



# The search for the best deal: How hotel cancellation policies affect the search and booking decisions of deal-seeking customers<sup>☆</sup>

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## ABSTRACT

This study examined cancellation policies and their role in shaping travelers' deal-seeking behavior, exploring the impact of cancellation fees and deadlines on three, mutually exclusive, customers' hotel booking behavior categories: "Book", "Book and Search", and "Search". 291 subjects, who participated in a week long online "booking game", attempted to book a room in a virtual hotel and get the best deal. The results were tested using small sample t-test for comparing proportions between two independent populations, non-parametric multiple pairwise comparisons, and multinomial logit regression models. The findings indicate that the cancellation deadline affected participants' behavior while the size of the cancellation fee had no statistically significant impact. In addition, there was no significant difference between lenient cancellation deadline and no cancellation policy.

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## 1. Introduction

Tourism suppliers and hotels in particular, promote discounting to an increasing market segment of deal-seeking savvy travelers who use the Internet to find the best deals. At the same time, they continue to add cancellation policies as "hidden traps" that can increase the cost of travel for unwary customers (Perkins, 2004). According to BudgetTravel.com (2005), "there's no blanket travel cancellation policy" and practices vary among the providers of travel services. As a general rule though, the closer the cancellation is to the day of consumption, the harder it is for the customers to receive full refund for their reserved travel service. Catching up with the airline industry's practices, most hotels (over 80% according to Engle, 2009) now charge a late cancellation penalty. Mandelbaum (2008) reports that in 2007, cancellation fees represented 8% of the surveyed hotels' revenues, while DeKay et al. (2004) report that some hotels are assessing penalties for early departure, and that this practice lowers the average early departure rate to 5.3%. This trend toward stricter cancellation policies is reflected in the 17% increase in the number of travel insurance claims that involved non-refundable lodging expenses this year

(Engle, 2009). Car rentals are also exploring new cancellation policies. For example, Hertz is now charging \$25 when a reservation is canceled and \$50 for a no-show (Elliott, 2009). Another indication for the increasing importance of cancellation policies is that the major credit card companies (such as American Express, Visa, and MasterCard) have recently adopted contractual policies which are more in line with the hotel industry's stricter cancellation policies (Wade, 1996).

Interestingly, charging a cancellation fee for a service that was reserved in advance is similar to having no full refund policy for a returned good. Given the well established positive role of refund policies, the hotel industry's move towards stricter cancellation policies (i.e., weaker refund policies) is somewhat counter-intuitive. As outlined by Xie and Gerstner (2007, p. 18), refund policies for returned goods have been shown to signal product quality (Moorthy and Srinivasa, 1995; Shieh, 1996), reduce customers' risk perception (Mann and Wissink, 1988), and increase profit margins (Fruchter and Gerstner, 1999). Several reasons have been suggested in the literature to explain why service providers, and hotels in particular, increasingly impose cancellation fees despite the established benefits of refunds. These reasons can be categorized into two groups of strategic goals:

- (1) Increase revenues
- (2) Affect travelers' booking behaviors

According to the first goal, cancellation policies are designed to increase revenues by capturing some of the revenue lost due

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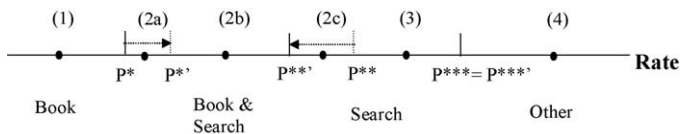


Fig. 1. The impact of cancellation fee on the consumer's strategy.  
Figure taken from Schwartz (2006) Fig. 4.

to cancellations and no-shows. The loss is particularly high with last minute cancellations and no-shows, when not enough time is left before the date of stay to sell the unsold inventory to other customers (Xie and Gerstner, 2007; Koide and Ishii, 2005). While overbooking is the traditionally common practice of airlines and hotels, designed to reduce the financial loss associated with last minute cancellations and no-shows (Collins, 2008; Bertsimas and Popescu, 2003; Karaesmen and Van Ryzin, 2004; Liberman and Yechiali, 1978; Subramanian and Lautenbacher, 1999), recent studies have shown that overbooking has a potentially negative impact on customers satisfaction, and consequently on the customers loyalty and their future booking behavior (Lindenmeier and Tschulin, 2008; Wangenheim and Bayón, 2007). As hotels are more reluctant to overbook because of customer relation concerns, they are more inclined to charge and impose cancellation fees to recover lost income due to last minute cancellations and no-shows. Indeed, DeKay et al. (2004) report that due to stricter hotel cancellation policies, hotels no-show rate has fallen from a high of up to 15%, the level reported in the 1980s by Gould et al. (1980), to a lower rate of 5%.

