions of reference dependence and loss aversion to the analysis of waiting times in tourism to examine their effects on people's willingness to pay (WTP). The empirical study carried out using quantile regression confirms that visitors to theme parks who are willing to pay a high price for express passes are reference-dependent (their WTP for an express pass is influenced by the difference between the expected waiting time and the perceived waiting time) and loss averse (a *loss in waiting time*, i.e. waiting longer than expected, has a greater effect on WTP as this loss is more *annoying* than an equal-sized *gain in waiting time* being *satisfying*). The implications of these findings for the literature on waiting in services are considered.

Keywords: waiting times; priority; loss aversion; express pass; quantile regression.

INTRODUCTION

Waiting times have been widely explored since the mid 1980s because of the negatives consequences that arise from making consumers wait (Maister, 1985; Rafaeli, Barron, & Haber, 2002; Unger, Uriely & Fuchs, 2016; Zhang, Li and Su, 2017; Zhang, Li, Su and Hu, 2017; Wu, Cheng and Ai, 2018). Customers want to use their time efficiently (Lew & McKercher, 2006) and they often consider waiting as a waste of time (Leclerc, Schmitt, & Dubé, 1995). In general, when consumers have to wait, they feel annoyed, irritated and frustrated (Carmon, Shanthikumar, & Carmon, 1995; Osuna, 1985). From a business standpoint, when customers are made to wait for service, service evaluations and customer satisfaction are lower (Katz, Larson, & Larson, 1991; Lee & Lambert, 2000; Li, 2010; Taylor, 1995; Yan & Lotz, 2006). In contrast, when customers are satisfied with waiting times, they are more willing to repurchase and recommend the service to others (Hensley & Sulek, 2007).

Theme parks are often associated with waiting times and queues (Heger, Offermans, & Frens, 2009; Nip, 2014). Therefore, managing waiting times is a constant priority of theme park management. Indeed, theme parks employ multiple strategies to reduce delays and enhance the tourist experience (Zhang, Li, Su and Hu, 2017). For example, priority lines, widely used by service providers such as airports, supermarkets and public administration, are also used by theme parks. In this way, people who are willing to pay extra may 'jump' or 'skip' the regular queue and enjoy a service with little or no waiting time (Matthew, MacLaren, O'Gorman, & White, 2012; Tone & Kohara, 2007). Many well-known theme parks such as Universal Studios, Knott's Berry Farm, Legoland, Port Aventura and Six Flags, have turned to fast line systems to help solve the problem of waiting times.

In spite of the ongoing efforts made by companies, the reality is that customers are still waiting, so much so that waiting is an all-too common occurrence in theme parks. From a marketing perspective, it is important to understand customer behaviour in order to correctly manage queues and waiting times (Bennett, 1998), and to improve the overall visitor experience (Pearce, 2005). In light of the limited consumer-centered academic research on priority lines at theme parks and the need to develop more appropriate and effective waiting solutions, further research on this topic are required. Based on prospect theory (Kahneman and Tversky 1979) and analyzing expected and perceived waiting time, this article examines the way tourists behave and

make decisions in situations where they have to decide between alternatives that involve uncertainty. In particular, the notions of reference dependence and loss aversion are introduced in the analysis of waiting times in tourism to identify their effects on people's willingness to pay (WTP). This study contributes to the literature as it extends prior research on the trade-off between time and money in the context of waiting times and the different sensitivities to waiting. To be specific, the inclusion of reference points (expected waiting times) and their comparisons to the perceived waiting times allows us to look at the existing different sensitivities from a new angle: visitors who are reference-dependent and loss averse might present different levels of WTP for priority systems.

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The literature suggests that markets may be segmented by consumers' sensitivity to waiting times (Friedman & Friedman, 1997). Several firms, such as Amazon, employ this form of segmentation, offering quicker or slower delivery times according to the customer's WTP or wait (Alotaibi & Liu, 2012). In this way, customers may exchange time or money in order to achieve their goals (Okada & Hoch, 2004).

According to prior studies, some customers are not worried about time constraints and they are willing to wait (Riganti & Nijkamp; 2008). Indeed, they prefer to wait rather than to pay extra money for a faster service (Clark & Kim, 2007; Matthew et al., 2012). For this group of people, money may be more important than time (Friedman & Friedman, 1997). In addition, Haynes (1990) explains that waiting becomes more tolerable when customers are conscious that they are saving money with their decision. In this way, Okada and Hoch (2004) suggest that a 'waste of time' may be considered in a more positive way than a 'waste of money'.

