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## Article

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# Estimating the price range and the effect of price bundling strategies

## An application to the hotel sector

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### Abstract

**Purpose** – The purpose of this paper is to investigate and identify the price sensitivity of consumers of three- and five-star hotels and to determine the impact of bundling strategies on consumers' price sensitivity.

**Design/methodology/approach** – To calculate price sensitivity, authors apply the van Westendorp's price sensitivity meter (PSM). To understand the impact of bundling strategies, univariate and bivariate techniques are applied.

**Findings** – PSM results reveal the optimal prices and the range of acceptable prices for three- and five-star hotel. The bundling strategy results reveal that five-star customers are less sensitive to mixed-leader bundling. Regarding mixed-joint bundling, managers could improve sales through bundling strategies if they selected an attractive service (e.g. restaurants).

**Practical implications** – Findings assist hotel managers to understand the different price sensitivities, according to the hotel typology. Managers can manage prices without the risk of losing market share or revenue. The results help managers in deciding which bundling strategies they can create, as well as the services to be included to achieve highest profitability.

**Originality/value** – No research to date to the best of the authors' knowledge has attempted to understand and compare the role of bundling strategies in three- and five-stars hotels. Moreover, no research has attempted to measure and compare customers' price sensitivity of three- and five-stars hotels.

**Keywords** Hospitality management, Price, Price sensitivity, Bundling strategies, Pricing strategies

**Paper type** Research paper

### 1. Introduction

Price has a significant role in all industries, including in the tourism and hospitality industries (Espinet-Rius *et al.*, 2018; Moro *et al.*, 2017, 2018). As a core of any marketing strategy (Moro *et al.*, 2017), the importance of pricing is reflected in firms' profitability



(Danziger *et al.*, 2006). Despite its relative importance, pricing is one of the most difficult strategies to define (Danziger *et al.*, 2006; Hung *et al.*, 2010). While over-pricing can lead to loss of market share, under-pricing may result in loss of revenue (Danziger *et al.*, 2006).

The intangible, inseparable and perishable nature of services (Eddin *et al.*, 2013) makes the pricing process an arduous responsibility for managers (Bojanic, 1996; Martin-Fuentes, 2016; Xu *et al.*, 2017). The tourism market is known for its uncertain demand and for its heterogeneity (Taher and El Basha, 2006), which makes the pricing process an even more complicated responsibility for managers (Hung *et al.*, 2010).

Managers must understand consumer evaluations and reactions to price to achieve their profitability goals (Ramirez and Goldsmith, 2009; Zeithaml, 1998). For firms to better determine their pricing, they must know their market and its responses to pricing and price changes (Nicolau, 2009). As Pigou (1920, cited in Nicolau, 2009) stated, “a firm is always better off if it can price discriminate between consumers with varying price sensitivities”. Optimal pricing plays a significant role in firms’ profitability (Kim *et al.*, 2004).

Despite the variety of strategies, the effectiveness of pricing strategies depends on how well managers know consumers’ price sensitivity (Madero and Nicolau, 2012). According to Nagle *et al.* (2014), developing an effective pricing strategy requires an understanding of product value and setting profit-maximising prices that should be accepted within target segments.

There are numerous pricing strategies that firms can use according to their sales objectives (Collins and Parsa, 2006; Rao and Kartono, 2009) and brand image (Collins and Parsa, 2006). Rao and Kartono (2009) confirmed that several companies applied more than one pricing strategy for one product. In their survey of 199 companies, almost 50 per cent (96 companies) used five or more pricing strategies for the same product while only 10 per cent used only one strategy.

In the case of hospitality, it is difficult to define the optimal pricing strategies (Boz *et al.*, 2017) due to the nature of services, e.g., perishability and intangibility (Abrate and Viglia, 2016; Boz *et al.*, 2017), uncertain market characteristics and fluctuating demand (Hung *et al.*, 2010) and diversity in tourists’ price sensitivities.

In this context, one popular strategy among firms in general, and tourism in particular, is bundling. Bundling benefits firms as well as consumers (Kim *et al.*, 2009). This strategy enables firms to sell their products and services as a package for a special price (Guiltinan, 1987). One of the main advantages of using bundling is selling products for a price that can be accepted by several consumers who would otherwise not purchase them (Gourville and Soman, 2001; Kim *et al.*, 2009; Petrick, 2005).

This strategy led to a change in travel packaging, as all types of firms in the tourism industry, from hotels and airlines to car hire and restaurants, encouraged customers to purchase packages rather than each element separately (Kim *et al.*, 2009; Rauch *et al.*, 2015; Repetti *et al.*, 2015).

However, no research to date to the best of our knowledge has attempted to understand and compare the role of bundling strategies in three- and five-stars hotels. Furthermore, no research has attempted to measure and compare customers’ price sensitivity of three- and five-stars hotels.

