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Influences of consumer characteristics on fairness perceptions of revenue management pricing in the hotel industry

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ABSTRACT

Fairness perceptions play an important role in customers' behavior, and this study explores which consumer characteristics influence fairness perceptions of revenue management (RM) pricing in the hotel context. To examine such differentiating characteristics, the study conducts a logit analysis by comparing two groups: one group of customers who consider hotels' RM practices to be fair and the other group considers the practices to be unfair. The findings provide an opportunity for hotel managers to identify customers' particular characteristics that affect customer's perceptions of the fairness of hotels' RM pricing practices.

1. Introduction

Revenue management (RM, hereafter), also known as yield management, refers to selling perishable service products to the most profitable mix of customers to maximize revenue (Cross, 1997). The airline industry was the initial implementer of RM, and subsequently has had wide acceptance among capacity-constrained service industries to maximize revenue by effectively managing demand and capacity (Weatherford and Bodily, 1992). RM has become an indispensable strategic instrument in the hospitality industry; for example, the hotel industry routinely uses RM to maximize profits by obtaining revenues from rooms that would otherwise be unsold (Choi and Mattila, 2004).

RM aims to maximize revenues by charging premium prices when demand is high and lowering prices to stimulate demand when demand is low. RM involves several operational processes, such as segmenting customers, setting prices and rate fences, and controlling capacity to maximize the revenue generated from fixed capacity (Kimes, 1989). Among others, pricing policy is a key element of RM in the hospitality industry. However, consumers may possibly perceive such RM practices as unfair because RM results in a variety of rates for what appears to be identical facilities (Choi and Mattila, 2005).

Perceptions of price fairness play an important role in customer satisfaction and subsequent behavior (Oliver and Swan, 1989; Bei and Chiao, 2001). Extreme reactions occur when consumers feel they have been unfairly treated, especially when the company provides no valid alternative (Seiders and Berry, 1998). For example, people may sanction a business by avoiding repeat custom, by spreading negative word-of-mouth recommendations, or even by using violence (Bougie et al., 2003). Research by Kahneman et al. (1986) showed that consumers are even willing to disadvantage themselves to punish a seller who, they perceived, acted unfairly. Shoemaker (2003) argued that RM can have an adverse effect on customers' perceptions of the service company, resulting in destroyed customer loyalty. If consumers perceive RM as an unfair policy, consumers' negative perceptions lead to decreased customer satisfaction and consequently to a worsening of the company's economic success (Lindenmeier and Tscheulin, 2008).

Considering the importance of perceived fairness, an essential understanding is the major factors influencing customers' fairness perceptions of RM pricing among hospitality companies that implement and use RM techniques. However, research, especially in service industry contexts (Bolton and Alba, 2006) of this topic has been sparse until recently (Homburg et al., 2005; Xia et al., 2004). Previous research has considered price fairness evaluations in reference to past prices and price increases (Bolton and Alba, 2006; Homburg et al., 2005), and mainly in a context of physical goods (Martín-Ruiz and ondán-Cataluña, 2008). The purpose of the current study, therefore, is to explore consumers' fairness perceptions toward RM practices in the hotel industry. In particular, the study examines how consumers' characteristics relate to fairness perceptions of RM pricing. The study performs a logistic regression to identify different consumers' characteristics between two groups, that is, those with perceptions of fairness and those with perceptions of unfairness.

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This study provides two main contributions to the revenue management literature. First, the study examines effects of various demographic characteristics (i.e., age, income, gender, and education) along with two important factors (i.e., frequency of use and price consciousness) on consumers' perceptions of fairness of RM practices. Different from previous studies, such as Beldona and Namasivayam (2006), this study includes all six factors in the model and simultaneously examines them together. By doing so, this study identifies partial effects of each factor while controlling for other factors. Second, this study performs a logistic regression analysis to accomplish the proposed goals. As Xia et al. (2004) argued, price unfairness is a different concept from price fairness, and price fairness may not be an issue until consumers perceive prices to be unfair. Therefore, logistic regression analysis has been selected as an appropriate method, as opposed to choosing regression analysis with the dependent variable as a continuous variable.

For the analysis, this study also uses three different data subsets based on the degree of fair/unfairness perception. By performing the logistic regression analysis for the three groups, some characteristics cause extreme unfairness perceptions and others do not. These findings would not have been apparent if the analysis were only a regression analysis with a continuous dependent variable. Next, the study reviews the relevant literature and describes the methodology. Hypotheses and results follow, and conclusions complete the study.