Additionally, the literature also shows that there are customers who wish to waste no time waiting or queuing (Larson, 1987; Giebelhausen, Robinson, & Cronin Jr, 2011). These consumers are willing to pay extra to avoid delays (Matthew et al., 2012) and may be labeled as 'time-hungry' (Setoodeh, 2004). For them, time is akin to money: a scarce and precious good that can be valued in the same way (Haynes, 1990).

As well as customer satisfaction (Oliver, 1980) and service quality (Zeithaml et al., 1993) disconfirmation models are also considered in waiting contexts (Davis & Heineke, 1998; Durrande Moreau, 1999; Pruyn & Smidts, 1998; Yan & Lotz, 2006; Ryan, Hernandez-Maskivker, Valverde & Pamies, 2018). In these models, satisfaction is the difference between expectations and perceptions (from a disconfirmation approach) (Davis & Heineke, 1998; Parasuraman, Zeithaml, & Berry, 1994). Waiting time disconfirmation is based on comparing customers' expectations and perceptions of waits (Houston et al., 1998; Yan & Lotz, 2006). Lee & Lambert (2000) suggest that when the perceived waiting time is lower or equal to the expected waiting time, it does not have a negative effect on perceived quality or customer satisfaction (positive disconfirmation). In fact, positive disconfirmation may increase customers satisfaction (Bigné, Andreu, & Gnoth, 2005). Customers may feel happy with this situation (Lin et al., 2015). However, customers may perceive the wait as longer than expected. In this case, people may negatively evaluate their waiting experience (negative disconfirmation). Janakiraman et al. (2011) consider expectations and perceptions in a similar manner. They suggest waiting is tolerable when it is shorter than initial waiting expectations and unpleasant when it is longer than expected.

Certainly, when analysing waiting time, it is important to consider that there is an objective waiting time (based on reality), i.e. the real time customers are waiting, but also there is a subjective waiting time (based on perceptions), i.e. the time customers perceive they are waiting and that may not coincide with real waiting time (Durrande Moreau, 1999).

Companies have different alternatives to manage both of them. On the one hand, they can reduce the real waiting time, for example, by extending the opening hours, opening more checkouts, hiring more employees or implementing new technologies such as machines which sell products or assist customers (Davis & Vollmann, 1990; Pamies & Ryan, 2011; Yan & Lotz, 2006). However, due to operational reasons and the nature of the service, sometimes theme parks cannot avoid waiting times: attractions and rides capacity is exceeded by visitor's demand and queues and delays are unavoidable (Dawes & Rowley, 1996; Heger et al., 2009; Heo & Lee, 2009; Matthew et al., 2012). On the other hand, when real waiting time cannot be modified, managers may attempt to reduce the perceived waiting time (subjective waiting time) (Dubé-Rioux et al., 1989; Maister, 1985; Pruyn & Smidts, 1998), which may not match with real waiting times. For instance, a 10-minute real waiting time to ride an attraction at a theme park may be perceived as 20 minutes or 5 minutes depending on the individual.

As Hornik (1984) explains, in general people tend to overestimate waiting times. Maister's study (1985) shows how , as one of the referents of how to manage perceived waiting times from a service marketing perspective, attempts to understand the psychological component of waiting lines. In order to reduce perceived waiting times and overestimations, companies should fill the wait (Katz et al., 1991; Larson, 1987; Maister, 1985), promote social interaction among waiting customers and/or provide a pleasant and fair waiting environment (Baker & Cameron, 1996). When customers perceive time savings, positive responses appear; however, if they perceive their time is wasted and unexpected waits occur, then negative feelings appear (Lin et al 2015).

The literature explains that expectations of waiting times should be also managed by firms as they may have a greater influence on the overall wait and service experience (Davis & Heineke, 1998). For example, companies may manage waiting expectations by informing customers about wait duration (Mishra et al., 2014; Zhang, Li, Su and Hu, 2017). Uncertain waits may lead to high levels of anxiety (Jones & Peppiatt, 1996). When customers know how long they will have to wait to be served (waiting duration), they tend to feel better and wait with a positive composure (Larson, 1987; Taylor, 1994). When customers have information about the wait, they pay less attention to the passage of time (Hui & Tse, 1996). Visitors may have certain expectations about waiting times for some services; in light of these waiting expectations and keeping in mind the range of potential negative effects of waiting times, tourists can be more or less willing to pay to avoid waiting.

