Do price promotions drive consumer spending on luxury hotel services? The moderating roles of room price and user-generated content

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Abstract

Price promotion, as price information, and user-generated content (UGC), as non-price information, play an important role in generating luxury hotel revenue. This study empirically investigates how price promotion influences actual consumer spending on luxury hotel services except room price, by considering the contingency role of room price and volume and valence of UGC. Combined data of daily settlements and Tripadvisor customer reviews of a regional luxury hotel chain are used for the analyses. The results indicate that, overall, price promotion negatively influences consumer spending on luxury hotel services and its negative effect is strengthened when the room is higher priced or the valence of UGC is high. Furthermore, a larger volume of intrinsic attribute-related UGC–amenity and location–with price promotion leads to more consumer spending than a larger volume of extrinsic attribute-related UGC–food and staff. The findings provide hotel managers with important insights into pricing and UGC management.

Keywords: price promotions; room price; user-generated content; luxury hotel; consumer spending

1. Introduction

The global luxury hotel industry has benefited from steadily growing demand, enjoying a market worth $187.1 billion in 2014 (D'Arpizio et al., 2014). Although the luxury hotel segment, according to the Smith Travel Research, has the highest occupancy rate (74.6% in 2013), luxury hotels do nonetheless, need to deal with issues of unused capacity because hotel rooms cannot be stored for later sale (Guadix et al., 2010). Notably, hotels conduct price promotions to sell their vacant room inventory (Campo and Yagüe, 2008; Kimes, 1989). Luxury hotel consumers are accustomed to paying different prices for the same service (Kimes and Noone, 2002) but shop for better deals, indicating a relatively lower level of loyalty compared to the other luxury sectors (Accenture, 2013). However, compared to economy hotel consumers, luxury hotel consumers tend to care more about location and service quality rather than monetary value (Zhang et al., 2011).

In addition to the price information, online user-generated content (UGC), as non-price information, is critical for consumers' purchase decisions in respect of hotel choice (Noone and McGuire, 2013; McGuire, 2014). Luxury travelers obtain travel-related information from online trip review sites as well as personal recommendations (Luxury Link, 2014). For example, a hotel-related UGC on TripAdvisor contains various hotel attributes and their satisfaction across room, location, cleanliness, service, and value (Liu et al., 2017) in respect of valence (e.g., the numerical ratings) and volume (e.g., the number of reviews). The conventional wisdom is that both volume and valence of UGC generally affect hotel performance (Anderson, 2012; Blal and Surman, 2014; Ye et al., 2011). However, hotel consumers tend to have different perceptions, expectations, and preferences regarding the particular type of a hotel, which influence their

satisfaction and dissatisfaction (Qiu et al., 2015; Xu and Li, 2016). For example, whereas economy consumers are influenced by mainly functional value (e.g., price), luxury consumers expect high-quality hotel amenities (Heo and Hyun, 2015) and put more emphasis on the hotel's experiential and symbolic value (Chen and Peng, 2014). Because consumers post ratings and reviews of a hotel online, UGC provides useful information about the hotel experience and consumer perception (Xu and Li, 2016).

In spite of the importance of price promotions and UGC for luxury hotel consumers' spending behavior (Noone and McGuire, 2013), existing studies have focused primarily on their independent effects, without either an interactional view or a focus on the luxury hospitality context. Yang, Zhang, and Mattila (2016) investigated the effect of price promotions on consumers' evaluations of luxury hotels but conducted a survey with relatively low-income respondents, and focused on their pre-consumption attitudes toward hypothetical price promotions (i.e., present vs. absent). However, price promotions are not discrete; rather they are seen to locate on a continuum, and less attention is paid to how price promotions affect actual consumer spending. In addition, when measuring hotel performance, many studies have focused on solely on room revenue such as revenue per available room (RevPAR) and average daily rate (ADR) (Kim et al., 2015; Xie et al., 2014). However, hospitality researchers have not incorporated key ancillary revenues from the sales of food and beverage, spa, and other hotel services (Kim et al., 2013). Furthermore, although tactical price decisions tend to be influenced by the UGC information (Abrate and Viglia, 2016), there is no study yet that has examined the moderating role of UGC in the relationship between price promotions and luxury traveler spending.

To fill these gaps in the hospitality literature, this study examines (1) the effect of price

promotions on consumers' actual spending on luxury hotel services except room price and (2) the moderating effects of room price and UGC on the relationship between price promotions and consumer spending. The present study contributes to the literature and practice in following ways. First, based on pricing literature, this study examines the effectiveness of price promotions in the context of luxury hotels and across different types of hotel room (i.e., high-priced vs. low-priced) (Maslowska et al., 2017). Second, drawing upon the cue-utilization literature, this study extends the prior literature on UGC and validates the moderating role of UGC (i.e., valence and volume) between price promotions and consumer spending (Noone and McGuire, 2013). Using a text mining technique, the present study classifies prior hotel reviews into intrinsic attributes (i.e., amenity and location) and extrinsic attributes (i.e., food and staff) and examines their moderating effects between price promotions (i.e., extrinsic cue) and consumer spending. Finally, from a practical perspective, the study's findings can assist luxury hotels to implement effective price promotion strategies, with a consideration of advanced UGC management in terms of valence, volume and content, to increase consumer spending on luxury hotel services.

2. Literature review and hypotheses

2.1. The role of price information in consumer spending on luxury hotel services

Price promotion in the hospitality industry is a prevalent tool used to maximize profits with limited available capacity, such as airline seats or hotel rooms–this practice is called revenue management (Cross, 1997). Hospitality firms implement the revenue management through segmenting customers, setting prices and promotion ranges, and controlling capacity to

maximize the profits (Kimes, 1989). However, depending on the type of hotels (e.g., economy vs. luxury), hotel consumers tend to have different expectations and preferences (Qiu et al., 2015). Limited-service (e.g., mid-scale and economy) hotel consumers are more influenced by hotels' price and price promotions and have less brand loyalty of hotels (Tanford et al., 2012). Therefore, these consumers may have positive attitudes toward the reduced prices, and consequently, increase their willingness to spend more on hotel services (Maxwell, 2002).

When ordinary consumers evaluate a particular product or service, they are likely to consider four value dimensions (Grewal et al., 1998). *Acquisition value* refers to the benefits consumers believe they will enjoy by acquiring the product, relative to the money paid to acquire the product, *transaction value* is the pleasure of getting a good deal, *in-use value* represents the utility associated with the actual usage, and *redemption value* is the price of the product at the time of trade-in or end-of-life. In the context of hotels, a room price represents what the consumer 'gives' in exchange for the given hotel's service (Ahtola, 1984), whereas price promotion (i.e., discount) can be considered as a 'get' cue corresponding to the benefits of the hotel service. Thus, price promotion will lead to a net gain from acquisition and transaction values. Furthermore, higher service quality obtained from a luxury hotel (Zhang et al., 2011) will strengthen in-use value for the hotel consumers. Therefore, we assume that, when economy travelers who stay in lower-priced rooms have price promotions from a luxury hotel, they will have a higher level of engagement in using the hotel amenities, and thereby be more willing to pay more for luxury hotel services.

