



EFFECTS OF PRICE AND USER-GENERATED CONTENT ON CONSUMERS' PREPURCHASE EVALUATIONS OF VARIABLY PRICED SERVICES

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The role of price in prepurchase evaluations for variably priced services has not been widely examined. Increased consumer awareness of variable pricing practices, coupled with growing availability of user-generated content (UGC) at the point of purchase in the online environment, may be changing the way that consumers use price in purchase decisions. This article examines the relative roles of price and UGC, specifically consumer reviews and aggregate consumer ratings, on consumers' prepurchase evaluations in the context of the purchase of hotel accommodation, a service to which variable pricing is typically applied. Results indicate that, in the presence of UGC, price does not have a significant impact on perceived quality. Price and UGC have significant effects on perceived value, although consumers rely more on reviews than ratings when evaluating price–benefit trade-offs. These results suggest that, rather than simply competing on price, managers must also understand consumers' perceptions of their firm versus the competition.

KEYWORDS: *revenue management; hotels; price; user-generated content; perceived quality; perceived value*

Service firms that apply revenue management (RM; e.g., hotels, airlines, cruise lines, rental car companies, and entertainment venues) use variable pricing to balance supply and demand. Variable pricing entails charging different prices to consumers using the same service, at the same time, based on consumer and demand characteristics such that capacity utilization is maximized during low demand periods and average rate is maximized during high demand periods (Kimes & Chase, 1998).

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Because of the increased exposure to variable pricing practices both within, and beyond, the services traditionally associated with RM (e.g., recent applications to golf courses, restaurants, and spa facilities), consumers have become quite accustomed to paying different prices for the same service at different times (Hoffman, Turley, & Kelley, 2002; Kimes & Noone, 2002). The price transparency afforded by the Internet, and exposure to the advertising campaigns of some Internet-based third-party distributors, in which explicit attention is drawn to the practice of, and motivation for, variable pricing, have also served to expose consumers to variable pricing practices.¹ Consumer shopping behaviors also provide a signal of consumers' awareness of variable pricing practices. Anderson's (2009, 2011) research stream on the billboard effect suggests that consumers have learned to shop multiple distribution channels, multiple times in search of the best deal. For example, in the 60 days prior to making a hotel reservation, Anderson (2011) found that travelers shopped the online travel agent (OTA) sites an average of 12 times before making a reservation, with some travelers recording more than 150 searches across multiple sites.

In light of increasing consumer awareness of variable pricing practices, and the apparent impact of these practices on shopping behavior, this study seeks to understand how consumers use price in their prepurchase evaluations of variably priced services. Furthermore, given the emerging role of user-generated content (UGC) as an important source of nonprice information to consumers (Chevalier & Mayzlin, 2006), this research focuses on how consumers use price to evaluate variably priced services in the presence of two types of UGC: consumer reviews (i.e., unstructured text with a positive or negative valence) and aggregate consumer ratings (i.e., an average of individual consumer's quantitative assessment of their overall experience). Hennig-Thurau et al. (2010) identify UGC as one of several new media phenomena and point to the need for firms to take these phenomena into account when managing consumer relationships. From a RM perspective, an understanding of if, and how, consumers integrate UGC with price to inform prepurchase evaluations is key to developing appropriate pricing and competitive positioning strategies. Given that consumers' perceptions of quality and value are key drivers of purchase intent (Cronin, Brady, & Hult, 2000), this study's specific focus is on how price and UGC work together to influence consumers' prepurchase quality and value assessments.

Although a number of studies have investigated consumers' prepurchase reaction to price in a multiple cue setting (e.g., Chao, 1989; Dodds, Monroe, & Grewal, 1991; Miyazaki, Grewal, & Goodstein, 2005), the use of UGC with price in prepurchase evaluations has not been examined. Furthermore, and most significantly, prior multiple cue research has been conducted primarily in a consumer goods context (e.g., Dodds et al., 1991; Teas & Agarwal, 2000). To our knowledge, consumers' use of price and nonprice information to evaluate variably priced services, in light of consumer awareness of such pricing practices, has not been examined. We seek to contribute to the multiple cue literature in this domain.

BACKGROUND LITERATURE

Consumer Response to Variable Pricing Practices

The RM literature on consumer response to variable pricing has primarily employed perceived fairness as the outcome variable. Customers' perceptions of the fairness of RM pricing and related rate fences have been found to be affected by the amount of information disclosed to customers (e.g., S. Choi & Mattila, 2004), the framing of prices (discount versus surcharge; Kimes & Wirtz, 2003), and familiarity with revenue management pricing practices (Wirtz & Kimes, 2007). The impact of price presentation strategies on consumers' fairness perceptions and willingness to book has also been examined (e.g., Noone & Mattila, 2009).

In this study, we are interested in consumer response to RM pricing in the presence of UGC. Increasingly savvy consumers are leveraging Internet-based third-party distribution sites to "shop" the best deal on services. The UGC typically provided on these sites represents an extrinsic cue that, in addition to price and other firm-generated information (e.g., description of the service facility and associated amenities), may influence consumer purchase behavior. Knowledge of how these price and nonprice sources work together to inform consumers' quality and value perceptions can be leveraged to develop pricing and positioning strategies that increase purchase intention.

