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**THE BUNDLING STRATEGY:  
THE ONE-CLICK EFFECT ON LOSS AVERSION**

Juan Luis Nicolau  
Howard Feiertag Department of Hospitality and Tourism Management  
Pamplin College of Business  
Virginia Tech  
Blacksburg VA 24061  
USA  
Phone 540-231-8426  
e-mail: jnicolau@vt.edu

Ricardo Sellers  
Department of Marketing  
Faculty of Economics  
University of Alicante  
PO Box 99  
03080 Alicante  
Spain  
Phone and Fax: +34 965903611  
e-mail: ricardo.sellers@ua.es

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### Abstract

This research aims to determine different levels of loss aversion in the context of price responsiveness and service bundling. Considering that nonlinearities in price responses may exist in a bundling strategy, this research tests the existence of different degrees of *loss aversion*, depending on whether an individual books one service independently of another (e.g., an airline ticket independently of accommodation) or as part of a bundle (e.g., a package that includes an airline ticket plus accommodation). We estimate a Random Parameter Logit Model. Empirical application shows that people who book a flight independently of accommodation are more loss averse than those who book a package that includes flight and accommodation. To explain this result, we propose the *one-click effect* so that people who find a price higher than expected (loss aversion) are more willing to accept it if the product is included in a bundle.

**Keywords:** bundling; booking; loss aversion; airfares; low cost

Prospect theory devised by Kahneman and Tversky (1979) has been used in tourism to understand tourists' reactions to certain levels of attributes (most notably prices) and changes in personal characteristics (e.g., income). Furthermore, such theory has been used to study the influence that these attributes and characteristics can have on people's spending patterns and on their tourism choices, such as destinations or hotel rooms (Nicolau, 2008; Smeral, 2012; Masiero, Pan & Heo, 2016; Choi, Joe, & Mattila, 2018; Masiero & Qiu, 2018; Xu, 2018). According to this theory, the property of loss aversion plays a prominent role in explaining consumer behavior. This property leads people to react more strongly to losses than to gains when compared with their reference points. In colloquial terms, the anger that people feel when losing a \$100 bill is greater than the joy of finding a \$100 bill; although the amount is the same in both situations, the negative outcome (anger) is greater than the positive feeling (joy). In the context of pricing, loss aversion emerges when the real price of a product is higher than the reference price (e.g., the expected price). Analogous to the example, the decrease in demand derived from finding a higher price than expected is greater than the increase in demand resulting from finding a lower price than expected.

This phenomenon still requires investigation in the context of a service component included in a tourism bundle. Accordingly, to the best of the authors' knowledge, this research applies, for the first time, the concept of loss aversion to pricing in the context of bundled tourism products. The relevance of this analysis is based on three points. First, excessive price reductions in tourism products can widen the region of loss aversion, rendering the reset of prices to "normal" levels more complex (Kalyanaram & Little, 1994). For example, reducing the price from \$100 to \$70 would cause the reset of prices back to \$100 harder than lowering the price to \$85. The loss aversion region of \$30 in the former is more complex to handle than the loss aversion region of \$15 in the latter. Second, people can now book several components of a bundle with only one click (Ferrer-Rosell, Coenders, & Marine-Roig, 2017). Third, air transportation and accommodation are the two central components in bundled tourism products (Josiassen & Assaf, 2013). Therefore, a critical question arises: who is more sensitive to deviations from the expected price (i.e., who is more averse), the individual who books a flight independently of accommodation or the one who reserves a flight and accommodation together? This case is even more relevant today, given that firms drastically reduced their prices during the recent economic recession, and customers became accustomed to those lower prices. However,

firms are currently attempting to increase prices back to the pre-crisis levels. However, consumers may see this action as a huge increment in prices as they may have set those lower prices as their reference points.

The argument is that the price of a bundle might be processed differently compared with the prices of individual products. First, in the context of a bundled product, if the individual prices are not publicly shown, then, the actual price of each product is hidden. The latter will generate a lower risk of widening the region of loss aversion for that product. Second, if the individual prices are made publicly available, then, an extra processing mechanism involved emerges, as consumers must aggregate all prices. Thus, the reference price will be the total amount paid for the bundle in this one transaction. Consequently, this global reference price will be the reference point that consumers use in the next transaction; if the next transaction involves another bundled product, then, variations in individual prices have additional allowance to be volatile as long as the global price does not change substantially from the previous purchase. In this respect, variations in individual prices would have less effect on consumers' decision.