Conversely, luxury travelers who stay in higher-priced rooms may have different attitudes toward price promotions. In the luxury consumption, a prestigious image is a critical feature of luxury product or service. Prior studies have found that luxury consumers react negatively to

price promotions, resulting in less favorable attitudes to the brands, because status-seeking consumers mainly consume luxury product or service to signal their wealthy identities (Han et al., 2010). Luxury travelers' consumption of higher-priced rooms is driven by social status or conspicuousness (Wilcox et al., 2009) rather than transaction value, i.e., how much they obtain for the price they pay (Yoo et al., 2000). Hence, when higher status-seeking consumers have learned that a luxury hotel implements large discounts, they are likely to exhibit negative attitudes toward the hotel because price promotions lower the perception on quality and status of a luxury hotel (Grewal et al., 1998). Based on the preceding discussion, we formulate the following hypothesis:

Hypothesis 1.   Price promotion has a negative effect on consumer spending on luxury hotel services.

Price is one of the extrinsic cues which is most extensively studied as an indicator of quality (Brucks et al., 2000). Consumers seek quality or status for high-priced brands or products, whereas they will seek transaction utility for low-priced brands (Yoo et al., 2000). Hence, consumers' purchase goals can have a strong influence on how they categorize and compare products (Ratneshwar et al., 2001). Luxury consumers are willing to purchase high-priced products to demonstrate their social status, which increases consumer conspicuousness (Wilcox et al., 2009). When price promotions lower the final price of a luxury product consumers pay, conspicuousness will be damaged, which makes luxury consumers feel negative about the product and lowers the attractiveness of high-priced products. Furthermore, products with frequent price promotions are often perceived of lower quality than rarely promoted

products (Fok et al., 2006). In contrast, low-priced product buyers would be pleased with large discounts because they do not care about conspicuousness but pursue transaction value. Therefore, prior studies have found that the effect of price promotions on behavioral intentions (e.g., brand equity, brand loyalty, and purchase intention) is positive for a high-priced brand but negative for a low-priced brand (Swani and Yoo, 2010).

In the hotel industry, room price is influenced by a bundle of multiple amenities – the so-called hedonic room pricing – and hotel consumers are willing to pay for different amenities when staying in different types of hotel (Zhang et al., 2011). It should be noted that hotel consumers' goals for high-priced rooms and low-priced rooms are different (e.g., Swani and Yoo, 2010): high-priced room consumers will seek quality, whereas low-priced room consumers will seek transaction value (Zhang et al., 2011). Especially, high-priced room consumers are often not only emotionally attached to their chosen hotel brand (Tanford et al., 2012) but also willing to pay a premium for luxury hotel amenities (Heo and Hyun, 2015; Yu and Timmerman, 2014). However, when a luxury hotel offers a great deal of price promotion to high-priced room consumers, price reductions will lower the perception on quality and status for the hotel. Consequently, price promotion will work negatively for the purchase goals of high-priced room consumers, which will deteriorate the level of engagement in using the hotel amenities, and thereby be less willing to pay more for the hotel services. We thus propose the following:

Hypothesis 2.   The effect of price promotion on consumer spending on luxury hotel services is negatively moderated by higher room price.

2.2. The role of UGC in consumer spending on luxury hotel services

UGC plays an important role in influencing not only consumers' demand for hotels but also hotels' marketing strategies (e.g., price promotion), which further affect hotel performance (Lee and BradLow, 2011). Online reviews, which are the most common of UGC forms, provide potential hotel consumers information about how other consumers experienced the hotel service and influence consumer behavior more effectively than traditional advertising provided by hotels (Zhang et al., 2010). Therefore, hotels often use online reviews to obtain real-time feedback from consumers (Robson et al., 2013) and reflect them on their future pricing strategies. Since fewer studies discuss how hotels utilize UGC for effective marketing strategies, this study investigates the contingency role of UGC in the relationship between price promotion and consumer spending in a context of luxury hotels.

While price promotions, as an extrinsic cue, lead to a decrease in consumer spending on luxury hotel services, the negative relationship may vary depending on UGC information because consumers have heterogeneous attention and reaction to price information (Dickson and Sawyer, 1990). Unlike tangible luxury goods, with which search attributes are dominant, luxury hospitality services are experiential in nature and contain high percentages of experience and credence properties (Reisinger and Waryszak, 1996). As hotel services are based heavily on experience and credence properties, the variability in the service level from encounter to encounter creates uncertainty, which may inhibit the formation of precise prepurchase expectations (Jayanti and Jackson, 1991). In order to examine the contingency role of various types of UGC information, we decomposed UGC into valence and volume and the volume of UGC was further classified into volume of intrinsic and extrinsic attribute-related UGC.

2.2.1. The contingency role of valence of UGC

Although the valence of UGC (e.g., consumer ratings) signals the overall product quality
(Kostyra et al., 2016) and appears to be an excellent instrument for measuring hotel satisfaction
(Liu et al., 2017), its effectiveness has yielded inconsistent results. The valence of UGC can have
a positive effect on the movie box office performance (Chintagunta et al., 2010) or is ineffective
in driving sales of movie box office (Liu, 2006). In the hotel industry, consumer expectations of
hotel service differ by the type of hotel. While mid-scale hotel consumers put more emphasis on
location, luxury hotel consumers consider location and service quality as the key consideration
factors (Zhang et al., 2011). Due to the intangible and experiential characteristics of hotel
service, prospective consumers are likely to rely on other consumers' experiences, as expressed
by numerical ratings, to assess the service quality. Compared to the UGC volume, the UGC
valence (i.e., higher rating score) has a greater effect on luxury hotels (Blal and Surman, 2014).

Although hotel consumers are motivated to increase their spending on a hotel's services
with positive ratings, prior studies suggest that price and service quality should be considered
jointly because there are tradeoffs between two factors (Sweeney and Soutar, 2001; Tse 2001).
When a luxury hotel provides rooms to prospective consumers at lower prices or large discounts,
such price reductions will lead to not only a perception of good value for money but also a lower
expectation for the service quality. Under price promotions, an extremely higher positive valence
of UGC (e.g., 4- or 4.5-star rating) cannot equate to the level of service consumers will get
(Wolff-Mann, 2016) and rather diminishes source credibility (Maslowska et al., 2017).
Consumers who book a relatively lower-priced room due to price promotion will consider a
higher hotel rating as suspicious. In other words, two positive cues from price promotion and
higher rating may be regarded as too good to be true. Furthermore, the less credible information

deriving from a higher valence of UGC may lead to dissatisfaction with actual services, eventually lowering consumers' willingness to spend on hotel services (Maslowska et al., 2017). We thus propose the following:

Hypothesis 3.   The effect of price promotion on consumer spending on luxury hotel services is negatively moderated by higher valence of UGC.

2.2.2. The contingency role of volume of UGC

Many studies have demonstrated that the UGC volume can indicate a product's popularity and credibility because it represents the number of consumers who have bought the product (Liu, 2006) and strengthens consumers' confidence in a product, leading to a greater willingness to pay for the product (Brynjolfsson and Smith, 2000). In addition, prospective consumers pay attention to the detailed content of UGC because they can acquire more information about how hotel consumers have experienced hotel services (Xu and Li, 2016). According to cue utilization theory, consumers tend to rely on "cues" or characteristics of products in their product quality evaluations, which are further classified with intrinsic and extrinsic cues (Richardson et al., 1994). Intrinsic cues represent inherent product attributes that cannot be easily changed, and extrinsic cues are product-related attributes but not part of the physical product (Richardson et al., 1994). In the luxury hotel context, we regard hotel amenity and location – physical product – as intrinsic attributes because they are difficult to change within a short time, whereas we consider price (promotion), food and staff as extrinsic attributes because these attributes can be changed relatively easily within a short time (e.g., Wilkins et al., 2007; Xu and Li, 2016; Zhou et al., 2014).