2. Literature review

2.1. Fairness perceptions of pricing

Fairness perception is the judgment of whether or not customers accept an outcome and/or a transaction process to be reasonable, acceptable, and just (Bolton et al., 2003). Investigation into fairness perceptions has evolved from early work involving social exchange (Gielissen et al., 2008). Adams' (1963) interest was in equity as the principle for distributive fairness from an exchange perspective and focused on how individuals assess social exchange relationships. Thibaut and Walker (1975) distinguished between distributive and procedural fairness. Distributive fairness relates to the allocation of a just outcome, and procedural fairness relates to procedures to solve the problem (Collie et al., 2002). Several studies suggested that various factors influence people's perceptions of fairness. For example, researchers have considered procedures to be fair when they follow, in a consistent and unbiased fashion, certain structural guidelines, such as marketing decisions (Leventhal et al., 1980). In addition, Bies and Moag (1986) referred to interactional justice, which is the individual's perception of the quality of treatment experienced from implemented policies and procedures. Thus, interactional fairness concerns the procedural nature of a customer's treatment during the exchange (Blodgett et al., 1997; Clemmer and Schneider, 1996). Fehr and Schmidt (1999) suggested that an individual is inequity averse when perceiving outcomes to be inequitable which results in dislike. The point is the nature of individuals' measurements or perceptions of the fairness of outcomes, procedures, and treatment. Blodgett et al. (1997) found that fairness perceptions play an important role in customers' reactions to a service including re-patronage and negative word-of-mouth intent, and Campbell's study (1999) showed that perceived unfairness has a negative influence on customers' shopping behavior.

Several researchers have recently addressed the fairness perceptions of price (e.g., Campbell, 1999; Bolton et al., 2003; Vaidyanathan and Aggarwal, 2003; Xia et al., 2004). Price fairness refers to a judgment of perceived fairness by a consumer regarding a seller's price (Haws and Bearden, 2006). In marketing literature, fairness perceptions of price have had extensive study as a measure of price acceptability (Campbell, 1999; Maxwell, 2002). To assess the fairness of a price, customers often access internalized reference prices, such as the last price paid, and/or externalized reference prices, such as the price most frequently paid, market prices, and/or posted prices.

Kahneman et al. (1986) were among the first economists to identify the antecedents and consequences of price fairness. Dodds et al. (1991) demonstrated the logical relationship between an objective price and the perceived acceptability of that price. The relationship is an inverse proportion in that the higher the actual price, the lower the perceived acceptability. The information of how a price has been determined has a significant effect on perceptions of pricing fairness, and consequently, willingness to purchase (Maxwell, 2002). Fairness perception of price is, apparently, an important part for sustaining customer satisfaction, loyalty, and long-term profitability (Noone et al., 2003). Company reputation, motives, and previous consumer satisfaction appear to affect consumers' perceptions of the fairness of price increases (Campbell, 1999; Homburg et al., 2005). Recently, Diller (2008) attempted to incorporate the various aspects of fair price research into one conceptual model based on a review of "fair pricing" in the literature. The proposed fair price model includes seven components: distributive fairness, price honesty, price reliability, consistent behavior, personal respect and regard for the partner, fair dealing, and the right of influence and co-determination (Diller, 2008).

All individuals, however, are heterogeneous, and each individual perceives identical things or the same situations differently. Until now, most studies of price fairness focused on the situational or contextual components of price fairness and the relationship between buyers and sellers. Most prior research examined price fairness at the transaction level, and the influences of individual differences regarding price fairness perceptions have received little attention. Xia et al. (2004) summarized empirical findings on price fairness and suggested that researchers need to focus on more generic influences (e.g., social norms, consumer knowledge, and individual characteristics) on price fairness. Therefore, understanding consumers' characteristics in reaction to RM pricing is the focus of the current study.

2.2. Fairness perceptions of RM pricing in the hospitality industry

RM practices have the potential to maximize revenue as long as consumers perceive RM as a fair policy (Kimes, 2002). In the hospitality literature, several researchers have been interested in fairness perceptions of RM pricing, and Table 1 provides a summary of such relevant studies.

Kimes (1994) found that RM practices have the perceptions of being fair if information on varying pricing options is available; substantial discounts accompany reasonable restrictions, and services, perceived as different, have different prices. Kimes and Wirtz (2003a) studied the fairness perceptions of six RM practices in the golf industry and they examined perceived fairness of RM in the restaurant industry (Kimes and Wirtz, 2002, 2003b). Their results suggest that RM pricing in the form of coupons, time-of-day pricing, and lunch/dinner pricing have the perceptions of being fair. Choi and Mattila (2005) found that consumers who receive no information think the process is unfair, and limited information has little effect on fairness perceptions. In addition, Choi and Mattila (2004) examined the moderating effect of information about hotels' room pricing structures offered to consumers at the time of reservations on the perceived fairness of RM pricing.

Choi and Mattila (2006) found that a greater number of American consumers perceived variable pricing practices to be fair than do their Korean counterparts. Beldona and Namasivayam (2006) examined gender differences in relation to perceived price fairness

Table 1
Summary of research on fairness perceptions of revenue management in the hospitality industry.