This study focuses on the second strategic goal of cancellation policies. That is, the notion that cancellation policies can affect travelers' search behaviors in a manner that is more desirable, or profitable, to the tourism provider. This study explores the notion that in an advanced-booking environment, where savvy, transient customers are using the Internet to search for better deals, cancellation policies might play an important role by impacting the search and booking behavior of these deal-seeking, advanced-booking consumers. For example, there are many indications that deal-seeking travelers continue to search after they have made a reservation, looking for an even better deal for the same tourism product or service. If a better deal is found after they made their initial booking, these deal-seekers cancel their existing reservation and rebook the better deal. Guidelines on how to minimize the costs associated with trip cancellation are posted on Web sites that target deal-seekers (e.g., Dratch, 2008; Perkins, 2004). These guidelines include tips such as: read cancellation policies before you book reservations, make workable cancellation policies an item on your shopping list, cancel as early as possible, talk (politely) to the right people, and call rather than go online. The Advanced Booking Decision Model (ABDM, outlined in Schwartz, 2000, 2006, 2008) provides a theoretical decision-making framework to explore some of these issues of deal-seekers search and booking behavior. The model explains how a deal-oriented traveler optimizes her/his booking decision, deciding whether to book, to book and continue to search for a better deal, or to continue to search without booking. Among other factors, the analytical model argues that the higher the cost associated with the cancellation fee, the more one is likely to choose a "Book" strategy or a "Search" strategy over a "Book then search" strategy. At the core of this expected utility maximization argument is the notion that an expected high cancellation fee makes the switch to the better deal more costly, and therefore less attractive.

Specifically, this study examines the assertion of the ABDM regarding the impact of hotels' cancellation policies on transients' search and booking behaviors.

## 2. Research question

This study sets out to empirically test how reservation decisions are impacted by cancellation policies, exploring the possible impact of the size of the cancellation fee, the strictness of the cancellation policy, and the timing element (that is, the cancellation deadline).

## 3. Hypotheses

The ABDM predicts that cancellation fees affect customers' booking decisions. This is evident when one considers the options available to the advanced-booking traveler: "Book," "Book then search," "Search," and "Other." According to the model, the expected utility-price equations that describe the thresholds, or switch points, between strategic decision zones also contain a cancellation fee element. The price  $P^*$  (the room rate at the switch point between the "Book" and "Book then search" strategic zones) and  $P^{**}$  (the room rate at the switch point between the "Book then search" and the "Search" strategic zones) are given by  $P^* = Sn / ((D - F)P_d(1 - P_v))$  and  $P^{**} = -P_v(P_b + R_a - R_b) / (FP_d(P_v - 1) - P_v)$ . The corresponding utilities are given by  $U^* = R_a - Sn / ((D - F)P_d(P_v - 1))$  and  $U^{**} = -P_v(P_b + P_d[(1 - P_v)(F - D)[P_b + r_a - r_b] - SnF] + (r_a - r_b) + Sn) / FP_dSn / (FP_d(P_v - 1) - P_v)$ .

The impact of cancellation fees on the switch points as predicted by the ABDM is illustrated in Fig. 1 (Schwartz, 2006). The above set of threshold equations predict that when the cancellation fee ("F" as denoted in the original model) is increased, the "Book" strategy's upper boundary moves to the right (to  $P^*$ ). This means that more room rates will then fall into the "Book" zone and that some people who were previously likely to use the "Book then search" approach (i.e., customers in 2a) will now be more likely to simply "Book."

However, this same increase in the cancellation fee also decreases the "Book then search" upper boundary from  $P^{**}$  to  $P^{**'}$ . This decrease of the "Book then search" zone implies that the higher cancellation fee will cause some who previously responded with a "Book then search" approach to a given quoted price (i.e., customers in 2c) to now respond with a "Search" strategy.

It should be noted though, that the "Book then search" customers in 2b are not affected by the increase in the cancellation fee. Customers who take the "Book then search" approach (but who were not in the 2c or 2a zone) will not change their booking decisions because of higher cancellation fees. Customers in the "Other" zone (that is, zone 4) will not be affected.