Although the volume of UGC increases the brand credibility of a luxury hotel, consumers are likely to combine the UGC information with price information (Sweeney and Soutar, 2001; Tse 2001). When a luxury hotel offers large discounts, prospective consumers perceive price reductions (i.e., extrinsic attribute) as good value for money but lower expectation for the service quality. Simultaneously, consumers process UGC information of the hotel, which includes both intrinsic attributes (e.g., amenity and location) and extrinsic attributes (e.g., food and staff). In the presence of multiple cues, consumers will process such cues differently in terms of price-quality relationship (Miyazaki et al., 2005): both extrinsic and intrinsic cues lead to a balanced processing, but multiple extrinsic cues lead to a negatively biased processing. Specifically, when both extrinsic (e.g., price promotion) and intrinsic (e.g., location-related reviews) cues are revealed to prospective consumers, consumers are likely to incorporate this information to make accurate judgements of learning (JOLs) (Castel, 2008; Koriat, 1997) in terms of hotel evaluations. Conversely, when multiple extrinsic cues (i.e., price promotion and food-related reviews) are provided, consumers are likely to find the negative cues (e.g., lowered brand image and negative opinions about the hotel food) more salient and overweight them in their hotel evaluations (Miyazaki et al., 2005).

In sum, for consumers who has obtained price promotions (i.e., extrinsic cue) from a luxury hotel, additional UGC will lead consumers to evaluate the hotel positively or negatively, depending on the type of UGC. Whereas multiple extrinsic cues may lead to a negative bias for evaluating a luxury hotel, the combination of both extrinsic and intrinsic cue information may increase correctness of consumers' expressed opinions of the hotel (Salganik and Watts, 2008), eventually enhancing their willingness to spend more on hotel services. Therefore, we propose the following:

Hypothesis 4. The effect of price promotion on consumer spending on luxury hotel services is (a) positively moderated by volume of intrinsic cue-related UGC, but (b) negatively moderated by volume of extrinsic cue-related UGC.

Based on the aforementioned theoretical foundations, our study concentrates on (1) the overall effect of price promotion on consumer spending on luxury hotel services and (2) the moderating effects of room price and UGC in the price promotion-spending relationship. Figure 1 depicts the proposed research model and outlines the research hypotheses which are tested subsequently.

[Insert Figure 1 about here.]

3. Methodology

3.1. Data collection

To test the hypotheses, we collected and used matched-sample data from a regional luxury hotel chain company, located in the Mediterranean coast in Turkey, and TripAdvisor, the biggest online trip review site, as shown in the prior literature (Anderson, 2012; Kim et al., 2015). The Mediterranean destinations are among the most visited tourism regions in the world, accounting for one in three international tourist arrivals worldwide and over a quarter of total international tourism receipts (UNWTO, 2015). The first data set was collected from 4 luxury resort hotels and consisted of daily total settlement information of anonymized consumers between December

2013 and November 2014. Because 4 hotels had different situations in terms of accounting and database management, time periods of available data varied across hotels: between April 30 and November 30, 2014, between April 1 and October 18, 2014, between December 1, 2013 and November 29, 2014, and between June 2 and October 31, 2014. Such data enabled us to measure the average values of room price, price promotion, and consumer spending and further examine the relationship among the variables. We assume that hotel consumer characteristics, such as the level of familiarity with price promotions (Kimes, 2002), the level of price consciousness (Sinha and Batra, 1999) and demographic background (e.g., nationality, age, gender, household income) (Mauri, 2007) could reflect not only their historical consumption habits (Heo and Lee, 2011) but also the distribution of UGC (Banerjee and Chua, 2016).

The second data set was collected from TripAdvisor, which has been studied frequently by tourism studies the biggest online trip review site (Banerjee and Chua, 2016; Liu et al., 2017; Schuckert et al., 2015). TripAdvisor is considered as a reliable information source that can be used to understand the types of hotel attributes that drive hotel customer satisfaction and dissatisfaction (Liu et al., 2017). By using the programing language Python (Scrapy Developers, 2016), we extracted all the available text and numeric data, such as the time of writing the review, the overall rating (a five-point Likert-type scale), and review content (English sentences), for 4 hotels before November 2014. After cleaning the raw data, we collected the final UGC data that consist of 1,019 reviews, 21,281 sentences and 10,194 noun words. Finally, we classified the frequency of words that are related to five hotel attributes (i.e., room, amenity, location, food and staff). The final classification of hotel attribute-related words is shown in Table 1.

[Insert Table 1 about here.]

By combining two data sets, we created a panel data with time-series information about consumer spending and UGC dataset, totaling in 891 observations. In order to know whether consumer spending happened before UGC information, we considered a lagged effect of UGC on spending in the model. We found that the publication dates of customer ratings and reviews were revealed sporadically on TripAdvisor (e.g., one- or two-week intervals). It is possible that the same UGC information was shared by various consumers for a certain period. Finally, each observation consists of (1) the average room price, the average amount of price promotions, and the average amount of consumer spending related to anonymized consumers at a checkout date (t) and (2) the average UGC valence and the accumulated UGC volume before the checkout date – between the first recent UGC (t-1) and the second recent UGC (t-2) – in a particular hotel.

3.2. Measurements

As the dependent variable for our study, we used the average dollar amount spent per guest on luxury hotel services except room price, *Spending*. As hypothesized, *Spending*, which was measured at the checkout date, will be affected by price (i.e., room price and price promotion amount) and non-price (i.e., UGC). In addition to room revenue (e.g., ADR and RevPAR), revenue from restaurant/banquet food and beverage, spa and other hotel services is an important element of hotel performance (Kim et al., 2013). Furthermore, the use of a guest's spending including room price (i.e., the use of ADR or RevPAR) will incur a significant endogeneity of the model which includes the room price as independent variable.

Next, the independent variables related to pricing and UGC information were identified. *PricePG* refers to the dollar amount of the room price per guest spent during his or her stay and

PromotionPG is the dollar amount of the total promotion expenditure (e.g., free night, food and beverage discounts) per guest before or during stay. As the UGC variables, the average overall rating (*Valence*) and the number of online reviews (*Volume*) about a particular hotel before a checkout data (t-1) were defined (Kim et al., 2015; Ye et al., 2009). While the *Valence* variable is the average number of ratings on a 5-point Likert scale, the *Volume* variable was further decomposed into four independent variables (e.g., Phillips et al., 2017): *VolumeAmenity* (the number of hotel amenity-related words), *VolumeLocation* (the number of location-related words), *VolumeFood* (the number of hotel amenity-related words, and *VolumeStaff* (the number of hotel amenity-related words). In the final model, the room-related UGC (*VolumeRoom*) variable was excluded to avoid the mismatch issue with the dependent variable (i.e., consumer spending except room price).

Finally, the two control variables were employed in the model because cumulative UGC and hotel popularity information may influence consumer spending on luxury hotel services. *CumulativeUGC* refers to the number of review sentences from the starting date of TripAdvisor account to the date before the first recent review (from the past to t-2), and *GuestNumber* is the number of the total guests who check out at a certain date, which indicated the level of hotel popularity. For the analysis, we standardized all the variables and performed a multiple regression analysis using R package in order to analyze the final data set.

4. Results

4.1. Descriptive statistics

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Table 2 reports the descriptive statistics for the variables. In the luxury hotels of the sample, each guest spent, on average, 144 dollars on the room price and 22 dollars on hotel services except the room price. Luxury hotels spent, on average, 9 dollars per guest, indicating that luxury hotels spent approximately 6% of the hotels' room price. Before a guest checked out, s/he had been exposed to a hotel's UGC information. The UGC valence of 4 hotels was relatively high, on average, 4.22 out of 5.00, and the average UGC volume of amenity, location, food, and staff was 3.44, 3.13, 3.98, and 5.47, respectively. In addition, guests could read, on average, 864 sentences of cumulative UGC reviews and the average daily number of checkout guests was 978 in a hotel. Concerning the correlation coefficients among the variables, there were relatively weak correlations, except one between *PricePG* and *PromotionPG* (0.58), so we detected the potential presence of multicollinearity by calculating the variance inflation factor (VIF). It ranged from 1.523 to 4.636 (Table 3), indicating that multicollinearity was not a serious problem in the model.