This study adds new theoretical knowledge to the existing literature by investigating price sensitivity considering the star rating (three- and five-stars hotels). Moreover, the results provide information regarding the range of acceptable prices for both hotel typologies (higher in five-star-hotel customers). Managers of hotels may use the mixed-leader bundling to increase their sales and improve revenue, especially in five-star hotels. Managers of three- and five-stars hotels must carefully consider the elements that constitute the bundle. The results show that the restaurant service is more valuable than the massage service.

## 2. Theoretical framework

### 2.1 Pricing and price sensitivity

Pricing is one of the most important strategies for firms but also one of the most difficult to define (Collins and Parsa, 2006; Rao and Kartono, 2009). While over-pricing can lead to loss of market share, under-pricing may result in loss of revenue (Danziger *et al.*, 2006). For firms, pricing performs a significant role in revenue and profitability (Dominique-Ferreira *et al.*, 2016; Rodríguez-Algeciras and Talón-Ballester, 2017).

Price is a multidimensional construct that has a significant impact on consumers' purchasing decisions (Correia *et al.*, 2011; Maderno and Nicolau, 2012; Nicolau, 2009; Petrick, 2005). Price has a dual effect on consumers' decisions (Maderno and Nicolau, 2012): as a constraint; and as a product attribute (Nicolau, 2009). As a constraint, price represents the sacrifice a consumer must make to buy the product and/or service (Nicolau, 2009; Oh, 2003). As an attribute, price represents the level of quality that individuals may expect (Ceylana *et al.*, 2014; Kim *et al.*, 2014; Nicolau, 2009). Knowledge of how consumers respond to price and price changes is essential for firms making decisions concerning the price (Goldsmith and Newell, 1997; Kim *et al.*, 2004). Price is the only element of the marketing-mix that generates direct revenue for a company (Eddin *et al.*, 2013). Even if the other elements are fundamentals for improving sales and, consequently, improving profitability, they are related to expenditures (Eddin *et al.*, 2013). Pricing is also the strategy that can be most easily adjusted in response to market changes (Chen and Chang, 2012).

According to Boz *et al.* (2017), pricing in tourism is a complex phenomenon due to its characteristics and factors, such as perishability of the product, intensive capital investment, high fixed costs, tourists' characteristics and various price sensitivities, the uniqueness of the product, intense market competitiveness and uncertain demand. Due to the complexity of pricing, for managers to set effective pricing strategies, they need to understand and measure consumers' price sensitivities before establishing prices (Kim *et al.*, 2004). As consumers react differently to price, the more managers know about consumer evaluations and reactions to price, the more successfully they achieve their profitability goals (Ramirez and Goldsmith, 2009). A consumer with high price sensitivity will manifest much less demand as price goes up and a consumer with low price sensitivity will not react as strongly to price changes (Goh and Han, 2015; Goldsmith and Newell, 1997).

Each customer has a certain range of price acceptability (Al-Mamun *et al.*, 2014). It is important that managers understand which elements influence consumers price sensitivity (Dominique-Ferreira *et al.*, 2016; Dominique-Ferreira, 2017) to allow them to increase product attractiveness without reducing the price (Ramirez and Goldsmith, 2009). Ramirez and Goldsmith (2009) proposed four elements to measure price sensitivity: brand parity (e.g. Iyer and Muncy, 2005, cited in Dominique-Ferreira *et al.*, 2016); innovativeness (e.g. Aroean and Michaelidou, 2014; Peña *et al.*, 2016; Valls *et al.*, 2012); product involvement (e.g. Seabra *et al.*, 2014); and brand loyalty (e.g. Al-Mamun *et al.*, 2014; Ercis *et al.*, 2012; Fuentes-Medina *et al.*, 2018; Kozak and Martin, 2012; Shu *et al.*, 2015 cited in Galiano *et al.*, 2018). Bundled discounts increase consumer willingness to recommend and repurchase intention (Johnson *et al.*, 1999; O'Loughlin and Szmigin, 2005).

**2.1.1 Revenue management.** Yield management (YM) and, more recently, revenue management (RM) are pricing techniques that have become popular in the tourism industry in sectors such as airlines, lodging industries, car-rental companies, restaurants, spas, resorts and entertainment events (Cetin *et al.*, 2016). YM appeared first and is a discriminatory pricing procedure that involves setting different prices for different segments of the market to maximise revenue (Kim *et al.*, 2014). RM is seen as a development of, and more strategic than, YM as it is a strategy of selling the right service, to the right client, at the right price, at the right time, using the right channels (Cetin *et al.*, 2016;

Kimes, 2009). RM has become critical for hotels to compete strategically on price (Kimes, 2009). Due to the characteristics of tourism services, such as perishability and intangibility (Abrate and Viglia, 2016; Boz *et al.*, 2017), uncertain market characteristics and fluctuating demand (Hung *et al.*, 2010) and diversity in tourists' price sensitivities, it is difficult to define the optimal pricing strategies in hospitality (Boz *et al.*, 2017).