The "Book then search" strategy is most likely to be affected by the size of the cancellation fee. When the cancellation fee is high, the "Book then search" strategy is less attractive than the "Book" and the "Search" strategies. In other words, the cost of "Book then search" is higher when cancellation fees are high, so customers are more likely to either "Book" or "Search." Thus, hypothesis one is as follows:

**H1.** When the cancellation fee is higher, fewer customers are likely to "Book then search," and more are likely to either "Book" or "Search."

Wood (2001) provides some empirical insight on the impact of return policies to customers' decision-making processes in remote purchasing environments (i.e., ordering products through catalog sales). She observes that subjects appear to order products with more careful consideration and delay purchase decisions when a restricted return policy is imposed. Because a non-lenient cancellation policy reduces consumer choice (or flexibility), which can result in delayed decision-making, it follows that when a cancellation deadline is stricter, the "Book" and "Book then search" strategies are less attractive than the "Search" strategy. This suggests that when the cancellation deadline is stricter, customers are

**Table 1**  
Assigned treatments.

Cancellation deadline	Cancellation fee			
	Low		High	
	Fee if canceled before the deadline	Fee if canceled after the deadline	Fee if canceled before the deadline	Fee if canceled after the deadline
Lenient (24 h)	–	1 daily rate	–	The entire stay
Non-lenient (anytime)	1 daily rate	1 daily rate	The entire stay	The entire stay

more likely to keep searching and less likely to “Book” or “Book then search.”

In the same study, Wood (2001) also demonstrated that when the return policy is lenient, customers who ordered catalog products were more likely to further continue their search. This suggests that when the cancellation deadline is lenient, customers who have already booked are more likely to keep searching. Alternatively, when the cancellation deadline is non-lenient, customers are less likely to “Book then search.” Hence, hypothesis two proposes:

**H2.** When the cancellation deadline is stricter, more customers are likely either to “Book” or “Search”, and fewer are likely to “Book then search.”

#### 4. Methodology

##### 4.1. Sample

291 students enrolled in four undergraduate classes in a Midwest (USA) university were recruited for this study. Participation was voluntary although an incentive was offered based on performance in the experiment.

##### 4.2. Experiment design and procedure

An experimental design was chosen for this study to enhance internal validity (Cook and Campbell, 1979). The cancellation policy conditions were designed based on an empirical survey of cancellation policies and theoretical assumptions regarding possible set ups for such policies (Chen and Schwartz, 2008c). The four treatments of a  $2 \times 2$  research design included two levels of cancellation fees (the “High” cancellation fee equaled the entire stay’s price and the “Low” cancellation fee equated to one night’s room rate) and two levels of the leniency of the cancellation deadline (“non-lenient,” wherein any cancelled reservation was subject to a fee, and “lenient” where cancellations could be made up to 24 h before the check-in date for no charge). The assigned treatments are shown in Table 1. In addition, a no cancellation policy condition, meaning that the participants could cancel their reservation at anytime without a cancellation fee, was added as a control group. Subjects were randomly assigned to one of four treatment groups or the control group.

A 15-min training session was held a week before the experiment started. Subjects were asked to participate in a five-day online “game” where they were assigned two, somewhat contradictory, tasks. They were asked to book a room using a simulated hotel reservation site, and, at the same time, to pay the least amount of money. The amount paid included both the room rate and a cancellation fee if applicable. It was explained that if their hotel has a cancellation policy, and if they booked and then decided to cancel and rebook at a lower rate, a cancellation fee might be added to their account. They were also told that they needed to log in to the simulated hotel Web site on day one of the game, but they did not necessarily need to book a room on the first day. The access to the Web site was unlimited. The room rate (\$75/night) was the same across the groups on the first three days. E-mail

messages were sent out as daily reminders during the experiment period.

The first screen of the online simulation described the scenario and the task. The instructions explained that the participants were going on a 5-day/4-night vacation trip. They had been looking forward to the trip for a while, and had searched extensively for the best place to stay. Eventually they selected this hotel, and were trying to book four nights. Their task was to not only book four nights, but to also end up spending the least amount of money (room rate and cancellation fee if applicable) on the hotel room. The online booking simulation began six days before their hypothetical date of stay. Participants had five days to perform the task.