Service bundling has been a prevalent strategy in the tourism industry (Tanford, Erdem, & Baloglu, 2011), encompassing a broad spectrum of applications, such as hotels (Maier & Intrevado, 2018), IT-based platforms (Neidhardt & Werthner, 2018), or tourism recommender systems (Sertkan, Neidhardt, & Werthner, 2018). This preponderance is even more relevant these days, as people can design their desired combination of travel products by themselves. Moreover, not only can they create their own set of products through online intermediaries. They can also do so through providers: an especially salient example appears when people visit an airline's website to design a vacation package at a single price.

According to Abe (1998), pricing products included in a bundle can create intricate relationships and nonlinearities in consumer responses. This product bundling has relevant managerial implications, especially when using the mixed bundling strategy (rather than the pure bundling strategy). In this approach, the bundle is not only offered at one price, but the bundled items can also be sold separately (and individual prices are visible). The enticement of the bundling strategy derives from the fact that the aggregated price for the bundle is lower than the addition of the individual prices. As people expect a bundle to offer a better value than independently purchased products (Heeler, Nguyen & Buff, 2007), a "cushion" may exist for

bundles in such a way that, when finding a price that is a little higher than expected, the reaction is less negative. Hence, they will be more prepared to “welcome” a rate that is higher than expected, so that the negative impact of finding a price higher than the consumer’s reference price is smaller when booking a flight and accommodation together. While willingness to pay measures how much a person is predisposed to pay, loss aversion “captures” that predisposition by using a reference price (or an expected price); accordingly, deviations from an expected price could affect an individual’s willingness to pay.

Considering that air and accommodation services can be sold alone or together, the loss aversion phenomenon may have different effects depending on each context. Booking more than one service with “one click” is time-efficient. Hence, individuals might be more predisposed (or realistically, less reluctant) to accept a higher-than-expected price. When booking through the airline’s platform without even changing the webpage, they are obtaining all the services they are looking for in only one sitting, thereby saving time and reducing the effort in their information search. Considering this time-efficiency and the perception that a bundle product is a better deal, consumers may be prepared to accept a higher price.

Consequently, following these arguments about the inherent better deals and the higher time-efficiency of bundled products, we hypothesize that the loss aversion of individuals who book airline tickets is lower when they book accommodation at the same time. Therefore, we propose the following hypotheses:

*Null hypothesis: The level of loss aversion of individuals that book flight only is not different from the level of loss aversion of those that book a bundle of flight and accommodations.*

*Alternative hypothesis: The level of loss aversion of individuals that book flight only is greater than the level of loss aversion of those that book a bundle of flight and accommodations.*

To investigate the loss aversion property in a service bundling context—flight booked independently versus flight plus accommodation—prospect theory (Kahneman & Tversky, 1979) is considered; therefore, gains and losses are introduced in the utility function (Klapper, Ebling, & Temme, 2005). In the context of pricing, the central element is the price of the product, which will determine the existence of loss aversion. Accordingly, the utility function  $U_{int}$  for alternative  $i$  and individual  $n$  on occasion  $t$  is expressed as

$$U_{int} = \alpha_i + \beta_n GAIN_{int} + \zeta_n GAIN_{int}^2 + \gamma_n LOSS_{int} + \eta_n LOSS_{int}^2 + \xi_n IS_n LOSS_{int} + \varepsilon_{int}$$