[Insert Table 2 about here.]

4.2. Hypothesis tests

Table 3 summarizes the results of three models regarding the independent and interactive effects of price promotion, room price and UGC on consumer spending on luxury hotel services. As a base model, Model 1 shows only the independent effects of all the variables. In addition to the independent effects, Model 2 incorporates the interaction effect between price promotion and room price and Model 3 incorporates the interaction effects between price promotion and various UGC variables. The results of three models show that price promotion (*PromotionPG*) has the

significant, negative effect on consumer spending (Model 1: -0.261, Model 2: -0.187, Model 3: -0.085), in support of H1. The result of Model 2 further presents that the interaction effect between price promotion and room price (*PromotionPG * PricePG*) is statistically significant and its coefficient is negative (-0.128). This implies that if consumers who stay in higher-priced rooms obtain a greater amount of price promotion tend to spend less on the hotel services than do consumers who choose relatively lower-priced rooms. Hence, the result supports H2.

Regarding the moderating effects of UGC, the results show that the coefficient of *PromotionPG × Valence* is statistically significant and negative (-0.077), in support of H3 and the interaction effects between price promotion and UGC information vary across different hotel attributes. Whereas the coefficients of *PromotionPG × VolumeAmenity* and *PromotionPG × VolumeLocation* are positive (0.184 and 0.191), the coefficients of *PromotionPG × VolumeFood* and *PromotionPG × VolumeStaff* are negative (-0.124 and -0.169). These results indicate that the combination of both extrinsic and intrinsic attribute information (i.e., price promotion and amenity/location) is likely to provide more credible and useful information than the combination of multiple extrinsic information (i.e., price promotion and food/staff). These results support H4. Concerning the control variables, the volume of cumulative UGC (*CumulativeUGC*) has significant and positive effect on consumer spending, indicating the importance of the cumulative UGC volume, but the number of checkout guests (*GuestNumber*) has significant and negative effect, indicating that hotel popularity in a form of guest traffic leads to a lower consumption of luxury hotel services.

[Insert Table 3 about here.]

Although hotel managers offer price promotions to individual consumers, they need to deal with revenue management from a daily aggregated perspective. Therefore, we performed a

robustness check by applying the daily total spending on hotel services except room price, as the dependent variable, to the model. As shown in Table 4, the results are similar to those of Table 3, except the interaction effects between the UGC volume and price promotion on total spending. The association between price promotion and UGC volume of location-related (staff-related) evaluations has a positive (negative) effect on total spending, but the UGC volume of amenity- and food-related evaluations has no interaction effect. However, the results still suggest that the combination of intrinsic and extrinsic information is more effective than the combination of multiple extrinsic information.

[Insert Table 4 about here.]

5. Discussion and Implications

Given the large expenditures allocated to sales promotion in the luxury hospitality industry, understanding what strategy to use for a given promotional cost remains important. One of the basic decisions confronting luxury hotels and intermediary firms, when implementing a promotion, is how much price promotion amount is to be offered to prospective and existing consumers and in what context. Indeed it is relevant for both hospitality researchers and practitioners to understand how price promotions perform better in the context of heterogenous product price and UGC information. Due to consumers' increasing awareness and knowledge about price and UGC information (Noone and McGuire, 2013), it is the case as found in this study, that not only do luxury hotel consumers are likely to perceive price promotions negatively, but also that price promotions toward high-priced room consumers will decrease their service consumptions. Concerning the role of UGC information, luxury consumers tend to put less

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credibility on a higher valence (i.e., higher satisfaction) because large discounts have already provided a lower brand image of the luxury hotel. In addition, the combination of both extrinsic (i.e., price promotion) and intrinsic (amenity- and location-related UGC volume) cue information leads to a greater consumer spending than the combination of multiple extrinsic cues. As such, the results suggest that the effect of a luxury hotel's price promotion on consumer spending is moderated by product price (Maslowska et al., 2017) and UGC (Noone and McGuire, 2013).

5.1. Theoretical implications

This study offers several theoretical implications in the field of hospitality literature. First, although price promotion is a crucial tool for hospitality industry, the detailed strategy should be combined with the type of hotels (e.g., economy vs. luxury) and the price level of a product (e.g., room price) (Qiu et al., 2015). Our study finds that large discounts in a luxury hotel tend to demotivate luxury consumers to spend more on hotel services, possibly because a lower-priced hotel service not only deteriorates the quality of the luxury service (Grewal et al., 1998) but also lowers consumers' social status or conspicuousness (Wilcox et al., 2009). On the contrary, large discounts in an economy hotel may lead to positive attitudes toward the hotel because low status-seeking consumers buy lower-priced brands mainly for transaction value (Chen and Peng, 2014; Yoo et al., 2000). This notion can be applied to a situation of different room prices in the same luxury hotel. When a bigger discount is offered to an economy consumer who books a relatively lower-priced room, s/he will not only acquire the benefit of luxury accommodation and amenities by paying the low price, but will also get a good deal from the price discount (Grewal et al., 1998). Such a net gain will promote greater engagement by the economy consumer with the

hotel's amenities and services (Heo and Hyun, 2015; Yu and Timmerman, 2014). However, a luxury consumer who stays at a higher-priced room is likely to perceive a large discount negatively because the high-priced room consumer may seek high status by consuming the high-priced service, which signals her or his wealthy identity (Han et al., 2010), and price reduction will damage a prestigious image of the hotel. This study confirms that hotel consumers have different expectations and preferences, depending on the type of hotels and the price of rooms (Qiu et al., 2015).

Second, this study has important implications for academics studying the contingent role of UGC (i.e., valence and volume) on the relationship between price promotions and consumer spending on the luxury hotel services. Concerning the valence of UGC, prior studies have indicated that the UGC valence positively influences overall hotel performance (Kim et al., 2015; Noon and McGuire, 2013). The notion that higher ratings represent better service quality and, therefore, customers' satisfaction (Liu et al., 2017), can be applied to lower-end hotels such as 1–4-star hotels. However, the role of UGC valence is different in the case of luxury hotels. Our study shows that, for luxury travelers that perceive large discounts negatively, the excessively positive valence of UGC will be perceived as unreliable. When consumers see only 5-star reviews, they will become suspicious (Dholakiya, 2014; O'Reilly and Marx, 2011). This finding is in line with some studies suggesting that consumers consider the one-sided messages less diagnostic of product quality (Herr et al., 1991) because two-sided messages can enhance source credibility and brand evaluation (Chen and Lurie, 2013; Eisend, 2006). Other studies have found that experts are more likely to express negative opinions (Schlosser, 2005) and users with high reviewing expertise tend to post negative ratings (Zhang et al., 2016). Furthermore, excessively higher rating of a hotel may lead to a lower level of satisfaction for hotel consumers

at the consumption stage. Consequently, this study confirms that luxury hotel consumers perceive two positive cues – large discount and high rating – as less trustworthy than both positive and negative cues (e.g., large discount and low rating, small discount and high rating).