The development of new technologies enables hotels to maintain their presence globally (Moro *et al.*, 2017) and sell their rooms easily through the online travel agencies. The internet makes hotels' prices more transparent (Nagle *et al.*, 2014) and customers can easily compare the prices offered for similar services (Moro *et al.*, 2017) and they are more informed about products and services alternatives, benefits, qualities and prices (Al-Mamun *et al.*, 2014).

The star rating generally constitutes the reputational variable, although online reviews have recently become more relevant (Abrate *et al.*, 2012; Abrate and Viglia, 2016). The star-rating classification is internationally recognised, from one to five stars (Martin-Fuentes, 2016). It classifies hotels according to national or local governmental law, applying criteria such as infrastructure, services, amenities and the size of the rooms and common spaces (Martin-Fuentes, 2016). The star-rating system has a significant impact on price dispersion and flexible rates (Martin-Fuentes, 2016). Also, star ratings have a significant impact on price levels and quality expected; the higher the star rating, the higher the prices and the quality (Martin-Fuentes, 2016; Zhang *et al.*, 2011).

## 2.2 Pricing strategies

Setting the optimal price strategy is an important tool but is also a complex and arduous task for managers (Kim *et al.*, 2004). There are few managers that have training in how to make strategic pricing decisions (Nagle *et al.*, 2014), means that many firms make pricing decisions in reaction to market changes (Rao and Kartono, 2009). In the specific case of hospitality, dynamic pricing plays a critical role (Abrate *et al.*, 2019; Viglia *et al.*, 2016). Furthermore, dynamic price variability leads to higher hotel revenues, as well as strategic room unavailability and review ratings (see Abrate *et al.*, 2019).

Therefore, setting the optimal pricing strategies is essential to a firm's long-term success (Danziger *et al.*, 2006). If managers apply the wrong strategy, it can lead to loss of market share and a decrease in profitability (Danziger *et al.*, 2006; Hung *et al.*, 2010). There are many pricing strategies and Noble and Gruca (1999) organised them into four pricing situations: new-product pricing; competitive pricing; cost-based pricing; and product-line pricing. In addition to these strategies, there are many other possible pricing strategies, including break-even pricing, price signalling, image pricing, premium pricing, second-market discount, periodic or random discounts, geographic pricing, perceived value pricing and internet pricing (Rao and Kartono, 2009). Therefore, bundling strategies can play an important role in RM.

## 2.3 Bundling strategies

Bundling is a pricing strategy applied by some firms that has received growing attention in the marketing literature (Stremersch and Tellis, 2002). Bundling is used in many sectors, including telecommunications, automobile, electronic tools, chemicals, restaurants and travel companies (flights, car hire and accommodation) (Kim *et al.*, 2009).

Given the various and ambiguous definitions, Stremersch and Tellis (2002) presented a new definition: "bundling is the selling of two or more separate products in one package". The term "separate" is innovative in this definition because it integrates selling products and/or services from different markets that can be purchased individually or as packages, e.g. banking and an insurance products or flights and car

hire (Stremersch and Tellis, 2002). Stremersch and Tellis (2002) presented a clear between two different bundling strategies:

- (1) Product bundling: “as the integration and sale of two or more separate products or services at any price”.
- (2) Price bundling: “as the sale of two or more separate products in a package at a discount, without any integration of the products”.

Managers typically apply two types of price bundling (Adams and Yellen, 1976). First, pure bundling is a strategy in which products are only available in packages at one given price and buyers cannot purchase them individually (Bojamic and Calantone, 1990; Stremersch and Tellis, 2002; Xu *et al.*, 2016). Second, mixed bundling allows customers to purchase the goods either in a bundle or separately (Stremersch and Tellis, 2002) at a discounted price (Bojamic and Calantone, 1990; Xu *et al.*, 2016). Usually, there is a price incentive for purchasing the bundle (Guiltinan, 1987). In the mixed-bundling context, Guiltinan (1987) presents different approaches to mixed bundling: mixed-leader bundling; mixed-joint bundling.

According to Dominique-Ferreira *et al.* (2016), bundling is very important to firms for: price discriminations; cost reduction of trade; and creating entry barriers for competitors. The products that constitute these packages are essential to the bundles' success (Nalebuff, 2004). Both complementary (e.g. a computer and a printer) and substitute (e.g. regular Coca-Cola and Coca-Cola Zero) products may be sold in bundles (Chung *et al.*, 2013).