Author(s)	Title	Industry	Key findings
Kimes (1994)	Perceived fairness of yield management	Airline and hotel	Fairness perceptions of yield management in the airline and hotel industries are examined and the common practices in the hotel industries were viewed as unacceptable.
Kimes and Wirtz (2002)	Perceived fairness of revenue management in the US golf industry	Golf industry	Golfers perceive arrival duration control practices in the form of reservation fees or no-show fees as fair. In addition, golfers perceive demand-based pricing in the form of coupons (two for the price of one), time-of-day and reduced tee time intervals as fair. Conversely, time-of-booking pricing was perceived as neutral to slightly unfair.
Kimes (2002)	Perceived fairness of yield management	Airline and hotel	Fairness perceptions of RM in airlines and hotels are examined and the result was compared with that of previous study. Kimes' study (1994) found that customers view RM as less fair for hotels, but a repeated study in 2002 found there was no difference in fairness perception between two industries.
Kimes and Wirtz (2002)	Perceived fairness of demand-based pricing for restaurants.	Restaurant	Perceived fairness of five types of RM pricing in the restaurant is examined. Framing demand-based pricing as discounts rather than surcharges made consumers perceive RM practices to be fairer.
Kimes and Wirtz (2003a,b)	Has revenue management become acceptable?	Restaurant	RM pricing in form of coupon, time-of-day pricing, and lunch/dinner pricing are perceived as fair, weekday/weekend pricing is perceived as neutral to slightly unfair, and table location pricing is perceived as somewhat unfair. Framing demand-based pricing as discounts rather than surcharges made consumers perceive fairer.
Choi and Mattila (2004)	Hotel revenue management and its impact on customers' perceptions of fairness	Hotel	The moderating effect of information about the hotel's room pricing practices offered to customers at the time of reservation is found.
Choi and Mattila (2005)	Impact of Information on Customer Fairness Perceptions of Hotel Revenue Management	Hotel	Customers who receive no information generally think the process was unfair. Limited information has little effect on fairness perception.
Choi and Mattila (2006)	The role of disclosure in variable hotel pricing: a cross-cultural comparison of customers' fairness perceptions	Hotel	Cross-cultural differences in customers' fairness perceptions of hotel room pricing found that increasing the level of information improved fairness perceptions for respondents in both the United States and Korea. Overall, US consumers perceive variable pricing practices as more fair, more so than do their Korean counterparts.
Beldona and Namasivayam (2006)	Gender and demand-based pricing: differences in perceived (un)fairness and re-patronage intentions	Hotel	Gender differences in perceived price fairness and repurchase intentions are examined. Females perceived less fairness across all pricing scenarios in both discount and surplus frames.
Wirtz and Kimes (2007)	The moderating role of familiarity of fairness perceptions of revenue management pricing	Hotel and restaurant	Familiarity moderates the effects of framing and fencing conditions on customer's fairness perceptions. Especially, framing and fencing condition have strong effects on fairness perception when customers are less familiar with a RM pricing.
Mauri (2007)	Yield management and perceptions of fairness in the hotel business	Hotel	Various aspects of customers' perceptions regarding RM are discussed and managerial techniques that hotel companies can employ to manage customer conflicts resulting from perceived unfairness due to RM practices are suggested.
Beldona and Kwansa (2008)	The impact of cultural orientation on perceived fairness over demand-based pricing	Hotel	Vertical individualism has a significantly positive relationship with perceived price fairness.

and subsequent repurchase intentions. These researchers found that females perceived significantly less fairness across all pricing scenarios in both discount and surplus frames. Wirtz and Kimes (2007) found that familiarity with RM moderates the effects of framing and fencing conditions on consumers' fairness perceptions. In particular, framing and fencing conditions have strong effects on fairness perceptions when customers are less familiar with RM pricing. Beldona and Kwansa (2008) identified the impact of cultural orientation on perceived fairness over RM pricing; vertical individualism has a significantly positive relationship with perceived price fairness.

Most previous research reviewed with regard to fairness perceptions of RM pricing in the hospitality literature examined effects of rate fences or situations. But little is known about influences of consumers' characteristics on perceived fairness of RM pricing. Although the literature is sparse in terms of influences of consumers' characteristics on fairness perceptions of RM pricing, the issue of the relationship between consumers' characteristics and fairness perceptions has been studied in other social science research. Thus, the next section discusses the relationship between consumers' characteristics and fairness perceptions, and develops hypotheses accordingly.