Effects of Price and UGC on Perceived Quality

Perceived quality can be defined as the consumer's judgment about a product's overall excellence or superiority (Zeithaml, 1988). Attributes that signal quality have been dichotomized into intrinsic and extrinsic cues (Olson, 1972; Olson & Jacoby, 1973). Intrinsic cues represent product-related attributes, such as ingredients, that cannot be manipulated without also altering physical properties of the product. Extrinsic cues, on the other hand, are product-related attributes—such as price, brand name, and packaging—that are not part of the physical product. Extrinsic cues are posited to be used as quality indicators when the consumer is operating without adequate information about intrinsic product attributes or when intrinsic product attributes are too difficult for the consumer to evaluate (Monroe & Krishnan, 1985; Rao & Monroe, 1988; Shimp & Bearden, 1982). Services are conceptualized as experiential and as such are difficult to specify or evaluate precisely in advance of the purchase event. Therefore, extrinsic cues will likely play a significant role in prepurchase evaluation in a service context (Zeithaml, 1988).

Price is one of the most extensively studied extrinsic cues in the perceived quality literature (Brucks, Zeithaml, & Naylor, 2000). Prior research suggests that price is used by consumers to infer quality (Olshavsky, Aylesworth, & Kempf, 1995). However, a positive relationship between price and perceived quality has not always been supported (Brucks et al., 2000). For example, Riesz (1978) provides evidence of a negative price–quality relationship, with other studies reporting results that are nonlinear (Peterson, 1970; Peterson & Jolibert, 1976),

highly variable across individuals (Shapiro, 1973), or variable across products being judged (Gardner, 1971; Lichtenstein & Burton, 1989).

Cue availability has been one of a number of factors proposed to influence the nature of the price-perceived quality relationship (Brucks et al., 2000). For example, Dodds et al. (1991) found that, when brand and store name is provided in addition to price information, the price-product quality relationship weakens. Here, we propose that, when price and nonprice information in the form of UGC is available to the consumer of variably priced services, UGC will dominate price in consumers' prepurchase quality perceptions. We argue that a combination of three factors will contribute to this dominating effect of UGC in consumers' quality assessments: consumer motivation to seek nonprice diagnostic information, the ready availability of UGC in the online environment, and the perceived information value of UGC.

Prior research suggests that the uncertainty and risk associated with the purchase of services will motivate consumers to seek out additional information (Murray, 1991). We propose that the very nature of variably priced services will amplify this motivation. Consumers are increasingly aware, both through experience (e.g., Kimes & Noone, 2002) and through exposure to the advertising campaigns of third-party distributors, that service firms such as hotels and airlines apply variable pricing strategies. Consumer shopping behaviors also provide a signal of consumers' awareness of the application of variable pricing practices (Anderson, 2009, 2011). We suggest that consumer knowledge of service firms' use of price to balance supply and demand significantly diminishes its perceived informational role, and as a result, consumers will be more motivated to seek out additional information in quality assessments. Thus, if additional nonprice information in the form of UGC is available, *and* its perceived information value is high, consumers are likely to use it in quality assessments (Chang & Wildt, 1989; Erickson & Johansson, 1985; Huber, Holbrook, & Kahn, 1986).

Chang and Wildt (1989) suggest that the effect of price on quality perceptions varies inversely with the perceived information value of other available cues. If the perceived information value of available nonprice cues is adequate or high, consumers will rely less on price to make quality judgments. Recent research suggests that consumers positively perceive the information value of UGC. They are increasingly willing to rely on UGC as a key source of product-related information, as illustrated by the demonstrated effect of UGC on a number of outcome variables including perceived value (e.g., Gruen, Osmonbekov, & Czaplewski, 2006), behavioral intent (e.g., Park & Kim, 2008; Park, Lee, & Han, 2007), and forecasted (Eliashberg & Shugan, 1997) and actual sales (e.g., Basuroy, Chatterjee, & Ravid, 2003; Chevalier & Mayzlin, 2006; Ye, Law, & Gu, 2009). Thus, we expect that consumers are likely to bring this nonprice information into consideration when making quality judgments.

In sum, given the nature of variable pricing, and the availability and perceived information value of UGC, we expect UGC to dominate price in consumers' prepurchase quality perceptions. We hypothesize the following:

Hypothesis 1: Consumers of variably priced services will weight UGC more heavily than price information when making prepurchase quality judgments.

Effects of Price and UGC on Perceived Value

Of the four dimensions of value—acquisition value, transaction value, in-use value, and redemption value—acquisition value is the focus of this study (Grewal, Iyer, Krishnan, & Sharma, 2003). Acquisition value refers to the benefits that consumers think they are going to receive by acquiring a product/service relative to the money given up to acquire the product. Price represents what the consumer “gives” in exchange for a given service, whereas UGC can be considered a “get” cue corresponding to the benefits of a product or service. In this role, UGC provides the consumer an indication, prior to purchase, of what he or she can expect to receive for the price paid (Chang & Wildt, 1994). Consistent with prior research, we expect a negative relationship between price and perceived value (Dodds et al., 1991; Grewal, Krishnan, Baker, & Borin, 1998), and as a “get” cue, we expect that review and ratings information will be positively related to perceived value.