These following conditions were displayed in the first screen as well:

- The hotel practices revenue management, adjusting room rates according to demand. Each time you log in, you might see a different rate and that rate might be considerably higher or lower. Last minute deals are also very common in the industry. That is, if the hotel is left with a large inventory of unsold rooms at the last day of the simulation it will most likely offer these rooms for a very low price.
- Since the hotel changes the rates based on demand, you are encouraged to log in every day to see if a better deal is offered. The more days you log in, the more likely you are to find a better deal. The rate does not change during the day.
- Rooms’ availability is not guaranteed for the entire period of the game. All of the hotel rooms may be reserved, leaving you unable to book a room. In that case if you did not reserve a room you will not be able to book one.
- The hotel might have a cancellation policy. If it does, and you choose to cancel a reservation and rebook at a lower price, you might have to pay a cancellation fee.
- All rooms are identical.
- The system will log you off after 15 min.

The first screen prompted subjects to log in using their ID and password. Upon entering their personal information, subjects were quoted a rate for each night of a four-night stay and were briefed about their hotel’s cancellation policy. The section below outlines each of the five treatments including the cancellation policy statement that was shown on the second screen on the first three experiment dates.

- (1) “Lenient” cancellation deadline with a “High” cancellation fee: “You may cancel your reservation for no charge until dd/mm, that is 24 h before arrival. Please note that we will assess a fee of \$300.00 (four nights) if you must cancel after this deadline.”
- (2) “Lenient” cancellation deadline with a “Low” cancellation fee: “You may cancel your reservation for no charge until dd/mm, that is 24 h before arrival. Please note that we will assess a fee of \$75.00 (one night) if you must cancel after this deadline.”
- (3) “Non-lenient” cancellation deadline with “High” cancellation fee: “Canceling your reservation will result in a charge of \$300.00 (four nights).”

**Table 2**  
Respondents' selected strategy by treatment.

Treatment	Number of respondent selecting			
	Book	Book and search	Search	Total
Lenient/high	6 (11%)	41 (77%)	6 (11%)	53 (100%)
Lenient/low	9 (16%)	44 (77%)	4 (7%)	57 (100%)
Non-lenient/high	2 (4%)	29 (55%)	22 (41%)	53 (100%)
Non-lenient/low	4 (7%)	30 (55%)	21 (38%)	55 (100%)
No cancellation policy	9 (16%)	43 (75%)	5 (9%)	57 (100%)
Total	30 (11%)	187 (68%)	58 (21%)	275 (100%)

(4) “Non-lenient” cancellation deadline with a “Low” cancellation fee: “Canceling your reservation will result in a charge of \$75.00 (one night).”

(5) No cancellation policy: “You may cancel your reservation at any time without any penalty.”

Participants who accepted the quoted room rate and the cancellation policy, placed their reservation by clicking the “Book Now” button. Otherwise, they could select the “Exit” option on the second screen. If they already had a room reserved in a previous session, the participants had the option to cancel their reservation by selecting the “Cancel my Existing Reservation” button. A message summarizing the participant's decision was shown on the third (last) screen.

#### 4.3. Incentives

Incentives were structured so that the subjects treated both tasks (book and minimize cost) seriously. Hence, the induced dilemma for a subject was whether to book a room as soon as possible paying the first, though not necessarily lowest, quoted room rate, or to wait a few days and perhaps pay a lower room rate if the room was still available. The following reward rule, based on the participants' performance, was presented to subjects during the training session before the experiment began. If the subject booked a room paying the lowest room rate (including a cancellation fee if applicable), she/he was awarded five extra grade points (out of 100) in their course. If she/he booked a room paying more than the lowest room rate (including a cancellation fee if applicable), she/he received three points. A single point was awarded to those who participated in the game (that is they logged on at least once)

but failed to book a room either because they neglected to book or because the hotel sold out.