3. Hypotheses

3.1. Frequency of use: familiarity effect and price knowledge

Previous literature suggested that the degree of familiarity with RM practices influences customers' fairness perceptions. Kimes' study (1994) found that customers viewed RM as significantly less fair for hotels than for airlines when customers were somewhat familiar with RM practice of airlines, but not of hotels. A repeated, similar survey in 2002 after RM in the hotel industry had become more common, differences of perceived fairness for RM practices between the two industries disappeared (Kimes, 2002). It has been found that customers become familiar with RM practices as they experience similar transactions over time (MaGuire and Kimes, 2006). Wirtz and Kimes (2007) suggested that as the customers become more familiar with RM practices, the unfairness perceptions declined over time because customers who were familiar with RM tended to have already adjusted their transaction and price references, resulting in less, or even no impact on perceived price fairness.

In addition, consumers' price knowledge is important because that familiarity not only determines perceptions and value of pricing, but also influences consumers' purchase decisions (Dolan, 1995; Turley and Cabaniss, 1995). According to Bolton et al. (2003), consumers' price knowledge, whether accurate or not, influences consumers' fairness evaluations. Kahneman et al. (1986) suggested that transaction history can provide one frame of reference for judging fairness, and Estelami and Maeyer (2004) suggested that products that are frequently purchased associate with higher levels of consumer price knowledge, than less frequently purchased products. Thus, purchase frequency has a positive impact on price knowledge of a product (Estelami and Maeyer, 2004). Moreover, Lichtenstein et al. (1988) found that greater knowledge of prices leads to a narrower latitude of price acceptance. According to Kalyanaram and Little's study (1994), the width of the latitude of price acceptance depends on frequency of purchase. Therefore, the current study makes an assumption that hotel guests with higher purchase frequency are more familiar with hotels' RM practices and have better price knowledge. Consequently, the hypothesis is that frequency of use associates with fairness perceptions of RM pricing. Because of mixed predictions arising from familiarity (i.e., positive relationship with fairness perceptions) and price knowledge (i.e., negative relationship with fairness perceptions) in the literature, this study proposes the non-directional hypothesis:

H1. Frequency of use significantly relates to fairness perceptions of RM pricing in the hospitality industry.

3.2. Price consciousness

Sinha and Batra (1999) found perceived price unfairness is significantly associated with price consciousness. Because price conscious buyers tend to focus on the monetary sacrifice of a price, higher perceived price unfairness increases perceptions of monetary sacrifice (Sinha and Batra, 1999). In general, price conscious consumers' main concern is to obtain a low price for a product (Lichtenstein et al., 1988) and previous experiences of lower prices for the same service can cause feelings of unfairness that result in customer defection (Frey and Pommerehne, 1993; Lichtenstein and Bearden, 1989). Kalyanaram and Little (1994) found deal-prone consumers (equivalent as price conscious consumers) are likely to respond to smaller price variations from their reference price while Han et al. (2001) also found deal-prone consumers have the smaller thresholds for gains and losses. Findings of the previous studies suggest that deal-prone consumers have little tolerance of price changes and therefore, the current study hypothesizes that price consciousness is negatively associated with fairness perceptions of RM pricing; the more price conscious, the less (more) perceiving the RM pricing as (un)fair. It is worthwhile to test this hypothesis within the RM context because it would determine whether or not the negative relationship actually holds in the RM setting.

H2. Price consciousness is negatively related to fairness perceptions of RM pricing in the hospitality industry.

3.3. Demographic background

Beldona and Namasivayam (2006) addressed that differences in socialization can lead consumers to interpret social and economic exchanges in different ways. Therefore, consumers may have different degrees of sensitivity to the fairness issue based on their demographic backgrounds such as gender, age, and education. Several researchers suggested that individuals' characteristics should be considered as potential covariates for future research of pricing issues (Xia et al., 2004). Mauri (2007) mentioned the social norms' possible variance among different market segments based on nationality, geography, social class, age, etc. However, to date, such issues have little, substantive exploration in the hospitality literature.

Sociology literature extensively explored the antecedents and consequences of gender inequality in the workplace, at home, or in general society (Eagle et al., 2000; Fiske et al., 2002). Sociological studies suggested that due to socialization and social-structural contingencies, individuals differ in many ways based on their genders. Adams (1965) claimed that females are more likely to be sensitive to fairness according to the equity theory which asserts that individuals' beliefs about what is fair is contingent on contributions of other people in similar contexts. Sweeney and McFarlin (1997) found that women reacted more strongly to evidence of procedural fairness than men, and contrarily in cases of distributive fairness. Rosa Díaz (2004) found women and customers with low income levels are more knowledgeable about prices. Eckel and Grossman (1996) claimed that women are more likely to respond to fairness evaluation based on the immediate situation. In contrast, men consider global moral principles in their behavioral reactions to fairness evaluations. Beldona and Namasivayam (2006) argued for differences in the manner in which men and women evaluate fairness, and thus, research into fairness perceptions have to take into account gender differences.