Bundling benefits firms as well as consumers (Kim *et al.*, 2009). It allows firms to sell products or services they could not sell in other ways (Gourville and Soman, 2001; Kim *et al.*, 2009). Economically, bundling is important for companies because it increases profits by generating more revenue per customer transaction and increasing the frequency of purchases (Mitchell *et al.*, 2013). According to Nagle *et al.* (2014), the key to improving revenue is to create packages with elements that are valued distinctively through different segments, encouraging more customers may purchase the bundles.

Firms sometimes use price bundling as a temporary strategy to adjust products' prices: when managers need to adjust the main product price but are concerned that the adjustment may affect perceived quality, they create a special offer using a bundle with complementary products (Arora, 2008). In the tourism industry, even if customers pay lower prices for bundles, their purchase volume may be profitable, especially during off-peak periods (Nagle *et al.*, 2014).

For consumers, bundling represents a reduction in transaction costs (Harris and Blair, 2006; Tanford *et al.*, 2011) and increased savings (Kwon and Jang, 2011) because, usually, the total cost of purchasing the items separately would be more expensive than the buying them in a bundle (Arora, 2008; Heeler *et al.*, 2007; Yan and Bandyopadhyay, 2011). Bundling alone may not create added value for the consumer, so a discount should be offered to motivate consumers (Stremersch and Tellis, 2002). However, in some cases, a bundle may not offer a discount to the consumer because, in the practice of quantity surcharge, a large package may mean a higher price than a smaller package; here, managers take advantage of the consumer's erroneous reference-price information (Heeler *et al.*, 2007). Other research has demonstrated that bundling increases the purchase likelihood and reduces consumers' price sensitivity (Drumwright, 1992; Gourville and Soman 2001; Stremersch and Tellis, 2002; Yadav, 1994).

Based on the above, this study proposes the following hypotheses:

- H1. Mixed-leader bundling decreases price sensitivity in five-star hotels.
- H2. Mixed-joint bundling decreases price sensitivity in three-star hotels.

### 3. Methodology and data analysis

#### 3.1 Study 1

The purpose of Study 1 is to understand and measure price sensitivity in the hospitality market, comparing customers from three- and five-stars hotels. In order to achieve this goal, the van Westendorp's price sensitivity meter (PSM) is applied.

*3.1.1 Sample.* The sample comprises 90 respondents (44 women and 46 men). Regarding age in years, 12.22 per cent are 20 or less; 50 per cent are between 21 and 30; 24.44 per cent are between 31 and 40; 10 per cent are between 41 and 50; and 3.33 per cent are between 51 and 60.

The profile of hotel-booking habits was also gathered. Only 24 per cent of respondents had not made any reservations in the last 24 months. Of the 68 respondents who made reservations, 50 per cent had made one or two reservations, 32.35 per cent had made between three and five reservations, 10.29 per cent had made between six and nine reservations and 7.35 per cent had made ten or more.

*3.1.2 Data collection.* The information was collected using an *ad hoc* questionnaire developed specifically for this research, between June and July 2017.

*3.1.3 Procedure.* Study 1 uses PSM (a psychological-price-modelling tool) to find an acceptable price as a quality indicator based on answering four questions (Lipovetsky *et al.*, 2011):

- (1) At what price would you consider this product so expensive that you would not consider buying it? (Too expensive).
- (2) At what price would you consider the price of this product so low that you would question its quality? (Too cheap).
- (3) At what price would you consider the product is starting to get expensive; not out of the question, but you would need to give some thought to buying it? (Expensive).
- (4) At what price would you consider the product to be a bargain; a great buy for the money? (Cheap).

These PSM questions were adjusted for the hospitality setting. The questionnaire was designed to obtain information about pricing for three- and five-star hotels. The questionnaires presented a small description and photos of the selected hotels. As hotels' geographic location influences pricing (Moro *et al.*, 2017; Zhang *et al.*, 2011), as do additional services offered (Abrate and Viglia, 2016), the hotels selected are all located in the same city's periphery and all have a restaurant and a well-being centre as additional services. SPSS software (v. 24) was used to determine the cumulative distributions necessary to graph the responses.

*3.1.4 Results.* Through the cumulative responses, the results are presented using three graphs. To make sure that curves should intersect in the graphs, the too cheap and cheap respond's cumulative percentages are reversed.

*3.1.4.1 Three-stars hotel.* Figure 1 shows the PSM results for three-stars hotels. The intersection of the "cheap" and "expensive" distribution curves represents the indifference price point (IPP). In this study, the IPP is €47.00, representing the point where the number of respondents viewing the product as good value equals the number of the respondents viewing it as expensive. The indifference price percentage, the corresponding cumulative distribution percentage at the IPP, is similarly determined (32 per cent). The lower the indifference price percentage, the higher the level of price consciousness (Ceylana *et al.*, 2014; Lewis and Shoemaker, 1997).