When customers perceive waiting as a cost and are faced with a choice, Prospect Theory helps to explain customer decisions under a risk (uncertain) waiting situation. This theory developed by Kahneman and Tversky (1979) suggests that the value of time depends on the context and it is not static, considering losses and gains. Authors such as Leclerc et al (1995) and Lin et al (2015) have analysed waiting-time decisions in a similar way to monetary decisions, based on Prospect theory. In decisions involving time, people make risk-averse decisions rather than risk-seeking choices (Leclerc et. 1995). According to Prospect Theory most people prefer obtaining a sure $100 rather than taking the risk of a bet in which they might win $100 or $0; however, people prefer risky options in a choice set in which they might incur a sure lost of $100, or they might take a risky bet with a 50% likelihood of recovering their loss and 50% of losing $200. In the wating time framework, one would expect that saving time (gain) is sought by paying for an express pass as the individuals will get a "sure gain"; however, depending on people's preferences, some individuals might choose to take the risk and just wait in line because, first, the actual wait

may not be as long as the expected one, and second, because they would rather sacrifice their time than the money necessary to save that time. To show the intricacies of integrating these elements, Lin et al (2015) demonstrated that people preferred saving time (gain) in one integrated occasion than saving time in different occasions and they preferred to wait (loss) in different occasions than in one single situation. This is even more intricate if reference points are considered, giving rise to reference dependence and loss aversion.

Reference dependence and loss aversion are two central phenomena in Prospect Theory (Kahneman and Tversky 1979). Reference dependence leads people to compare outcomes to reference points rather than just evaluating these outcomes in absolute measures; and loss aversion predicts that the absolute level of a change in demand due to a *loss* is greater than the corresponding impact of an equal *gain*.

While these properties have been examined in tourism (Smeral, 2012; Masiero and Qiu, 2018), they are yet to be studied in the context of waiting time. Regarding reference dependence, people create their expectations about the time they should need to wait before consuming a service; as these expectations become their reference points, when the perceptions of the actual waiting time are observed, people should make comparisons and, if they are reference-dependent, their utility and, in turn, their WTP for an express pass should be influenced by these comparisons. Therefore, the following hypothesis is stated:

H.1.- *Willingness to pay for an express pass is influenced by the difference between the expected waiting time and the perceived actual waiting time.*

As for loss aversion, observing a *loss in waiting time* (i.e. perceiving an actual waiting time greater than expected) should be more *annoying* than an equal-sized *gain in waiting time* being *satisfying* (i.e. perceiving an actual waiting time lower than expected). Therefore, loss averse people should be more willing to pay for an express pass that allows them to avoid longer-than-expected waiting times. Consequently, it is hypothesized that:

H.2.- *Loss averse preferences should increase willingness to pay for an express pass.*

Control variables

There are some other dimensions that may have an influence on WTP for an express pass, such as attitudes toward waiting and towards the express pass, customer's prior experiences, age,

household size and household income. These dimensions are introduced in the model as control variables.

Attitudes toward waiting and the express pass. Customers can have a more positive and relaxed attitude toward waiting or, in contrast, a more negative attitude (Bennett, 1998; Rose, Evaristo, & Straub, 2003). There are customers who consider waiting as a waste of valuable time that should be avoided, while others have a positive attitude toward waiting and consider it an opportunity to relax or slow down (Mishra, Mokhtarian, & Widaman, 2014). As attitudes are considered to be the step preceding action (Harrill & Potts, 2002), visitor's attitudes toward waiting times at theme parks may be a key element when analysing WTP for an express pass. Those who have a negative attitude toward waiting times may be more willing to pay for this service. The literature suggests considering psychosocial variables such as attitudes when predicting customers' behaviours like purchase intentions (Kraus, 1995) or when implementing market segmentation (Voss, Spangenberg, & Grohmann, 2003). As Ruiz-Molina and Gil-Saura (2008, pp. 306) explain, "attitude refers to a learned predisposition to respond consistently favourably or unfavourably to an object". Positive attitudes toward certain products may be the starting point to stimulate their consumption (Vermeir & Verbeke, 2006). Thus, a positive or a negative attitude toward an express pass or toward waits may determine customers' purchase decisions. Also, as attitudes are learned, they are the result of prior information and prior experiences (Ruiz-Molina & Gil-Saura, 2008).

Customer's prior experiences. When customers are faced with a purchase decision, they tend to consider past purchase experiences before they make a decision. Thus, prior experiences may determine a customer's purchase patterns (Lehto, O'Leary, & Morrison, 2004). People who are accustomed to buy a service may have a higher WTP (Reynisdottir et al., 2008). In contrast, customers without prior experiences may be less likely to purchase the service. Additionally, familiarity with a service or a brand may influence the decision to purchase a service. McGuire and Kimes (2006) explain that familiarity has to do with going through similar prior experiences over time. In their analysis of customers' familiarity with a specific system to manage queues at restaurants, these authors find that when customers experienced familiarity with the method, positive perceptions, such as fairness, increase.