A number of researchers have examined the relative effects of review and aggregate ratings information on consumers’ prepurchase evaluations. For example, Tsang and Prendergast (2009) found, in the context of movies, that when review text and ratings are provided, review text has a significantly greater effect on consumer intent to go to see the movie. Chevalier and Mayzlin (2006) also suggest that consumers read review text rather than relying solely on summary statistics. Conversely, Sparks and Browning (2011) suggest, consistent with the notion of the cognitive miser (Fiske & Taylor, 1991), that categorical rating information will have a greater influence on product purchase decisions compared with more detailed review information. To our knowledge, consumers’ relative use of review and aggregate ratings information in value assessments has not yet been examined. Thus, this study seeks to evaluate consumers’ relative use of review and aggregate ratings information in the formation of value judgments in the presence of price information.

It is logical to expect that value perceptions will peak when a low price is accompanied by positively valenced consumer reviews and high aggregate ratings. However, how will consumers weigh UGC in their value judgments when this condition does not hold? There may be times where recent consumer reviews are positive (negative) but the aggregate consumer ratings, which are a function of the entire time period over which consumers have been rating a firm, are low (high). For example, recent reviews will better capture recent initiatives that have resulted in an improved level of service at a given hotel. Equally, they will better reflect any recent slippages in service levels that a hotel may have experienced by virtue of a change in the management team or any other operational factors.

The recency effect suggests that consumers will allocate more weight to recent review information than to aggregate ratings information as that review information represents the most up-to-date information about a firm’s product/service offering (Duffy & Crawford, 2008). In other words, recent reviews may be weighted more

heavily in consumers' evaluations because they are more diagnostic about current product/service standards than aggregate ratings. The notion of information relevance may also come into play here. Prior research suggests that an information source that provides relevant information is likely to be used more frequently than sources providing information of lower quality (O'Reilly, 1982). Aggregate consumer ratings represent an average of the overall evaluation of individual raters. Each of those raters, when assigning a rating to a service product, essentially weighs the service product's attributes in a manner consistent with what they, as consumers, value and compress them into a single-dimension indicator (Tsang & Prendergast, 2009). It is then difficult for another consumer to discern from an aggregate rating whether or not those ratings reflect assessment of the service attributes that they deem important. In the absence of this insight, the relevance of the aggregate ratings can be called into question. When reading reviews, on the other hand, consumers can easily focus on those reviews that are relevant to them and those that provide insights into service attributes that they value, and they can discount those that are irrelevant to the purchase decision.

On the basis of their diagnostic capabilities—both in terms of capturing recent product/service changes (recency effect) and their information quality (information relevance)—we suggest that reviews will be weighed more heavily than aggregate ratings in consumers' mental trade-off of the price of a given service and the benefits they expect to receive for that price. We hypothesize the following:

Hypothesis 2: Review information will play a more salient role in consumers' evaluations of a price–benefits trade-off than aggregate ratings information.

EXPERIMENTAL DESIGN

The online purchase of hotel accommodation was the context for testing the study's hypotheses. A 2 (price: high and low) \times 2 (aggregate consumer rating: high and low) \times 2 (review information: positively valenced and negatively valenced) between-subjects, full-factorial, design was employed. Price and aggregate consumer rating levels were determined based on a survey of four-star hotel prices in a major U.S. city on three leading OTA sites: Expedia, Travelocity, and Orbitz. The average nightly rate was determined at US\$235 with a spread of approximately US\$60 either side of that average, resulting in a rate of US\$295 in the high price condition and US\$175 in the low price condition. Since a high or low price is only perceived as such by the consumer when he or she has knowledge of the average price in the market, the high and low price conditions were presented to participants as high and low relative to an average market rate of US\$235. Aggregate consumer ratings across the OTA sites ranged from 2.8 to 4.8 (out of 5), so the high and low aggregate rating conditions were set at 4.8 and 2.8 (out of 5), respectively.

Actual consumer reviews from the OTA sites for four-star hotels in a major U.S. city were selected and edited for use in the study. We controlled for content across reviews by using reviews that focused on quality of service, an attribute

that has been shown to be of universal importance to hotel guests (T. Y. Choi & Chu, 2001). The selected reviews were consistent in length (three to four lines). In terms of valence, each of the review information conditions comprised 10 reviews: eight positively valenced and two negatively valenced in the positive valence condition (i.e., PPNPPNPPPP) and eight negatively valenced and two positively valenced in the negative valence condition (i.e., NNPNNNPNNN). In both conditions, reviews of the other extreme were included to add credibility to the review set. OTA sites typically show 10 reviews per page. We also found, based on a survey of 40 travelers, that consumers tend to read between 5 and 15 consumer reviews prior to making an online hotel booking. Therefore, in an attempt to strike a balance between credibility and minimizing participant fatigue, we selected 10 as the number of reviews to expose participants to. Using a student sample ($n = 60$), a pretest was conducted to ensure that the valence of the individual reviews was perceived as expected. See Appendix A for a complete listing of the reviews used in the study.

Participants

Data were collected in the United States using a consumer survey of an online access panel that mirrors the overall population.² A screening question was employed to ensure that all participants had experience of booking hotel accommodation. Participants received an e-mail invitation to participate in the study and were randomly assigned to one of the eight experimental conditions using web links from the e-mail invitations.

In total, 265 adults participated in the study: 147 females (55.5%) and 118 males (44.5%). Ages ranged from 18 to 80 years ($M = 47.14$; $SD = 15.79$). Most of the participants (63.8%) use the Internet to book hotel accommodation the majority of the time (60% of the time or more). They tend to read online consumer reviews ($M = 5.1$; $SD = 1.7$), and those reviews influence their purchase decisions ($M = 5.2$; $SD = 1.3$).