The intersection of the reversed "too cheap" and "too expensive" curves defines the optimal price point (OPP), the point where the same percentage of customers feel that the

price is too expensive for the quality of the product or service. The OPP is €45.00, representing the price at which resistance (too expensive or too cheap) is smallest. The cumulative percentage at the OPP is 8 per cent, i.e. 92 per cent of participants considers the price (€45.00) neither too expensive nor too cheap.

Finally, the distance between the “point of marginal cheapness” (the intersection of the cumulative distribution of “too cheap” with “expensive”) and the “point of marginal expensiveness” (the intersection of the “too expensive” and “cheap” curves) represents the “range of acceptable prices”. The point of marginal cheapness is €40.00, and the point of marginal expensiveness is €53.00, giving a range in acceptable prices of €13.00.

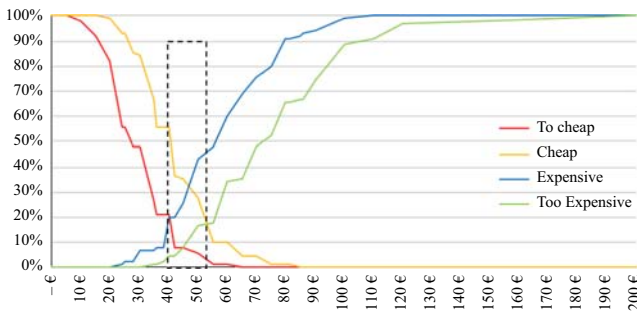
3.1.4.2 Five-stars hotel. Figure 2 represents the PSM results for five-star hotels. The IPP here is €98.00 and the indifference price percentage is approximately 26 per cent. The OPP is €99.00 and the cumulative percentage is 9 per cent. The point of marginal cheapness is €87.00, and the point of marginal expensiveness is €117.00, giving a range in acceptable prices of €30.00.

### 3.2 Study 2

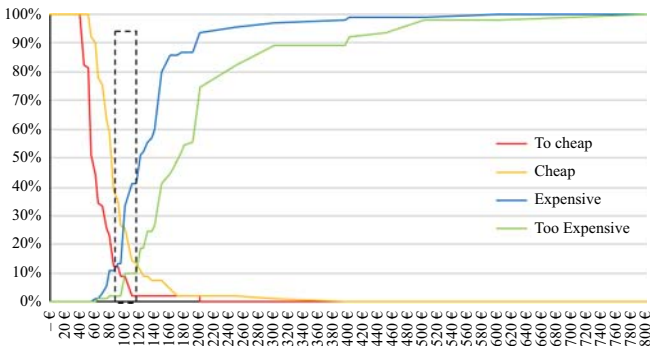
The aim of Study 2 is to study and compare possible differences in the use of bundling strategies in three- and five-star hotels.

3.2.1 Sample. Data were collected from 142 hotel customers (71 women and 71 men). The sample is divided into three- and five-star-hotel customers (70 three-star-hotel customers and 72 five-star-hotel customers). Regarding age in years, 1.4 per cent are 20 or less; 46.5 per cent are between 21 and 30; 30.3 per cent are between 31 and 40; 12.7 per cent are between 41 and 50; 7.7 per cent are between 51 and 60; and 1.4 per cent are 61 or more.

**Figure 1.**  
van Westendorp's  
price sensitivity meter  
(three-star hotels)



**Figure 2.**  
van Westendorp's  
price sensitivity meter  
(five-star hotels)





Regarding booking frequency in the last 24 months, 31.7 per cent made one or two hotel reservations, 30.3 per cent made between three and five, 17.6 per cent made between six and nine; and 20.4 per cent made ten or more.

**3.2.2 Data collection.** Data were collected using an *ad hoc* questionnaire. As the primary focus of the research is a comparison between three- and five-star hotels, a separate questionnaire was developed for each category. Questionnaires were administered between April and July 2017.

**3.2.3 Procedure.** Regarding mixed-leader bundling, respondents had to choose between booking just the room at one given price or booking a bundle with a higher price, but with discounts for other services (see Table I for details).

Regarding mixed-joint bundling, respondents had three possible packages offers. The offers for five- and three-star hotels were the same and the prices were adjusted according to the star rating. Respondents had to choose one of the three available packages or none of them. To identify possible statistical differences, the Mann-Whitney *U*-test was performed.