Age. Some studies on tourist behaviour find that young people demonstrate greater tolerance to waiting times than elderly people, at restaurants (Hwang & Lambert, 2005) and at

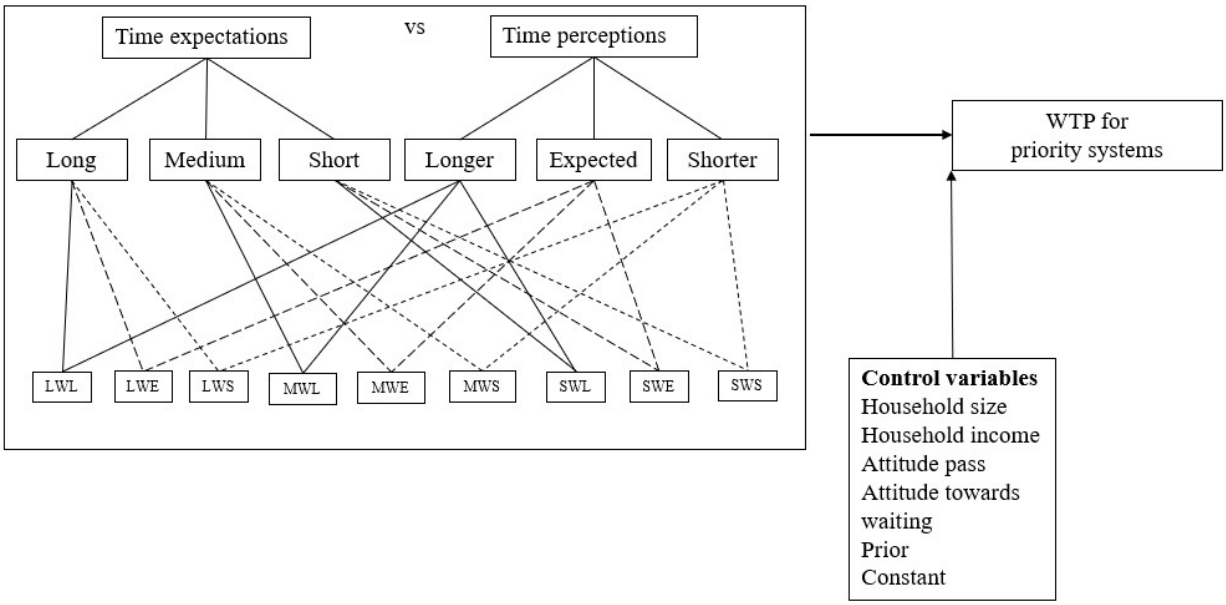
theme parks (Ahmadi, 1997). Age may also have an influence on customer's WTP for a service such as an express pass. Although some studies suggest that WTP and age are not related (Anderson, Black, & Dunn, 1997; Mmopelwa, Kgathi, & Molefhe, 2007), there are others that explain that WTP for some services may be negatively correlated to age (Arin & Kramer, 2002; Reynisdottir, Song, & Agrusa, 2008).

Household size. Fundamentally, household size is a representative aspect of the so-called *interpersonal barriers* (Crawford & Godbey, 1987), in such a way that it plays an important and deterrent role in recreational decisions, as large family size restricts vacation spending, such as on express passes.

Household income. According to the literature, income is positively correlated with WTP (Bishai & Lang, 2000; Halkos & Matsiori, 2012; Reynisdottir et al., 2008). People with higher incomes have a higher WTP than those with low incomes (Mmopelwa et al., 2007; Reynisdottir et al., 2008). For example, high-income commuters are more willing to pay to reduce their travel time (Mishra et al. 2014). Moreover, people with a higher economic status tend to choose services that offer no waiting time (Clark & Kim, 2007), as they have a less favourable attitude towards waiting (Mishra et al., 2014). As Kostecki (1996) explains, higher-income individuals generally place a high value on their time, and thus a high cost on waiting and display a high intolerance toward delays. In conclusion, they may be more likely to spend money to avoid waiting (Matthew et al., 2012). In contrast, people with lower levels of income place a lower value on their time and are more relaxed when they need to wait (Bennett, 1998).

Figure 1 shows these relationships that emerge when introducing Prospect Theory into WTP in the context of waiting times: the two central hypotheses -reference-dependence and loss aversion- derived from comparing time expectations and time perceptions, and the control variables that give rise to the expectations argued earlier.

Figure 1. Prospect Theory and WTP in the context of waiting times



METHODOLOGY

Data analysis

As in linear regression models (OLS), quantile regression (QR) models try to detect linear relationships between the dependent variable and a set of explanatory variables. OLS, however, seeks to model the conditional mean of the dependent variable, while QR tries to model the conditional τth quantile of the dependent variable, where $\tau \in (0, 1)$. Consequently, QR can find potential varying impacts of a determinant factor on the whole range of the dependent variable (i.e., WTP), generally for the 10th, 25th, 50th, 75th, and 90th quantiles. This study uses the OLS estimates as a reference model for comparative purposes to test the superiority of QR over OLS in modeling WTP.