where  $GAIN_{int}$  shows the excess of the reference price over the actual price of alternative  $i$  for individual  $n$  on occasion  $t$ ;  $LOSS_{int}$  is the excess of the actual price over the reference price;  $IS_n$  is a dummy variable with value 1 if the individual independently and separately books each service; otherwise, 0. The central parameter for the analysis is  $\xi_n$  that will identify distinct levels of loss aversion according to the type of reservation (“flight booked independently of accommodation” or “flight plus accommodation”); loss aversion will be found if  $\gamma_n/\beta_n > 1$  (i.e., the coefficient that captures the effect of losses is larger than the coefficient associated with gains). Moreover, the quadratic terms allow us to explore the existence of diminishing sensitivity, which will be found if significant coefficients are obtained for the squares of losses and gains (in particular, a negative parameter  $\zeta_n$  and a positive parameter  $\eta_n$ ). Finally,  $\varepsilon_{int}$  is a random term that is identical and independently extreme value distributed; thus, a Random Parameter Logit Model (RPL) is used. Given an individual  $n$  making a decision on occasion  $t$ , the probability of an alternative  $i$  being selected is defined as

$$P_{nt}(i) = \int_{\theta} \frac{\exp\{U_{int}\}}{\sum_{j=1}^J \exp\{U_{jnt}\}} \phi(\theta | b, W) d\theta,$$

where  $J$  is the set of choice alternatives, and  $\theta$  are the coefficients which are assumed to follow a density function  $\phi$ . The latter is a normal distribution with average  $b$  and variance  $W$ .

The sample was obtained at the Airport of Alicante-Elche (El Altet), Spain. Through personal face-to-face interviews using a structured questionnaire, the focus was on the Alicante–Gatwick route. The sample of 139 individuals is stratified by conglomerates with a selection of sampling units, non-proportional in the first stage (type of carrier: low cost, regular, and charter), proportional in the second (airline companies), and randomly selected in the third stage.

The dependent variable is a categorical variable that represents the set of alternatives (carrier types): low cost, regular, and charter. The inclusion and distinction of these types of carriers as alternatives are important because of the effect of low-cost airlines on the number of passengers and on airfares (Vera & Ivars, 2009; Khan, Kim, & Kim, 2018). With this information, the model estimates the parameters by looking at the probability of an individual

rank ordering a set of alternatives in a specific way. To be precise, an individual will choose alternative  $i$  if its conditional indirect utility is higher than any other alternative  $j$ :

$(U_{in} > U_{jn}) = (V_{in} + \varepsilon_{in} > V_{jn} + \varepsilon_{jn}) \quad \forall j \in J \quad \forall i \neq j$ . Therefore, the probability of alternative  $i$  being chosen is  $P_i(U_{in} > U_{jn}) = P_i(V_{in} + \varepsilon_{in} > V_{jn} + \varepsilon_{jn}) \quad \forall j \in J \quad \forall i \neq j$ .

The independent variables are *prices* (the sampled individuals were asked about the actual price paid, the average values of which are €224.5, €330.4, and €500.5 for low cost, regular, and charter, respectively) and *reference prices*, which are obtained, in line with Moon, Russell, and Duvvuri (2006), by looking at the distribution of prices found in the “shopping environment” on the shopping day. Accordingly, these prices are an *external reference price* and can be calculated by the mean of the actual prices of the alternatives available to each individual (the global mean value is €351.8). We use a stimulus-based reference price rather than an internal memory-based price standard because recent empirical results support the use of the former. In particular, Choi and Mattila (2018) found that people make their lodging decisions by relying more on external than on internal reference prices. These authors argued that the “high accessibility” that external reference prices provide generates high levels of “perceived diagnosticity,” which facilitates people’s price evaluations. In other words, external reference prices allow people to observe easily and tangibly, the extent to which a price stands out in comparison with other product prices. Finally, individuals were asked whether they booked accommodation independently or in a bundle (56.1% opted for booking independently).

Depending on whether individuals are booking items independently or in a bundle, different degrees of loss aversion can be observed through the RPL model. Table 1 shows the parameter estimates. Before focusing on the parameter of interest ( $\xi_n$ ) and seeing whether distinct degrees of loss aversion exist, the first question is as follows: are people loss averse? The coefficient of gains is statistically insignificant, and the one associated with losses is positive and significant; thus, loss aversion seems to be supported. Concerning the square variables, the coefficient of  $gain^2$  is statistically insignificant, and the coefficient of  $loss^2$  is positive and significant, which implies a presence of diminishing sensitivity only for losses.