Procedure

Participants were informed that they were planning a weekend leisure break at a four-star hotel in a major U.S. city. They were then presented with a fictional OTA site, designed to mimic the user experience of researching a hotel on a typical OTA site (e.g., Expedia). The first page that they viewed incorporated the standard features of an individual hotel page on an OTA including a photo of the hotel, a description of the hotel's amenities, the nightly rate, and the aggregate consumer ratings for the hotel (out of 5; see Appendix B). Although participants were not exposed to the complete listing of competing hotels that consumers may view on an OTA prior to viewing an individual hotel page, they were provided with baseline information regarding the average room rate in the market. Specifically, they were told as part of the script presented prior to viewing the hotel-specific OTA pages that they had seen hotels of the same star rating in the location that they wanted to visit advertising rates of around US\$235 per night.

Since research has shown that consumers have more confidence in ratings as the number of reviews increases (Park et al., 2007), and to ensure consistency with standard practice on the OTA sites, we indicated below the aggregate consumer rating that the average rating was calculated out of 136 reviews. This total (i.e., 136) was derived from an analysis of the average number of reviews posted for four-star hotels in a major U.S. city across three OTA sites (Expedia, Travelocity, and Orbitz). As is typical in the OTA environment, the 10 most recent reviews were displayed on a second tab on the webpage (see Appendix C). At the top of the review page, it was noted, consistent with practice on the major OTA sites, that all guest reviews had been verified as submitted by the site's customers and reflected their stay at the hotel property. The provision of this information served as a baseline credibility indicator.

After perusing the simulated OTA site, participants completed a questionnaire that contained measures for the dependent variables followed by manipulation check measures. Perceived quality was assessed using a 4-item scale developed by Erevles, Roy, and Yip (2001; Cronbach's $\alpha = .95$). Perceived acquisition value was measured using a 5-item scale from Grewal, Monroe, and Krishnan (1998; Cronbach's $\alpha = .96$). Prior research suggests that the likelihood of consumer use of UGC in purchase decisions depends on the perceived credibility of that information. Therefore, perceived credibility of the UGC was included as a control variable in the study and was measured using a 2-item scale adapted from Hovland and Weiss (1951), Pearson's $r = .84$ at $p = .01$, $M = 5.55$, $SD = 0.42$. We also controlled for consumers' familiarity with the variable pricing practices of RM-oriented service firms, measuring familiarity using a 2-item scale, adapted from Wirtz and Kimes (2007), Pearson's $r = .71$ at $p = .01$. As expected, participants indicated a relatively high awareness of the application of variable pricing practices in the hotel industry ($M = 5.9$; $SD = 1.11$).

Given our rationale for providing participants with service quality-focused consumer reviews (i.e., that service quality is important to hotel guests), we asked participants to rate the importance of quality of service to verify that service quality represents an important attribute to them ($M = 5.52$; $SD = 1.28$). A one-way ANOVA indicated that there was no significant difference in importance of service quality ratings across experimental conditions ($F = 0.49$; $p > .1$). See Appendix D for measures.

Manipulation and Realism Checks

As a manipulation check for price, participants were asked how the price compared with the average room rate advertised by other four-star hotels in the location they wanted to visit (1 = *much lower*; 7 = *much higher*). The mean was significantly higher for the high price condition compared with the low price condition (5.24 and 2.95, respectively, $t = -13.58$, $p < .001$). Participants were also asked about the extent to which they agreed that the price appeared to be higher than the average room rate advertised by other four-star hotels in the location (1 = *very strongly disagree*; 7 = *very strongly agree*). The mean was

significantly higher for the high price condition compared with the low price condition (5.61 and 2.38, respectively, $t = -16.98, p < .001$). Together, these results suggest that participants were both aware that there were other hotels in the market and that the price of the local hotel was either higher or lower than the average rates of those other hotel properties.

To ensure that the manipulation for aggregate consumer ratings was successful, participants were asked to record the average rating that the hotel received from reviewers (out of 5) and describe the rating received on a 5-point scale (1 = *poor*; 5 = *excellent*). Participants responded as expected when asked to record the aggregate rating, and participants in the lower rating conditions described the rating as significantly lower than those in the high rating conditions (2.30 and 4.21, respectively, $t = -21.95, p < .001$).

Manipulation checks suggested that participants recognized the valence of the reviews. Participants were asked to describe the content of the reviews (1 = *very negative*; 7 = *very positive*). The means were significantly higher for the positive valence condition compared with the negative valence condition (5.4 and 2.5, respectively, $t = -18.47, p < .001$). Participants were also asked to indicate the extent to which they agreed that the consumer reviews indicated a negative impression of the hotel (1 = *very strongly disagree*; 7 = *very strongly agree*). The means were significantly higher for the negative valence condition compared with the positive valence condition (5.48 and 2.61, respectively, $t = 14.38, p < .001$).

The realism of the scenarios was checked on a 1 to 7 scale (1 = *highly unrealistic*; 7 = *highly realistic*). The mean rating was 6.2, with no significant difference between the scenarios ($F = 2.16, p > .1$), suggesting that the scenarios were perceived as believable.