QR is specified as follows (Koenker & Bassett, 1978): given a random variable Y with probability distribution function $F(y)=\text{Prob}(Y\leq y)$, and considering that $0<\tau<1$, the τth quantile of Y is defined as the smallest y that holds $F(y)\geq \tau$: $Q(\tau)=\inf\{y: F(y)\geq \tau\}$. Taking n observations on Y, the empirical distribution function is given by $F_n(y)=\sum 1(Y_i\leq y)$, where $1(z)$ is an indicator function that equals 1 if the argument z is true and 0 otherwise. Hence, the empirical quantile is defined as $Q_n(\tau)=\inf\{y: F(y)\geq \tau\}$. Expressed from the perspective of an optimization problem:

$$Q_n(\tau) = \arg\min_{\xi} \left\{ \sum_{i:Y_i\geq\xi} \tau \left|Y_i - \xi\right| + \sum_{i:Y_i<\xi} (1-\tau)\left|Y_i - \xi\right| \right\} = \arg\min_{\xi} \left\{ \sum_i \rho_\tau \left|Y_i - \xi\right| \right\}$$

where $r_t(u)=u(\tau - 1(u<0))$ is the *check function* that asymmetrically weights both positive and negative values. Under the assumption of a linear specification for the conditional quantile of the variable "expenses," it is obtained that $Q(\tau|X_i,\beta(\tau))=X_i'\beta(\tau)$, where X_i is the vector of explanatory variables and $\beta(\tau)$ represents the vector of parameters linked to the t-th quantile. Thus, the optimization problem is:

$$\hat{\beta}_n(\tau) = \arg\min_{\beta(\tau)} \left\{ \sum_i \rho_\tau (Y_i - X_i'\beta(\tau)) \right\}$$

Intuitively, the QR estimates are obtained by taking different weights to the absolute residuals, so the whole sample is considered no matter which quantile is estimated.

Sample and variable measurement

Sample. The data collection considered visitors to Port Aventura, the largest theme park in Spain and the second largest in Europe (Anton Clavé, 2010), which has a well-known priority system to avoid queues. As there is no official data from the theme park, we conducted the interviews in the surroundings of the theme park. All the individuals who participated in the interview had completed the tour in the park. The questionnaire was made available in Spanish, Catalan, English, French and Russian. A pilot survey was carried out to fully adapt the questionnaire to the conditions of the study area. The principal goal of this pre-test was to check if the questions were understood, if they were well formulated, if any question was difficult to answer or if any important questions were not considered. Four interviewers collected the surveys in June, July and August of 2015 (peak season). The sample consists of 971 individuals. After adjusting for missing values found in the variables used, the final sample size is 506 individuals.

Variable measurement. To analyse reference dependence and loss aversion, two variables are combined, one showing people's expectations of waits and the other the observed waiting time. Specifically, individuals were asked to provide their expectations of the length of their waits (long, medium and short) and their perceived actual waiting time (longer than expected, as expected and shorter than expected), resulting in the following categories: LWL (expecting long waits, perceiving longer than expected); LWE (expecting long waits, perceiving as expected); LWS (expecting long waits, perceiving shorter than expected); MWL (expecting medium waits, perceiving longer than expected); MWE (expecting medium waits, perceiving as expected); MWS (expecting medium waits, perceiving shorter than expected); SWL (expecting short waits, perceiving longer than expected); SWE (expecting short waits, perceiving as expected); and SWS (expecting short waits, perceiving shorter than expected (this category is used as the reference base in the estimation)).

Age is measured through a quantitative variable; household size by the number of people that live in the household; household income per year shows the sum of incomes of all household members. Attitude towards the express passes was measured with a five-point scale (from 1=strongly negative to 5=strongly positive attitude) in line with Ruiz-Molina & Gil-Saura (2008). Attitude towards waiting times are measured through three questions about annoyance, stress and frustration (Bennett, 1998). Each question was measured with a five-point scale (from 1=not at all

annoying to 5=very annoying; from 1=not at all stressful to 5=very stressful; from 1=not at all frustrating to 5=very frustrating). A factorial analysis was conducted to group items in a single quantitative variable. As Bennett (1998) suggests in his study about attitude towards queuing at supermarkets, a control question (five-point scale) was also introduced: "In general I really dislike having to wait in queues". This question was included in the questionnaire to obtain a more general, comprehensive measure of "general attitude towards waiting" when applying the factorial analysis. Regarding prior experience, visitors were asked if they had had prior experience with express passes with a dichotomous variable: 1=yes, 0=no. Finally, as for the dependent variables, a quantitative variable measures in euros how much people would be willing to pay for an express pass (WTP). Table 1 shows the descriptive statistics for the variables used.