#### 4.4. Variables

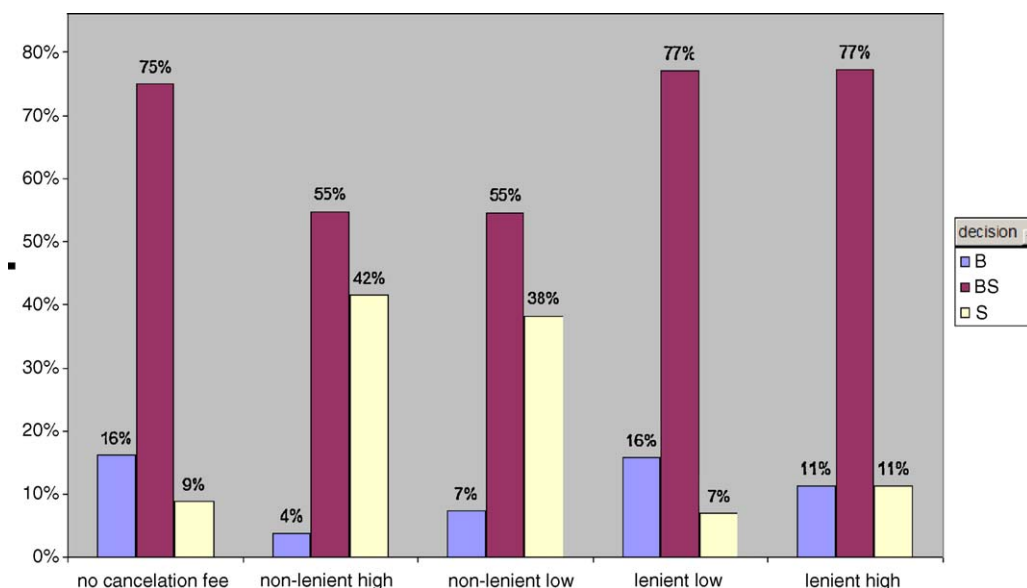
The independent variables included two levels of cancellation fees: High (4 nights) and Low (1 night) and two levels of the leniency of the cancellation deadline: Non-lenient (any cancellation is charged) and Lenient (reservation cancelled up to 24 h before the check-in date is not charged). The dependent variable was measured as the chosen booking strategy. The “Book,” “Book then search,” and “Search” decisions were operationalized as follows:

- Participants who booked a room the first time they logged on (during the first three days) were categorized as having a “Book” strategy.
- Participants who booked the first time they logged on (during the first three days) but later on logged on once or more were categorized as having a “Book then search” strategy.
- Participants who did not book at the first log in (during the first three days) were categorized as having a “Search” strategy.

Note that the three strategies were measured on the first three days during which all subjects across all treatment groups were quoted the same room rate.

#### 5. Analysis

Of the 291 students recruited, 275 participated in the online booking experiment representing 94.5% of the initial pool of par-



**Fig. 2.** The distribution of customers' decision-making in each treatment.



ticipants. Table 2 shows the number of respondents (and the percentage) selecting each strategy by treatment. For example, consider the first row. Among respondents who were quoted a high room rate and a lenient cancellation deadline, the most popular action (77%) was to book and continue to search, followed by 11% who chose to book and not continue to search, and another 11% who chose not to book but to continue to search.

The distribution of respondents' reservation behavior in each treatment group is presented in Fig. 2 where B denotes a Book strategy, S a Search strategy, and BS a Book then Search strategy. The X-axis shows five different treatments while the Y-axis represents the percentage of each response. "Book then search" was the most common strategy across treatment groups. "Search" is more common in the non-lenient cancellation deadline compared to "Search" in other treatments. The percentages of "Book," "Book then search," and "Search" in the control group are similar to these in the lenient deadline and low-fee condition.

The two hypotheses were tested using a small sample *t*-test for comparing proportions among two independent populations, as well as the non-parametric multiple pairwise comparisons. In addition a multinomial logit model was applied to test whether the fee and the policy's leniency were good predictors of the respondents' reservation decision.

First, a small sample *t*-test for comparing proportions between two independent populations was applied to test the null hypothesis ( $H_0: p_1 = p_2$ ) that the population proportions are equal. In general, a null hypothesis is against  $H_1: p_1 > p_2$  or  $p_1 < p_2$ , i.e., the population proportions are not equal depending on the hypotheses. In the context of this study  $H_1$  is comprised of three statements:

**H<sub>1a</sub>.** The "Book" population proportion in the "High" fee condition is larger than that in the "Low" fee condition.

(T). he "Book then Search" population proportion in the "High" fee condition is smaller compared to that in the "Low" fee condition.

**H<sub>1c</sub>.** The "Search" population proportion in the "High" fee condition is larger than that in the "Low" fee condition.

None of the proportion *t*-tests were statistically significant, suggesting that  $H_1$  is not supported by the results of this study.

Similarly,  $H_2$  is divided into three statements:

(T). he "Book" population proportion in the "Non-lenient" deadline condition is larger than that in the "Lenient" deadline condition.

**H<sub>2b</sub>.** The "Book then Search" population proportion in the "Non-lenient" deadline condition is smaller compared to that in the "Lenient" deadline condition.

**H<sub>2c</sub>.** The "Search" population proportion in the "Non-lenient" deadline condition is larger than that in the "Lenient" deadline condition.