RESULTS

An initial examination of the means provides support for Hypothesis 1 regarding the effects of price and UGC on perceived quality (Table 1). A comparison of the means across all the high and low price conditions suggests no significant difference in perceived quality by price (Overall $M_{\text{LowPrice}} = 4.01$; Overall $M_{\text{HighPrice}} = 3.80$). For example, perceived quality ratings were highest when consumer reviews were positive and aggregate consumer ratings were high, regardless of price ($M_{\text{LowPrice}} = 5.34$; $M_{\text{HighPrice}} = 5.31$). As expected, ratings for perceived value peaked when the price was low, reviews were positive, and aggregate ratings were high ($M = 5.44$). This reflects the pattern in the means for each of the three variables (Overall $M_{\text{LowPrice}} = 4.14$ vs. Overall $M_{\text{HighPrice}} = 3.09$; Overall $M_{\text{LowRatings}} = 3.21$ vs. Overall $M_{\text{HighRatings}} = 4.00$; Overall $M_{\text{NegativeReviews}} = 2.86$ vs. Overall $M_{\text{PositiveReviews}} = 4.27$). The pattern in overall means for aggregate ratings and reviews suggest that review information plays a more salient role in consumers' value judgments than aggregate ratings information, providing preliminary support for Hypothesis 2.

Given that the dependent variables of perceived service quality and perceived value were correlated significantly ($r = 0.75$), a MANCOVA was performed. As

Table 1
Means for Dependent Variables

Price	Aggregate Consumer Ratings	Consumer Review Information	Perceived Quality	Perceived Value
High			3.80	3.09
Low			4.01	4.14
	High		4.44	4.00
	Low		3.45	3.21
		Positively valenced	4.88	4.27
		Negatively valenced	2.88	2.86
<i>By experimental condition</i>				
Low	High	Positively valenced	5.34	5.44
		Negatively valenced	3.75	3.75
	Low	Positively valenced	4.46	4.25
		Negatively valenced	2.49	2.91
High	High	Positively valenced	5.31	3.89
		Negatively valenced	3.08	2.75
	Low	Positively valenced	4.42	3.53
		Negatively valenced	2.31	2.16

shown in Table 2, the multivariate effects were significant for price (Wilks's $\Lambda = 0.83$; $F = 23.10$, $p < .001$), review information (Wilks's $\Lambda = 0.54$; $F = 100.99$, $p < .001$), and aggregate ratings (Wilks's $\Lambda = 0.85$; $F = 21.10$, $p < .001$). The two- and three-way interaction effects were not significant at the $p = .05$ level. Neither of the control variables, perceived credibility of the UGC or familiarity with RM pricing, was significant in the analysis.

Given the significance of Wilks's statistic for the three main effects, subsequent ANOVAs were conducted (Table 2). Given the insignificant effects of perceived credibility of UGC and familiarity with RM pricing in the MANCOVA, they were excluded from the follow-up analyses. Results indicate an insignificant main effect for price on quality perceptions ($F = 2.99$; $p > .1$), with a significant effect for review information ($F = 228.78$; $p < .001$) and aggregate ratings ($F = 52.32$; $p < .001$). These results provide support for Hypothesis 1. Consumers of variably priced services weigh UGC more heavily than price information in prepurchase quality assessments. Furthermore, the effect size for review information was large ($\eta^2 = .42$), with a medium effect for aggregate ratings ($\eta^2 = .09$), suggesting that review information plays a greater role than aggregate ratings in their quality assessments. In terms of value perceptions, all three independent variables had a significant effect: price ($F = 35.54$; $p < .001$), review information ($F = 67.71$; $p < .001$), and aggregate ratings ($F = 19.48$; $p < .001$). However, in terms of effect size, the largest proportion of the variance in value perception scores was explained by review information ($\eta^2 = .18$; large effect), followed by price ($\eta^2 = .09$; medium effect) and aggregate ratings ($\eta^2 = .05$; small effect). These results support

Table 2
Summary of MANCOVA and ANOVA Results

Source of Variation	<i>df</i>	Multivariate: Wilks's Λ	<i>F</i> Value	<i>df</i>	Univariate: Perceived Quality	Univariate: Perceived Value
Credibility of UGC	1	.99	0.89	1		
Familiarity with RM pricing	1	.99	0.08	1		
Price	1	.83	23.10*	1	2.99	35.54*
Aggregate consumer ratings	1	.85	21.10*	1	52.32*	19.48*
Review information	1	.54	100.99*	1	228.78*	67.71*
Price \times Ratings	1	.99	0.73	1	0.86	2.58
Price \times Reviews	1	.98	2.84**	1	2.25	0.57
Ratings \times Reviews	1	.99	0.57	1	0.23	0.03
Price \times Ratings \times Reviews	1	.98	2.11	1	0.98	0.76
Error	233			257		
Total	243			265		

Note: UGC = user-generated content; RM = revenue management.

* $p < .001$. ** $p < .1$.

Hypothesis 2 regarding the greater weighting that consumers put on review information (over aggregate ratings) in forming value judgments. In fact, the important role of reviews in driving value perceptions is underscored by the finding that review information explained a greater proportion of the variance in perceived value scores than price.

DISCUSSION

The purpose of this study was to examine the impact of price on prepurchase evaluations for variably priced services in the presence of nonprice, UGC data. Rather than focus on how consumers might react to variable pricing in the context of simulated exposure *over time* to multiple prices for a specific hotel product for a specific arrival date and length of stay, it was concerned with how consumers, when aware of the application of variable pricing, use price and UGC in prepurchase quality and value judgments. Given increased consumer awareness of hotels' application of variable pricing practices (Hoffman et al., 2002; Kimes & Noone, 2002), and the apparent impact of these practices on consumers' shopping behavior (Anderson, 2009, 2011), the purchase of hotel accommodation provided a suitable context for the study.