Finally, this study empirically demonstrates the importance of UGC volume based on the specific cue information of online reviews (i.e., intrinsic and extrinsic) when a luxury hotel offers price promotions (i.e., extrinsic cue) (Lee and BradLow, 2011). That is, although the UGC volume increases a hotel's brand credibility, consumers tend to process both price and UGC information simultaneously (Sweeney and Soutar, 2001; Tse 2001). By using a text-mining technique, we identified prior hotel consumers' evaluations on intrinsic attributes (i.e., amenity and location) and extrinsic attributes (i.e., food and staff). In the luxury hotel context, four attributes can match with alignable attributes (e.g., fixed hotel setting which is difficult to be changed) and nonalignable attributes (e.g., variable service setting which is relatively easy to be changed) (Yang and Mattila, 2014). Our study finds that when both extrinsic (e.g., price promotion) and intrinsic (e.g., location) information is combined, luxury consumers are likely to perceive this mixed information more accurate and useful for their hotel evaluations (e.g., Castel, 2008; Koriat, 1997). However, when multiple extrinsic information (e.g., price promotion and food-related evaluations) is combined, consumers tend to overemphasize the negative information (e.g., negative messages about hotel food) for their hotel evaluations (e.g., Miyazaki et al., 2005). This study supports the cue-utilization theory, which emphasizes the different influence of multiple cues on customer evaluation on product quality (Koriat, 1997). It is suggested that, compared to the valence of UGC, the volume of UGC based on specific content of customer reviews plays a critical role for consumers' evaluations on a luxury hotel. This finding also proves that consumers not only utilize online reviews as tools for making purchase

decisions, but also integrate the UGC information with price information, which further

influences spending decisions on the luxury hotel services.

5.2. Managerial implications

This study provides useful managerial implications in the field of luxury hotel marketing.

In order to increase luxury traveler spending, hotel managers should allocate more promotional

expenditures in an effective way by focusing on less expensive offerings. Our empirical data

show that the average ratio of promotional amount to room price is 6%, aligned with the fact that

luxury hotels offer smaller discounts on listed prices in addition to charging higher prices

(Becerra et al., 2013). However, when conditional free product or price discounts are offered to

consumers who stay in relatively low-priced rooms of a luxury hotel, consumers' willingness to

spend on hotel services will increase because these consumers tend to be more influenced by

functional value and such a double gain – cheaper room price and larger discounts – from the

luxury hotel will motivate them to spend more on hotel services during the stay. On the other

hand, when dealing with higher-priced room consumers, managers need to pay more attention to

the hotel's hedonic value than utilitarian value. Higher-priced room consumers not only seek

higher social status but also become more engaged in using hotel amenities (e.g., dining and

spa), than do lower-priced room consumers (Heo and Hyun, 2015; Yu and Timmerman, 2014).

Therefore, a luxury hotel's prestigious image should be maintained mainly for high-priced room

consumers through upgraded facilities and personalized services, which can signal their wealthy

identities.

Furthermore, our study recommends that luxury hotels should understand that UGC

information plays a critical role in terms of maximizing the effectiveness of price promotion. Whereas the UGC volume is regarded as a reliable information source (Gretzel et al., 2007), luxury travelers do not place much value on the UGC valence. According to Liu et al. (2017)'s study that analyzes 10,149 hotels on TripAdvisor, the average rating of 3–3.5-star hotels is 3.73 whereas that of 5-star hotels is 4.27. This research implies that while less luxury hotels can improve hotel performance by increasing their ratings, it seems difficult for luxury hotels to increase the average rating which is already high. Therefore, continuous increase in the UGC valence of a luxury hotel may not be relevant or only marginally relevant to luxury travelers' interests. In addition, if a luxury hotel with a high UGC valence offers large discounts to prospective consumers, consumers will perceive such extremely positive cues as too good to be true (e.g., Maslowska et al., 2017). This study demonstrates that multiple positive cues might actually reduce the level of brand credibility of the hotel and hence decrease consumers' spending on the hotel services. Hence, managers should understand that the extremely high valence of UGC cannot be regarded as a trustworthy information and need to encourage hotel consumers to generate more online reviews – both positive and negative – instead of focusing on positive reviews only.

When it comes to the volume of UGC, hotel marketers should utilize real-time customer feedback from hotel attribute-related reviews when offering price promotions. Although price promotions, as an extrinsic cue, lead to a negative image of a luxury hotel, the hotel's intrinsic attribute-related reviews, such as both positive and negative opinions about hotel amenity and location, attenuate the negative effect of price promotions by providing more accurate information to prospective consumers. It should be noted that luxury travelers care about hotel facilities (Heo and Hyun, 2015), such as building's décor and layout, elevators, swimming pool

and spa, and hotel location, such as room view and accessibility to attractions and city center (Xu and Li, 2016; Zhang et al., 2011). This study finds that price promotions can increase luxury consumers' spending when associated with a greater volume of intrinsic attribute-related UGC. On the other hand, managers keep in mind that consumers tend to be biased to negative dimensions when multiple extrinsic cues are combined, such as price promotions and food- and staff-related UGC.

These findings provide an important boundary condition for luxury hotels' UGC management. While price promotions are planned and implemented, luxury hotels should utilize track, monitor, and manage the specific attribute-related online reviews – intrinsic and extrinsic – through social media rather than the positive valence of UGC or the overall UGC volume. Based on real-time UGC information, managers allocate more promotional expenditures when intrinsic attribute-related reviews are more prevalent. In order to motivate consumers to generate intrinsic attribute-related reviews, luxury hotels need to make more investments in hotel facility and location management, which will eventually increase experiential and symbolic value of the hotel (Chen and Peng, 2014). In addition, because measuring a more accurate level of consumers' hotel quality and satisfaction is critical, managers can employ private means such as online quality management system (Prasad et al., 2014) rather than via public online channels.

6. Limitations and suggestions for future research

Although this study provides numerous insights related to price promotion and UGC management in the luxury hospitality context, it suffers from some limitations that can be addressed with future work in this area. First, the analyses and results of this study are limited to

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the pool of one branded luxury hotel chain in the Mediterranean region, although it must be emphasized that this is one of the most visited tourism regions. Consequently, the current findings lack external validity, so future research should collect updated empirical data in other branded luxury hotels located in other regions and countries.

Second, this study used a relatively small sample that consists of hotels' pricing activities, UGC information and anonymized consumers' sending behavior. However, another part of main factors influencing consumer spending can be the consumers' income, consumption habits, and other characteristics, such as gender, education and occupation, because consumer characteristics may influence fairness perceptions of price promotions in the hotel industry (Heo and Lee, 2011). Hence, future research can control these heterogeneities of hotel consumers by incorporating socio-demographic factors in the model.

Third, this study focused on how UGC moderates the relationship between price promotion and hotel consumer spending because hotels' pricing strategies can be created and modified by reflecting UGC information on a real-time basis (Lee and BradLow, 2011; Xu and Li, 2016). Nevertheless, depending on the different level of price promotions, hotel consumers may generate different types of UGC, such as hotel ratings and price attribute-related reviews, which further affect hotel revenue. Hence, future research needs to investigate how price promotion moderates the hotel UGC-revenue relationship.

Finally, this study considered the valence and volume of UGC as important factors for consumers' purchase decisions, but UGC may not provide detailed and relevant travel information (Gretzel et al., 2007). As luxury hotels attempt to share their messages with their current and potential consumers (Gallaugher and Ransbotham, 2010) or respond to customer reviews (Kwok and Xie, 2016), there is an opportunity for future research to investigate the

contingent role of hotel-generated content in the promotion-spending relationship. While these

concerns present important research opportunities, the results of this study nevertheless appear to

verify the important role of price promotions and UGC in luxury hotel performance.