However, mixed results still exist with regard to the impact of demographics on price knowledge and perceptions. For example, McGoldrick and Marks (1986) found that older consumers consider price to be highly critical in their purchase decisions, but no significant differences in price awareness were found among older and younger consumers. Turley and Cabaniss (1995) found gender and age to be an insignificant influence for price recall measures in a study of consumers' awareness of service prices. Several researchers argued a lack of demographically driven differences in pricing knowledge among various constituencies. Wakefield and Inman (1993) suggested the lack of distinction to be due to a social trend away from traditional shopping roles assumed by men and women. Therefore, the role of demographics on fairness perceptions remains open for further empirical inquiry. Due to the inconclusive results from the literature, this study proposes the following four non-directional hypotheses for four demographical variables: gender, income, age, and education:

H3. Gender significantly relates to fairness perceptions of RM pricing in the hospitality industry.

H4. Household income significantly relates to fairness perceptions of RM pricing in the hospitality industry.

H5. Age significantly relates to fairness perceptions of RM pricing in the hospitality industry.

H6. Education insignificantly relate to fairness perceptions of RM pricing in the hospitality industry.

4. Methods

4.1. Survey development

The survey, developed for the current research, describes RM pricing as a variable pricing policy based on customers' demand levels and provide examples, because consumers may not be familiar with the term, revenue management. Participants' responses evaluated their perceptions of fairness of RM pricing in the hotel industry on a scale from 1 (extremely unfair) to 7 (extremely fair), adopted from the perceived price fairness scale used by Campbell (1999). Price consciousness questions, also measured on a scale from 1 (not important at all) to 7 (very important), asked the importance of price when reserving a hotel room. The independent variables covered by the survey include: frequency of use of a hotel during the previous year, price consciousness, gender, age, household income, and education.

4.2. Logistic regression model

Xia et al. (2004) argued that price unfairness is a different concept from that of price fairness and price fairness may not be an issue until consumers perceive a price to be unfair. Thus this study performs a logistic analysis to identify the factors that differentiate the two groups: the group that perceives the RM practice to be fair vs. the group that perceives the RM practice to be unfair. A linear regression analysis with a dependent variable as a continuous variable will only provide an average incremental effect of the independent variables on consumers' perceptions of fairness, and such an average incremental effect would not provide differentiating factors between the two groups of fair and unfair perceptions.

The logistic regression model performed in this study is:

$$\ln\left(\frac{P}{1-P}\right) = \beta_1 + \beta_2 FREQ + \beta_3 PRICE + \beta_4 AGE + \beta_5 INCOME + \beta_6 GENDER + \beta_7 EDU$$

where P equals 1 if a respondent perceives RM pricing as fair, and P equals, 0 otherwise; *FREQ* represents frequency of use; *PRICE* represents price consciousness; *AGE* represents age; *INCOME* represents household income; *GENDER* represents gender where *GENDER* equals 1 (0) for male (female); *EDU* represents education level.

In order to transform the fairness perception scale into a dichotomous variable, the sample is divided into two groups. The first group includes respondents who perceive RM pricing in hotel industry as fair while the other group includes respondents who perceive RM pricing as unfair. The fair group consists of the respondents who answered the question with scale 5 (somewhat fair), 6 (fair) or 7 (very fair) while the unfair group consists of the respondents who answered the fairness perception question with scale 1 (very unfair), 2 (unfair) or 3 (somewhat unfair). Table 2 shows distributions of sample sizes for the fairness perception scale.

4.3. Data collection

Selected respondents were among students and staff of a University located on the east coast of the US. Individual e-mails, sent to potential respondents, had a web link for the survey. The questionnaire's total online distribution was 10,023 over 20 days and resulted in a return of 962 completed surveys providing a response rate of 9.5%. After eliminating incomplete responses, 702 (7.0%) surveys were deemed usable and constituted the analyzable study sample. As Beldona and Kwansa (2008) argued, graduate students tend to represent general consumers of hotel services because of their propensity to travel either for personal or business reasons (professional meetings and conferences). Their study, in fact, used such samples from a major mid-western public university in US in examining the impact of cultural orientation on perceived fairness about demand-based pricing. Half of the current study's sample includes graduate students and staff members; this proportion may alleviate the sampling concern arising from using only undergraduate students.

5. Results

5.1. Respondents' profiles

The descriptive statistics of respondents appear in Table 3. The total of 702 respondents includes 27% of males 73% of females. The *under 29-year-old group* consists of 541 respondents (76.3%) and *over 30-year-old group* consists 156 respondents (23.7%). Annual household income levels show 44.4% of respondents with household annual household incomes under $50,000, and 55.6% over $50,000. The sample includes 50.9% ($n = 338$) of respondents with high school or associate degrees, and 50.5% ($n = 350$) with bachelors' or higher degrees. About a half of the respondents (52.9%, $n = 369$) are undergraduate students while the other half of the respondents (47.1%, $n = 329$) are graduate students or staff members.