This study extends the literature in a number of ways. First, it contributes to the multiple cue literature by examining consumers' use of multiple cues in prepurchase quality and value assessments in a services-based, variable pricing environment. This complements previous multiple cue studies that were conducted

predominantly in a consumer goods setting (e.g., Dodds et al., 1991; Miyazaki et al., 2005; Teas & Agarwal, 2000). Second, to our knowledge, this study is also the first to consider the simultaneous effects of price and UGC on consumers' prepurchase quality and value assessments. Our findings indicate that in the presence of UGC, price does not have a significant impact on consumers' prepurchase quality assessments. Conversely, review information and aggregate ratings play a significant role in consumers' evaluations of quality, with review information explaining a greater proportion of the variance in quality perceptions. These findings lend support to the notion that the very nature of variable pricing (designed to achieve balance between supply and demand), coupled with consumer exposure to variable pricing practices, and the availability of alternative diagnostic information, diminishes the potential impact that price can have on consumers' quality judgments.

In terms of their roles in prepurchase value assessments, our findings suggest that, although all three variables—price, review information, and aggregate consumer ratings—affect value perceptions, review information appears to dominate aggregate ratings in consumers' assessments of the price–benefits trade-off. Although prior research has examined the relative effects of review and aggregate ratings information on purchase decisions, to our knowledge, this study is the first to examine consumers' relative use of review and ratings information in value assessments. Contrary to the notion of consumers as cognitive misers who take shortcuts when making evaluations or decisions (Fiske & Taylor, 1991), this study's finding suggests that, rather than weigh easily accessible categorical rating data more heavily in value judgments, more diagnostic, information-rich review data will dominate. In fact, our findings also suggest that consumer reviews explain a greater amount of the variance in value ratings than price, providing further support for the important role of review information in consumers' value judgments.

Consumers are increasingly leveraging OTAs such as Expedia.com and Travelocity.com to “shop” the best deal on hotels. The US\$7 billion in revenue that the OTAs drove for the U.S. hotel industry in 2010 alone provides evidence of their defined presence within the hotel distribution channel landscape. OTA effects are not confined to the revenue (and associated distribution costs) that they generate. Given the typical revenue management criterion of rate parity, a decision to match or undercut competitor's rates on the OTAs can have significant ramifications in terms of the rates yielded across all other indirect, and direct, distribution channels. Thus, any insights yielded from the examination of the effects of price and UGC on prepurchase evaluations within the OTA environment can be leveraged to inform distribution channel-wide pricing and positioning strategies. This research holds a number of important implications for hospitality managers. First, our findings suggest that price does not play a significant role in consumers' quality assessments. Rather, price is primarily treated as a financial sacrifice or economic outlay that can negatively affect the consumer's value perceptions. This suggests that, from a consumer perspective,

the lower the price the better. However, competing on the basis of price alone is not going to be a viable long-term strategy. Although consumers prefer to pay a lower price, review and aggregate ratings information play a significant role in consumers' prepurchase quality and value judgments. Thus, hospitality managers need to consider the potential impact of UGC on consumer response to a given pricing strategy.

Given that the study's findings suggest a dominating effect of consumer reviews over aggregate consumer ratings in consumers' quality and value judgments, hospitality managers need to pay particular attention to the content, and valence, of reviews, not just for their own service offerings but for those of their competitive set as well. Merely benchmarking against the competition in terms of price is no longer enough. Access to publically available UGC about competing service offerings enables management to better evaluate where a service offering is positioned vis-à-vis its competitive set in terms of what the consumer is getting for their money rather than assessing the "give" side of the value equation alone. Together these data can be used to develop both pricing and operations strategies to gain competitive advantage.

There are a number of issues that this suggested use of UGC, in particular consumer reviews, raises. First, the validity of consumer reviews constitutes a legitimate concern for any organization. On one hand, it could be argued that, unless some means is employed to identify false reviews and discount them from a sentiment analysis, analysis will yield erroneous results. However, it could also be argued that it is what consumers believe, their "reality" (whether based on false reviews or not), that really counts. If consumers regard false reviews as credible, then management needs to understand the content of those reviews such that appropriate strategies can be deployed to offset any negative consumer reaction they may engender. Second, the notion of listening to the voice of the consumer is not new. Service firms have long employed a number of approaches to capture the voice of the customer (e.g., consumer comment cards, mystery shopper data). The idea here is not to replace those traditional data sources but rather to add an additional source of intelligence about consumer choice behavior to augment the analysis. Third, appropriate resources need to be put in place to facilitate a systematic approach to analyzing UGC, particularly the content of consumer reviews, whether this means additional responsibility for existing employees, or outsourcing to a third party. Strong internal communication is also key to effective strategy deployment, such that UGC-based information is successfully leveraged, both at an operations level (e.g., to inform process changes to improve service quality) and at a more strategic level (e.g., overall competitive positioning strategy).

LIMITATIONS AND FUTURE RESEARCH

There are a number of limitations of this research that merit future investigation. First, this study was conducted in a single service context, so

testing relationships in other variable pricing contexts like airlines or rental cars would ensure that the study is generalizable across industries. Second, this study was scenario based. A field study, in which actual browsing behavior and subsequent choice could be tracked, might add insight to the relationships tested in this survey.