**3.2.4 Results.** **3.2.4.1 Mixed-leader bundling.** The results show statistically significant differences between the booking preferences of three- and five-star-hotels customers. Of the 70 three-star-hotel respondents, only 34.28 per cent preferred the package available while of the 72 five-star-hotel respondents, 68.06 per cent preferred the package offer. This suggests that mixed-leader bundling decreases price sensitivity in five-star-hotel customers. Using Fisher's exact test, we can reject the null hypothesis (Table II). Thus, *H1* is supported.

**3.2.4.2 Mixed-joint bundling.** For three-stars hotels, 40 per cent of respondents chose Pack 1, 10 per cent Pack 2, 22.86 per cent Pack 3 and 27.14 per cent none of the available packs. For five-stars hotel, the figures were 37.5 per cent, 11.11 per cent, 38.89 per cent and 12.5 per cent, respectively. A Mann-Whitney *U*-test (significance = 2,378.500) was performed, and the results indicated statistically significant differences ( $p = 0.000$ ).

Considering the 114 respondents who considered booking one of the three available packages (Mann-Whitney *U*-test (significance = 1,379.00)), the results demonstrate statistically significant differences ( $p = 0.012$ ). Additionally, the respondents had to

	Package	Room
	Bed and breakfast 15% Discount in the spa 10% Discount in the restaurant	Bed and Breakfast
Three-star hotel	€65.00	€50.00
Five-star hotel	€235.00	€220.00

**Table I.**  
Description of options

$\chi^2$ tests	Value	df	Asymptotic significance (2-sided)	Exact sig (2-sided)	Exact sig (1-sided)	Point probability
Pearson $\chi^2$ <sup>a</sup>	16.203	1	0.000	0.000	0.000	
Continuity correction <sup>b</sup>	14.880	1	0.000			
Likelihood ratio	16.525	1	0.000	0.000	0.000	
Fisher's exact test				0.000	0.000	
Linear-by-linear association	16.089 <sup>c</sup>	1	0.000	0.000	0.000	0.000
No. of valid cases	142					

**Notes:** <sup>a</sup>0 cells (0 per cent) have an expected value less than 5. The minimum expected count is 34.01;  
<sup>b</sup>computed only for a 2×2 table; <sup>c</sup>the standardized statistic is -4.011

**Table II.**  
Fisher's exact tests  
(*H1* is supported, i.e.  
mixed-leader bundling  
decreases price  
sensitivity in  
five-star hotels)

answer regarding the probability of buying each presented package. A five-point Likert scale was employed (1 = totally improbable; 5 = totally probable).

Table III shows respondents' probability of package purchasing for three-star hotels. From the mean results, Package 1 is the most likely to be bought and Package 2 is the least attractive. The variance values related to the choice of Packages 1 and 2 is much more uniform on three-star-hotel customers ( $\text{Variance}_{\text{Pack1}} = 1.584$ , vs  $\text{Variance}_{\text{Pack1}} = 1.576$ ;  $\text{Variance}_{\text{Pack1}} = 1.881$ ).

Using the rule of thumb for the skewness values, we can conclude that the data are fairly symmetrical. It is possible to observe a low kurtosis, i.e., a lack of outliers. Furthermore, it is possible to perceive that the kurtosis is platykurtic.

Five-stars hotel results (Table IV) show that Package 1 is also the most attractive although Package 3 has a similar purchase probability. As in the three-star-hotels' results, Package 2 has the smallest purchase probability.

The variance values related to the choice of Packages 2 and 3 is much more uniform on five-star-hotel customers ( $\text{Variance}_{\text{Pack2}} = 1.468$ , and  $\text{Variance}_{\text{Pack3}} = 1.791$  vs  $\text{Variance}_{\text{Pack1}} = 1.877$ ).

In the case of five-star-hotel customers, we can conclude by the skewness values that the data are rather symmetrical. It is possible to observe a low kurtosis, i.e., a lack of outliers. Furthermore, it is possible to perceive that the kurtosis is platykurtic.

Respondents were asked to state their preference only between Packages 1 and 3. Package 1 is the least expensive and Package 3 the most expensive. Results show that approximately 59.86 per cent of the total number of respondents prefers Package 1 (68.75 per cent of the three-star-hotel respondents and 51.39 per cent of five-star-hotel respondents).

4. Discussion

Defining the optimal price and recognising the elements that affect customers' price sensitivity are critical issues for hotel managers. Several elements influence the hotels' room rates, such as the star rating, location, facilities, brand image, etc. In this study, only the star rating is considered as a price-influencing factor to analyse differences in price sensitivity and the effect of bundling strategies between three- and five-star hotels.

In the hotel industry, the star rating is universally recognised as a quality indicator for consumers (Martin-Fuentes, 2016; Zhang *et al.*, 2011). The results demonstrate that the higher the star rating, the higher the prices (similar to the results of Martin-Fuentes, 2016; Zhang *et al.*, 2011).