5.2. Main findings

Table 4 presents findings of the logistic analysis. *FREQ* (β_2 of 0.25 with P-value of 0.02), *AGE* (β_5 of −0.33 with P-value of 0.01), and *EDU* (β_7 of 0.21 with P-value of 0.02) appear to be significant factors that differentiate the two groups. Household income shows a marginal significance (P-value of 0.07). The results of the analysis support only three hypotheses (i.e., H1, H5 and H6) of the six hypotheses proposed in this study. The results are interesting because Beldona and Namasivayam (2006) found gender differences in perceived fairness of RM pricing, but gender did not appear to be a significant variable in the current analysis.

Table 2
Distribution of respondents' perceptions of fairness of RM pricing in the hotel industry.

	Very unfair	Unfair	Somewhat unfair	Neither fair nor unfair	Somewhat fair	Fair	Very fair
Scale	1	2	3	4	5	6	7
N	68	66	125	125	151	90	62
%	9.7	9.7	18.1	18.1	22.0	13.4	9.1

This study then, to investigate the main issue further, creates two additional data sets and performs a logistic regression analysis for those two data sets. For the first additional data set (i.e., Model A), the fair group consists of respondents who answered the fairness perception question with a value of 6 (fair) or 7 (very fair) while the unfair group consists of respondents who answered the same question with a value 1 (very unfair) or 2 (unfair). The second additional data set (i.e., Model B) chooses only the samples representing responses of either 1 (very unfair) or 7 (very fair). Table 4 presents the results of analyses with these two additional data sets.

For Model A, *AGE* (β_4 of −0.03 with *P*-value of 0.03), and *EDU* (β_7 of 0.25 with *P*-value of 0.04) appear to be significantly different factors between the fair and unfair groups; more educated and younger guests tend to perceive hotels' RM pricing as fair. For Model B analysis that compares only the extreme two groups representing values 1 (very unfair) and 7 (very fair), frequency of use (*FREQ*) and education (*EDU*) appear to be insignificantly different between the two groups while price consciousness (*PRICE*) (β_3 of −0.60 with a *P*-value of 0.02) and gender (*GENDER*) (β_6 of 1.07 with *P*-value of 0.02) show significant differences between the two groups. Interestingly, gender and price consciousness were not significant variables in the main model that includes the greatest number of samples, but appear to be significant factors in comparison of the extreme two groups. The findings suggest that more price conscious guests and females tend to perceive hotel's RM pricing to be extremely unfair, more so than do their counterparts.

In addition to individual factors' impacts, this study estimates other measures for overall model fit and explanatory power. First, the Cox–Snell R^2 and the Nagelkerke R^2 are similar to the R^2 measure in a multiple linear regression. According to the two measures, Model B appears to be the best model (Cox–Snell $R^2 = 0.18$, and Nagelkerke $R^2 = 0.24$). This may not be a surprise because comparing two more extreme groups (very fair vs. very unfair) may reveal more pronounced differentiating factors. For Model A and B, the two groups may begin to include more similar people, and consequently, R^2 may decrease. Second, the Homer and Lemeshow goodness-of-fit test divides subjects into deciles based on predicted probabilities, and then computes a chi-square from observed and expected frequencies. All the Homer and Lemeshow goodness-of-fit test statistics of the three models are greater than 0.05, resulting in a failure to reject the null hypothesis, and stating that no difference exists between the observed and predicted values of the dependent variable. The conclusion is that the model is valid. Basically, a higher chi-square suggests a lack of model fit. Similar to

Table 3
Respondents' profiles.

	Total		Main model		Model A		Model B	
	N	%	*N*	%	*N*	%	*N*	%
Gender								
Male	190	27.1	149	26.4	85	29.6	45	34.4
Female	512	72.9	416	73.6	202	70.4	86	65.6
Age								
19 and under	129	18.4	94	16.6	42	14.6	17	13.0
20–29	412	58.9	330	58.4	165	57.5	76	50.1
30–39	63	9.0	53	9.4	30	10.5	14	10.7
40–49	38	5.4	33	5.8	20	7.0	9	6.9
50–59	39	5.6	36	6.4	20	7.0	10	7.6
60 and older	19	2.7	18	3.2	10	3.5	5	3.8
Income								
US $20,000 or under	130	19.1	98	17.3	45	16.7	22	16.8
US $ 20,001–35,000	78	11.5	68	12.3	35	12.2	18	13.7
US $ 35,001–50,000	94	13.8	70	12.4	42	14.6	22	16.8
US $ 50,001–75,000	131	19.3	99	17.5	44	15.3	16	12.2
US $ 75,001–100,000	102	15.0	86	12.2	46	16.0	23	17.6
US $ 100,001 or more	144	21.2	125	22.1	66	23.0	28	21.4
Education								
High school or less	259	37.1	201	35.6	90	31.4	38	29.0
Associate degree	89	12.8	69	12.2	36	12.5	17	13.0
Bachelors degree	209	29.9	171	30.3	91	31.7	50	38.2
Masters degree	88	12.6	75	13.3	41	14.3	15	11.5
Doctorate degree	53	7.6	48	8.5	28	9.8	11	8.4
Profession								
Undergraduate Student	369	52.9	288	51.0	134	46.7	59	45.0
Graduate student	183	26.2	153	27.1	84	29.3	40	30.5
Staff	146	20.9	121	21.4	68	23.7	31	23.7