The 77% "Book then search" within the lenient deadline condition is statistically significantly higher ( $p < 0.05$ ) than the 55% "Book then search" of the non-lenient deadline condition. The 40% "Search" within the non-lenient deadline condition is statistically significantly higher ( $p < 0.05$ ) than the 9% "Search" of the lenient deadline condition.

Hence,  $H_2$  is partially supported by the proportion tests, having less "Book then Search" and more "Search" decisions with the non-lenient deadline.

Given that the multiple comparisons above inflate the type I error rate of the statistic, it was followed up with a non-parametric multiple pairwise comparisons procedure (Marascuilo and Serlin, 1988). The null hypothesis that respondents who were quoted a high room rate and low room rate do not differ in their booking decisions was not rejected. The null hypothesis is that the proportions for the two fee levels (high and low) are equal that is:  $H_0:$

**Table 3**

Parameters estimates of the multinomial logit model.

Reservation decision		B	Sig.	Exp(B)
Search	Intercept	−2.152	0.000	
	Low fee	1.067	0.043	2.905
	High fee	1.235	0.018	3.440
Book	Intercept	−1.564	0.000	
	Low fee	−0.175	0.712	0.839
	High fee	−0.605	0.247	0.546

$p_{\text{high}} = p_{\text{low}}$ . Because the study compared the two levels of prices for the proportion of responses, the estimation of  $\bar{p}$  is based on all three samples. For three levels of room rates this is:

$\bar{p} = 36 + 38 + 14 / (53 + 57 + 53 + 55 + 57) = 0.32$ . This estimate, along with  $\bar{q} = 1 - \bar{p} = 0.68$  is used in each of the three pairwise tests. Thus, for the high–low comparison:

$$Z_{p_{\text{high}} - p_{\text{low}}} = 36/106 - (38/112) / \left( \sqrt{(0.32)(0.68)/(106) + (0.32)(0.68)/(112)} \right) = 0.005 \quad \text{with } \alpha = 0.05, C = 3, \text{ the critical value } Z \text{ is } \pm 2.39.$$

The null hypothesis was rejected when the non-lenient group was compared to the control group ( $Z = 2.7$ ) and to the lenient group ( $Z = 3.6$ ) meaning that the combined proportions of the book decision and search decision generated by the non-lenient policy is significantly different from that generated by the lenient policy and by the no cancellation policy (control group). In addition, the multiple pairwise comparisons procedure suggests that there was no significant difference between the lenient cancellation deadline and no cancellation policy.

Finally, the booking decision is a categorical response variable ( $Y$ ), with  $J$  levels (i.e., "Book," "Book then search," and "Search"). The predictor variables (i.e., the cancellation fee and the cancellation deadline) are also qualitative, and therefore a multinomial logit regression was used. The baseline/multinomial category logit model provides a simultaneous representation of the odds of being in one category relative to being in another category for all pairs of categories.  $\{\pi_1, \pi_2, \pi_3\}$  are probabilities that a response is in each category where  $\pi_1 + \pi_2 + \pi_3 = 1$ . The baseline category logit model with explanatory variable  $x_i$  is  $\log(\pi_{ij}/\pi_{i0}) = \alpha_j + \beta_j x_i$  for  $j = 1, \dots, J - 1$  and  $\beta$  can differ depending on which two categories are being compared:  $\log(\text{Book}/\text{Book and search}) = \alpha_1 + \beta_1 x_i$  and  $\log(\text{Search}/\text{Book and search}) = \alpha_2 + \beta_2 x_i$ . The odds for any pair of categories of  $Y$  that can be formed are a function of the parameters of the model. Each of these two equations is a binary logistic regression comparing a group with the reference group and describing the relationship between the dependent variable and the independent variables (Andersen, 1997; Menard, 2002).

In terms of the baseline category logit model, for each category of the dependent variable, except the reference category, the equation is  $g_h(x_1, x_2) = e^{(a_h + b_{h1}x_1 + b_{h2}x_2)}$ ,  $h = 1, 2$ , where the independent variables are  $x_1$  and  $x_2$ . The subscript  $h$  refers to specific values of the dependent variable  $Y$ . For the reference category, the equation is  $g_0(x_1, x_2) = 1$ . The probability that  $Y$  is equal to any value  $h$  other than the excluded value  $h_0$  is  $P(Y = h | x_1, x_2) = e^{(a_h + b_{h1}x_1 + b_{h2}x_2)} / (1 + \sum_{h=1}^2 e^{(a_h + b_{h1}x_1 + b_{h2}x_2)})$ ,  $h = 1, 2$ , and for the excluded category,  $P(Y = h_0 | x_1, x_2) = 1 / (1 + \sum_{h=1}^2 e^{(a_h + b_{h1}x_1 + b_{h2}x_2)})$ ,  $h = 1, 2$ .