Table III.  
Package purchase  
probability for  
three-star hotels

Three-star-hotels	Pack 1	Pack 2	Pack 3
Mean	3.19	2.21	2.47
SD	1.277	1.261	1.391
Variance	1.584	1.576	1.881
Skewness	-0.471	0.306	0.302
Kurtosis	-0.666	-1.101	-1.183

Table IV.  
Package purchase  
probability for  
five-star hotels

Five-stars hotels	Pack 1	Pack 2	Pack 3
Mean	3.21	2.56	3.19
SD	1.342	1.149	1.360
Variance	1.877	1.468	1.791
Skewness	-0.396	-0.238	-0.525
Kurtosis	-0.816	-0.824	-0.639

In Study 1, the range of acceptable prices reveals that five-star hotels had a higher range of acceptable prices (€30.00) than three-star hotel (€13.00). Therefore, higher star ratings allow hotels a higher dispersion of prices (in line with Martin-Fuentes, 2016).

Without comparable studies, we cannot conclude whether these are large or small ranges for each hotel typology. However, according to Lewis and Shoemaker (1997), the smaller the range of prices is, the higher the price sensitivity. Thus, one can assert that the three-star-hotel customers are more price-sensitive than five-star-hotel customers.

For three-star hotels, the IPP is €47.00 and the OPP €45.00, indicating some stress over price in the market since the price that they would most like to pay (OPP) is lower than the price they perceive as cheap (IPP).

For five-star hotels, the IPP is €98.00 and the OPP €99.00, which are very close. According to Raab *et al.* (2009), the closeness between the IPP and the OPP represents respondents' lower price consciousness (in line with the results of Harris and Blair, 2006; Nagle *et al.*, 2014; Dominique-Ferreira *et al.*, 2016).

Setting the optimal pricing strategy is crucial for firms to increase their profitability. Managers can use many pricing strategies, including bundling strategy, and Study 2 investigates both mixed-leader-bundling and mixed-joint-bundling strategies. The mixed-leader results reveal statistically significant differences between the hotel typologies. According to Yan and Bandyopadhyay (2011), consumers are willing to pay a higher price for a bundle. These results confirm that consumers of five-stars hotel are willing to pay more for a bundling than the regular price of the main service (in this case, the room). Thus, this bundling strategy reduces five-star-hotel customers' price sensitivity, in line with Drumwright (1992), Tellis and Gaeth (1990) and Yadav (1994). However, this is not the case for three-star-hotel customers, as they prefer to pay the regular room price, regardless of possible bundle discounts.

The results demonstrate that the mixed-leader bundling is more attractive to five-star-hotel customers. The higher price of the luxury hotels' services might explain this attractiveness of mixed-leader bundling for five-star-hotel customers as the discount they obtain could significantly outweigh the extra cost. Facilities in three-star hotels, however, are cheaper, and the discount that customers get might not compensate the extra cost. According to the results, one can state that the discount offered motivated five-star-hotel customers to purchase the bundling offer, in line with Stremersch and Tellis (2002).

Results for mixed-joint bundling show that 80.3 per cent of respondents would accept the proposed bundles, with the main product being the room and dinner and massage the services of that would receive the discount. For consumers, bundling can be considered as a means of obtaining a price reduction (Harris and Blair, 2006). Therefore, in this context, the higher acceptance of the bundle offer suggests that consumers understand bundling as a purchase with associated savings and positive (in line with Repetti *et al.*, 2015).

Regarding price sensitivity, results suggest that five-star-hotel customers are less price-sensitive than three-star-hotel customers, in line with Gourville and Soman (2001), Drumwright (1992), Tellis and Gaeth (1990) and Yadav (1994) (cited in Stremersch and Tellis, 2002). Package 1 is the cheaper package and has the highest purchase probability (mean = 3.19), since 40 per cent of three-star-hotel customers would choose this package. However, five-star-hotel customers have a similar purchase probability for Package 1 (mean = 3.21) and Package 3 (mean = 3.19). This demonstrates that five-star-hotel customers are less price-sensitive. Related to *H2*, mixed-joint bundling decreases price sensitivity. However, it has a greater impact on five-star-hotel customers than on three-star-hotel customers.

Regarding bundling success, price plays a significant role. However, for success, managers should also pay attention to the elements to be included, as they should be valuable for consumers (Nagle *et al.*, 2014). Package 2 is the least attractive in both hotel

typologies, supporting the importance of the elements that constitute the bundling for its success. Even if significant statistical differences are not achieved, the results demonstrate that firms may be likely to be more successful in increasing their revenue through bundling strategies than by merely increasing prices, in line with Dominique-Ferreira *et al.* (2016).