Table 1. Descriptive statistics

Variable	Mean/Proportion	Standard Deviation
LWL	0.086	0.281
LWE	0.160	0.367
LWS	0.043	0.205
MWL	0.279	0.449
MWE	0.258	0.438
MWS	0.040	0.196
SWL	0.082	0.275
SWE	0.034	0.183
Age	27.68	10.61
Household size	3.336	1.284
Household income	2.417	0.926
Attitude pass	3.351	0.967
Attitude towards waiting	-0.001	1.000
Prior	0.313	-
Willingness to pay	17.11	14.71

RESULTS

Table 2 presents the determinants of WTP, which are estimated at the 10th, 25th, 50th, 75th, and 90th quantiles; the OLS results are also shown as reference. Note that none of the significant parameters have a constant effect over the conditional distribution of the dependent variable; conversely, their impacts vary across quantiles, and are, therefore, different from the OLS estimates.

Regarding the comparisons between the expected and perceived waiting times, the OLS estimates show that reference dependence is confirmed as there are three parameters associated with these comparisons that are significant. Therefore, as the WTP for an express pass is influenced by the difference between the expected waiting time and the perceived waiting time, hypothesis 1 cannot be rejected (this statement will be qualified later when discussing the QR results). Specifically, finding longer than expected waits when the visitors are prepared to undergo long or medium waits (LWL and MWL) leads them to increase their WTP. Interestingly, people who are expecting long waits and eventually have shorter than expected (LWS) tend to augment their WTP too. These results imply that, while reference dependence cannot be rejected, loss aversion can only be accepted for medium waits (as before, this partial acceptance of hypothesis 2 will be qualified in the QR results). It seems that in the extremes (long and short expected waits), loss aversion does not emerge to have an impact on the level of WTP: for those expecting long waits the parameters associated with loss (LWL) and gains (LWS) are not significantly different ($t=-0.1808$; $p=0.8566$); the same pattern is observed for those expecting short waits (as SWL is not significant, it means that it is not different from the base alternative (SWS)). Still, it is important to note the qualitatively distinct interpretation of the absence of differences between people expecting long and short waits. Those expecting long waits, no matter whether the perceived wait is longer or shorter than expected, show a higher WTP for an express pass; however, those who expect short waits, regardless of whether the perceived wait is longer or shorter than expected, do not show any inclination towards a higher WTP.

Nevertheless, the results of the quantile estimates allow for richer interpretations and more refined insights. Most of the significant parameters appear for the 75th and 90th quantiles, which show that:

1) reference dependence has an influence on those people willing to pay the maximum. Note that for the 10th, 25th and 50th quantiles, there is only one significant parameter out of twenty-four, so the majority of the significant impacts of reference dependence concentrates around the top WTP (75th and 90th quantiles). Note that, while being confirmed that the difference between the expected and perceived waits has an effect on the WTP for an express pass, this is not general but only on the highest values of WTP (the OLS estimates predict, however, a general effect on the whole range of the dependent variable).

2) for the 75th quantile, loss aversion is not found for those expecting long waits -the same as in the OLS estimate- but it is confirmed for those expecting medium and short waits -which is different from the OLS results-.

3) for the 90th quantile, loss aversion is found significant for people that expect long (t=2.1350; p=0.0332) and medium (t=2.5401; p=0.0114) waits, and not significant for short waits.

Table 2. Determinants of WTP for express pass

(Standar error in parenthesis)