References

Abrate, G., Viglia, G., 2016. Strategic and tactical price decisions in hotel revenue management. Tour. Manag. 55, 123–132.

Accenture, 2013. Global Consumer Pulse Research. Accenture.

Ahtola, O.T., 1984. Price as a "give" component in an exchange theoretic multicomponent model. Advances in Consum. Res. 11, 623–636.

Anderson, C.K., 2012. The impact of social media on lodging performance. Cornell Hosp. Rep. 12 (15), 1–12.

Banerjee, S., Chua, A.Y.K., 2016. In search of patterns among travellers' hotel ratings in TripAdvisor. Tour. Manag. 53, 125–131.

Becerra, M., Santaló, J., Silva, R., 2013. Being better vs. being different: differentiation, competition, and pricing strategies in the Spanish hotel industry. Tour. Manag. 34, 71–79.

Blal, I., Surman, M.C., 2014. The differential effects of the quality and quantity of online reviews on hotel room sales. Cornell Hosp. Q. 55 (4), 365–375.

Brucks, M., Zeithaml, V.A., Naylor, G., 2000. Price and brand name as indicators of quality dimensions for consumer durables. J. Acad. Mark. Sci. 28, 359–374.

Brynjolfsson, E., Smith, M.D., 2000. Frictionless commerce? a comparison of internet and conventional retailers, Manag. Sci. 46 (4), 563–585.

Campo, S., Yagüe, M.J., 2008. Tourist loyalty to tour operator: effects of price promotions and tourist effort. J. Travel Res. 46, 318–326.

Castel, A.D., 2008. Metacognition and learning about primacy and recency effects in free recall: the utilization of intrinsic and extrinsic cues when making judgments of learning. Memory & Cognition, 36 (2), 429–437.

Chen, Z., Lurie, N.H., 2013. Temporal contiguity and negativity bias in the impact of online word of mouth. J. Mark. Res. 50 (4), 463–476.

Chen, A., Peng, N., 2014. Examining Chinese consumers luxury hotel staying behavior. Int. J. Hosp. Manag. 39, 53–56.

Chintagunta, P.K., Gopinath, S., Venkataraman, S., 2010. The effects of online user reviews on movie box office performance: accounting for sequential rollout and aggregation across local markets. Mark. Sci. 29, 944–957.

Cross, R.G., 1997. Revenue management: hard-core tactics for market domination. New York: Broadway Books.

D' Arpizio, C., Levato, F., Zito, D., Montgolfier, J., 2014. Luxury goods worldwide market study Fall-Winter 2014. Milan: Bain and Company.

Dickson, P.R., Sawyer, A.G., 1990. The price knowledge and search of supermarket shoppers. J. Mark. 54, 42–53.

Dholakiya, P., 2014. Are excessively positive customer reviews hurting your conversion rates? available at: unbounce.com/conversion-rate-optimization/customer-reviews-conversion-rates (Accessed 27 March 2018).

Eisend, M., 2006. Two-sided advertising: a meta-analysis. Int. J. Res. Mark. 23 (2), 187–198.

Fok, D., Horváth, C., Paap, R. and Franses, P.H., 2006. A hierarchical Bayes error correction model to explain dynamic effects of price changes. J. Mark. Res. 43 (3), 443–461.

Gallaugher, J., Ransbotham, S., 2010. Social media and customer dialog management at Starbucks. MIS Q. Executive, 9 (4), 197–212.

Gretzel, U., Yoo, K., Purifoy, M., 2007. Online travel review study: role and impact of online travel reviews. Texas: Laboratory for Intelligent System in Tourism.

Grewal, D., Monroe, K.B., Krishnan, R., 1998. The effects of price-comparison advertising on buyers' perceptions of acquisition value, transaction value, and behavioral intentions. J. Mark. 62, 46–59.

Guadix, J., Cortés, P., Onieva, L., Muñuzuri, J., 2010. Technology revenue management system for customer groups in hotels. J. Bus. Res. 63 (5), 519–527.

Han, Y. J., Nunes, J. C., Drèze, X., 2010. Signaling status with luxury goods: the role of brand prominence. J. Mark. 74 (4), 15–30.

Herr, P.M., Kardes, F.R., Kim, J., 1991. Effects of word-of-mouth and product-attribute information on persuasion: an accessibility-diagnosticity perspective. J. Consum. Res. 17 (4), 454–462.

Heo, C.Y., Lee, S., 2011. Influences of consumer characteristics on fairness perceptions of revenue management pricing in the hotel industry. Int. J. Hosp. Manag. 30, 243–251.

Heo, C.Y., Hyun, S., 2015. Do luxury room amenities affect guest' willingness to pay? Int. J. Hosp. Manag. 46, 161–168.

Jayanti, R, Jackson, A., 1991. Service satisfaction: an exploratory investigation of three models. Advances in Consum. Res. 18, 603–610.

Kim, W.G., Cho, M., Brymer, R.A., 2013. Determinants affecting comprehensive property-level hotel performance: the moderating role of hotel type. Int. J. Hosp. Manag. 34, 404–412.

Kim, W.G., Lim, H., Brymer, R., 2015. The effectiveness of managing social media on hotel performance. Int. J. Hosp. Manag. 44, 165–171.

Kimes, S.E., 1989. Yield management: a tool for capacity-considered service firms. J. Oper. Manag. 8 (4), 348–363.

Kimes, S.E., 2002. Perceived fairness of yield management. Cornell Hotel and Restaurant Administration Q. 43 (1), 22–30.

Kimes, S.E., Noone, B.M., 2002. Perceived fairness of yield management: an update. Cornell Hotel and Restaurant Administration Q. 43 (1), 28–29.

Koriat, A., 1997. Monitoring one's own knowledge during study: a cue-utilization approach to judgments of learning. J. Experimental Psychol.: General, 126, 349–370.

Kostyra, D.S., Reiner, J., Natter, M., Klapper, D., 2016. Decomposing the effects of online customer reviews on brand, price, and product attributes. Int. J. Res. Mark. 33 (1), 11–26.

Kwok, L., Xie, K.L., 2016. Factors contributing to the helpfulness of online hotel reviews. Int. J. Contemp. Hosp. Manag. 28 (10), 2156–2177.

Lee, T.Y., BradLow, E.T., 2011. Automated marketing research using online customer reviews. J. Mark. Res. 48 (5), 881–894.

Liu, Y., 2006. Word of mouth for movies: its dynamics and impact on box office revenue. J. Mark. 70 (3), 74–89.

Liu, Y., Teichert, T., Rossi, M., Li, H., Hu, F., 2017. Big data for big insights: Investigating language-specific drivers of hotel satisfaction with 412,784 user-generated reviews. Tour. Manag. 59, 554–563.

Luxury Link, 2014. 2014 travel trends. available at: www.luxurylink.com/2014-travel-trends (Accessed 22 November 2016).

Maslowskaa, E., Malthouse, E.C., Viswanathan, V., 2017. Do customer reviews drive purchase decisions? the moderating roles of review exposure and price. Decis. Support Syst. 98, 1–9.

Mauri, A.G., 2007. Yield management and perceptions of fairness in the hotel business. Int. Review of Economics 54 (2), 284–293.

Maxwell, S., 2002. Rule-based price fairness and its effect on willingness to purchase. J. Economic Psychol. 23 (2), 191–212.

McGuire, K., 2014. How business travelers buy: hotel pricing in a social world. SAS Institute Inc. available at: blogs.sas.com/content/sascom/2014/09/02/businesstravelersocialworld (Accessed 22 November 2016).