### 5.1. Association between booking decisions and cancellation fees

The "Book then search" dependent variable was designated as the reference category, and the probability of "Book" and "Search" was compared to that reference. SPSS's NOMREG procedure output is shown in Table 3. The resulting functions,  $g_1(x)$  and  $g_2(x)$  may be defined as  $g_1 = \text{logit}(\text{probability of "Book then search" ver-})$

**Table 4**  
Parameters estimates of the multinomial logit model.

		B	Sig.	Exp(B)
Search	Intercept	−2.152	0.000	
	Lenient	0.012	0.984	1.012
	Non-lenient	1.835	0.000	6.268
Book	Intercept	−1.564	0.000	
	Lenient	−.171	0.711	0.843
	Non-lenient	−0.722	0.201	0.486

sus “Book”), and  $g_2 = g_2 = \text{logit}$  (probability of “Book then search” versus “Search”). For example, the “Book” in the “High” cancellation fee condition is compared to the “Book then search” in the same “High” cancellation fee condition. The upper half of Table 3 shows the outcome of “Search” compared to “Book then search.” Subjects in both the “Low” fee and “High” fee groups are more likely to “Search” compared to “Book then search” ( $\text{Exp}(B) > 1$ ,  $p < 0.05$ ). The explanatory variables (“High” and “Low” cancellation fees) are thus related to the response variable (“Search”). Conversely, when the fee is zero (i.e., the control group), the respondents are less likely to “Search” compared to “Book then search.” The exponentiated coefficients are interpreted as odds ratio. The respective probabilities are  $e^{1.067-2.152} / (1 + e^{1.067-2.152}) = 0.25$  for “Low” fee and  $e^{1.235-2.152} / (1 + e^{1.235-2.152}) = 0.28$  for “High” fee. The relative risks for “Low” and “High” fees differ by a factor of about 1.12. That is, when the cancellation fee is high, customers are less likely to “Book then search,” and more likely to “Search.” The effects of cancellation fees on the “Book” decision compared to the “Book then search” decision are not statistically significant. The Chi-square test for the final model is significant with  $p = 0.048$  suggesting that the fee is a good predictor of the reservation decision.

## 5.2. Association between booking decisions and cancellation deadline

Again, the dependent variable “Book then search” is designated as the reference category and the upper portion of Table 4 shows the outcome of “Search” compared to that of “Book then search.” Participants in the “Non-lenient” groups are more likely to “Search” compared to “Book then search” ( $\text{Exp}(B) > 1$ ,  $p < 0.05$ ). Conversely, when there is “No deadline” (i.e., the control group), the respondents are less likely to “Search” compared to “Book then search.” This was also the case with respondents who were exposed to the “Lenient” cancellation deadline condition. The effects of the cancellation deadline on the “Book” decision are not statistically significant. That is, no difference in terms of the respondents’ booking tendency was found between “Book” and “Book then search” when they face any cancellation deadline.

The Chi-square test for the final model is statistically significant at  $p = 0.000$  suggesting that that leniency is a good predictor of the reservation decision.

To summarize,  $H_1$  was not supported, that is, a higher cancellation fee did not increase the number of booking decisions or the number of search decisions, nor did it decrease the number of book then search decisions.  $H_2$  was partially supported. Specifically, less “Book then Search” and more “Search” decisions were found with the non-lenient policy. In addition, the proportion of the combined book decisions and search decisions was found to be bigger with the non-lenient policy compared to the lenient policy and to the control (no cancellation policy) treatments. Lastly, when the policy was non-lenient, respondents were more likely to search compared to book then search. There was no statistically significant difference between lenient cancellation deadline and no cancellation policy.

## 6. Conclusion and implications

This study examined the impact of different types of cancellation restrictions on hotel guests’ reservation decisions. Specifically, the study explored how cancellation deadlines and fees affect the strategic booking behavior of advanced-booking, deal-seeking travelers. The major contribution of this study is that the findings suggest that the cancellation deadline affects customers’ search behavior while the fee was found to have no impact.