Table 4
Comparison of logistic analyses $\ln(P/1-P) = \beta_1 + \beta_2 FREQ + \beta_3 PRICE + \beta_4 AGE + \beta_5 INCOME + \beta_6 GENDER + \beta_7 EDU$.

IVs	Main model ($n = 542$)		Model A ($N = 276$)		Model B ($N = 127$)	
	B	Sig	*B*	Sig	*B*	Sig
Frequency of use	0.25**	0.02	0.20	0.17	-0.12	0.60
Price consciousness	−0.10	0.29	−0.07	0.63	−0.60**	0.02
Age	−0.03**	0.01	−0.03**	0.03	−0.04*	0.07
Income	0.09*	0.07	0.14*	0.07	0.23*	0.07
Gender (1)	0.11	0.59	0.35	0.21	1.07**	0.02
Education	0.21**	0.02	0.25**	0.04	0.22	0.30
Constant	0.22	0.79	−0.04	0.97	4.59	0.02
Cox and Snell R^2	0.04		0.05		0.18	
Nagelkerke R^2	0.05		0.07		0.24	
Homer and Lemeshow	9.36 (0.31)		8.01 (0.42)		7.52 (0.48)	

P equals 1 if a respondent perceives RM pricing as fair and *P* equals 0 otherwise; *FREQ* represents frequency of use; *PRICE* represents price consciousness; *AGE* represents age; *INCOME* represents income; *GENDER* represents gender where *GENDER* equals 1 (0) for male (female); EDU represents education level.
* 10% significance level.
** 5% significance level.

the Cox–Snell R^2 and the Nagelkerke R^2 measures, according to the Homer and Lemeshow test statistics, Model B (chi-square of 7.52 and *P*-value of 0.48) appears to be a better model than the main model (chi-square of 9.36 and *P*-value of 0.31) and Model A (chi-square of 8.01 and *P*-value of 0.42).

6. Conclusions

The objective of this study is to examine what consumers' characteristics influence their fairness perceptions of RM practices in the hotel context. The study compared two groups: one group that perceives hotels' RM practices as fair and the other group that perceives the practices as unfair to reveal hotel guests' differentiating characteristics in terms of their fairness perceptions of RM practices. The study conducts a logistic analysis to accomplish the study goal. In testing the proposed hypotheses, the study compares the fair and unfair group that includes the most respondents (main model); the (un)fair group consists of the respondents who answered, 'somewhat (un)fair', '(un)fair', and 'very (un)fair.' The study further compares the two additional sub-groups; Model A consists of the respondents who answered, '(un)fair', and 'very (un)fair' while Model B consists of the respondents who answered, 'very (un)fair.'

The main model comparison reveals that more frequent users of hotels, younger hotel guests, and more educated people tend to perceive hotels' RM practices to be fair, compared to their counterparts. In addition to these main findings that are based on hypothesis testing, this study compared the two additional sub-groups and found some interesting results: first, hotel guests' household income seems to play a marginally significant role in differentiating the fair group from the unfair group throughout all three model comparisons in that people with higher household incomes perceive RM practices to be fair at a marginal significance level. Second, some unique findings exist for the two additional model comparisons: hotel guests' price consciousness and genders become significant factors while the education levels become an insignificant factor for differentiating the very fair and very unfair group in Model B.

Based on the findings about hotel guests' household income levels, hoteliers, according to a particular brand or hotel property, may want to develop their RM strategies differently. Full-service or luxury hotel brands or properties may be able to more comfortably and rigorously explore the use of RM practices because their customers tend to show a higher level of fairness perceptions toward such practices. Thus hotels may increase revenues through RM practices, especially the variable pricing strategy based on demand level, without damaging their customers' fairness perceptions. On the other hand, economy or budget brands or properties may want to be very cautious about implementing RM practices due to the finding that their customers tend to perceive such practices as unfair. Consequently, RM practices may hurt the budget-oriented hotels' performance in a long run. However, further examination may illuminate this issue because this study's implications are based on the assumption that hotel guests with higher income levels stay at hotels in a higher price-range. Moreover, this implication is made without considering other various rate fences which may cause different outcomes in customers' perceptions.