Variables	OLS	Q0.1	Q0.25	Q0.5	Q0.75	Q0.9
LWL	5.1809[b]	-3.3395	-3.4379	2.3721	10.0602[b]	14.8700[b]
	(2.6641)	(3.3821)	(2.1772)	(3.0552)	(3.9656)	(6.9646)
LWE	2.2165	-4.1813	-3.6756	1.9033	7.0485[b]	8.6542
	(1.9864)	(3.3524)	(1.9494)	(2.3889)	(3.5997)	(5.4969)
LWS	5.8746[b]	3.6697	0.2636	4.3483	8.2666[b]	6.3726
	(2.7149)	(3.3626)	(2.2715)	(2.8576)	(3.2406)	(4.5673)
MWL	4.2712[b]	-4.5139	-3.3174	2.8059	7.5868[b]	16.7023[b]
	(1.8503)	(3.2970)	(1.8446)	(2.2934)	(3.0843)	(6.5752)
MWE	3.1392	-4.5927	-5.0949[a]	2.1704	7.6828[a]	9.9082[a]
	(1.9045)	(3.2979)	(1.9306)	(2.3324)	(2.9278)	(3.6245)
MWS	4.6498	-3.9484	-4.4590	0.4689	6.4801	7.4353
	(3.6606)	(4.1086)	(2.7143)	(3.0202)	(7.6798)	(10.5847)
SWL	4.2744	-3.4063	-2.7323	2.6648	8.1209[b]	10.0555
	(2.3569)	(3.4144)	(2.1903)	(2.6317)	(3.9328)	(5.3628)
SWE	-1.4327	-0.7174	-1.8867	1.0416	-1.2005	4.8455
	(2.6338)	(4.0619)	(2.3980)	(2.8437)	(3.0481)	(6.8521)
Age	-0.1157[b]	-0.0172	-0.0794[b]	-0.1261[a]	-0.1321	-0.1083
	(0.0532)	(0.0336)	(0.0336)	(0.0465)	(0.0844)	(0.1328)
Household size	-0.6043	-0.2080	-0.0920	0.1187	0.1121	-2.1517[b]
	(0.4829)	(0.4054)	(0.3853)	(0.4045)	(0.5088)	(0.9375)
Household income	1.1451	-0.0160	0.5396	0.4944	1.3925	3.5580[b]
	(0.6709)	(0.5990)	(0.5136)	(0.5425)	(0.8056)	(1.7042)
Attitude pass	2.7053[a]	0.7514	2.2827[a]	2.5823[a]	3.7183[a]	4.8180[b]
	(0.6204)	(0.4662)	(0.4298)	(0.4937)	(0.9742)	(1.9787)
Attitude towards waiting	-1.9005[a]	-0.2174	-0.6270	-1.2004[b]	-1.9768[b]	-3.6591[b]
	(0.6771)	(0.5106)	(0.4597)	(0.5275)	(1.0108)	(1.6545)
Prior	7.4043[a]	4.6044[b]	6.1148[a]	4.7565[a]	4.8701[b]	7.8389
	(2.3841)	(1.8460)	(1.1246)	(1.2883)	(1.9676)	(4.3426)
Constant	3.2343	4.0687	3.1966	1.8502	-1.3522	2.1314
	(3.4802)	(3.2382)	(2.3780)	(2.7882)	(4.4458)	(11.7822)
Number of observatons	506	506	506	506	506	506

Note: a= prob < 1%; b= prob < 5%.

Combining points 2 and 3, it is found that waiting longer than the expected long waits really has an impact on the highest values of WTP (90th quantile); waiting longer than the expected medium waits has an impact on both 75th and 90th; and waiting longer than the expected short waits does not have an impact on the highest WTP, only on the 75th. Therefore, expectation of

waits and how much people value their time, lead them to be willing to pay different amounts. Hypothesis 2 that loss averse preferences should increase WTP for express pass cannot be rejected, but their effect is contingent upon how long, medium or short the expected waiting time is.

Concerning the control variables, age shows a negative OLS parameter in line with Arin & Kramer (2002) and Reynisdottir et al. (2008). Note, however, that this effect is only found for quantiles 25th and 50th, which means that there is no general effect of age over the whole distribution of WTP. This could explain that some authors such as Anderson et al. (1997) and Mmopelwa et al. (2007) have not found a significant age-WTP relationship as, depending on the variability of WTP in the sample, the effect of age might or might not emerge.

The household size only shows a significant and negative effect for the 90th quantile; thus, households with many members are more reluctant to pay for the maximum amount, but keep neutral when confronted with more reasonable prices.

Household income presents a positive and significant impact for the 90th quantile only, which is in line with the literature (Bishai and Lang, 2000; Clark and Kim, 2007; Halkos and Matsiori, 2012; Reynisdottir et al., 2008). Note that this result suggests that high-income people are willing to pay the most in order to avoid waiting; however, when the WTP amount is not the maximum, it is not affected by income.

Attitudes toward waiting and the express pass are both significant with a negative effect for the former and a positive impact for the latter, as most people seem to consider waiting something to be avoided. Still, these attitudinal effects do not exist for people with low WTP (the 10th quantile in attitude toward express pass and the 10th and the 25th quantiles in attitude toward waiting are not significant). Prior purchase of express passes is significant and positive in line with Reynisdottir et al. (2008) and McGuire and Kimes (2006), all over the distribution of WTP except for the 90th quantile. This means that people with prior experiences with express passes are willing to pay a certain amount of money, yet not the maximum.