## 5. Implications for hospitality management

### 5.1 Theoretical implications

In recent decades, different studies have been conducted to examine how managers should set prices. The existing theoretical framework examines the elements that affect consumers' perceptions of price and price sensitivity. However, this study adds new knowledge to the existing literature by investigating price sensitivity considering the star rating, specifically of three- and five-stars hotels. Moreover, the results provide information regarding the range of acceptable prices for both hotel typologies. Notably, five-star-hotel customers have a greater range than three-star-hotel customers.

Another contribution of this research relates to bundling strategy. Bundling has also received special attention in the marketing literature (Stremersch and Tellis, 2002; Dominique-Ferreira *et al.*, 2016; Dominique-Ferreira, 2017). This research specifically examined price-bundling strategy by investigating the effect of mixed-leader and mixed-joint bundling in the hospitality industry. The findings provide new knowledge related to the impact of different strategies on three- and five-star-hotel customers.

The results show the importance of mixed-leader bundling in reducing consumers' price sensitivity, which is important in generating revenue. The findings add new knowledge by demonstrating the impact of mixed-leader bundling in decreasing five-star-hotel customers' price sensitivity (in line with Kim *et al.*, 2009; Chung *et al.*, 2013; Mitchell *et al.*, 2013; Dominique-Ferreira *et al.*, 2016; Xu *et al.*, 2017). Results also demonstrate the impact that the elements of the bundle have in bundling success and which elements each hotel typology valued most.

### 5.2 Managerial implications

Pricing has a critical role in the hospitality industry as it has a direct impact on profitability and demand. Hotel managers must understand consumers' price sensitivity to achieve their profitability goals. The results of this study provide useful information on consumers' price sensitivity for three- and five-star-hotel customers.

First, the results of Study 1 reveal that three-star-hotel customers are more sensitive to price changes than five-star-hotel customers. When setting or increasing prices, managers of three-star hotel should do so carefully as their customers are very price-sensitive. However, five-star-hotel customers have a larger range of acceptable prices, so managers can increase prices with less risk of losing market share.

In Study 2, mixed-leader bundling proves to be an effective strategy for five-star-hotel customers. Managers of luxury hotels may use the mixed-leader strategy to increase their sales and improve revenue. Even if this strategy has a lower acceptance in three-star hotels, this does not mean that managers should reject it. Manager may use this strategy to satisfy other customer segments; however, they need to create other strategies that can generate more revenue.

Mixed-joint bundling impacts revenue generation in both hotel typologies. Based on the results, five-star-hotel managers may design bundles with various elements. Even if this increases the prices considerably compared to the room only, customers will consider purchasing them if they are perceived as valuable. Three-star-hotel managers, however, need to carefully design their offers as consumers are more price-sensitive regarding additional services.

Managers in both hotel typologies must carefully consider the elements that constitute the bundle. The results demonstrate that the restaurant service was more valuable than the massage service. Thus, managers may perceive that some services are more valuable to customers than others and are fundamental to the success of the bundle offer.

## 6. Limitations and further research

The small size of both samples is the main limitation in better determining customers' price sensitivity and the effects of bundling strategies. Future research needs a larger sample to make more general conclusions. Furthermore, in order to overcome the limitations from direct questioning since it is not optimal for customers who will tend to stick to low prices, authors suggest using an experimental approach.

A limitation in Study 1 is that the respondents answered only based on the star rating, the location and the available services of each hotel, which makes obtaining definitive answers difficult. It was also difficult to obtain optimal prices from the respondents because they might not be predisposed to actually indicating the price they actually consider right (Hung *et al.*, 2010).

It would be interesting, therefore, to extend the questionnaires to other countries, especially with an increased sample size that included international tourists, to compare national and international tourists and understand their different price sensitivities.

It would also be valuable to include other elements that affect consumers' price sensitivity, e.g. brand prestige, online reviews, etc., as well as analysing the answers according to the consumer segment and their past booking habits, because some of the respondents may have no price reference for three- and five-star hotels. Furthermore, it would be important to consider other dimensions, such as brand parity, innovativeness, product involvement and brand equity.

The restricted months in which the questionnaires were administered resulted in a small number of international tourists. To distinguish the impact of bundling according to nationality, an increased sample size, including international tourists would be needed. It would be thus possible to support managers in creating bundling offers according to the desired market (national and/or international).

The customers received only the total package prices with the associated cost savings. Even if the respondents had access to the regular price of services during their stay, they may not have seen them before answering the questionnaires. To gain a better understanding of the results of both studies, therefore, it would be worthwhile including restaurant and spa regular prices in the questionnaire.

Further investigations would be also be of value to assess which complementary services hotel customers identified as more valuable to help managers design bundles attractive to more customers. It would also be important to simultaneously test the impact of intertemporal price discrimination. Finally, as only three- and five-star hotels were studied, extending the same methodologies to other hotel segments are recommended.

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