Third, we controlled for any potential effects of hotel class by limiting our study design to four-star hotels. Future research should investigate if our findings are robust across hotel class. Fourth, further research is merited to examine potential moderators of the relationships of price and UGC with perceived quality and value. For example, what impact might consumers' price-quality schema or degree of price consciousness have on their prepurchase assessments? Fifth, we controlled for the content of consumer reviews by presenting only service-related reviews. Service has been shown to be a very important aspect of the overall experience. Further research that explores the potential differential effect of reviews on a consumer's evaluation of a given service product where the review content is not highly relevant to that consumer is warranted. On a related note, while this study focused on a single service attribute, future research should explore consumers' reactions to review content where multiple attributes of the service are simultaneously evaluated. For example, will consumer comments about the hedonistic attributes of a service experience resonate more than those about the functional aspects of the service such as location or room attributes? Choice modeling could provide insights into how consumers weigh these different attributes and price in their purchase decisions.

Sixth, we focused on aggregate consumer ratings for the overall service experience, but many online distribution websites allow consumers to provide a numerical rating for individual aspects of the service experience such as location, value, and amenities. It could be argued that these more specific numerical ratings constitute a richer information source than aggregate ratings for the overall service experience, as they enable the consumer to focus on the ratings for those attributes that they consider important or relevant to the purchase decision. Previous research suggests that consumers favor the efficiencies associated with categorical information. Thus, future research should examine whether the dominating effect of review information, over ratings information, on consumers' prepurchase evaluations holds where more detailed ratings are provided. The potential for consumer use of aggregate ratings as a "prequalification" factor, rather than a decision factor, also merits examination in assessing the potential boundary conditions on review-ratings weights in quality and value assessments. It may be possible that consumers use aggregate ratings to select a consideration set, and then the selection within that consideration set goes deeper and focuses on qualitative review data.

APPENDIX A

Review Content


Positively Valenced Reviews	Negatively Valenced Reviews
<p><i>Outstanding!</i> The service was outstanding—Everyone was friendly and eager to make you happy with your experience at this hotel. From the front desk to housekeeping, every staff member we encountered was helpful and pleasant.</p> <p><i>Amazing Service.</i> The prominent thing that was consistent with our stay was the exceptional professionalism and courtesy given by the hotel employees. From our first encounter with the bellman to passing housekeepers in the hallway, each staff member was eager to help with whatever we needed.</p> <p><i>Great Hotel!</i> I must say the service was impeccable; the staff was really friendly and could not do enough to help. I have rarely encountered such consistently excellent service in all my travels.</p> <p><i>Wonderful!</i> This is a wonderful hotel. From the moment you enter the hotel you feel like you're going to have a wonderful stay. The front staff welcomed us generously. Every staff member you meet has a smile.</p> <p><i>Awesome experience.</i> Service is incredible. We get treated like we are important every time we come here. Staff overall are incredibly nice. Whatever we needed, the staff was there for us.</p> <p><i>Excellent Choice.</i> This hotel proved to be an excellent choice from the very first moment we stepped in. Staff was friendly and welcoming; they made us feel that they wanted us to enjoy the hotel and the city.</p> <p><i>Excellent hotel with excellent service.</i> The staff is first rate. Everyone that we encountered was so friendly and willing to help! Front desk personnel were outstanding. They gave us great advice and could not have been more helpful.</p> <p><i>Very welcoming professional staff.</i> The hotel and staff are great! They were very accommodating to our needs. The housekeeping department was especially accommodating. I felt very much at home and very comfortable at the hotel.</p>	<p><i>Awful, just awful!</i> The hotel staff is clueless and inept. On check-in, the staff was surly at best. Bad, bad service! There are too many nice places to choose from to waste time staying at a place that is so lacking in service.</p> <p><i>Terrible Customer Service.</i> Several of the staff in the housekeeping department and several evening managers have the worst attitude and customer service. One of the evening managers talked to us in an extremely disrespectful and demeaning manner. We received the worst customer service in this hotel out of all the hotels we have stayed in this town.</p> <p><i>Unprepared and Disorganized Staff.</i> Staff and management seemed not to care about customer service/complaints. The staff at the desk at night was very RUDE. They regarded me as if I was interrupting their conversations. The unprepared employees and the disorganization ruined our stay.</p> <p><i>Horrible Guest Services.</i> The service is slow and matter-of-factly, as if they are doing you a favor. The front desk staff was curt and snotty. This is the worst hotel I have ever stayed in, in terms of guest services.</p> <p><i>Disappointing Stay.</i> Customer service here is disorganized, understaffed, and frazzled. The personnel cannot help you with any issue you may have. They are not reliable. They just do not care.</p> <p><i>Unfriendly.</i> The staff, particularly the check-in staff, need a real lesson in customer service, communication skills, and how to smile or even be pleasant. They were the rudest staff we encountered in our travels.</p> <p><i>Don't Stay Here.</i> Stay away. This place is really a disaster. We arrived late on the first night and were checked in by a very rude agent. When I asked to speak to a manager he informed me that he was the manager and that if I needed to speak to someone else I would need to wait until Monday morning.</p> <p><i>Worst Hotel.</i> Our biggest complaint would have to be service. The staff was rude and gave me dirty looks. I did not feel welcome at the hotel at all. We experienced subpar housekeeping service. If you had the privacy on in the morning, good luck getting housekeeping to come back at all.</p>

APPENDIX B
“Hotel” Page

The Azure Hotel

\$175
per night

Hotel Details



2.8
out of 5
Rating from
136 reviews

Centrally located, this downtown hotel is within walking distance of the city's shopping and dining hot spots. Major tourist attractions are within an easy 5-block radius of the hotel.