With regard to gender effect on fairness perceptions, our findings for the entire sample do not support the argument of previous research that females are more sensitive to fairness (Adams, 1965; Beldona and Namasivayam, 2006). However, an additional analysis that compares only the very fair and very unfair group revealed the gender effect to be significant, suggesting that more females than males perceive the RM practices as very unfair. According to our findings, the gender effect does not exist throughout the all different levels of fairness perceptions, but only for an extreme case, and this is interesting because some of the previous studies' general findings about the gender effect might be driven from such extreme cases. However, according to Sweeney and McFarlin (1997), fairness perceptions among women and men are different in terms of both procedural and distributive fairness, and thus further detailed investigation on the two types of fairness are strongly encouraged and will enrich the RM literature. From a practical perspective, hoteliers may incorporate the gender effect in their market segment development or sales practices. For example, they may use the gender difference information when developing their target markets. Some overlooked market segments may be identified when focusing on male guests rather than females, even when basing decisions on existing market segments.

One important finding among members of the extreme groups (very fair vs. very unfair) is about the price consciousness that differentiates the two groups. The analysis revealed a negative relationship between the price consciousness and fairness perceptions, suggesting that price conscious hotel guests tend to perceive hotels' RM practices as more unfair, supporting previous studies (for example, Han et al., 2001; Sinha and Batra, 1999). The findings may provide an important insight to hoteliers, especially, in the current economic downturns where many hotels competitively offer discounted rates to survive. Because of such prevalent discounting practice, average room rates are expected to decline more than 9% from 2008 to June 2009 (Smith, 2009). Although many hoteliers have believed that discounting room rate is necessary to sustain revenue and to steal market share, the demand for hotels has been

found to be inelastic to such discounting practice (Carroll, 1986; Enz, 2003; Enz et al., 2009). Moreover, deeply discounted rates may reduce customer's reference price and increase price conscious customers' unfairness perceptions of RM pricing without boosting occupancy to offset the rate decline. Therefore, hotels need to make pricing decisions carefully by clearly limiting the bottom line of their discounted rate even during economic downturns. This argument can be also aligned with previous findings that it takes considerable amount of time for hotels to recover from such discounted rates (Wolff, 2004) and also there are negative long-term effects from the discounting practice (Enz et al., 2009).

In addition, findings of this study may be used as a basis to suggest that hoteliers need to develop various types of rate fences to allow guests to distinguish each transaction (or product). Use of rate fences (either physical or non-physical) makes differences for service offerings from a customer's perspective, rendering RM pricing strategies effective. For example, hotels frequently charge different prices for weekdays and weekends without additional rate fences, because hoteliers believe those are different service products. The important issue is whether or not customers really perceive those to be different service offerings. Xia et al. (2004) extended social-comparison theory to pricing and suggested that customers compare transactions and prices paid. When the degree of perceived similarity between transactions is high, customers have little differential information to justify price differences, and thus customers are likely to believe that they are entitled to equivalent prices and are likely to view price differences as unfair (Xia et al., 2004). Consequently, when the degree of perceived similarity between transactions is low, more hotel guests may perceive RM pricing to be fair. For this reason, hotels need to improve customers' awareness that all transactions are not alike, so customers, in particular those who are price conscious, can distinguish the transactions. During peak periods, when charging premium prices, hotels may add amenities (e.g., free wireless internet or free breakfast) to justify a higher price than the lower one during slow periods. In addition, considering that females, more than males, tend to perceive RM practices to be very unfair, hotels may seek to develop more female-oriented rate fences to mediate such strong negative perceptions held by females. For example, hotels may include amenities that females prefer (e.g., complimentary spa, massage pass or travel makeup kit) when practicing variable pricing policies.

The study is not free from limitations. First, since data from this study were collected from students (undergraduates and graduates) and staff members of one university, results may not be generalized to an overall population. Collecting more general observations from various sources is desirable, especially to improve generalizability. Also this study assumed that survey participants make their own reservations, but business travelers often have a personal assistant who reserves accommodations, and thus the use of frequency as a measure may not correctly represent familiarity with RM pricing and price knowledge. In addition, it is possible that two constructs, the price consciousness and the frequency of use, are partially overlapped. Therefore, this study performed an additional analysis without the price consciousness to see if any changes would occur. The results from the modified model, however, confirmed the same effects of the frequency of use and other demographic variables on customers' fairness perceptions as found from the original model. Last, several other elaborations are possible. Perhaps future research could incorporate the influences of reference prices and brand loyalty for each consumer into the fairness perceptions measurement. Future research may also explore the relationship of consumers' characteristics within the constructs of procedural, distributive and interactional fairness, and consider different degrees of monetary advantage or disadvantage.

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