[Table 1 about here]

As for the booking variable ( $IS_n \times LOSS_{int}$ ), we find a positive and significant parameter  $\xi_n$ . This result means that people who book a flight independently of accommodation are more

loss averse than those who book the package “flight plus accommodation.” Thus, the following alternative hypothesis is supported: *the level of loss aversion of individuals that book flight only is greater than the level of loss aversion of those that book a bundle of flight and accommodations*, and the null hypothesis ( $p\text{-value} < 0.01$ ) that both groups show similar degrees of loss aversion is rejected.

The impact of a price which is higher than expected is negative in either case but is “less negative” when booking the package. This case is in line with the better deal and time-efficiency that derive from the one-click effect proposed earlier, through which individuals could be more willing to accept a price which is higher than their expectations. Figure 1 depicts both effects and shows that the difference between the loss aversion existing in both types of reservations increases as the actual price moves further away from the reference point.

[Figure 1 about here]

The distinct impacts of loss aversion, depending on whether people book a flight independently of accommodation or as part of a “flight plus accommodation” bundle, found in this study has important implications for future research. Specifically, as the bundling strategy is extensively employed in tourism, the detection of nonlinearities in price responses is a critical issue, as we find that specific mechanisms that lead some people to opt for a single alternative may exist and others to choose a bundled one. Further research should explore these mechanisms and the causes of the different outcomes. In this research, the relevant finding is that the one-click effect seems to have an effect on loss aversion. Nonetheless, the reasons for this outcome are still to be uncovered.

Regarding managerial implications, the different loss aversion sensitivities found for bundled and unbundled services should be considered by decision-makers when they choose to vary prices. From an operational viewpoint, if people who buy a bundled product form their reference price from the global price paid for that bundle, then, variations in individual prices in future purchases might be imperceptible to these people. Accordingly, lowering prices and then returning them to normal might create different negative demand reactions, depending on whether the service is included in a bundle. More specifically, lowering prices excessively might reduce reference prices. The consequences of this situation are less dramatic in the context of bundled products, as the impact of loss aversion is lower for individuals booking bundled

products. Price increases can generate drastic reactions in demand, especially in an environment where loss aversion has been proven to have an influence on consumer behavior. Accordingly, Kalyanaram and Winer (1995) recommended implementing small increments in prices to render them nearly imperceptible to consumers. However, determining the magnitude of these increments is a challenge, as they should be sufficiently small to not be fully noticed by the consumers but sufficiently large that the firm does not take forever to reach the intended price. Nevertheless, the use of bundled products might facilitate this goal. On the one hand, the pricing strategy becomes easily unnoticed by the consumers; on the other hand, if the product is included in a package, these increments do not have such a large impact on demand (compared with single products). According to the results obtained by this research, the loss aversion of people who book a bundled product is lower. As found by Dolasinski, Roberts, and Zheng (2019), today's business is not only about price because timing and channel make a difference as well; specifically, finding the right timing for a sequentially designed pricing strategy (e.g., small variations in price) and the right choice of distribution channel (e.g., online travel agency, airline's website, opaque channel) to implement that strategy is key to its success.

As for limitations, we have only been able to use external reference prices; certainly, the ideal situation would be to compare both internal and external reference prices and attempt to determine empirically which one is adequate for a specific empirical application.

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**Table 1. Different degrees of loss aversion**

<b>Independent variables</b>	<b><i>b</i></b>	<b>SD of <math>\beta</math></b>
<b>Gain</b>	-0.036 (0.028)	
<b>Gain<sup>2</sup></b>	0.0002 (0.00017)	
<b>Loss</b>	0.099 <sup>b</sup> (0.044)	0.010 (0.007)
<b>Loss<sup>2</sup></b>	0.0005 <sup>b</sup> (0.0002)	0.0001 <sup>b</sup> (0.00006)
<b>Independently booking x Loss</b>	0.058 <sup>a</sup> (0.027)	0.006 (0.007)
<b>Constant LCC (Low-cost carrier)</b>	-3.384 <sup>b</sup> (1.371)	
<b>Constant RC (Regular carrier)</b>	-4.526 <sup>a</sup> (1.506)	
<b>ML</b>	-54.55	
<b>SIC</b>	-65.27	
<b>AIC</b>	-64.55	

a = prob &lt; 1%; b = prob &lt; 5%

**Figure 1. Differentiated effects of loss aversion**