Guestrooms are furnished with desks and ergonomic chairs; flat-panel televisions come with premium cable channels, free movie channels, and pay movies; high-speed Internet access is available for a surcharge; iPod docking stations and complimentary newspapers are also provided.

The hotel has 2 restaurants and also features a bar/lounge and a coffee shop/café. The hotel also features a full-service spa and a fitness facility.

APPENDIX C
Sample “Hotel” Review Page

The Azure Hotel

2.8
out of 5
Rating from
136 reviews

Guest Reviews

Most recent reviews

Verified Reviews: All guest reviews are verified as submitted by our customers and reflect their stay at the Azure

5.0
out of 5

“Outstanding”
The service was outstanding - everyone was friendly and eager to make you happy with your experience at this hotel. From the front desk to housekeeping, every staff member we encountered was helpful and pleasant.

5.0
out of 5

“Amazing Service”
The prominent thing that consistent with our stay was the exceptional professionalism and courtesy given by the hotel employees. From our first encounter with the bellman to passing housekeepers in the hallway, each staff member was eager to help with whatever we needed.

1.0
out of 5

“Unprepared and disorganized staff”
Staff and management seemed not to care about customer service / complaints. The staff at the desk at night was very RUDE. They regarded me as if I was interrupting their conversations. The unprepared employees and the disorganization ruined our stay.

5.0
out of 5

“Great Hotel!”
I must say the service was impeccable, the staff were really friendly and could not do enough to help. I have rarely encountered such consistently excellent service in all my travels.

5.0
out of 5

“Wonderful”
This is a wonderful hotel. From the moment you enter the hotel you feel like your going to have a wonderful stay. The front staff welcomed us generously. Every staff member you meet has a smile!

1.0
out of 5

“Horrible Guest Services”
The service is slow and matter-of-factly, as if they are doing you a favor. The front desk staff was curt and snotty. This is the worst hotel I have ever stayed in, in terms of guest services.

5.0
out of 5

“Awesome experience”
Service is incredible. We get treated like we are important every time we come here. Staff overall are incredibly nice. Whatever we needed, the staff was there for us.

5.0
out of 5

“Excellent Choice”
This hotel proved to be an excellent choice from the very first moment we stepped in. Staff was friendly and welcoming; they made us feel that they wanted us to enjoy the hotel and the city.

5.0
out of 5

“Excellent hotel with excellent service”
The staff is first rate. Everyone that we encountered was so friendly and willing to help! Front desk personnel were outstanding. They gave us great advice and could not have been more helpful.

5.0
out of 5

“Very welcoming professional staff”
The hotel and staff are great! They were very accommodating to our needs. The Housekeeping Department was especially accommodating. I felt very much at home and very comfortable at the hotel.

APPENDIX D

Scale Items

Perceived Quality

What is your overall impression of this hotel? (1 = *very unfavorable*; 7 = *very favorable*)

How favorable are your feelings toward this hotel? (1 = *very unfavorable*; 7 = *very favorable*)

Compared with other hotels of its type, what is the likely quality of this hotel? (1 = *much worse*; 7 = *much better*)

How would you rate the overall quality of this hotel? (1 = *very bad*; 7 = *very good*)

Perceived Acquisition Value (1 = *very strongly disagree*; 7 = *very strongly agree*)

If I reserved a room at this hotel, I feel I would be getting my money's worth.

I feel that I am getting a good quality hotel room for a reasonable price.

After evaluating the hotel's features, I am confident that I am getting quality features for the room rate.

Compared with the maximum room rate that I would be willing to pay for this hotel room, the rate conveys good value.

It would be worthwhile to reserve this room as it would give me somewhere to stay at a reasonable price.

Perceived Credibility of UGC

To what extent do you consider the travelers' reviews you just read as trustworthy? (1 = *not at all trustworthy*; 7 = *very trustworthy*)

To what extent do you consider the travelers' reviews reflect the reality of the Azure Hotel? (1 = *not at all*; 7 = *very much so*)

Familiarity with RM Pricing Practices

How familiar are you with the practice of hotels charging different rates for their rooms for different stay dates? (1 = *very unfamiliar*; 7 = *very familiar*)

How often have you seen, hear of, or experienced hotels charging different rates for their rooms for different stay dates? (1 = *never*; 7 = *very often*)

Quality of Service

In general, how important is the quality of hotel service to you during a hotel stay? (1 = *not at all important*; 7 = *very important*)

NOTES

1. For example, Expedia's 2011 U.S. television advertising campaign for its hotel products: "Hotels know they can't fill every room every day . . . so they give Expedia ginormous discounts with these, unpublished rates, which means I get an even more rockin' hotel for less."

2. Survey Sampling International was used to gain access to consumers for this study. A general population sample was generated to meet the requirements of the study design using a sampling ratio of 13:1—for a total sample size of 75,000 based on a typical response rate of 4% and click through rate of 8%—and taking into account census region and demographics (age and gender) and typical response rates within those categories.

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