Miyazaki, A.D., Grewal, D., Goodstein, R.C., 2005. The effect of multiple extrinsic cues on quality perceptions: a matter of consistency. J. Consum. Res. 32, 146–153.

Noon, B., McGuire, K., 2013. Effects of price and user-generated content on consumers' prepurchase evaluation of variably priced services. J. Hosp. Tour. Res. 38 (4), 562–581.

O'Reilly, K., Marx, S., 2011. How young, technical consumers assess online WOM credibility. Qualitative Market Res.: An Int. J. 14, 330–359.

Phillips, P., Barnes, S., Zigan, K., Schegg, R., 2017. Understanding the impact of online reviews on hotel performance: An empirical analysis. J. Travel Res. 56 (2), 235–249.

Prasad, K., Wirtz, P.W., Yu, L., 2014. Measuring hotel guest satisfaction by using an online quality management system. J. Hosp. Mark. Manag. 23 (4), 445–463.

Qiu, H., Ye, B.H., Bai, B., Wang, W.H., 2015. Do the roles of switching barriers on customer loyalty vary for different types of hotels? Int. J. Hosp. Manag. 46, 89–98.

Ratneshwar, S., Barsalou, L. W., Pechmann, C., Moore, M., 2001. Goal-derived categories: the role of personal and situational goals in category representations. J. Consum. Psychol. 10 (3), 147–157.

Reisinger, Y., Waryszak, R., 1996. Catering to Japanese tourists: what service do they expect

from food and drinking establishments Australia? J. Restaurant and Foodservice Mark. 1 (3/4), 53–71.

Richardson, P.S., Dick, A.S., Jain, A.K., 1994. Extrinsic and intrinsic cue effects on perceptions of store brand quality. J. Mark. 58 (October), 28–36.

Robson, K., Farshid, M., Bredican, J., Humphrey, S., 2013. Making sense of online consumer reviews: a methodology. Int. J. Market Res. 55 (4), 2–13.

Salganik, M.J., Watts, D.J., 2008. Leading the herd astray: an experimental study of self-fulfilling prophecies in an artificial cultural market, Soc. Psychol. Q. 71 (4), 338–355.

Schlosser, A.E., 2005. Posting versus lurking: communicating in a multiple audience context. J. Consum. Res. 32 (2), 260–265.

Schuckert, M., Liu, X., Law, R., 2015. A segmentation of online reviews by language groups: how English and non-English speakers rate hotels differently. Int. J. Hosp. Manag. 48, 143–149.

Scrapy Developers, 2016. Scrapy 1.5 documentation (2008-2016). available at: doc.scrapy.org (Accessed 25 October 2016).

Sinha, I., Batra, R., 1999. The effect of consumer price consciousness on private label purchase. Int. J. Res. Mark. 16 (3), 237–251.

Swani, K., Yoo, B., 2010. Interactions between price and price deal. J. Product & Brand Manag. 19 (2), 143–152.

Sweeney, J.C., Soutar, G.N., 2001. Consumer perceived value: the development of a multiple item scale. J. Retail. 77 (2), 203–220.

Tanford, S., Raab, C., Kim, Y.S., 2012. Determinants of customer loyally and purchasing behavior for full-service and limited-service hotels. Int. J. Hosp. Manag. 31, 319–328.

Tse, A.C.B., 2001. How much more are consumers willing to pay for a higher level of service? a preliminary survey. J. Serv. Mark. 15 (1), 11–17.

UNWTO, 2015. UNWTO Conference to address quality in Mediterranean destinations. United Nations World Tourism Organization. available at: media.unwto.org/press-release/2015-05-27/unwto-conference-address-quality-mediterranean-destinations (Accessed 22 November 2016).

Wilcox, K., Kim, H.M., Sen, S., 2009. Why do consumers buy counterfeit luxury brands? J. Mark. Res. 46 (2), 247–259.

Wilkins, H., Merrilees, B., Herington, C., 2007. Towards an understanding of total service quality in hotels. Int. J. Hosp. Manag. 26 (4), 840–853.

Wolff-Mann, E., 2016. Here's everything wrong with online reviews and how to fix them. available at: time.com/money/page/online-reviews-trust-fix/ (Accessed 26 March 2018).

Xu, X., Li, Y., 2016. The antecedents of customer satisfaction and dissatisfaction toward various types of hotels: A text mining approach. Int. J. Hosp. Manag. 55, 57–69.

Xie, K.L. Zhang, Z., Zhang, Z., 2014. The business value of online consumer reviews and management response to hotel performance. Int. J. Hosp. Manag. 43, 1–12.

Yang, W., Mattila, A.S., 2014. Do affluent customers care when luxury brands go mass? the role

of product type and status seeking on luxury brand attitude. Int. J. Contemp. Hosp. Manag. 26 (4), 526–543.

Yang, W., Zhang, L., Mattila, A.S., 2016. Luxe for less: how do consumers react to luxury hotel price promotions? the moderating role of consumers' need for status. Cornell Hosp. Q. 57 (1), 82–92.

Ye, Q., Law, R., Gu, B., 2009. The impact of online user reviews on hotel room sales. Int. J. Hosp. Manag. 28 (1), 180–182.

Ye, Q., Law, R., Gu, B., Chen, W. 2011. The influence of user-genderated content on traveler behavior: An empirical investigation on the effects of e-word-of-mouth to hotel online bookings. Computers in Human Behavior 27, 634–639.

Yoo, B., Donthu, N., Lee, S., 2000. An examination of selected marketing mix elements and brand equity. J. Acad. Mark. Sci. 28 (2), 195–211.

Yu, D., Timmerman, J., 2014. From economy to luxury, what matters most to hotel guests. available at: www.gallup.com/businessjournal/175568/economy-luxury-matters-hotel-guests.aspx (Accessed 22 November 2016).

Zhang, Z., Ye, Q., Law, R., 2011. Determinants of hotel room price: an exploration of travelers' hierarchy of accommodation needs. Int. J. Contemp. Hosp. Manag. 23 (7), 972–981.

Zhang, Z., Ye, Q., Law, R., Li, Y., 2010. The impact of e-word-of-mouth on the online popularity of restaurants: a comparison of consumer reviews and editor reviews. Int. J. Hosp. Manag. 29 (4), 694–700.

Zhang, Z., Zhang, Z., Yang, Y., 2016. The power of expert identity: how website-recognized expert reviews influence travelers' online rating behavior. Tour. Manag. 55, 15–24.

Zhou, L., Ye, S., Pearce, P.L., Wu, M.-Y., 2014. Refreshing hotel satisfaction studies by reconfiguring customer review data. Int. J. Hosp. Manag. 38, 1–10.

Table 1

Classification of hotel attributes and detailed words.

Attribute category	Detailed words (noun)	Frequency (%)
Amenity	Bar, club, concierge, door, entrance, floor, garden, gym, lobby, pool, property, shopping, spa	338 (19.2)
Location	Beach, distance, place, sea, view	337 (19.1)
Food	Breakfast, buffet, drink, lunch, restaurant	366 (20.8)
Staff	Desk, hospitality, manager, reception, service	435 (24.7)
Room	Balcony, bath, bathroom, bed, terrace	287 (16.3)

Table 2. Descriptive statistics and correlation matrix.