CONCLUSIONS

Waiting is a common component of many tourism services, and people's waiting sensitivity determines their WTP for avoiding the negative effects of waiting times; thus, it comes down to a trade-off between time and money. This article introduces, for the first time in the analysis of waiting times in tourism, the notions of reference dependence and loss aversion. Tourists create their expectations about the waiting times of a service, and these expectations become their reference points; therefore, when the perceived waiting time is observed, they make comparisons and their utility -and, consequently, their WTP for a mechanism that helps reduce their waiting times (e.g. an express pass)- should be influenced by these comparisons.

The empirical application carried out in a theme park confirms that visitors to theme parks who are willing to pay a high price for express passes are reference-dependent (as their WTP for an express pass is influenced by the difference between the expected waiting time and the perceived waiting time) and loss averse (as perceiving an actual waiting time greater than expected brings about a greater effect on their WTP than perceiving an actual waiting time lower than expected). In other words, these results are qualified by the level of WTP, and in particular, reference dependence and loss aversion only show up for the top quantiles (75th and 90th) of the WTP distribution.

The results also show evidence of a negative effect of age (for the central quantiles only), for the rest of the distribution of WTP this variable has a neutral effect; household size only present a negative effect for the top quantile and, consequently no effect for lower levels of WTP; household income has a positive and significant impact for the top quantile only (interestingly, when the WTP amount is not the maximum, it is not affected by income at all); attitudes toward waiting and the express pass have a negative and positive effect, respectively; finally, prior purchase of express passes increases the individual's WTP except for the top level.

Regarding research implications, this study makes an important contribution to research on waiting times. It extends prior research on the trade-off between time and money in the context of waiting times and the different sensitivities to waiting. In particular, the inclusion of reference points (expected waiting times) and their comparisons to the perceived actual waiting times allows us to look at the existing different sensitivities from a new angle: visitors who are reference-dependent and loss averse present a greater WTP for priority systems. Interestingly, note that it

seems that these reference dependence and loss aversion properties only activate after a certain point of the WTP distribution.

The results are obtained by using quantile regression. Note that while OLS estimates are taken as the starting point, the use of QR enriches the results and permits the identification of certain intricacies that OLS cannot detect. The use of QR allows us to observe where in the distribution of WTP each variable has an impact and how big it is. Working with the assumption that the effect of a significant parameter is common along the distribution of WTP -as OLS estimates do- could be misleading if such effect varies depending on the level of WTP.

As for implications for practice, the results also have several managerial implications regarding how tourism companies in general and theme parks in particular should elaborate and promote priority systems. Visitors who are reference-dependent and loss averse must be considered high value consumers for theme parks as they are willing to pay the most for an express pass. If theme park's managers are taking cross-product elasticity into account when designing their segmentation strategy, it is important to recognize that these visitors with these two fundamental tenets of Prospect Theory present top WTP for priority systems, so they are adding extra revenue for theme parks.

For further research, the inclusion of "goal visualization" in the analysis of waiting times in tourism could add new insights to the literature, with important managerial implications. As Cheema and Bagchi (2011) find that allowing consumers to see the end of the line may decrease impatience, letting tourists know about the progress of a waiting line by, for example, setting poles with the remaining minutes, could enhance satisfaction (or reduce dissatisfaction). Also, this goal visualization could alter the reference-dependence and loss aversion patterns found in this study. Further research would also be welcome in terms of how consumers form their expectations of waiting times and how these expectations evolve over time and experience with the service in question. Indeed, if expectations are formed by experiences of waiting, any reductions in waiting times achieved by theme parks are likely to increase visitors' subsequent expectations of waiting times for future visits. This suggests that the management of consumer expectations in the context of waiting is a complex issue with important considerations for sales of the high-margin express pass tickets. Finally, keeping in mind that this study was undertaken during peak season, when

expectations of long waits are likely to be higher, it may prove insightful to undertake a similar study during an off-peak period associated with expectations of shorter waits.

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Appendix

Questionnaire

How long did you expect to wait before arriving to the park?

Long waits

Medium waits

Short waits

How would you rate the waiting times at Port Aventura?

Longer than expected

As expected

Shorter than expected

Age

Number of people in household:

Annual household income

Less than €20.000

Between €20.000 and €40.000

Between €40.000 and €80.000

More than €80.000

My overall attitude towards the express pass systems in general is:

Strongly negative - Negative - Neutral - Positive - Strongly positive

What is your general attitude towards waiting?

Not at all stressful	1	2	3	4	5	Very stressful
Not at all frustrating	1	2	3	4	5	Very frustrating
Not at all annoying	1	2	3	4	5	Very annoying

Have you ever purchased an express pass in a theme park?

How much would you be willing to pay for an express pass at Port Aventura?