The major theoretical implications have to do with the ABDM. The findings suggest that the theoretical advance booking model needs to be refined, specifically, add the “deadline” element because the cancellation deadline seems to be an integral part of the perceived cancellation fee cost as it affects the consumers’ book then search decisions. Moreover, the somewhat counter-intuitive finding of no fee impact is not easy to interpret, and thus another important theoretical implication is that it calls for more research. A possible theoretical implication and one that calls for further research is an enhanced understanding of the role expectations in explaining this apparent rejection of the prediction of the ABDM. At the time of the booking decision the hotel’s stated cancellation fee is one of two components that comprise the expected cancellation fee, and it is the expected cancellation fee that, at least theoretically, affects the decision. The “expected fee” is the product of the perceived probability of having to pay the fee and the size of the fee (which is a deterministic component). It is reasonable to assume that the perceived probability is strongly related to the policy’s leniency – the less lenient the policy the higher the probability that a cancellation fee will be imposed. It follows the findings that the policy schedule has an impact and suggests that overall the “expected cancellation cost” impacts the search pattern. Note also that while this experiment tested cancellations due to the customer’s decision to cancel because a better (lower) rate was offered by the hotel, in reality the likelihood of paying a cancellation fee depends also on external reasons such as change in plans, weather, and illness. These are circumstances that are beyond the customer’s control.

Several practical implications and their limitations are worth noting. First, the notion that deadlines might dominate fees in terms of their impact on deal searching behavior is important for hotels comprehensive revenue management strategies. Understanding what elements of the policy make a difference allow for more efficient applications. A second important practical implication is that the size of the increment seems to matter. The study demonstrated that when it comes to affecting booking behavior the lenient cancellation policy of 24 h was not statistically different from having no cancellation policy at all. It implies that when attempting to impact behavior by modifying the time element of the cancellation policy, large rather than subtle changes might be needed.

Although the distribution of customers’ booking strategic behavior with the lenient deadline conditions was almost identical to that of the low-fee cancellation policy and no cancellation policy, it might still be advisable to have a minimal cancellation policy in place rather than having no cancellation policy at all. While the lenient policy might not have an effect on the customers’ booking behavior it might at least generate some revenues.

The study shows that once made known to the customers, some cancellation policies can impact the customers’ propensity to book. Given that tourism service providers can control the cancellation deadline and change their cancellation policies, it follows that a cancellation policy should be regarded as yet another tool for revenue management optimization. A cancellation policy with varied deadlines, tailored to target different customer segments, booking timings, and types of rooms is likely to affect the consumers booking decision in a way that enhances the outcomes of the firm’s revenue management system.

## 7. Limitations and future research

Previous studies indicate that in advanced-booking situations, deal-seeking customers' willingness to book a hotel room is affected by occupancy information (Chen and Schwartz, 2006), room rate patterns (Chen and Schwartz, 2008b), and the number of days before their check-in date (Chen and Schwartz, 2008a). This study further demonstrates that not only the customers' willingness to book, but also their search behavior, is affected by cancellation policies. This study, however, finds that a cancellation deadline can impact customers' decision-making. The definitions of cancellation deadline tested in this study included "Non-lenient" (anytime after booking), "Lenient" (24 h), and "No deadline." Future research should test additional possible deadlines. It should be noted that the cancellation deadline is highly relevant to booking timing, that is, the length of the period over which cancellations are allowed. Since a previous study (Chen and Schwartz, 2008a) has already recognized the impact of timing, future research should focus on testing the different timing points provided within different cancellation deadlines.

The range of tested cancellation fees was limited to two levels – high, as in the cost of the entire stay, and low, as in one night's room rate. No significant difference between the impact of high and low cancellation fees was observed. Future research should test different penalties, for instance, a base fee on the first day, followed by an exponentially increasing fee as check-in day approaches. Alternatively, future research could simply test different ranges of room rates or different hotel classes (assuming different classes have different ranges of room rates).

The use of college students as surrogate subjects in experimental consumer behavior and business research generated a great deal of controversy for over three decades. While the authors of this study subscribe to the notion that students are well fitted as surrogates when decisions and cognitive processes are evaluated (as opposed to opinions, attitudes, and testing within environments which require specialized skills that students might lack), it should be said that the issue is not settled, and that some researches doubt the external validity of such research design.

Finally, previous studies showed that booking and search decisions are affected by consumers' expectations of getting a better deal and the likelihood of the hotel selling out. These two expectations are integral elements of the ABDM. Future research could focus on the relations between the cancellation policy and these two perceptions and further relate these relations to the consumers' risk orientation.

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