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) *Spending*	22.13	34.09	1.00									
(2) *PricePG*	143.95	74.00	-0.17	1.00								
(3) *PromotionPG*	8.87	6.86	-0.20**	0.58**	1.00							
(4) *Valence*	4.22	0.44	0.09	-0.06	-0.04*	1.00						
(5) *VolumeAmenity*	3.44	2.30	-0.25**	0.25**	0.17**	0.12**	1.00					
(6) *VolumeLocation*	3.13	2.55	-0.14**	-0.31**	-0.27**	0.28**	0.03**	1.00				
(7) *VolumeFood*	3.98	2.68	0.20**	0.01	0.22	0.38**	-0.05	-0.12**	1.00			
(8) *VolumeStaff*	5.47	3.13	0.63**	-0.06*	0.00**	0.02	-0.26**	-0.17**	0.18**	1.00		
(9) *CumulativeVolume*	864.33	293.25	0.28**	-0.21**	-0.29**	-0.09**	-0.70**	-0.19**	0.02*	0.35**	1.00	
(10) *GuestNumber*	977.76	610.24	-0.45**	0.39**	0.14**	-0.26	0.06	-0.22**	-0.22**	-0.33**	0.03*	1.00

** $p < 0.01$, * $p < 0.05$.

Table 3. Results of regression model for testing hypotheses (Dependent variable: Average spending).

Variable	Model 1		Model 2		Model 3		
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	VIF
Intercept	0.000	0.023	0.000	0.023	0.000	0.021	
PricePG	0.091**	0.032	0.086**	0.032	0.072*	0.032	2.225
PromotionPG	-0.261***	0.031	-0.187***	0.035	-0.085*	0.035	2.779
Valence	0.036	0.028	0.043	0.027	0.065*	0.027	1.645
VolumeAmenity	-0.099**	0.034	-0.088**	0.033	-0.088*	0.037	2.988
VolumeFood	0.063*	0.027	0.075**	0.027	0.018	0.031	2.173
VolumeLocation	-0.169***	0.028	-0.154***	0.028	-0.147***	0.027	1.607
VolumeStaff	0.477***	0.028	0.473***	0.027	0.501***	0.027	1.624
PromotionPG × *PricePG*			-0.128***	0.027			
PromotionPG × *Valence*					-0.077*	0.031	2.130
PromotionPG × *VolumeAmenity*					0.184***	0.046	4.636
PromotionPG × *VolumeLocation*					0.191***	0.031	2.142
PromotionPG × *VolumeFood*					-0.124**	0.044	4.378
PromotionPG × *VolumeStaff*					-0.169***	0.026	1.523
CumulativeVolume	-0.031	0.037	-0.001	0.037	0.091*	0.040	3.489
GuestNumber	-0.299***	0.029	-0.311***	0.029	-0.273***	0.028	1.773
R^2	0.526		0.537		0.607		
Adjusted R^2	0.521		0.532		0.601		
F	108.600		102.200		96.560		
N	892		892		891		

Note: The UGC volume variable of room attribute (*VolumeRoom*) was excluded in the final model.

*** $p<0.001$, ** $p<0.01$, * $p<0.05$, † $p<0.10$.

Table 4. Results of regression model for a robustness check (Dependent variable: Total spending).

Variable	Model 4		Model 5		Model 6		
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	VIF
Intercept	0.000	0.029	0.000	0.029	0.000	0.029	
PricePG	0.436***	0.043	0.461***	0.043	0.434***	0.043	1.975
PromotionPG	-0.302***	0.041	-0.202***	0.044	-0.230***	0.048	2.629
Valence	0.056	0.035	0.066†	0.034	0.045	0.037	1.642
VolumeAmenity	-0.171***	0.043	-0.159***	0.042	-0.138**	0.049	2.973
VolumeFood	0.035	0.035	0.056	0.034	0.075†	0.042	2.172
VolumeLocation	-0.177***	0.035	-0.152***	0.035	-0.185***	0.036	1.607
VolumeStaff	0.232***	0.035	0.219***	0.035	0.243***	0.036	1.607
PromotionPG x PricePG			-0.197***	0.035			
PromotionPG x Valence					-0.179***	0.042	2.130
PromotionPG x VolumeAmenity					0.045	0.062	4.632
PromotionPG x VolumeLocation					0.080†	0.042	2.144
PromotionPG x VolumeFood					0.027	0.060	4.371
PromotionPG x VolumeStaff					-0.156***	0.035	1.523
CumulativeVolume	-0.041	0.047	-0.008	0.047	-0.034	0.053	3.489
GuestNumber	-0.114**	0.038	-0.148***	0.038	-0.120**	0.038	1.687
R^2	0.239		0.266		0.283		
Adjusted R^2	0.231		0.257		0.271		
F	30.730		31.850		24.670		
N	891		891		891		

Note: The UGC volume variable of room attribute (*VolumeRoom*) was excluded in the final model.
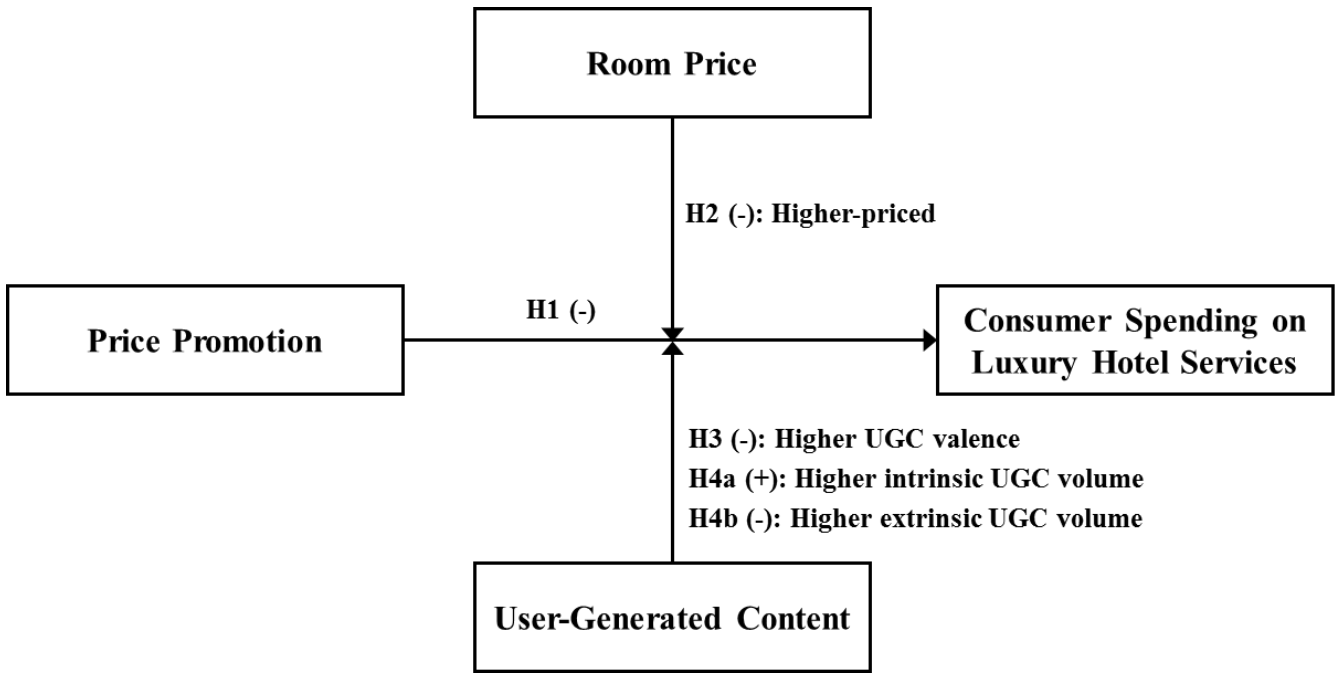
*** $p<0.001$, ** $p<0.01$, * $p<0.05$, † $p<0.10$.

Figure 1. Research model.